

Abstracts of the
8th International Conference on
Gender Research

Hosted by ISCAP
Porto, Portugal

10-11 April 2025



Dr Ana Isabel Azevedo
Dr José Manuel Azevedo
and Dr Anabela Mesquita

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**Proceedings of the
8th International Conference on
Gender Research**

**ICGR 2025
10-11 April 2025**

**hosted by
ISCAP**

Porto, Portugal

Edited by

**Dr Ana Isabel Azevedo
Dr José Manuel Azevedo
and Anabela Mesquita**

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About the 8th International Conference on Gender Research, ICGR 2025

The International Conference on Gender Research (ICGR) is a well-established academic conference that has been held annually for seven years, bringing together scholars, practitioners, and researchers from around the world to explore diverse issues related to gender. This conference provides a multidisciplinary platform where participants are encouraged to engage in discussions and present research findings on various aspects of gender studies. The diversity of the research discussed, and the participants involved in the event is an important reflection on how Gender Studies impact all corners of life.

The International Conference on Gender Research has developed into a comprehensive forum that addresses a wide range of topics related to gender, making it a key event for those engaged in gender studies and related fields. The published conference proceedings from these events serve as a valuable resource for ongoing research and scholarship in the area of gender research.

The Proceedings of the 8th International Conference on Gender Research, 2025 includes Academic research papers, PhD research papers, Masters and work-in-progress papers, which have been presented and discussed at the ICGR conference. The proceedings are of an academic level appropriate to a professional research audience, including graduates, postgraduates, doctoral and post-doctoral researchers. All papers have been double-blind peer reviewed by members of the Review Committee.

Aims and Scope

The call for papers for the ICGR conference asked for contributions that considered the following aims and scope. In addition to this, the committee welcomed papers on a number of specialist mini-tracks which can be seen at the end of this list.

Gender Identity and Expression

- the experiences and challenges faced by transgender and non-binary individuals
- social, legal, and psychological aspects of gender identity
- gender beyond the traditional binary framework.

Gender and Education

- the role of gender in educational settings
- gender disparities in access to education
- gendered experiences in classrooms
- the impact of educational policies on gender equality. It also delves into
- how gender influences academic and career choices, particularly in STEM fields.

Gender and Work

- the intersection of gender and work
- gender wage gaps and workplace discrimination
- the representation of women and gender minorities in leadership roles
- challenges of work-life balance
- the impact of gendered expectations on career advancement
- the role of organizations in promoting gender equity.

Gender and Health

- health disparities related to gender
- reproductive rights
- access to healthcare and mental health issues specific to different genders
- the impact of gender on health outcomes

- the influence of gender on health behaviour, access to services, and medical research

Gender, Politics, and Law

- the intersection of gender with politics and law
- examining gender representation in political institutions
- the impact of gender on voting behavior
- the role of gender in legal systems
- gender-based violence, legal protections against discrimination, and the impact of public policy on gender equality.

Cultural and Media Representations of Gender

- how gender is represented in various forms of media and culture.
- the analysis of gender stereotypes in television, film, literature, and advertising,
- the role of social media in shaping and challenging these representations.
- the impact of media on public perceptions of gender
- the role of cultural narratives in reinforcing or challenging gender norms.

Intersectionality

- how gender intersects with other social categories such as race, class, ethnicity, sexuality, and disability.
- the complexities of gender experiences and the multiple forms of discrimination and privilege that individuals may encounter.

Gender and Technology

- the role of technology in shaping gender experiences.
- the gendered dimensions of digital spaces,
- the impact of artificial intelligence on gender equity
- the challenges and opportunities that technology presents for advancing gender rights.

Gender in Global and Comparative Contexts

- comparative studies of gender across different countries and cultures,
- global variations in gender norms, policies, and practices.
- The impact of globalization on gender roles and how transnational movements can challenge traditional gender norms.

The programme from the 2025 conference can be downloaded from [here](#) and full details about the conference can be seen from the conference website:

<https://www.academic-conferences.org/conferences/icgr/>

ICGR Preface

These proceedings represent the work of contributors to the 8th International Conference on Gender Research (ICGR 2025), hosted by ISCAP, Porto, Portugal on 10-11 April 2025. The Conference Co-Chairs are Dr Ana Isabel Azevedo and Dr José Manuel Azevedo, and the Programme chair is Dr. Anabela Mesquita all from the ISCAP, Porto, Portugal.

ICGR is a well-established event on the academic research calendar and now in its 8th year the key aim of this diverse conference is to provide an opportunity for participants from different backgrounds and cultures to share ideas and meet the people who hold them. The scope of papers ensures an interesting two days. The subjects covered in these proceedings illustrate the wide range of topics that fall into this important and ever-growing area of research.

The opening keynote presentation at the conference is given by Joana Castro Fernandes and Susana Bernardino, from ISCAP, Porto, Portugal on the topic of *A Model for the Integration of International Women in the Labour Market- Evidence Findings from the ENFEM Project*. The second day of the conference will be opened with an address by Joan Ballantine, Fellow of the Association of Chartered Certified Accountants, UK, who will speak about *Gender Responsive Budgeting: Key Research Directions and Opportunities*.

With an initial submission of 152 abstracts, after the double blind, peer review process there are 54 Academic research papers, 3 PhD research papers, x and 7 work-in-progress papers published in these Conference Proceedings. These papers represent research from Austria, Belgium, Canada, China, Czechia, Estonia, Finland, Germany, Greece, Iceland, India, Ireland, Italy, Lithuania, México, Poland, Portugal, Romania, South Africa, Spain, Sri Lanka, Sweden, Türkiye, UK, USA and Vietnam.

We would like to thank everyone who participated in this conference.

Dr Ana Isabel Azevedo, Dr José Manuel Azevedo, and Dr. Anabela Mesquita
ISCAP, Porto,
Portugal
April 2025

Biographies of Chairs and Keynote Speakers

Conference and Programme Chairs



Dr Ana Isabel Azevedo has been a director of CEOS.PP since March 2023 and a member of its Directive Board for 4 years since its foundation in 2017. She holds a PhD in Information Systems and Technologies. She is a member of the Scientific Board of the Master in E-Business, a member of the Scientific Council, and senior lecturer at ISCAP. She is editor-in-chief of IJBIR; associate editor of IJTHI, IJDSST, and EJBRM; member of the Editorial Advisory Board of IJILT; member of the Editorial Review Board of IJGUC, EJEL, and Future Internet. She serves as chair for several conferences and as guest editor for several books and special issues in journals. Regularly publishes articles in journals, conferences, and other sources. Her research interest includes Business Intelligence, Analytics, Decision Support Systems, E-Business and Digital Transformation, and Research Methodologies.



Dr José Manuel Azevedo has been a Lecturer in the Mathematics Department of ISCAP/ Polytechnic Institute of Porto (P.PORTO) since 1998. He obtained his PhD in Education (Mathematics) at the University of Beira Interior, Covilhã, Portugal. He published several articles in conferences and journals. He is a member of the program committee of some conferences in his areas of research. In addition, he also serves as a reviewer for some conferences. He supervises master students in related areas of his research interests. Researcher at CEOS.PP Research Center. His research interests are Analytics, Mathematics Education, E-Assessment, Financial Mathematics, Financial Time Series, Data Mining and E-Learning.



Dr. Anabela Mesquita has a PhD in Technologies and Information Systems, she is a Professor at the ISCAP / IPP since 1990 where she was the Vice Dean between 2007 - 2018. Anabela is involved in many European and National research projects both as a researcher and as a coordinator. She has published numerous papers in various international journals and conference proceedings. Anabela is an Associate Editor of the Information Resources Management Journal and co-Editor-in-Chief of the International Journal of Technology and Human Interaction and Associate Editor of Helyion. Evaluator and reviewer for Erasmus+ National Agency and European Commission projects. She has been teaching research methodologies (undergraduate and master level) for the last 15 years.

Keynote Speakers



Dr. Joana Castro Fernandes is a Senior Lecturer in the Language Department of ISCAP, Portugal. She lectures on Portuguese Linguistics, Semiotics and Communication Theory and coordinates the Portuguese group. She is vice-chair of the Scientific Technical Council. She holds a PhD in Linguistics from the University of Lisbon (Faculdade de Ciências Sociais e Humanas). Her main research interests include Linguistics, Terminology, Communication, Portuguese as a Second Language and Blended Learning as a learning model. She regularly participates in national and international conferences and collaborates as a peer reviewer for Linguistics and Communication journals.



Joan Ballantine is a Fellow of the Association of Chartered Certified Accountants. Joan has worked for Warwick University, Queen's University and Ulster University. She is an active researcher in the areas of education and gender equality and has worked on various research funded projects (£600k Principal Investigator and £4.2M as co-investigator), She has examined numerous doctorates and is on the editorial board of several journals.



Dr. Susana Bernardino is Professor of Management at the Polytechnic of Porto - Institute of Accounting and Administration (ISCAP), Portugal. She is a researcher at CEOS.PP - Centre for Social and Organisational Studies at the Polytechnic of Porto. Her research interests focus on social entrepreneurship, entrepreneurship, social and solidarity economy, smart cities, gender and crowdfunding. She is director of the Postgraduate Course in Innovation and Management of Social Organisations and co-coordinator of the Masters in Business and Legal Practices in the Social Economy.

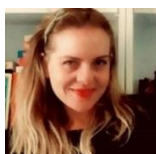
Mini-Track Chairs



Dr Frances Hamilton is an Associate Professor in the School of Law at the University of Reading UK. She teaches Gender and Law, EU law and Law and Society courses and researches in related areas. In 2023 as lead editor she published through Routledge a book on the gender pay gap (Hamilton and Griffiths ed 2023 'The Evolution of the Gender Pay Gap: A Comparative Perspective').



Prof. Dr. Claudia Hess is a professor of Digital Transformation at IU International University of Applied Sciences. She teaches various distance learning courses on the application of artificial intelligence and data science, including their societal and ethical implications, as well as courses on digital transformation projects. Her research interests include ethical issues in using AI tools and increasing participation of girls and women in STEM fields. In addition to her teaching and research activities, she also works in industry as a consultant and coach.



Prof. R. Arzu Kalemci received her B.S. degree in Economics from Bilkent University and PhD degree in Management and Organization from Baskent University, Türkiye. She made her post-doctorate at Duisburg-Essen University, Department of Sociology in Germany. She is working as a Professor and a Chair of the Department of Management at Cankaya University. Her research interests include organizational behavior, organizational theory, gender equality in organizations, and business ethics.



Dr. Sílvia Donoso López is a gender expert at Institut de Ciències del Mar (ICM/CSIC) in Barcelona. She holds a PhD in Social Anthropology and a Master in Gender and Equality Policies. She has wide experience as a consultant in gender and diversity, formulating and monitoring Equality Public Policies. Her main research interests are institutional violence against women and integrating a gender dimension in STEM research.



Prof. Dr. Sibylle Kunz is a professor and head of study program of Media Computer Science at IU International University of Applied Sciences. She teaches various distance learning courses on digital media formats and augmented, mixed and virtual realities and is also co-author of IU's XR Development & Design Study Program. Her research

interests include ethical issues in using augmented and virtual environments as well as raising the number of girls and women in computer science.

ICGR Review Committee

ICGR is fortunate to have a significant number of international experts in the field willing to review papers. Care is taken to ensure that a fully double-blind peer review process is followed and reviewers are not selected if they have any research or organisational connection to the author/s.

Dr Rafidah Abd Karim, Universiti Teknologi Mara, Malaysia; Prof Laurice Alexandre, Paris Descartes University, France; Dr Reem Alkhamash, Taif University, Saudi Arabia; Professor Simona Arduini, Roma Tre University, Rome, Italy; Prof Lina Artemenko, National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute, Ukraine; Prof Liz Bacon, University of Greenwich, UK; Dr Afsaneh Bagheri, Faculty of Entrepreneurship, University of Tehran, Iran; Dr Olgahan Baksi Yalcin, Istanbul Yeni Yuzyil University, Turkey; Prof Joan Ballantine, University of Ulster, UK; Dr Tommaso Beck, Roma Tre University, Italy; Dr Jagdev Bogal, Birmingham City University, UK; Dr Zélia Breda, University of Aveiro, Portugal; Prof Sladjana Cabrilo, I-Shou University, Taiwan (R.O.C.); Ana Paula Camarinha Teixeira, IPP - Iscap, Portugal; Dr Sancha Campanella, Instituto Superior de administração e Linguas (ISAL), Portugal; Dr Claudia Canali, University of Modena and Reggio Emilia, Italy; Prof Luísa Carvalho, University of Évora, Portugal; Prof Teresa Carvalho, University of Aveiro, Portugal; Dr Carla Cerqueira, Lusófona University - CICANT, Portugal; Prof Francesca Maria Cesaroni, University of Urbino Carlo Bo, Italy; Prof Mary Corcoran, University of Michigan, USA; Francesca Dal Mas, Università degli Studi di Udine, Italy; Dr Serene Dalati, Arab International University, Syria; Geoffrey Darnton, WMG, UK; Dr Sheila. Delhumeau Rivera, Universidad Autónoma de Baja California, México; Prof Sara Diogo, University of Aveiro, Portugal; John Dumay, Macquarie University, Australia; Dr Jeanne Ellis, University of Stellenbosch, South Africa; Prof Turan Erman Erkan, Atilim University, Turkey; Dr José Esteves, IE business school, Spain; Prof Elisabete G. S. Félix, University of Évora, Portugal; Prof Emilia Fernandes, Universidade do Minho, Portugal; Dr Ana Freire, Universitat Pompeu Fabra, Barcelona, Spain; Dr Valerie Priscilla Goby, Zayed University, UAE; Prof Sofia Gomes, Portucalense University, Portugal; Prof Shital Jayantilal, Universidade Portucalense, Portugal; Prof Mortaza kokabi, Shahid Chamran University of Ahvaz, Iran; Blair Kuntz, University of Toronto, Canada; Dr Alessandra Lardo, University of Naples Parthenope, Italy; Dr Regina Leite, University of Minho - School of Economics and Management, Portugal; Assc Jeanette Lemmergaard, University of Southern Denmark, Dept. of Marketing & Management, Denmark; Dr Pinte Lin, University of Reading, UK; Dr Maria de Lourdes Machado-Taylor, CIPES-Center for Higher Education Policies, Portugal; Dr Carmen-Pilar Martí-Ballester, Universitat Autònoma de Barcelona, Spain; Dr Zamokuhle Mbandlwa, Durban University of Technology, South Africa; Dr. Anabela Mesquita, School of Accounting and Administration of Porto (ISCAP) / Polytechnic Institute of Porto (IPP), Portugal; Ludmila Mladkova, University of Economics Prague, Czech Republic; Prof Nasima Mohamed Hoosen Carrim, University of Pretoria, South Africa; Dr Gunilla Myreteg, Örebro University School of Business, Sweden; Prof Alcina Nunes, Polytechnic Institute of Bragança, Portugal; Assoc Prof Dr Nuran Öze, Arkin University of Creative Arts and Design (ARUCAD), Northern Cyprus; Prof Paola Paoloni, La Sapienza University, Rome, Italy; Dr Stamatis Papadakis, Department of Education, University of Crete, Greece; Prof Elisabeth T. Pereira, Department of Economics, Management, Industrial Engineering and Tourism - University of Aveiro, Portugal; Dr Francesca Picciaia, Department of Economics, University of Perugia, Italy; Prof Maryna Pichugina, National Technical University of Ukraine, Ukraine; Prof

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Representation of “Women” in Science and Field

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Abstract: Women's studies continue in various fields within the framework of the 2030 Sustainable Development Goals, following the Millennium Development Goals. Assessing women's participation in innovation and creative activities reveals their underrepresentation in these domains. Studies in the literature predominantly focus on either the outcomes or the processes of this issue. The aim of this study, however, is to shed light on the root causes of the problem. This study utilized bibliometric methods to analyze 1,995 articles retrieved from the Web of Science (WOS) database, selecting "women" or "woman" as the research area, based on the concepts of socially constructed scientific knowledge and language's fundamental role in institutional reality. We adopted both a linguistic and theoretical perspective in this context, and utilized secondary data from WIPO statistics that indicated patent application numbers in the sector. The analysis results underline the need for a shift in institutional logic, and this institutional perspective offers a new dimension to the limited research in this field.

Keywords: Innovation, Creativity, Intellectual Property, Women, Institutionalization

1. Introduction

Women's studies, which play a critical role in achieving the United Nations Millennium Development Goals, continue within the framework of the 2030 Development Agenda. According to the 2022 UN Sustainable Development Report, efforts to achieve gender equality have increased over the past seven years; however, these efforts are still considered insufficient.

A review of the literature reveals numerous studies highlighting the socioeconomic (Vyas-Doorgapersad, 2023; Hosen et al., 2024), cultural, social (Franco et al., 2020; Dasgupta, 2023), institutional, and political (Jeevanasai et al., 2023; Khan et al., 2024) challenges women face in achieving the goal of gender equality. Despite these extensive efforts, it is believed that the inability to reach the desired levels is due to a failure to address the root causes of the issue. While reports and statistics focus on outcomes, and academic studies emphasize processes, neither adequately addresses the fundamental causes of the problem.

This study aims to shed light on the underlying reasons why, despite significant efforts, gender equality remains elusive. Two main pillars structure the research: the sectoral and the academic. Sectoral evaluations rely on patent data, a type of intellectual property, as it provides extensive data in this area and serves as a key indicator of participation in innovative activities (Singh et al., 2022). In this context, the study's research question aims to understand why women's participation in innovative and creative activities remains insufficient, despite the existence of numerous studies on women over the years.

2. Literature Review

Women's participation in innovation and creative activities is crucial for fostering diverse perspectives and driving economic growth. From a sectoral perspective, gender diversity in innovation not only contributes to more inclusive and equitable workplaces but also leads to improved scientific and commercial outcomes. Such participation is essential to fully harness the workforce's potential and ensure that innovation reflects the needs and experiences of the entire population (Capozza and Divella, 2024). Despite this, women continue to face significant barriers in innovation sectors, including patent-related activities (Medina and Álvarez, 2022).

According to European Union data, only 32.8% of employees in innovation and technology sectors are women (Eurostat, 2022). Similarly, data from the US Patent and Trademark Office (2020) indicate that only 12.49% of inventor patent holders are women. Investigating how intellectual property rights impact women's roles in creative processes and their contributions to economic development is a critical step toward reducing gender inequalities, ultimately enhancing societal welfare in the long term (Hirsch, 1943; Tritton, 1996; Dixon & Greenhalgh, 2002; Bainbridge, 2018).

The World Intellectual Property Organization (WIPO, 2020) recognizes intellectual property as a system that drives innovation and creativity. According to WIPO (2023) data, innovators worldwide filed 3.46 million patent applications, representing a 1.7% increase compared to 2021. However, the share of female inventors remains

below 18% globally (WIPO, 2023). WIPO, 2020 categorizes intellectual property rights into two main types: industrial property rights and copyrights. This study focuses on patent data, classified under industrial property rights and highlighted in the WIPO 2023 report, due to the extensive availability of patent data globally.

Figure 1 illustrates the proportion of female inventors among the top 25% of countries ranked by the number of patents granted by the US Patent and Trademark Office in 2020. Even in Taiwan, which has the highest proportion, women account for only 32.2% of inventors. This starkly highlights the significant gender disparity in patent activities (Muir et al., 2022).

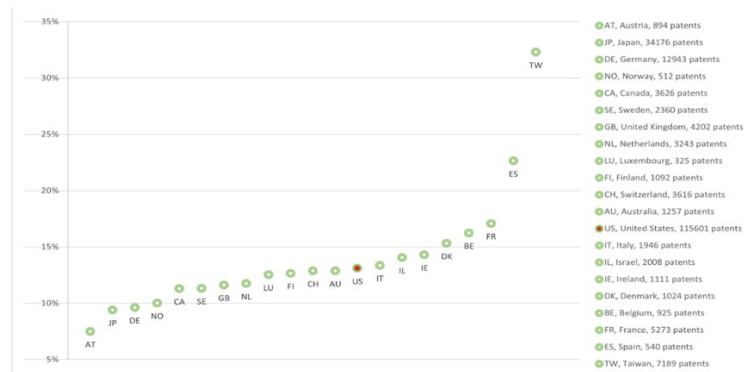


Figure 1: Women's inventor rate (WIR) of top %25 assignee countries in 2020

Research demonstrates that gender-inclusive policies can foster a culture of innovation, particularly when the proportion of women in R&D roles increases (Lee and Jung, 2024). Gender diversity in corporate boards positively influences innovation activities, as evidenced by increased R&D expenditures and patent filings in firms with female executives (Adams et al., 2023). The gender composition within teams is strongly associated with enhanced innovation and performance. Teams that prioritize gender equality bring diverse perspectives and ideas, leading to more creative solutions and better decision-making processes (Hemmert et al., 2022; Ezeugwa et al., 2024). Additionally, they contribute significantly to innovation by introducing unique viewpoints and approaches to problem-solving (Badilescu and Packirisamy, 2022; Kumar and Shobana, 2023). These findings underscore the importance of promoting gender equality as a critical factor in driving innovation and fostering progress.

From an economic development perspective, women's participation in entrepreneurship and innovation is crucial as it fosters creativity and the establishment of new businesses. However, women face numerous challenges, including gender bias and limited access to resources, which hinder their innovative potential (Schneider, 2017; Kurmankulov et al., 2023; Veckalne and Tambovceva, 2023). Overcoming these barriers significantly contributes to economic growth (Altuzarra et al., 2020; Singh et al., 2022). For instance, increasing the number of female inventors involved in patents could boost the U.S. GDP by up to \$1 trillion annually (Fechner et al., 2022). Similarly, the Japanese government has set a goal for women to hold 30% of decision-making roles, recognizing this as a critical strategy for economic growth (Nakazawa and Akabayashi, 2022).

Empowering women in innovation not only benefits the economy but also promotes a more equitable and resilient society by challenging traditional gender norms (Berglund and Pettersson, 2021; Gallego and Maestripieri, 2022). Creativity, as a socio-cultural process, involves the integration of new works into existing cultural systems, highlighting women's roles in cultural participation and transformation. Women's creativity represents a form of engagement that contributes to the evolution of culture, playing a vital role in producing and transmitting new cultural artifacts essential for societal progress (Glaveanu, 2011). The recognition of women's roles in innovation and technology marks a shift toward more inclusive cultural landscapes, reflecting broader societal changes and fostering a more diverse cultural narrative (Eisler and Montuori, 2007).

3. Methodology

On October 2, 2024, we retrieved the data for this study from the Web of Science (WoS) database. WoS is a widely used source for bibliometric analyses due to its high-quality standards and comprehensive metadata, including titles, abstracts, keywords, and references (Netter et al., 2009; Caroline et al., 2020; Mumu et al., 2022). Bibliometric analysis is a method that enables us to understand the intellectual and conceptual context of the literature. By analyzing common keywords, citations, authorship relationships, and country trends, it uncovers implicit meanings, themes, and connections within academic works. This approach provides a

comprehensive framework for understanding knowledge flow, academic collaborations, and interdisciplinary relationships in the literature, offering valuable insights into the research field (Linnenluecke et al., 2019; Ghosh, 2024).

The bibliometric analysis was conducted using the Biblioshiny interface within the R Bibliometrix package (Aria and Cuccurullo, 2017). Data downloaded from the Web of Science (WoS) in BibTeX format were imported into the R program. An initial search using the keywords "Woman" OR "Women" in "All Fields" yielded 2,225,975 records. After filtering for the 2019–2023 period, 629,099 studies were selected. Further refinement was made by focusing on "English," "Open Access," "Article," and the categories of "Business" and "Management." Publications from 2024 and other categories were excluded from the analysis. Finally, out of 2,312 articles, 317 studies were excluded as they did not align with the research objectives, resulting in the analysis being conducted on a final dataset of 1,995 articles. Figure 2 below illustrates the data extraction procedures used to determine the final sample.

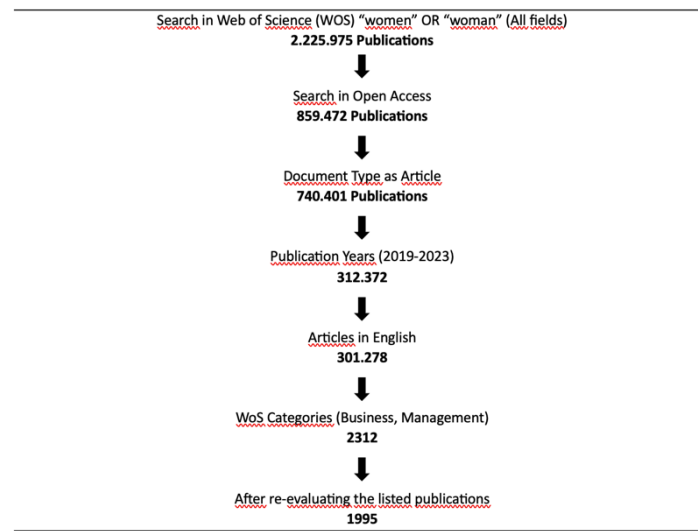


Figure 2: Data extraction steps

4. Findings

Performance analysis is a fundamental feature of bibliometric studies (Alam et al., 2021; Donthu et al., 2021). In this section, using the dataset obtained from WoS in October 2024, descriptive analysis results are presented for variables such as the most relevant journals, the most productive countries, and the most frequently used keywords.

Table 1: Main Information about data

Description	Results
Timespan	2019:2023
Sources (Journals, Books, etc)	388
Documents	1995
Annual Growth Rate %	16.35
Document Average Age	2.67
Average citations per doc	14.43
Document Contents	Results
Keywords Plus (ID)	3263
Author's Keywords (DE)	5842
Authors	Results
Authors	5467
Authors of single-authored docs	244

Description	Results
Authors Collaboration	Results
Single-authored docs	260
Co-Authors per Doc	3.15
International co-authorships %	35.99
Document Types	
Article	1995

As shown in Table 1, the results indicate that the dataset includes 1,995 articles, all published between 2019 and 2023. A total of 5,467 authors contributed to the research field, 244 of whom published articles as sole authors. The rate of international collaboration among authors is 35.99%, highlighting the significant level of global cooperation among researchers in this area.

Table 2: The top 5 journals with the highest frequency of the keyword's "women" and "woman"

Name of Journal List	F
Gender Work and Organization	277
Cogent Business & Management	63
Administrative Sciences	58
Gender In Management	47
Equality Diversity and Inclusion	28

As indicated in Table 2, these articles were published across 388 journals. The top five journals with the highest frequency of publications are Gender, Work and Organization (277 articles), Cogent Business & Management (63 articles), Administrative Sciences (58 articles), Gender in Management (47 articles), and Equality, Diversity, and Inclusion (28 articles).

Table 3: Countries' Scientific Production

Row	Region	F	Row	Region	F
1	UK	1365	21	Finland	83
2	USA	799	22	Portugal	81
3	Spain	369	23	Denmark	65
4	Australia	320	24	Saudi Arabia	60
5	Italy	247	25	Slovakia	60
6	Brazil	240	26	New Zealand	59
7	Germany	222	27	Switzerland	57
8	Pakistan	216	28	Nigeria	55
9	Canada	205	29	Austria	54
10	France	200	30	Czech Republic	50
11	Netherlands	187	31	Belgium	49
12	China	176	32	Colombia	48
13	Sweden	174	33	Turkey	48
14	India	166	34	South Korea	41
15	Ireland	130	35	Egypt	39
16	Malaysia	113	36	Vietnam	38
17	South Africa	108	37	Bahrain	34
18	Indonesia	102	38	Russia	34
19	Norway	93	39	Lithuania	33
20	Poland	84	40	Mexico	32

Table 3 presents the top 40 countries contributing the most to the research field. According to the table, the most productive country is the United Kingdom, with 1,365 articles, followed by the USA with 799 articles. Spain ranks third, having published 369 articles.

Table 4: List of most frequent words

Row	Words	F	Weighted (%)	Row	Words	F	Weighted (%)
1	Women	578	17,71	21	Experiences	62	1,90
2	Gender	424	12,99	22	Corporate Social Responsibility	61	1,87
3	Impact	268	8,21	23	Female	60	1,84
4	Performance	243	7,45	24	Gender Diversity	59	1,81
5	Work	234	7,17	25	Attitudes	58	1,78
6	Management	174	5,33	26	Family	58	1,78
7	Diversity	131	4,01	27	Race	58	1,78
8	Firm Performance	94	2,88	28	Entrepreneurship	57	1,75
9	Business	92	2,82	29	Organizations	57	1,75
10	Men	88	2,70	30	Ownership	57	1,75
11	Directors	86	2,64	124	Family Conflict	19	0,58
12	Leadership	86	2,64	181	Home	13	0,40
13	Governance	84	2,57	212	Motherhood	11	0,34
14	Perceptions	84	2,57	237	Mothers	10	0,31
15	Gender-Differences	81	2,48	254	Children	9	0,28
16	Behaviour	76	2,33	266	Sex-Role Stereotypes	9	0,28
17	Identity	75	2,30	275	Child-Care	8	0,25
18	Model	74	2,27	278	Creativity	8	0,25
19	Determinants	68	2,08	527	Housework	4	0,12
Row	Words	F	Weighted (%)	Row	Words	F	Weighted (%)
20	Employment	63	1,93	2216	Intellectual Property	1	0,03

Table 4 lists the 30 most frequently encountered words in studies related to "women" or "woman." The continuation of the table includes additional words of interest, relevant to the research question, for further exploration.

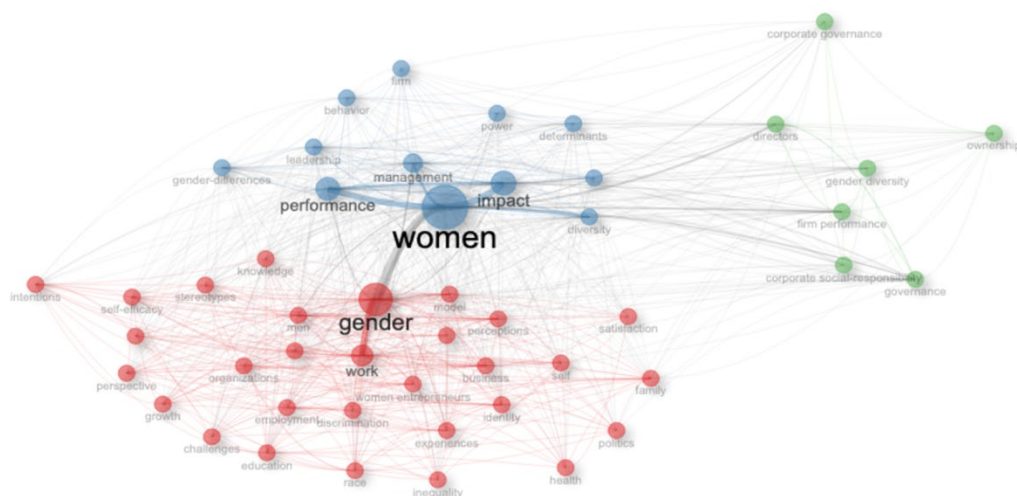


Figure 3: Co-word analysis map

Researchers use co-word analysis (Callon et al., 1983) to identify dominant themes and research trends within a field (Whittaker, 1989; Wider et al., 2023). The distance between terms on the co-word map indicates the relationship between these terms (Gürol et al., 2024). In other words, keywords that frequently appear together in the same documents are connected, assuming that co-occurring words have a thematic relationship (Khassesh et al., 2021; Pourhatami et al., 2021; Rohani and Makkizadeh, 2022). Keywords enable researchers to identify the conceptual structure of a discipline without the need to refer to the full text of articles (Uyar et al., 2020), providing a deeper understanding of the discipline's intellectual framework (Zhu and Zhang, 2020; Smith, 2021). The visualization of these findings reveals the interactions between terms (Dutta, 2013). The co-word analysis mapping results indicate the formation of three clusters. The term *women* dominates the blue cluster, while the red cluster emphasizes gender. In contrast, the third cluster does not exhibit any specific concentration or dominant term.

5. Conclusion

Academic developments have led to an increase in the number of scholarly studies focusing on women. As a contribution to the literature, this study analyzed articles on women retrieved from the Web of Science (WOS) database. Given the limited time remaining to achieve the sustainability goals, this research focuses on women in alignment with the Sustainable Development Goals (SDGs) 5. Participation in innovation and creative activities is crucial for fostering diverse perspectives. The convergence of different ideas encourages the emergence of new concepts and drives economic growth. Therefore, including women in these processes not only enhances creativity but also accelerates development.

Between 2019 and 2023, women's studies have increased significantly; however, women have not achieved the desired position in terms of gender equality. This study examines the role of women in the sector through the lens of patent numbers. Accordingly, the word analysis focused on terms related to "creativity," "innovation," and "intellectual property" in alignment with patents. The findings in Table 4 show the frequency of these terms as follows: *creativity* (8), *intellectual property* (1), and *innovation* (0). On the other hand, terms related to family and domestic responsibilities, such as "family," "family conflict," "home," "motherhood," "mothers," "children," "sex-role stereotypes," "child care," and "housework," were more frequently used. The "business" and "management" filters used in the research make these findings significant. They also reinforce the idea that women's low number of patent applications stems from their disproportionate focus on familial and domestic roles, underscoring significant barriers to their participation in innovation-driven sectors.

While our primary goal was to understand the arguments presented in the literature on women, we adhered to the theory that language serves as the primary tool for the social construction of scientific knowledge (Berger and Luckmann, 1966) and institutional reality (Searle, 1995). Astley and Hawkins (1985) assert that members of a scientific community, who develop their own "systems of words," essentially compose scientific fields. Nag et al. (2007) contend that language serves as a tool for academic discipline participants to articulate their concepts, thereby determining the implicit definition or inherent nature of the field. In this context, the analysis results reveal that terms related to women's social roles (*family, family conflict, home, motherhood, mothers, children, sex-role stereotypes, child care, and housework*) appear more frequently than terms like *creativity, intellectual property, and innovation*. This suggests that the language used reinforces an institutional logic that perpetuates traditional social roles for women, rather than supporting their desired position in innovation and creativity. Cultural beliefs or rules, known as institutional logics, guide actors' decisions and behaviors, explaining institutional change (Bourdieu, 1990; Friedland and Alford, 1991; Lounsbury, 2007). Therefore, unless the institutional logic regarding "women" shifts, no matter how much the number of studies increases, the desired goals will not be achieved. In other words, unless "creativity" and "innovation" come to mind before social gender roles (e.g., motherhood, housework) when discussing women, their participation in creative activities will not reach the desired level. In conclusion, the goals and institutional logic must coincide.

In conclusion, the literature has addressed the social, cultural, cognitive, and economic barriers women face in innovative and creative activities separately. This study, however, adopts a holistic perspective by proposing a solution based on a shift in institutional logic, pointing to a more macro-level approach. It is argued that to enhance women's roles in innovation and creative activities, institutional logic must first be transformed. Considering the mediating role of language in this process, studies on women should use terms like "creativity," "innovation," and "technology" instead of "family," "family conflict," "home," "motherhood," "mother," "children," or "child-care." This linguistic shift can help reinforce institutional logic in favor of women's participation in innovation and creativity. Women may not have reached the desired level in these areas for a variety of reasons, but one of the key determinants underlying these reasons is the institutional structuring of

women's roles. Language acts as an intermediary in this institutionalization process, making it crucial to frame women's roles with words such as "creativity," "innovation," and "technology."

This study has several limitations. First, bibliometric analysis itself can be considered a limitation. While it enables researchers to uncover the unseen by relying on data from studies conducted within a specific field and time frame, interpreting the results and discovering the unseen requires researchers to have a strong understanding of the topic and to supplement bibliometric findings with content analysis when necessary. Another limitation of the study is the exclusive use of the Web of Science (WoS) database for data collection. This choice was made because WoS includes high-standard publications. Additionally, the use of only the keywords "Women" and "Woman" is another limitation. Future studies could employ different keywords, and alternative methodologies such as meta-analysis or systematic literature reviews could further develop the findings. Finally, the research question was approached from the perspective of institutional construction, the role of language in this process, and institutional logic. However, it is also possible to explore the issue from other theoretical perspectives.

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Trans Identity in Italian TV Shows: A *Prisma* Study Case

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Abstract: In response to the gradual appearance of streaming services and the consequent extension of the consumer base, LGBTQIA+ visibility has dramatically increased. In order to extend the legitimacy of the trans person's identity, this paper intends to examine representations of trans people in mainstream Italian media. To this end, a first selection of Italian television shows is discussed to contextualize the Italian panorama. Subsequently, a specific case study will be addressed by analyzing the Amazon Original television show *Prisma*. The TV program is then discussed using Critical Discourse Analysis regarding its intersectionality and (apparent)inclusiveness. This study concludes that mainstream media coverage of trans* individuals is limited and reductive. These conclusions seem to be correct because, despite the more recent studies defining contemporary trans representation as its "golden age", the representation is primarily focused on trans women, excluding other identities. Therefore, such representation proposes a stereotypical perspective and risks erasing a unique individual perspective of transness by creating a tokenized representation.

Keywords: Inclusion, Representation, Stereotypes, Trans, TV Shows,

1. Terminological Premise

Before starting the analysis and the discussion, an explanation is needed to clarify why the term "identity" has been chosen instead of the plural "identities" in this work title. As will be shown throughout the paper, Italian television tends to show a reductive and limited representation of the self, whether it is a person being part of the LGBTQIA+ community or not, creating and perpetuating a vision of a singular possibility of identification. Therefore, the use of identity – in its singular form – was used to stress how Italian transness depiction has been limited and stereotyped. Moreover, it is crucial to mention that the term trans* - taken from Jack Halberstam (2018) - is used to be as inclusive as possible, rejecting the traditional use of transgender or transsexual, considering that being trans* does not necessarily mean to undergo hormonal therapy, surgeries or believe in gender binarism. However, these obsolete words in the paper will underline the times when gender binarism or specific stereotypes were involved. Finally, *Prisma's* main character, Andrea, is hardly ever referred to as a woman in the show since the events are before an eventual coming out. However, in this paper, the pronouns they/them will be used since Andrea did not specify which pronouns to use during the first season, which is the object of this analysis.

2. Introduction

Thanks to the gradual and exponential growth of streaming services such as Netflix, Prime Video, and Disney+, different identities have been shown, and they have started to appear more systematically in films and television shows. Local "traditional" television broadcasting had to adapt to this shift of consumption based on the on-demand fruition of content. In the Italian context, both Rai and Mediaset – the two largest and most important television networks in Italy – have satisfied this need with mobile applications and websites offering a similar experience to Netflix and others. In response to this consumption change and the consequent extension of the consumer base, the LGBTQIA+ community representation has increased rapidly, allowing identities not yet depicted in cinema or television to be part of the contemporary discourse. It is, however, important to underline that in this paper, the focus is only on mainstream content since many studies have shown that media and its exposure impact people's perception of reality (Bednarek, 2018; Turkle, 1995).

Based on the "Average number of unique users of selected subscription video-on-demand services [SVOD] in Italy" by Statista (2024a), updated until June 2023, around 22 million people have at least one subscription. The latter data is essential to remember; since 2006 – according to Statista – the number of television viewers has decreased from 53.4 million to roughly 50 million (Statista, 2024b). That means that in 2023, around one-fourth of the Italian population has at least one SVOD and watch television. Moreover, the newer generations (18–19 years old people) have lost interest in national broadcasting services, with less than one million viewers (Statista, 2024c). Therefore, it is clear that young adults are more interested in SVOD, and consequently, much content is specifically designed for them. Lastly, it is crucial to underline the fact that in 2023, according to the latest data available, in the Italian market, Netflix was the first SVOD for unique viewers with roughly 9 million users, and Amazon Prime Video was the second one with around 6.5 million unique users (Statista, 2024a). Considering the popularity of Netflix, it is interesting to analyze other original productions that might be funded to increase the

popularity of the SVOD involved. *Prisma*, as well as many different television shows that have come out since the SVOD started to arise, is a teen drama focusing on the story of some students in a public school in Latina, in the province of Rome. Because of the different topics proposed by the show - among others, it is possible to find identity, disability, and catfish - it became extremely popular among Italians, and not only thanks to the English dubbing and the subtitles in various languages, making the show accessible to young adults across different linguistic backgrounds. The show and its transness representation must be thoroughly analyzed and discussed.

3. Brief History of Trans Representation

In the context of this paper, it is fundamental to discuss the state of contemporary Italian trans* representation and provide a brief history of the past global depiction of the trans* community. Despite the LGBTQIA+ community's visibility in mainstream television and SVOD, before 2022, no Italian original television show production has ever had a trans* person not only as a main character but also as a character itself. *Prisma* is the first ever Italian television show with a trans* character, and it happens to be one of the main characters in the show. Before a few years ago, trans* people have been depicted in SVOD multiple times, but never in an original local production. Moreover, as a result of the widespread practice of dubbing television shows in Italy, trans* people have faced a series of non-physical forms of violence due to this phenomenon.

An example may be dubbing for trans men, which women have done - and by men for trans women - emphasizing the feminine voice and confusing many viewers because of the discrepancy between the voice and the physical aspect (Zottola, 20218). This inadequate representation has had a very negative impact on the trans* community, aggravating the situation of marginalization and stigmatization that trans* people have been dealing with for years. Moreover, the lack of effort in the Italian dubbing industry shows the little interest in the trans* community from the Italian television industry in general.

Despite the Italian original productions being inferior in terms of number in the context of SVOD, the trans* representation in mainstream SVOD in the last decade has increased and got better year by year. As Castro pointed out in his article, the trans* representations have gone through different phases, which he calls "psychopath", "freak show", and finally "normal people" (Bermúdez de Castro, 2017). Many of the TV shows cited by Bermúdez de Castro have been dubbed and distributed in Italy as well, perpetuating the "psychopath" and "freak show" phases. To make some examples, the author of the mentioned article mentions *The Alfred Hitchcock Hour* (CBS, 1962 – 1965) for the "psychopath" phase and the worldwide famous TV Show *Friends* (NBC, 1994 – 2004) for the "freak show" phase. However, Bermúdez de Castro - in the conclusion of his article - defines the contemporary representation of trans* people as a "golden age", – meaning the increased awareness in terms of trans* representation. However, it is arguable that, despite the increasing visibility and the progressive improvements in representation, there is still much to discuss and challenge regarding representation. It is worth mentioning that the visibility has increased and improved for transgender and transsexual women, excluding other identities such as trans* people who do not want to subject themselves to hormone therapy or surgeries, trans* men, non-binary people and so on. In the media, numerous studies have emphasized the need for more significant efforts to achieve more inclusive representation (Zottola, 2022). However, as a term, inclusiveness presumes the need for someone or something to be generally excluded. Moreover, by "including" someone, inevitably, someone else will be excluded, creating a situation in which minorities are less and less represented in favor of a more generalized representation of a tokenized perception of the self. An example of this exclusive inclusion might be the Amazon Original Show *Transparent* (2014 – 2016), in which "transgender issues have been put realistically on the front line with the accuracy and integrity that they deserve" (Bermúdez de Castro, 2017). However, like many other TV shows, including *Prisma*, *Transparent* represents a trans woman. As the Gay & Lesbian Alliance Against Defamation (GLAAD) 2023 – 2024 report points out, of the twenty-four trans* characters in TV Shows, only five are trans* men and eight are non-binary people. These numbers leave the spectators with the majority (eleven characters) of characters being trans* women – often transsexual and stereotyped. The following section delves into an analysis of the TV Show *Prisma* (2022 –) to explore the contemporary landscape and representation of transness within the Italian media industry.

4. *Prisma* Study Case

This paper will discuss only *Prisma*'s first season, considering the number of topics discussed in the first eight episodes. Each part of the show is named after a color, which has nothing in common with the episode's content. However, the totality of the episodes and the colors are placed in the prism order, hinting at what the series is about. It is popular opinion now - with the advent of the "intersectionality" concept, first discussed by Kimberlé

Crenshaw in 1991 - that every experience can be seen as a spectrum: no one is experiencing things in the same way, and there are many factors, such as social, or economic background, that can influence the way someone perceives the reality. Similarly, thanks to refraction, the prism is a medium for which a unique white light can show all the color spectrum, which otherwise would not show its colors. The episodes, therefore, are named after the color that the prism shows, converging all back to the white - name the last episodes, which tries to resolve all the ongoing main events. Therefore, the TV show is attempting to be a prism for a unique point of view (the white light), showing the different issues young adults might experience in high school nowadays.

The series is about two identical twins - Marco and Andrea - played by the same actor (Mattia Carrano). Marco is a sensible and fragile character with self-esteem problems and insecurities that are openly shown. On the other hand, Andrea seems to be precisely the opposite: charismatic and well-inserted in a group of friends, who, however, experiences a series of doubts about their gender identity and sexuality. The most important characters are Daniele (Lorenzo Zurzolo), Nina (Caterina Forza), and Carola (Chiara Bordi), who are the ones who interact the most with Andrea. Those characters are all connected, starting from the fact that they all attend the same high school in Latina (Rome).

Young adults use social media to express themselves. Instagram is the second most used social media in Italy, with 69% of the total social media users being in this social and 24% being Generation Z. The target audience is ideally placed to directly talk to young adults with the language and media they use daily. Therefore, the show opens with a recurrent topic when discussing social media: catfish. Andrea has a second account in which they are "pretending" to be a woman and is texting with Daniele, who does not know who is texting, although he is determined to find it out. In this way, the TV show is introducing to the viewers the main focus of this paper, which is transgenderism and gender identity representation. Considering that the first insight the spectator has for a trans person is a "scammer" who is faking to be someone else on social media, it is certainly not an excellent start for a better representation because it might be seen, again, as a "psychopath" phase. The first impression the viewers have is, in fact, of a person who is trying to cheat a guy and - although this behavior might be seen as familiar nowadays with the advent of social media between young adults - it does not reflect a "normal people" phase described by Bermúdez de Castro.

Another topic related to media and the use of it by young adults is Carola, a young woman with a disability, being a victim of revenge porn. Revenge porn is part of a broader phenomenon known as non-consensual pornography (NCP), encompassing any digital sharing and dissemination of sexual images without the consent of the individual depicted. The term revenge porn is reductive, as the intent behind such acts is often not merely retaliation or personal resentment (EURISPES, 2020). As highlighted by a 2019 study from the EURISPES Cybersecurity Observatory, most acts of NCP are perpetrated by individuals who have or have had, an emotional relationship with the victim. Frequently, these perpetrators, unwilling to accept the end of a relationship, seek to harm the dignity of their former partner, compromising or destroying their reputation. According to data collected by EURISPES, at least one in ten Italians (12.7%) has indirect knowledge of someone who has fallen victim to revenge porn. Awareness of the phenomenon is exceptionally high among young people under 25 (21%) and women (15.4% compared to 9.9% of men). In northeastern Italy, nearly one in four citizens (23.1%) reports knowing individuals whose intimate images or videos were shared online or via mobile devices. Victims also experienced blackmail in nearly half of the cases (47.9%). Additionally, a quarter of respondents were unsure whether blackmail had occurred.

In the TV show, Carola is not experiencing what, based on the statistics, might be considered a typical situation since she is not being blackmailed. However, people who know her see the video in which she has sex with her ex-boyfriend (Daniele) and is cheating on her current one (Marco). This situation not only brings up emotional issues because of the revenge porn itself but also causes a series of other issues with her friends and Marco because of the cheating.

Despite the topic being particularly heavy and with a contemporary resonance, it is worth mentioning that, in terms of visibility and representation, *Prisma* does not fail - in this issue - to be reductive and superficial. The fact that Carola is the victim shows that disability is not the only characteristic of a person: they may be victims of not only bullying because of the everyday difficulties they might experience but also other issues.

Where the TV show seems to fail, however, is in taking a step forward, compared to other mainstream productions, on trans* representation. It is undoubtedly essential to note that *Prisma* is the first Italian show in which one of the main characters is a transgender person, and it does not only focus on the fact that Andrea is trans. In other mainstream television shows or movies, it is common to focus only on this aspect of the character, lacking intersectionality and representing a dystrophic reality. To make a significant example, *Orange Is The New*

Black (OITNB) became one of the most famous TV shows ever made because of its variety of ethnicity and sexual orientation. It also became a fundamental example of trans* representation since one of its main characters is Sophia Burset (interpreted by Laverne Cox, a transgender woman herself) and showed a more “human” version of trans* people. However, one of the most criticized characteristics of Sophia’s character is the fact that she is a criminal, perpetuating the stereotype of trans* people not being able to live their lives as society expects from cisgender people. Sophia, then, reflects the perfect example of a tokenized representation. She is a transsexual woman who takes hormones and has undergone all gender-affirming surgeries to fit into the “woman” cubbyhole heteronormative society imposes. Finally, Sophia - as well as other trans* characters in television shows - are presented to the spectator with the only characteristic of being trans*, excluding any intersectionality. Therefore, Prisma does not fail to represent Andrea only as trans*, showing different aspects of themselves such as friendships, relationships, and family, and does not exclude psychological issues which might arise during adolescence - not necessarily related to gender identity.

However, Prisma is far from being able to be considered a “normal people” representation: unfortunately, the representation is still quite reductive and idyllic when considering gender identity issues. One of the biggest criticisms might be made of Andrea’s coming out with the father. The almost immediate acceptance and understanding of the situation is quite understandably unrealistic. Considering that around 40% of the population hides being part of the LGBTQI+ Community in school because of discrimination and general intolerance among peers, it is no surprise that Andrea has come out - before talking to the father - with one person only, hiding and rejecting their identity to others. However, by trying to be inclusive, Prisma fails to represent the gender identity spectrum, avoiding questioning gender binarism and therefore taking it for granted, although Andrea does not (yet) express the need to change their name or use female pronouns.

5. Conclusions

Generally speaking, Prisma might be considered a milestone in Italian original productions despite all the criticisms that might be brought about. However, a representation which does not differentiate from other mainstream productions still cannot be considered an acceptable perspective of trans* people, not only because of the gender binarism which is still perpetuated and promoted but also because of the methods used to narrate Andrea’s questions and difficulties. Such representations propose a stereotypical perspective and risk annihilating the individual by creating a tokenized representation instead of proposing different ways of perceiving identities. This depiction of transness makes it far from a “golden age” of representation (Bermúdez de Castro, 2017). Prisma had the occasion to express gender identity more fluidly and, therefore, could have been an excellent occasion for Italian original productions to rise in terms of inclusion and visibility. Quite the opposite, Prisma confirms itself as a mainstream production - by narrating the story of a trans* woman - and does not add anything new to the Italian panorama, which still stereotypes trans* identity to only one possibility. Finally, because of the current Italian political situation and the rise of even more intolerance, it is pretty challenging to see a different and more inclusive trans* representation any time soon, even though it is not only needed but also necessary for a more inclusive society, since the influence of media on people’s perspective of the world.

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Gender, Race, and Class in International Development: Exploring the Counternarratives of Women of Colour

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Abstract: This paper examines the power dynamics and hierarchies in international development that systematically exclude and minoritise women of colour (WOC) in the workplace, particularly as these dynamics relate to gender, race, and class. Narrative interviews were conducted with 24 women of colour who work in the energy and health sub-sectors in US donor and implementing agencies to generate 'counternarratives' or stories of minoritised individuals that challenge master narratives. Master narratives are dominant cultural, political, or historical stories used by the majority to legitimate their power and position and normalise oppression. The interviews were analysed using intersectionality and critical race theory as theoretical lenses. The counternarratives were classified according to the four domains of power – structural, disciplinary, homogeneous, and interpersonal – to show how oppression and privilege manifest and interact in different settings. Prior work in this space has highlighted the experiences of WOC in the workplace in sectors like education, but there is limited scholarly work in international development. The present research contributes to knowledge by examining an industry with colonial roots. By articulating the counternarratives of women of colour who work in international development, this study lessens their invisibility as a minority and aids others who experience similar obstacles. The study provides evidence-based support for the critical role of intersectional leadership and a comparative lens between two sub-sectors in development – energy and health – which contrast in many ways. More broadly, by exploring the lived experiences and social contexts of individuals, it also contributes to qualitative gender research.

Keywords: Development, Critical Race Theory, Intersectionality, Women of colour, Counternarratives, Decolonisation

1. Introduction

In this article, I present a collection of voices and experiences of women of colour (WOC) who work in various capacities in the US international development industry. The international development industry refers to the network of organisations and individuals who work to improve the quality of life of low-income countries by eliminating poverty, improving health and well-being, and addressing issues of discrimination and injustice (Interaction, 2019). Despite its colonial roots (Goldsmith, 2002), the development industry's expressed mission includes dismantling inequalities and addressing power dynamics and hierarchies that divide people and perpetuate oppression and poverty. However, recent empirical (Social Impact, 2023; Racial Equity Index, 2021; Quantum Impact, 2018) and anecdotal evidence ('Racism in the Aid,' 2020) suggest that the industry is not living up to its own expressed standards of inclusion and equity. For example, a recent survey of US-based development and humanitarian organisations found that while females are over-represented at the staff level, participation rates drop in leadership positions. At the gender-race nexus, only four per cent of organisational leaders represented female Black, Indigenous, and People of Colour or BIPOC (Social Impact, 2023). The Racial Equity Index, a volunteer-led group of BIPOC development practitioners, surveyed a sample of 800, and of the 65% of respondents who reported experiencing racism, 98% also reported witnessing racism. Under workplace culture, 'racial abuse' and 'prioritizing white voices' were the most frequently cited (Racial Equity Index, 2021, p. 7). At the United States Agency of International Development (USAID), while the percentage of racial or ethnic minorities climbed from 33 to 37 per cent between 2002 and 2018, the proportions decreased in higher ranks, according to a 2020 study by the US Government Accountability Office. Promotion rates were also lower among early to mid-career racial and ethnic minority staff vis-à-vis white staff (GAO, 2020, p.18).

Master narratives are the dominant cultural, political, or historical stories used by the majority to legitimate their power and position and normalise oppression. Counternarratives on the other hand are the stories of minoritised individuals which expose and challenge the stories of the majority (Solorzano & Yosso, 2002). Applying these concepts of master and counternarratives within the context of international development, the question guiding this paper is as follows: What do the narratives of WOC working as international development practitioners, particularly as they relate to their gender, race, and class, reveal about current systems of power and oppression in the US international development industry and how can these narratives challenge the stories of the majority and bring about positive change in the industry?

The use of counternarratives or counter storytelling is one of the core tenets of critical race theory (CRT), a theoretical framework that explores race, racism, and power structures and how these are connected to broader issues of "economics, history, context, group- and self-interest" (Delgado & Stefancic, 2012, p.2). CRT provides

perspectives on how race and power maintain racial inequality (Gillborn, 2015). While its origins are legal in nature, CRT has also been applied as a theoretical framework in several other fields, including education (Garcia, Lopez, & Velez, 2017; Sablan, 2019), sociology (Bonilla-Silva, 2015), public health (Gilbert & Ray, 2016), and social psychology (Correll et al., 2007). CRT provides a powerful lens for understanding various race-related issues that WOC experience, such as underlying biases in workplace policies and practices and racial stereotypes. This paper also uses intersectionality as another theoretical lens, given the multifaceted nature of oppression that WOC experience. Like racism, various forms of discrimination, like sexism, ageism, etc., are also pervasive in the workplace. Using intersectionality provided a valuable lens to unpack how multiple axes of oppression interact and how these are connected to more significant issues of power, privilege, and oppression.

2. Master Narratives and the Experiences of Women of Colour in International Development

Although the international development industry was born out of US national security and commercial interests after World War 2, its focus has expanded to include moral and humanitarian priorities (van der Veen, 2011). Though security and self-interest continue to influence aid policy, current goals include improving the quality of life and expanding economic opportunity in communities worldwide (Engberg-Pedersen & Degenbol-Martinussen, 2003) and doing it in an inclusive, participatory way. Much of the language and framing in international development today continues to be tied to its colonial past, which categorises half of the world (i.e. the 'Global South') as 'underdeveloped,' uncivilised, and lacking in agency and voice, and the other half (i.e., the 'Global North') as 'developed' and superior in every facet - culturally, technologically, economically, and politically (Odeh, 2010; Shrestha, 2005). Countries and people in the Global South are framed as problematic and needing saving while those in the North represent the ideal and as the bearer of solutions. Decision-making in development remains in the domain of the rich, industrialised countries (most of whom are former colonial powers). In contrast 'beneficiary' countries, most of whom are former colonies, must reform themselves by adopting global 'best practices' and conforming to international norms. This 'us versus them' dichotomy permeates international development, and these prevalent narratives often influence how BIPOC in the industry – either practitioners or stakeholders - are perceived and regarded. BIPOC development practitioners, and WOC in particular, have historically encountered (and continue to encounter) many challenges in the industry, including underrepresentation and discrimination. Yet master narratives continue to be perpetuated, i.e. that the industry has already 'come a long way' in terms of the localisation/decolonisation agenda as many organisations have set up country or project offices with locally employed staff and those organisations are diverse (Peace Direct, 2021); and that the industry operates 'neutrally' and is neither racialised, gendered, or 'classed' and that White development practitioners are not just 'experts' but neutral actors in all contexts (Maxwell, 2004).

3. Methodology

I adopted a purposeful sampling approach for this study, informed by critical race theory and intersectionality. I began with an initial target of 30 WOC but ended with 24 upon reaching data saturation. I reached saturation when I started hearing the same themes several times, no new codes were occurring in the data, and I had enough demographic diversity in my sample. I selected women working in the energy and health sub-sectors, employed by either of the two central US donor agencies (USAID or the Millennium Challenge Corporation (MCC) or implementing partners. I chose the energy and health sub-sectors because energy is white and male-dominated (Casey, 2023; IEA, 2023; Penrod, 2021), while health tends to be more racially diverse and female-dominated (WHO, 2023; Snyder et al, 2018). The rationale for this dual focus is to examine whether and how a less diverse environment adds a layer of obstacles due to harmful stereotypes and barriers common to such industries (Catalyst, 2021).

I selected WOC with at least three years of experience as they will more likely have experienced one advancement cycle (i.e., promotion, pay raise). I also recruited WOC who have worked in the field and the 'home office' or headquarters and those who have worked in technical and operations (e.g., finance, administration, business development) roles in the two sub-sectors to reflect a diversity of experiences. As I am an industry 'insider' with a long career in the energy sub-sector, I approached participants directly (verbally or via email) but discreetly, given the sensitive nature of the paper topic. I also found some subjects through a LinkedIn search and through snowballing. Guided by a feminist approach, I interviewed my participants, combining a narrative and semi-structured interview approach.

Paperer Positionality. In the spirit of self-reflexivity, I acknowledge my standpoint as an immigrant, Asian-American woman of indigenous Filipino ethnicity. I have an upper-middle-class upbringing and attended a premier university in my home country. I have a master's degree and have worked in international development since 1998, primarily in the energy sub-sector. I have worked at the nexus of gender and energy for over 15 years and, in my current role, I focus on equity, diversity, and inclusion issues. I have reached a senior position as a development practitioner. I identify as a feminist and a women's rights activist. My interest in this paper topic evolved from my direct experiences with gender and racial discrimination, which led to some career setbacks, as well as observations of the experiences of colleagues who are also WOC. I acknowledge that I have had experiences with marginalisation in the industry as a result of my race, gender, immigration status, and lack of a US degree – making me an outsider - but that I also have a privileged status in my own Asian-American/Filipino-American community since I have advanced and attained professional success in an industry (international development) and a sector (energy) where few in my community have – making me an insider. This insider-outsider status, referred to by Collins as 'the outsider within' (1986, p. S14) has influenced the framing of the paper design and how it has been conducted.

Relationship with Subjects. A key aspect of feminist paper is developing rapport with your subjects...Oakley (1981) believed that investing her identity in the paper relationship by sharing her experiences as a woman and answering respondents' questions was critical. Some of my subjects are past and current colleagues. Some are friends. While having this relationship facilitated access and made rapport easier to establish and more organic, it also came with additional ethical responsibilities. Tillman-Healy (2003), coined the phrase 'friendship as method,' in which the ethics of friendship precede the ethics of paper. She argued that instead of relying on international review board approval to pre-determine the ethical bounds of a study, the paper must continually assess the ethical implications of the friendships built over the course of the study' (p. 740).

In my interviews with all my subjects, I aimed to maintain a power balance with my subjects. I gave subjects the option of how to conduct the interview (in person or virtual). While I set the agenda and asked the questions, I gave my participants control over what extent they would discuss some topics. I aimed to make it a reciprocal exchange by sharing some of my experiences when appropriate and revealing some aspects of my identity. I also asked subjects to review transcripts post-interview to ensure accuracy and in the spirit of reciprocity. My position as a WOC working in international development aided me in forming relationships with my participants and facilitated data collection. It also allowed me to interpret my data with empathy. However, I acknowledge many differences between my experiences and those of my participants on many dimensions of identity. Mindful of these differences, I constantly interrogated my own experiences and positionality through reflexive journaling.

4. Results and Discussion: WOC Counternarratives

After an extensive interview and data analysis process, I generated multiple themes from the women's counternarratives, which I classified into the four domains of power formulated by Patricia-Hill Collins (1990), a leading conceptual thinker on intersectionality. She originally used these to examine racism against African American women in an educational setting. I expanded her approach to include other aspects of identity such as immigration status, ability, age, and class, and to examine the experiences not just of Black women, but a broader group that falls outside the Black-white binary and includes women of Asian, African, Hispanic, and Middle Eastern descent.

Through counternarratives, many of the WOC linked their life and work experiences to their identities and described how racism, sexism, classism, ableism, religious discrimination, and ageism (to name a few) are embedded in social institutions and organisational structures, policies, and practices. The counternarratives revealed how cultural expectations, stereotypes, and dominant cultural ideas, as well as day-to-day encounters, put them in subjugated positions. These counternarratives contradicted many dominant narratives that suggest advancement is purely meritocratic (Hochschild, 1995; McNamee & Miller, 2004) by showing it is largely shaped by institutions, power relations, and social backgrounds/identities. The counternarratives also directly contradict the narrative that the industry is 'neutral' and that the industry has made significant progress in its localisation and decolonisation agenda.

The matrix of domination (Figure 1) examines the overall organisation of power in society (Collins, 1990). It encompasses four interconnected domains that serve different purposes in maintaining the status quo. The matrix provides a multidimensional framework for examining the racialised, gendered, and other minoritised experiences of WOC and, in particular, the mechanisms of domination. Large-scale social institutions that are organized to reproduce subordination over time comprise the structural domain. While they may have evolved,

these social institutions are rooted in America's profoundly racist history. When they were established, they relied on multiple forms of segregation, such as by race, ethnicity, class, and gender, to result in oppression. Examples include the US legal system, labour markets, schools, housing industry, banking, insurance, news media, and social institutions. The disciplinary domain manages power relations. It does so not through overtly discriminatory policies but through how organisations are run. Ideology, culture, and awareness are all part of the hegemonic domain, which is a set of 'commonsense ideas' that dominant groups have constructed and upheld to justify their right to dominate. Finally, the interpersonal domain refers to how individuals subordinate others through routinised daily interactions. An example would be microaggressions that people from non-dominant groups experience.

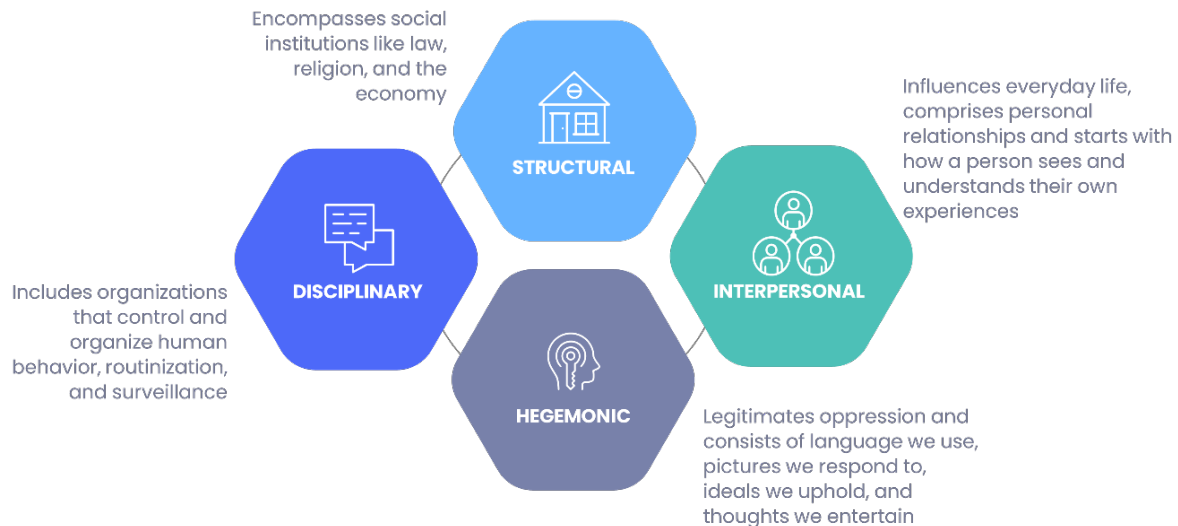


Figure 1: Matrix of Domination

In this paper, I share the most prominent theme I found under each domain and the counternarratives within each of those themes.

4.1 Structural Domain: Lack of the 'Right' Credentials

It is a widely-held dictum in the US that your class background ought not hinder your ultimate station in life. The idea behind the 'American Dream' is that if one works hard and plays by the rules, class mobility is possible for the individual and their descendants (Anderson & Collins, 2020). The reality is that the path is harder for minoritised classes (Branch & Hanley, 2022; Parramore, 2020). Several WOC expressed frustration about being held back by organisations' lack of what is perceived as the 'right' credentials to do international development work, such as an Ivy League diploma, an advanced degree, foreign language skills, and Peace Corps experience. Audre, an African-American with an international affairs degree and some administrative experience when she joined Company A, was told that she needed foreign language skills, an advanced degree, and overseas experience to advance. 'There were people who had similar education, but who either had overseas experience or a second language – that allowed them to move ahead of me (more quickly).' She had to do her learning by doing, pursue an MBA while working, and actively advocate to do more 'technical' work. Promotions came later than she expected.

For some of the WOC I interviewed, social class and its intersection with gender and race limited their initial employment options and ability to position themselves for advancement later in their careers. Several described how they had to immediately find employment to pay off student loans and handle other financial obligations after completing their bachelor's degree. They specifically indicated not having the 'luxury' of joining the US Peace Corps, a common path for white, middle-class college graduates hoping to work in international development (Amin, 1999). The Peace Corps has historically attracted mostly white, middle-class Americans, with more than two-thirds comprised of 'non-minorities' (Wilcox, 2021). Ella notes, 'Many classmates were going into the Peace Corps, but I didn't want to go down that route as the pay was very low, and I had student loans and family obligations.' Audre worked her way through school and felt she did not have 'the option to do something like Peace Corps.' After graduating, she took on an administrative job with a USAID contractor to get her foot in the door. It took her years before she could transition into more technical roles. To her dismay, white

colleagues who joined her organisation the same time she did and had Peace Corps experience were promoted at a faster rate.

Access to the 'right' qualifications is often restricted to the privileged. For much of the country's history, access to prestigious universities has been largely reserved for upper-class, white Americans. Affirmative action policies, which consider race and ethnicity as part of the evaluation process, were adopted by institutions in the 1960s and 1970s to actively prioritise diversity and expand access (Maxwell & Garcia, 2019). Statistics show that while these resulted in more students of colour, they remained under-represented in elite schools in the aggregate (Rios, 2023). Joining the Peace Corps, which is how many young, white middle-class international development professionals check the overseas experience box, is not usually an option for those coming from working-class backgrounds.

4.2 Disciplinary Domain: Existence of Elite Networks

Several WOC lamented the existence of formal and informal elite networks within organisations, as a barrier that prevented or delayed them from advancing within organisations. Despite organisations' (and America's) professed commitment to 'equal opportunity,' many career trajectories are influenced by networks or connections that provide 'intel,' facilitate introductions, and extend opportunities that would otherwise be unavailable or difficult to access. Surveys suggest that many hiring decisions result from in-network referrals (Howard, n.d.). Unfortunately, organisations that rely on elite networks end up excluding candidates who did not go to certain schools or do not belong to certain social strata, ultimately contributing to racial, gendered, and economic homogeneity in their organisation and industry.

Several women cited the Peace Corps as a specific example of an elite network they encountered. Ella, who migrated to the US from Nigeria, noted 'White women get so much, more quickly. They work in the Peace Corps for a year and then advance quickly.' Barbara referred to the Peace Corps network as 'almost like a family business.' Sandra likened it to a must-have in the development field. 'It was almost like checking a box like you're a veteran and this was a criterion to get into international development. It gave people a leg up.'

When Kanter (1977) analysed the 'shadow structure' within corporations, she discovered that women and racial minorities were frequently left out of social gatherings. This effectively kept them from exploiting opportunities and hampered their advancement. This aligns with what is more commonly referred to as 'old boys' networks – or informal systems of support where men use their positions or influence to help others with similar educational or social backgrounds to advance. Membership in these networks significantly increases a person's opportunities for advancement in the labour market (McDonald, 2011). Toni, who works at a management consulting firm, noted, 'At the junior level, many women look like me, but among senior staff, it is mostly white men.' Angela says this occurrence is more pronounced in the energy sector. '(The energy space) is significantly more white and male versus other (sectors).' Marian, who is Jordanian-American and Muslim, worked at the UN for several years with many 'expats' who regularly went out for drinks after work.

'They all go out after hours to the bar, and then they talk about work, and they make decisions about work. I don't drink I don't go to bars. So they would all come back the next day, and decisions are already made that nobody talked to me about because they all went out together. There's that local versus expat kind of dynamic.'

Toni, the daughter of Haitian working-class immigrants, felt like she lacked a network altogether while in college. She was enrolled in an international affairs degree at a predominantly white institution in Washington, DC. 'Ninety per cent were kids of diplomats. They would casually say 'My dad was the international lawyer who helped restructure African nations. It seemed like everyone had a story like that...I always felt out of place in school.' Kimberle', who spent several years working on an energy project in Kosovo as the lone female 'expat,' also had no professional or social network to turn to during her time there. 'All the other 'expats' were male. And I worked in a building where I was the only Black person. You'd get on the elevator and the local employees of the electricity company would snigger. I think it was just ignorance... lack of exposure.'

Most of the elite networks that WOC encounter in the workplace and find themselves excluded from are rooted in either social class, race, gender, or some combination of these. The marginalisation experienced by Kimberle' who was in a senior, field-based role was overtly race-based. For Toni, who felt marginalised in her university, it was a combination of race and social class. Marian's experiences highlight unequal relations and power imbalances between local and foreign development workers, rooted in the industry's colonial legacy.

4.3 Hegemonic Domain: Stereotypes

Despite many advances, gender stereotyping, or the ‘practice of ascribing to an individual woman or man specific attributes, characteristics or roles by reason only of her or his membership in the social group of women or men’ (UNHCR, n.d., para. 4), remains entrenched in the American workplace. Women are portrayed as non-assertive, emotional, lacking in drive and commitment, and having a weak communication style (Webber & Giuffre, 2017, p.2). Racial stereotypes affect the workplace success of WOC. For instance, studies show that the ‘angry Black woman’ stereotype persists, with Black women often described as ‘hostile, aggressive, overbearing, illogical, ill-tempered and bitter’ (Motro et al., 2022, para. 1). The ‘model minority’ stereotype is attached to Asians. They are perceived as being ‘smart, hardworking, and easy to manage... but not great leaders’ (Liu, 2021, para. 23). Gender- and racial stereotypes and stereotypes based on other aspects of identity, such as religion and ability were cited by the WOC I interviewed.

Racial Stereotypes. Ella, an African American, reflected, ‘People expect certain reactions from you; they have certain perceptions (of Black people).’ Carmen, an immigrant from Kenya, echoed this sentiment: ‘You have to prove yourself constantly. I’m like, ‘What do I have to prove? Can you look at my resume? It’s just stereotypes and unconscious bias or conscious bias that people just have...And we just find ways to survive which is unfair, because my other white colleagues don’t have to do that.’ Bell, who is Japanese-American, noted that Asians tend to be treated as a monolith. She also observes, ‘(The model minority stereotype) paints us out as being obedient and being rule followers.’

These counternarratives highlight how WOC experience scrutiny and control in the workplace by being expected to speak and behave in certain ways – ways that are associated with group identities. Black women are viewed and expected to behave more aggressively, while Asian women are expected to be more submissive and passive. While the ‘model minority’ label may sound like a compliment, it is damaging, not just because of the pressure it puts on Asians to conform, but because it disparages other people of colour as ‘problem minorities.’ Chou and Feagin (2015) note that this particular stereotype also reinforces the myth that all Americans of colour ‘can achieve the American dream just like the model minorities, who work hard and do not challenge the status quo of racial hierarchies that has whites on top but are eager to assimilate into it’ (p. 858).

Gender Stereotypes. For some of the WOC, gender stereotypes resulted in being pigeonholed into certain types of jobs. Ersu, a Mexican engineer, said she was relegated to doing training-related work in the early years of her energy career even if she was qualified to do more technical work. ‘It was not until the end of the fifth year when I started to do some technical evaluations but (still) not the same as the other guys did.’ Later, she was invited to work on an energy project in Afghanistan, but only after the first candidate – a white male – failed in the role.

Religious Stereotypes. Some of the WOC cited having to deal with religious stereotypes in the workplace. Marian, who is Muslim, feels that this is the part of her identity that many people ‘have the most trouble with.’ She lamented:

‘...Our religion does have some identifying factors, which make us more of a target, I think... It’s shaped my attitude, the way I do everything, everything that we engage with people, the way I come across...my work ethic, because people will always come back and be like, oh, you know, well, those Muslims.’

4.4 Interpersonal Domain: Communication Style

The underlying differences in communication styles between women and men have been widely papered. Generally, men use language to strengthen social dominance, while women communicate in ways that strengthen relationships and social connections (Leaper, 1991; Mulac, et al., 2001). On the other hand, much of the literature says that women speak more expressively and politely than males do, particularly when there is disagreement (Basow & Rubenfield, 2003). Dolores noted, ‘I don’t have the communication style of an overly confident white man (but that) doesn’t make me any less valuable.’ Sylvia notes her personality tends to be ‘very nurturing, very kind, very quiet...It took me a lot of time and practice to start using my voice to help combat the injustices that I was seeing all around.’ Coretta, who is of Lebanese descent, feels women don’t tend to be vocal or aggressive in advocating for things in the workplace like promotions, training, salary increases, or better conditions. ‘I think women tend to be more reactive rather than proactive, unlike men...and are uncomfortable advocating for themselves....In hindsight, I wish five or seven years ago, I had the courage to demand something more.’ The experiences of Sylvia, Dolores, and Coretta highlight the perception that women are too quiet and not assertive enough, which is interpreted as a sign of weakness. This often compounds the barriers they face in the industry and perpetuates discriminatory outcomes, e.g., delayed promotions and lower salary increases.

5. Conclusions and Implications

In this paper, I explored counter-narratives which highlighted sexism, racism, classism, and other forms of oppression that WOC experience as development practitioners. The linkages of these barriers to their intersecting identities and social situations were evident in many narratives where WOC directly attributed setbacks to multiple power systems. Some oppressions also seemed to cut across macro and micro dimensions. Their narratives counteract long-standing or prevailing narratives about the industry, in particular: (1) that it operates 'neutrally'; and (2) that it has advanced the localisation and decolonisation agenda.

Their narratives have multiple implications for the international development industry and those working in it, especially in advancing discourse, policy, and practice. To combat the master narrative of the industry being neither racialised, classed, nor gendered, those working in international development must critically examine how they view the world and how this influences their decision-making. Formal self-assessments to examine internal culture, policies, and practices and mandatory staff training are also worth pursuing. Operationalising inclusive workplace policies, ensuring implementation and follow-through, offering opportunities for active employee engagement, providing continuous training and mentoring across the organisation, championing diversity and accessibility, and tracking progress are also essential. All these require committed leadership, a strategy, a budget, dedicated staffing, and safe spaces for employees. Organisations must also take more concrete steps to shift traditional power structures and collaborate with those they aim to 'serve.' Decolonising aid can be accomplished by intentionally breaking down the traditional binaries/power structures that govern the sector (North vs. South; headquarters vs. field; 'expat' vs. 'field' staff) which prioritise specific individuals or groups over others and elevate Western values and knowledge systems as the standard (while devaluing local knowledge). This can be done through hiring and procurement policy reform. To challenge the master narrative that the industry has advanced localisation and decolonised, organisations should avoid reframing these concepts to preserve the status quo. Examples of what many organisations have done to 'game' the system include defining a country office as 'local' based on the number of locally employed staff it has, registering the organisation as a 'national' organisation and the percentage of funds that it raises nationally, rather than from its international 'parent'. Authentic localisation and decolonisation mean channelling funding to national organisations and relinquishing power to nationals.

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Adapting Psychosocial Scales to Measure Career Exit Factors in Colombian Women Engineers

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Abstract: *Background:* Despite ongoing efforts to promote gender equality, women remain underrepresented in STEM fields such as engineering. This underrepresentation is evident not only in early career choices but also among professional women engineers who face significant barriers in their work environments, leading to higher rates of leaving the profession. While this issue has been extensively studied in various regions worldwide, there is a notable gap in research on the experiences and career exit intentions of women engineers in Latin America. Furthermore, a lack of Spanish-language scales with strong validity evidence measuring key psychosocial factors associated with the decision to leave engineering hinders progress in understanding and addressing these challenges. *Purpose:* This study aimed to develop and implement a robust protocol for adapting and translating five scales that measure engineering identity, career commitment, career satisfaction, observed hostility toward women in the workplace, and the likelihood of leaving the engineering profession. The research sought to answer the question: *How do respondents perceive these adapted scales' clarity, relevance, and representation in capturing the intended constructs?* *Methods:* The protocol was guided by recommendations of the International Test Commission and the American Educational Research Association. A forward translation design was selected, focusing on achieving functional equivalence between cultures. The protocol involved multiple stages, including expert translation, cultural adaptation, and reconciliation processes. Additionally, an expert panel reviewed the scales, and a qualitative phase using cognitive interviews with a sample of Colombian women engineers provided further validity evidence and refinement. *Results:* The study contributes both theoretically and practically. From a theoretical standpoint, it presents a comprehensive, evidence-based protocol for scale adaptation, offering a model that can be replicated in other contexts. Practically, the adapted scales provide essential tools for researchers and practitioners working with Spanish-speaking populations, addressing a significant gap in the literature. By enabling more inclusive and accurate research on women engineers' experiences in Latin America, these tools can inform policies and interventions aimed at reducing career exits and promoting gender equity in engineering.

Keywords: Psychosocial Scale Adaptation, Forward Translation Design, Women Engineers in Latin America, Gender Equity in Engineering, Engineering Identity

1. Introduction

The underrepresentation of women in engineering remains a significant global concern. Although women earn approximately 20% of engineering degrees worldwide (Bossart and Bharti, 2017; EngineeringUK, 2018; Bello, 2020), their presence in the workforce is even more limited. In the United States, for example, women occupy only 16% of engineering roles (Department of Labor, 2022). A significant, though difficult to quantify, contributor to this disparity is the high rate at which women exit the engineering profession; in the U.S., 50% of women with engineering degrees are no longer working in engineering or science-related fields (NCSES, 2022).

Despite the urgency of this issue, research on the reasons women leave engineering remains limited, and predominantly emerges from the U.S. (Singh *et al.*, 2013; Ross and Godwin, 2016). In Latin America, and particularly in Colombia, studies examining women engineers' workplace experiences and career trajectories are sparse (Cano-Morales and Major, 2024). To address this gap, we undertook a project focused on understanding the factors influencing Colombian women engineers' intentions to leave the profession. However, we encountered an initial barrier: the absence of validated Spanish-language instruments tailored to the professional engineering context that assess key workplace factors affecting women engineers. This study sought to overcome this challenge by developing a translation and adaptation protocol and applying it to translate and adapt five English-language scales measuring key factors in women engineers' experiences into Spanish.

2. Literature Review

2.1 Factors Influencing Women Engineers' Persistence

A key factor in understanding women engineers' persistence is engineering identity, defined as one's perception of being the kind of person who can perform engineering tasks (Godwin *et al.*, 2016). For example, Ross and Godwin (2016) observed that Black women redefined the stereotypical image of an engineer, aligning it with their personal values and professional aspirations, which bolstered their persistence. Similarly, Plett *et al.* (2011) found that a strong engineering identity helped women sustain their careers despite workplace challenges. These findings align with Hatmaker's (2013) study, which revealed that gendered experiences, such as being valued more for their gender than their skills, often triggered identity negotiations.

Women engineers' persistence is also heavily impacted by the support and barriers they encounter in their professional environment (Fouad *et al.*, 2017; Fernando, Cohen and Duberley, 2018). A particularly significant barrier is working in environments where overt harassment and mistreatment toward women occur and are tolerated (Miner-Rubino and Cortina, 2007). The literature on women engineers' experiences in Latin America indicates that hostile environments remain prevalent and normalised in certain engineering sectors (Cano-Morales and Major, 2024). Such environments have been shown to undermine women's engineering identity (Hatmaker, 2013), which subsequently affects their persistence in the field (Plett *et al.*, 2011).

Environmental factors, along with individuals' perception of their ability to perform within a profession, influence their attitudes toward their career (Lent and Brown, 2008; Singh *et al.*, 2013). Specifically, low career satisfaction and career commitment has been significantly linked to intentions to leave the profession (Rhodes and Doering, 1983; Singh *et al.*, 2013).

While engineering identity, hostility toward women in the workplace, career satisfaction, and career commitment, are known to significantly influence women engineers' career decision, no Spanish-language scales were identified to measure these constructs. Furthermore, we found no instruments to assess women engineers' intentions to leave the profession.

2.2 Instrument Translation

Instrument adaptation extends beyond literal translation; it involves ensuring that the scale reliably measures the intended construct in the target population's linguistic and cultural context (International Test Commission–ITC, 2017). Adapting an instrument to a new language requires attention to linguistic, cultural, idiomatic and contextual factors (Hambleton, 2004).

A widely used method for instrument adaptation has been backward translation (Hambleton, 2004), in which an instrument is translated into the target language and then back into the original language for comparison. While this method is popular in cases where principal investigators are not fluent in the target language, it is no longer recommended as the sole method for cross-cultural instrument adaptation (Borsa, Damásio and Bandeira, 2012). Relying solely on linguistic equivalence often overlooks critical cultural and contextual dimensions. Words that are linguistically equivalent may still result in different response patterns if these other dimensions are not accounted for (Peña, 2007). Backward translation frequently produces target language versions that facilitate back translation but may be awkward or unclear for the intended population (ITC, 2017).

More recent approaches favour forward translation, which prioritises functional equivalence—ensuring that the translated scale is contextually relevant and appropriate for the target population—over literal accuracy (ITC, 2017). Forward translation involves at least two translators independently adapting the scale into the target language, followed by a reconciliation process to merge the translations. An expert panel then evaluates the equivalence of the original and adapted versions, considering cultural, linguistic, and idiomatic aspects (Hambleton, 2004). Although forward translation addresses many of the limitations of backward translation, it introduces the potential for subjective inference by translators and experts. To mitigate these biases, reconciliation processes are incorporated at each stage.

The quality of translators and experts involved in the adaptation process is critical. Research recommends that translators should be proficient in both languages, ideally native speakers of the target language, and knowledgeable about both cultures (Borsa, Damásio and Bandeira, 2012). Furthermore, they should have expertise in the subject of the test and understand general principles of test construction (ITC, 2017).

The literature also emphasises the importance of evaluating the adapted instrument with the target population through pilot testing to assess face validity (ITC, 2017). During the pilot study, statistical analyses are not required; instead, the focus is on participants' understanding of the items and the overall structure of the instrument (Borsa, Damásio and Bandeira, 2012).

2.3 Purpose of the Study

This study aims to address the absence of Spanish-language psychosocial scales that measure career exit factors among Colombian women engineers. To this end, we developed and implemented a translation and adaptation protocol to adapt five scales: engineering identity, career satisfaction, career commitment, observed hostility toward women in the workplace, and engineering turnover intentions. These scales were tailored for use in a Spanish-speaking professional engineering context. The study seeks to answer the following research question: *How do respondents to the adapted scales of engineering identity, career satisfaction, career commitment, observed hostility toward women in the workplace, and engineering turnover intentions perceive the clarity, relevance, and representation of the intended constructs?*

3. Methods

3.1 Adaptation Protocol

We developed the adaptation protocol presented in Figure 1, following the guidelines from the American Educational Research Association (AERA, 2014), the International Test Commission (ITC, 2017), and literature on scale adaptation (Hambleton, 2004; Peña, 2007; Borsa, Damásio and Bandeira, 2012).

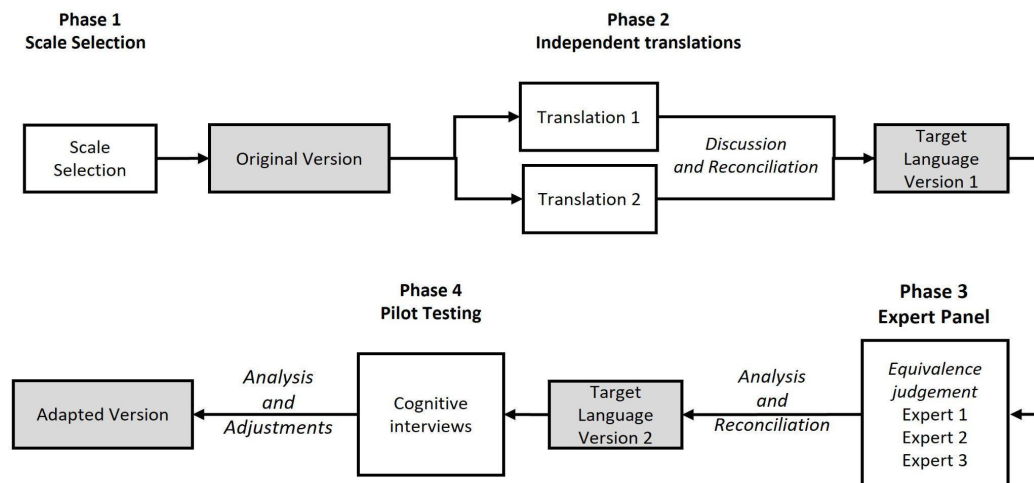


Figure 1: Adaptation protocol.

The protocol begins with scale selection, where researchers should establish criteria such as strong psychometric properties in the original language, alignment with the research objectives, and a preference for shorter scales to reduce participant burden (ITC, 2017).

In the second phase, two translators independently translate the scale into the target language. Translators should be native speakers of the target language, fluent in the source language, familiar with both cultures, and knowledgeable in the subject matter and principles of test construction (AERA, 2014; ITC, 2017). Following translation, a reconciliation process addresses any differences to ensure both linguistic accuracy and cultural relevance.

The third phase involves expert panel review. A panel of bilingual experts, with relevant expertise in both the subject and the involved cultures, assesses the scale's equivalence to the original version using a structured revision form that considers cultural differences, grammar, phrasing, meaning, and clarity (Hambleton and Zenisky, 2010). Researchers analyse and reconcile feedback from the expert panel to produce a second translated version.

In the final phase, pilot testing is conducted with a small sample from the target population using cognitive interviews (CIs). We considered CIs because they are among the most effective qualitative methods for revealing how participants understand and respond to scale items (Meadows, 2021). CIs enable researchers to assess whether participants interpret items as intended, addressing potential misunderstandings or ambiguities (Padilla, García and Gómez, 2007). Following the Tourangeau model, an individual answering a question typically progresses through four stages: (a) understanding the meaning, (b) mentally retrieving relevant information, (c) decision-making, and (d) selecting a response (Meadows, 2021). CIs aim to examine each stage of the response process through methods such as “think aloud” responses, item-by-item probing during responses, and follow-up questions once all items are completed to clarify interpretations and confirm clarity and relevance. Data obtained from CIs is then analysed through a text summary or thematic analysis to identify patterns, misunderstandings, and cultural nuances (Meadows, 2021), which informs final adjustments to the adapted scale.

We applied the developed protocol to adapt five scales measuring engineering identity, career satisfaction, career commitment, observed hostility toward women in the workplace, and engineering turnover intentions. In the first phase, we selected scales that met the criteria of having strong psychometric properties, alignment with our research objectives, and brevity (20 items or fewer). The selected scales are detailed in the following section.

In the second phase, two native Spanish-speaking Ph.D. students in Engineering Education, fluent in English and knowledgeable about both U.S. and Colombian engineering contexts, independently translated each scale. The expert panel in the third phase consisted of three native Spanish-speaking researchers fluent in English, with one holding a Ph.D. in psychology and two in Engineering Education. For the expert panel judgement, we adapted the form from Hambleton and Zenisky (2010) to assess equivalence. The form included construct definitions for each scale, and ten questions related to meaning, grammar, writing quality and cultural appropriateness for each item. The adapted form is included in the supplementary material (<https://zenodo.org/records/14031756>).

For the final phase, we conducted CIs with nine Colombian women engineers. Details of data collection and analysis for each phase are described in subsequent sections.

3.2 Instruments

The scales selected for adaptation were based on key factors influencing women engineers' workplace experiences.

For Engineering Identity, we adapted the 13-item instrument by Godwin (Godwin, 2016), which assesses Interest, Performance/Competence, and Recognition, with Cronbach's α values exceeding .77 across dimensions. Originally developed for students, scale items were revised for a professional context. Sample items include “My supervisor(s) see me as an engineer,” “I am interested in learning more about engineering,” and “I have the engineering skills necessary to work within my field.” For Career Satisfaction, we used the five-item Career Satisfaction Scale by Greenhaus, Parasuraman and Wormley (1990), which assesses satisfaction with career outcomes such as success, income, professional advancement, and skill development. This scale demonstrated high reliability with a Cronbach's α of .88. A sample item is “[I am satisfied with] the success I have achieved in my career.” For Career Commitment, we adapted the shortened version of Meyer, Allen and Smith (1993) Occupational Commitment Scale specifically to engineering. This multidimensional scale, measuring affective, continuance, and normative commitment, has shown strong reliability, with Cronbach's α values above .7. A sample item is “I am proud to be an engineer.” For Observed Hostility Toward Women in the Workplace Scale, we selected the six-item instrument developed by Miner-Rubino and Cortina (2007), which evaluates the perception of hostility in terms of observed incivility and sexual harassment toward women at work. This scale demonstrated high reliability (Cronbach's α = .82). A sample item is “[how frequently have you observed someone in your organisation] treat in a disrespectful or discourteous manner a female employee?” Finally, for Engineering Turnover Intentions, we combined items from Singh et al. (2018) and Wayne, Shore and Liden (1997) to create a three-item scale. While the combined scale has not been previously validated, Singh et al.'s (2018) scale reported a Cronbach's α of .86, and Wayne, Shore and Liden's (1997) item had a factor loading of .7. A sample item is “I often think about quitting engineering”.

The observed hostility toward women scales instructs participants to rate the frequency with which they have observed specific behaviours in their organisation, while the other four scales ask participants to rate their agreement or disagreement with item statements. All five scales are available in the supplementary material.

3.3 Participants and Data Collection Procedures

We conducted a pilot study using convenience sampling, recruiting participants via LinkedIn based on availability and willingness to participate. Eligible participants were Colombian women with bachelor's degrees in engineering, currently working in engineering or related fields within Colombia.

A total of 35 women were invited through LinkedIn, representing diversity across university backgrounds, engineering disciplines, regions, organisational types, and professional experience levels. Of these, 15 women expressed interest, and nine ultimately provided informed consent and participated in the CI. Participants received a \$25 USD compensation for their time. Rowan University's Institutional Review Board approved all data collection protocols.

Individual think-aloud CIs were conducted with the nine women engineers from diverse engineering backgrounds and geographical regions across Colombia, including degrees in disciplines such as Agricultural, Electronics, Electric, Informatics, Environmental, Electromechanics, Civil, and Industrial Engineering. One participant worked in education, while the others were employed in industry, with professional experience ranging from 1.5 years to more than 10 years. During each CI, participants were encouraged to verbalise their thoughts while completing an online survey with the adapted scales. Additional probing questions were posed to clarify participants' understanding of items, especially those identified as challenging during the translation and expert panel review phases (Padilla, García and Gómez, 2007). Items that caused confusion, discomfort, or hesitation in responses were further explored through probing questions (Presser *et al.*, 2004).

3.4 Data Analysis Procedures

Data analysis involved both quantitative and qualitative methods, tailored to each phase of the adaptation protocol. In the Independent Translations phase, a comparative analysis examined similarities and differences between translations provided by the two experts, leading to the development of a preliminary version of the instruments.

In the Expert Panel phase, we used the Item Content Validity Index (I-CVI; Polit, Beck and Owen, 2007) to assess expert agreement on the validity of the adapted items. Experts independently rated each item's equivalent meaning, difficulty, clarity, grammar, writing quality, level of abstraction, and cultural appropriateness by responding to ten questions. Ratings included agreement, disagreement, uncertainty, or non-applicability. An agreement response was coded as 1, and all other responses as 0. An agreement score was then calculated for each question as the proportion of experts who agreed, and the I-CVI was computed as the average of these agreement scores across the ten questions. I-CVI values greater than .83 were considered adequate (Polit, Beck and Owen, 2007).

In the pilot phase, we conducted a qualitative analysis using a text summary strategy to assess participant interaction with each item (Meadows, 2021). The text summary approach involved identifying and describing dominant themes, recurring issues, and conclusions drawn from CIs. The insights obtained allowed us to refine item phrasing to improve clarity and cultural relevance.

4. Results

We organised our results conceptually according to the protocol phases: (a) Independent Translations, (b) Expert Panel, and (c) Pilot Study.

In the Independent Translations phase, we qualitatively analysed the translations for each scale. The translations were largely similar, with only minor discrepancies noted among the experts. After discussion and reconciliation, a preliminary Spanish version was created.

In the Expert Panel phase, we calculated item-CVI (I-CVI) for each item of each of the five scales to establish the content validity. For the Engineering Identity scale, all items, except one, met the criteria for an adequate item-CVI (I-CVIs $\geq .83$; $M = .94$). The item "I can overcome setbacks in engineering / *Puedo superar contratiempos*

técnicos de ingeniería" had an I-CVI of .66. In the Career Satisfaction scale, all items were above the cutoff for adequate item-CVI (I-CVIs $\geq$.96; $M = .96$). Similarly, for the Career Commitment scale, all items had I-CVI values above the cutoff (I-CVIs $\geq$.83; $M = .93$). In the Observed Hostility Toward Women in the Workplace scale, all items exceeded the cutoff (I-CVIs $\geq$.96; $M = .96$), as did the items in the Engineering Turnover Intentions scale (I-CVIs $\geq$.96; $M = .96$). Details on the agreement scores and I-CVIs are included in the supplementary material.

Cognitive Interviews (CIs) were analysed using text summary. Key findings for each scale are summarised below, emphasising items that presented interpretive challenges. Adjustments were made to these items in the final version.

In the Engineering Identity Scale, generally, items were well understood. However, some participants found the word "setbacks" (*contratiempos*) in "I can overcome setbacks in engineering" ambiguous. One participant interpreted the phrase as an activity not completed on time, while another associated the phrase with academic challenges rather than challenges in the practice of engineering. Further investigation revealed that the remaining participants' interpretations aligned with the intended meaning, so no changes were made to this item. Additionally, items framed in a general way prompted clarification questions from some participants. For example, one participant associated "I can understand new engineering concepts" with complex technological trends like Artificial Intelligence, which she thought she could not understand. Another participant, after reading the item "I can discuss engineering concepts with others", stated she could not discuss any engineering concept outside of those from her field. Additionally, a third participant for the item "I have the engineering skills necessary to work in my field" was unsure if "field" referred to her major or the field where she was currently working. These insights highlighted the need to specify items more clearly.

In the Career Satisfaction scale, participants responded without significant hesitation. One item, "I am satisfied with the success I have achieved in my career / *Estoy satisfecha con el éxito que he alcanzado en mi carrera*," raised a question for one participant regarding whether "career" referred to their academic major or professional path. In this case, the problem was in the translation of the word "career." In Spanish "career" is used for both major and professional trajectory. This meaning suggested that clarifying "career" by adding "professional" or "career path" may avoid confusion. One participant expressed some discomfort with the word "goals" as she did not have goals for each outcome, though other participants had no issue with it. Thus, the word "goals" was left as included in the original scale. Additionally, some participants found similarities between items "I am satisfied with the progress I have made toward meeting my overall career goals" and "I am satisfied with the progress I have made toward meeting my goals for advancement." This similarity may stem from the Spanish translation of "advancement", which could be clarified by translating it to a term more closely associated with "promotion". Finally, one participant expressed doubts when evaluating career success, because she only had one and a half years of experience, which showed that years of experience should be considered as a control variable within this scale.

In the Career Commitment Scale, participants encountered some challenges with the Continuing Commitment construct. Most of the participants showed discomfort with answering or expressed not knowing what to answer. The follow-up questions to understand the discomfort and doubts, showed that it was not a translation problem but that the items required a high cognitive load, so no modifications were made to these items.

In the Turnover Intentions scale, while participants generally understood the items, the phrase "I think" in "I think I will be working in engineering five years from now" raised a minor issue for one participant, as the instruction "To what extent do you agree or disagree with: I think I will work..." felt awkward. Adjusting the wording may improve clarity. Additionally, one participant indicated that while she did not intend to leave engineering, she would consider opportunities outside the field if they arose. This suggests that adding an item about openness to alternative career options could provide further insights.

Finally, in the Observed Hostility Towards Women Scale, no response issues were identified. However, one participant misread "female employee/*empleada*" as "employee/*empleado*", altering the item's meaning. Changing the font to distinguish an "a" from a "o" could prevent this error. Another participant mentioned rating hostility low due to a predominantly female workplace, suggesting that controlling for coworker gender may benefit this scale.

The final adapted scales are included in the supplementary material.

5. Discussion

Women remain consistently underrepresented in engineering (Bossart and Bharti, 2017; Bello, 2020), leaving the field at disproportionately high rates (NCSES, 2022). This attrition is partly due to barriers in engineering work environments (Miner-Rubino and Cortina, 2007; Hatmaker, 2013; Plett et al., 2011; Singh et al., 2013). In Latin America, research on the experiences of women engineers is scarce (Cano-Morales and Major, 2024), and there is a shortage of Spanish-language instruments that enable a quantitative examination of these experiences. Addressing this gap, this study developed a protocol to adapt five scales, originally in English, that assess relevant factors affecting women engineers' experiences, enabling future research within Spanish-speaking contexts.

This study employed a forward translation approach, incorporating reconciliation processes at each stage to reduce inter-expert subjective bias, a common limitation of forward translation (Hambleton, 2004). The multi-step protocol achieved robust content validity, as evidenced by high I-CVI values, aligning with existing literature that highlights the importance of addressing functional and cultural equivalence beyond mere linguistic translation (Peña, 2007; Borsa, Damásio and Bandeira, 2012).

Cognitive interviews (CIs) conducted during the pilot phase with a sample of Colombian women engineers provided valuable insights into item behaviour and the overall scale function. CIs identified recurrent issues with interpretation and item difficulty, enabling refinements to improve clarity and cultural relevance (Meadows, 2021). Specifically, in the engineering identity scale, terms such as "setbacks" and items with broad language (e.g., "engineering concepts") occasionally led to varied interpretations among participants, reflecting the literature's emphasis on the need for pilot testing to evaluate participants' understanding and ensure cultural and idiomatic appropriateness (Borsa, Damásio and Bandeira, 2012; ITC, 2017).

For the career satisfaction scale, ambiguity surrounding the term "career" arose, as it can signify either one's academic discipline or professional trajectory in Spanish. This finding highlights the importance of culturally nuanced language to avoid misinterpretations. Additionally, participant years of experience may function as a control variable when assessing career success, impacting scale accuracy.

The career commitment scale posed challenges in its continuance commitment dimension, presenting a high cognitive load for some participants who struggled with responses. This cognitive load may stem from the overlap of continuance commitment with other constructs. De Aguiar Rodrigues et al. (2022) suggest that continuance commitment may align more closely with organisational entrenchment, while Blau and Holladay (2006) recommend treating continuance commitment as two distinct dimensions: accumulated costs and limited alternatives.

In the turnover intentions scale, findings indicated that an additional item on openness to alternative career paths could enhance the scale's capture of nuanced career intentions. The Observed Hostility Toward Women scale was well understood, though the gender composition of the workplace emerged as a potential control variable to manage response variability.

This study has several limitations. First, the cognitive load issues associated with the continuance commitment dimension were not fully explored; future research should delve deeper into these challenges. Second, the transferability of the adapted scales to other populations is uncertain. Direct application to other Latin American groups may require additional revisions. Finally, while this study focused on protocol development and implementation, further research should validate the psychometric properties of the adapted scales by gathering validity evidence from a larger sample.

6. Conclusion

This study demonstrates a replicable, multi-step approach for translating and adapting scales across cultural contexts, confirming the value of forward translation combined with systematic reconciliation processes, as recommended in cross-cultural adaptation guidelines (ITC, 2017; Hambleton, 2004). By carefully addressing cultural, idiomatic, and contextual nuances, the adaptation protocol achieved robust content validity, as evidenced by high I-CVI values. Furthermore, the results support the necessity of pilot studies to evaluate the clarity, relevance, and structure of adapted instruments, as highlighted in the literature (Hambleton, 2004). The minimal adjustments required during the pilot phase suggest that the protocol's emphasis on expert selection

and reconciliation processes was effective. Translators and panel members were native Spanish speakers fluent in English, knowledgeable of both cultures, and experienced in scale construction, further aligning with best practices outlined in the literature (Borsa, Damásio and Bandeira, 2012).

The theoretical contribution of this research lies in the development and implementation of a structured adaptation protocol that ensures robust results. This protocol not only achieved functional and cultural precision but also serves as a replicable model for future cross-cultural instrument adaptations, advancing the methodology of scale development.

Practically, these findings provide organisations and educational institutions with tools to improve the professional experiences and retention of women engineers. The adapted scales—focused on engineering identity, career satisfaction, career commitment, workplace hostility, and turnover intentions—offer tools to quantitatively examine factors influencing women engineers' career trajectories. These scales can be applied in both organisational and educational settings to identify barriers and supports, enabling the development of targeted retention strategies and workplace policies.

Future research should consider incorporating control variables, such as workplace gender composition and years of experience, to improve the interpretative power of responses in assessing hostility toward women and career satisfaction.

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Feminists in Democratization: A Comparison of Three Asian Countries

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Abstract: Japan, South Korea, and Taiwan are three Asian countries that share historical connections and similar cultural contexts but have demonstrated different levels of achievement in gender equality. South Korea and Taiwan were once under Japanese colonization and experienced radical democratic transitions in the 1970s and 1980s. Both countries witnessed the rise of their women's movements during their democratic transitions. On the other hand, Japan became a democratic country after receiving a new constitution by the U.S. following its defeat in World War II. Japan experienced its women's movement earlier than South Korea and Taiwan because it did not undergo the political turmoil associated with the democratic transitions. However, in 2023, Japan had a lower ranking than South Korea and Taiwan on the Gender Inequality Index. Therefore, this research examines the relationship between democratic transition and women's movements in Japan, South Korea, and Taiwan after World War II to understand whether the interaction between democratization and women's movements influences progress on gender equality. Various theories and assumptions have been developed to explain why women's movements can achieve better progress in some newly democratized countries while others struggle. However, previous research may not fully explain the cases of these three Asian countries due to cultural and political differences. With a careful examination of the democratization and women's movements in these three countries, we find that they heavily rely on the political power, networks, and strategies that feminist activists and women's groups acquired during the democratization process. Feminist activists in South Korea and Taiwan acquired political power, built networks, and developed strategies during their countries' democratic transitions, which helped them engage with the government in a new political environment after democratization. On the other hand, feminist activists and women's groups in Japan developed fewer resources and strategies to advance the women's movement since Japan did not undergo a radical democratic transition.

Keywords: Women's Movements, Democratization, State Feminism, Comparison Study, Asian Studies, Gender Studies

1. Introduction

South Korea and Taiwan were under Japan's colonization and were not liberated until Japan's defeat in World War II (hereafter WWII). Japan was given a new, democratic constitution by the U.S. in 1946 and established a democratic government in 1947. In contrast, Taiwan and South Korea began their democratic transitions in the 1980s and became consolidated in the 2000s.

The criterion for considering a democracy consolidated is Huntington's (1991) two-turnover test: a regime should experience two consecutive turnovers of power. South Korea and Taiwan passed the test in 2007 and 2008. Linz and Stepan (1996) argued that one criterion for considering a democratic regime consolidated is that everyone agrees that democracy is the only rule of the game and has no intention to overturn it. Although Japan did not pass the two-turnover test until 2009, it was considered a democratic regime from 1947 onward (Chang, 2009) since no parties or groups sought to overturn it.

In addition, these three countries share cultural similarities influenced by Confucianism. However, in the Gender Inequality Index (hereafter GII) 2023, South Korea ranked 105th, while Japan ranked 125th. Taiwan was not measured in the GII because it was not a member of the UN, but Taiwan independently assessed itself using GII criteria and reported being ranked 7th in 2021. How could South Korea and Taiwan achieve greater progress than Japan despite Japan's longer-standing democratic regime?

Previous literature has studied the relationship between women's movements and democratization in newly democratized countries in Africa, Latin America, and Eastern Europe. While democratization can provide new political opportunities for women's movements (Jaquette, 1994), it can also fail women's movements by bringing back traditional gendered values (Rai, 1996; Jaquette, 1994). Further findings show that other factors, such as a cohesive value framework between democratic transition and feminist ideology, political contexts, political coalitions, or a transferable legacy of past women's activism, impact the interaction more critically (Viterna and Fallon, 2008).

Following the previous studies, this research examines Japan, South Korea, and Taiwan after WWII to explore whether the previous findings can explain their different achievements in gender equality.

2. Japan

The U.S. initiated Japan's democratization after WWII. After Japan's defeat in WWII, it was under Allied Occupation from 1945 to 1952. The new Constitution was promulgated in 1946 to replace the Meiji Constitution of 1889 and was enacted in 1947 (McNelly, 1987). The new Constitution formally transformed the Japanese Emperor into a political symbol and made Japan a democratic country. Nevertheless, Japan has experienced one-party dominance for more than sixty years. This "uncommon democracy" (Pempel, 1990) has successfully achieved high economic growth and fulfilled the protection of individual rights in Japan.

2.1 The Women's Movement

Japanese women's advocacy for legal rights began in 1886 (Kitahara, 2017). Japanese feminists believed that it was their hard work that made the new Constitution include the protection of women's rights (Uno, 2016; Pharr, 1987). The new Constitution abolished the household system (家制度/*ieseiido*, a system that only acknowledges males as the head of the household and the heir) and acknowledged women as individuals. However, although the new Constitution granted women their civil rights, women in society still suffered from the idea of the household system, discrimination, and bias in different aspects of their lives. The experience of the past women's movement before WWII did not help feminist activists progress in a new political environment. The women's movement did not gain power until the economic boom in the 1960s.

Two factors influenced Japanese feminists' fights against patriarchy: rapid economic growth and pressure from the international community. Japan experienced an economic boom in the 1960s. During this period, women focused more on their "traditional roles," such as the "Mothers' Movement," which emphasized advocating for their children's well-being (Itou, 1987). However, in the 1970s, many women entered the workforce because of the labor demands resulting from rapid economic growth. Women then gradually moved their attention to their rights in the workplace and financial area. (Itou, 1987; 2011).

The international endeavor to promote women's rights contributed to the rise of the women's movement in Japan. For instance, in 1975, the Japanese government set up the Prime Minister's Secretariat Office for Gender Equality (婦人問題企画推進本部) as a response to the United Nations (UN) during International Women's Year (Iwamoto, 2007). In 1979, the UN announced the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), which pressured the Japanese government to set up a specific institute for women's rights. In 1999, although the Japanese government did not ratify the Optional Protocol to the Convention on the Elimination of All Forms of Discrimination against Women, the Convention still pushed the Japanese government to ratify the Basic Act of Gender Equality Society (Japan NGO Network for CEDAW=JNN, 2003; Shinohara, 2008). To respond to the Beijing Declaration and Platform for Action, the Japanese government finally developed the "Plan for Gender Equity 2000" (Natori, 2005).

In 1993, the long-standing one-party dominance of the Liberal Democratic Party (LDP, 自由民主党) collapsed. Simultaneously, the dropping marriage rate and the lowest birth rate (1.57 shock/1.57ショック; the number 1.57 was the lowest birth rate since 1966) shocked Japanese society (Cabinet Office N.D.) and raised political concern about women's rights and welfare. Rapid political changes created opportunities and opened policy windows (Iwamoto, 2007). For instance, the Prime Minister's Secretariat Office for Gender Equality (婦人問題企画推進本部) was reformed into the Cabinet Gender Equality Bureau (男女共同参画室) in 1994 (Bandou, 2004). In 1999, the Japanese Diet (Japanese parliament) passed the Basic Act for a Gender Equal Society (男女共同参画社会基本法). In 2001, the Cabinet Gender Equality Bureau (男女共同参画室) was reformed into the Gender Equality Bureau, Cabinet Office (内閣府男女共同参画局).

2.2 Women and State

It is difficult to conclude that Japanese feminists have an impact on the Japanese government. In Japan, the set-up and reorganization processes of women's policy agencies were completely top-down, and women's groups and feminist activists seemed to play little role in the processes. Although Kobayashi (2004) argued that "state feminism" is applicable in Japan since, traditionally, Japan is a country with a strong government and a weak society. However, the Japanese bureaucracy's strong control over policy-making processes and policy agendas (Pharr, 1987; Osawa, 2005) also turns off the women's policy agencies (Gelb, 2003).

In addition, the strong bureaucracy not only jeopardizes the collaboration between feminist activists and the women's policy agency but also challenges the development of women's groups. The Japanese government would coopt feminist activists who support its policies into the women's policy agencies, cherry-picking women's groups with richer resources and pro-government stances for funding while leaving off grassroots groups or women's groups that challenge existing values. The government filters, picks, and cultivates women's groups and activists that will support them (Murase, 2006). On the other hand, the lingering argument about women's identities also impedes the development of women's groups. The ongoing dispute about women's roles as good wives and mothers has been so entrenched in Japanese society that it has challenged women's movements occasionally. In addition, feminist activists in Japan were long divided into housewife activists and feminist activists. They have some common ground but also hold different stances on policies (Boling, 2008). The Japanese government has also exploited this ideological division to coopt women's groups (Murase, 2006).

3. South Korea

3.1 Democratization

In 1953, South Korea set up the first assembly and came out with the Constitution, which claimed South Korea should be a democratic country. However, the new Constitution did not help to establish the newborn democracy in South Korea. The checks-and-balances system malfunctioned, and the elected presidents continuously expanded their power. Ultimately, the endless maximization of power finally led to the authoritarian regime. In 1972, President Park Chung-hee (박정희) declared martial law, and people were then under military dictatorship (Kuo, 2011).

In the late 1970s, the labor movement greatly challenged the dictatorship because the dictatorship continuously suppressed the working class to maintain social order and economic growth. In 1979, more than one thousand five hundred labor-protest incidents occurred within one year (Chu, 2011). The tension between the dictatorship and the people led to the worst situation: assassination.

3.2 Gwangju Uprising

In October 1979, President Park Chung-hee was assassinated. The power vacuum left by President Park's death brought chaos and uncertainty. The military man Chun Doo-hwan(전두환) later took power and became president after Park Chung-hee's death. While the South Korean people hoped for democratization after Park Chung-hee's death, the new president rejected it. People took to the streets to show their anger, and Chun chose to respond with military repression.

In 1980, numerous furious students and citizens in Gwangju marched onto the streets but ended up being killed by the military troops. This bloody uprising was named the "Gwangju Uprising." The Gwangju Uprising was one of the most pivotal events in the history of South Korea because of the high death toll and the government's suppression of victims' families and media (Chu, 2011).

The Gwangju Uprising sparked tremendous fear and anger towards the government among the South Korean people. People's fear of the government cemented Chun Doo-hwan's dictatorship, but the anger raised by the bloody Gwangju Uprising did not fade away.

In 1987, Chun Doo-hwan failed to suppress people's strong resistance against the government and was forced to reopen the presidential election (Kuo, 2011). In the same year, Roh Tae-woo (노태우) won the presidential election and became the new president of South Korea. Roh Tae-woo promised democratization in the speech "Special Declaration for Grand National Harmony and Progress Towards a Great Nation" (June 29 Declaration). Finally, the South Korean people gained their democracy back into their hands and built the Sixth Republic.

3.3 Women's Movement

The women's movement in South Korea moved slowly because of the dictatorship. In the 1980s, it was still hard to say that the women's movement had started because fighting against the dictatorship was prioritized among all the social movements (Cho 1988/2002). The year 1987 marks the turning point of the women's movement.

Before 1987, the women's movement was marginalized by other civil movements since fighting against the dictatorship took priority among all kinds of civil movements. After 1987, the women's movement bloomed

because of President Roh Tae-woo's (노태우) promise of democratization. At the time, feminist thoughts were widely spread on college campuses (Cho 1988/2002). Women activists formed groups to support civil and labor movements (Haruki 2006). College students believed they needed to become "laborers" to support the labor movement. While female college students left college to work in firms, they also combined laborers' resistance against the government with fighting for women's rights. Women's issues gradually caught people's attention. In 1990, the women's movement started advocating for gender equality.

The external pressure from the international community also played a critical role in pushing the government to improve women's rights. In 1983, the South Korean government was forced to react to the United Nation's (UN) call for a "Decade for Women" and set up the first women's agency, the Korean Women's Development Institute (한국여성개발원/ KWDI). The Korean Women's Development Institute was renamed the "Korean Women's Policy Institute" in 2007. In 1995, the government ratified the Women's Development Act to respond to the GM initiative and Beijing Declaration and Platform for Action, which were promoted at the UN 4th Conference. The Women's Development Act was renamed the Gender Equality Act to expand its scope from protecting women's rights to the fight against gender discrimination in 2015 (Lee, 2015).

3.4 Women and State

The continuous protests against the government in the 1980s eventually led to the formation of a new coalition of women's groups: Korean Women's Associations United (한국여성단체연합/KWAU). The KWAU is made up of women's groups that thrived during the 1980s, which were liberal-oriented and strongly advocated for women's rights. In contrast, another existing league of women's groups, the Korean National Council of Women (한국여성단체협의회/KNCW) was formed in the 1950s and held rather conservative political positions and a mild stance on women's welfare. It survived authoritarianism because of its conservative stance on politics and women's welfare. Though these two leagues are at opposite ends of the political spectrum and support opposite political parties, they regularly cooperate on women's policies. Their cooperation has proven effective since their opposing political stances ensured that one of them is always close to the party in charge. One example of their cooperation is overturning the longstanding household head system (호주/Hoju, the household system addresses that a household must have a "head," and the "head" should be a man.) in 2005. (Huang, 2022)

4. Taiwan

4.1 Democratization

Taiwan was under the colonization of Japan from 1895 to 1945 and was not liberated until the end of WWII. After WWII, Taiwan came under the Republic of China's (ROC) governance. Nonetheless, the Kuomintang administration (KMT administration) of the ROC was soon involved in the civil war against the Communist Party in mainland China and imposed martial law in 1948.

In 1949, the KMT administration was defeated by the Communist Party in the Chinese Civil War and fled to Taiwan to continue its governance. After its retreat, the KMT administration did not lift martial law in Taiwan. Martial law not only solidified the KMT's governance but also authorized the government to deploy military force to maintain social order (National Human Rights Museum, n.d.).

In Taiwan, democratization began in the 1970s, driven by the external and internal challenges that forced the KMT administration to change. In the international community, the KMT administration (ROC) lost its legitimacy as *China* to the People's Republic of China (PRC) and was evicted from the UN in 1972. Domestically, the economic boost in the 1960s empowered people to demand political rights (Shiau, 1990, 1991).

4.2 Formosa Incident

On December 10, 1979, to celebrate Human Rights Day, the Formosa magazine (美麗島雜誌) in Kaohsiung organized a parade, which was considered a rebellion against the government by the KMT administration. In the end, it was the pressure from the U.S. and Taiwanese citizens that stopped the KMT administration from executing arrested participants in the military court. The "Formosa Incident" created a consensus that democracy was in need. In 1986, activists formed the Democratic Progressive Party (DPP), the first political party other than the KMT in Taiwan under the ban on political parties. In 1987, the KMT abolished martial law and ended its

authoritarianism.

4.3 Feminist's Movement

The women's movement was first introduced to Taiwan in the 1960s and brought into the spotlight in the 1970s. Lu Hsiu-lien (呂秀蓮) led the newborn women's movement. Lu Hsiu-lien was first known for criticizing the government's limitation on female students' access to college to protect male students' educational rights. At the time, feminism was presented as an idea to make women better housewives by giving them more civil rights in order to avoid conflicts between feminism and traditional beliefs. In 1976, Lu Hsiu-lien set up "Pioneer Publishing" (拓荒者雜誌) to promote the idea of women's rights. (Gu, 2020)

However, the growing attention to the women's movement led to backlash from conventional society and suppression from the KMT administration. The financial challenge was the last straw that led Lu Hsiu-lien to close Pioneer Publishing. This frustration pushed Lu Hsiu-lien to leave Taiwan in 1977. When she returned, she recognized that women's rights could be improved only if the political system changed. Thus, Lu Hsiu-lien shifted her focus from the women's movement to the democratic movement. When Lu Hsiu-lien was sentenced to jail for participating in the Formosa Incident in 1979, another woman stood out to lead the women's movement in Taiwan.

In 1976, Lee Yuan-Chen (李元貞) participated in the human rights movement to fight the KMT administration, only to find that women were marginalized in those movements. Lee Yuan-Chen then recognized that the human rights movement would not improve women's status and that women's issues could be addressed through the women's movement. Therefore, Lee Yuan-Chen left the human rights movement and dedicated herself entirely to the women's movement. At the end of the 1970s, Lee Yuan-Chen became the leader of the women's movement after Lu Hsiu-lien's arrest. In 1982, Lee Yuan-Chen followed Lu's strategy and founded the "Awakening Magazine" (婦女新知雜誌社) as the center of activism for the "new" women's movement. The women's movement finally flourished in the 1990s, following Taiwan's democratization in 1987.

4.4 Women and State

After democratization, many feminist activists were invited to participate in policy-making processes because of their close ties with democratic activists. Lu Hsiu-lien (呂秀蓮) is a typical example. She was one of the founding members of the Democratic Progressive Party (DPP) and was elected Vice President from 2000 to 2008.

In 1995, feminists supported the DPP's candidate, Chen Shui-bian (陳水扁), in the Taipei City mayoral election. After winning the election, Chen Shui-bian helped feminist activists establish a women's policy agency within the government (Gu 2020). Feminists gained more power to influence the government, especially when the DPP took power in 2000, which provided a good example of state feminism (Huang, 2015). Furthermore, feminist activists built a velvet network and also utilized it to advance women's policy agendas. The adoption of Gender Mainstreaming (GM) in 2005 was one of the achievements. However, since feminist activists' efforts have relied on cooperation and trust with the DPP, state feminism can be challenged when a party alternation occurs. When the KMT came to power again in 2008, state feminism was seriously challenged (Huang, 2015).

5. Comparison and Conclusion

5.1 Democratization in Japan, South Korea, and Taiwan

Japan's democracy was considered "complete" with the implementation of the new Constitution. However, the legacy of the women's movement prior to WWII offered little support for feminist activists in the new political environment, and the civil movement did not thrive until the collapse of one-party dominance. In contrast, Taiwan and South Korea both fought hard for democracy and shared some similarities in their democratization. For instance, both countries had a "critical juncture" (the Formosa Incident in Taiwan and the Gwangju Uprising in South Korea) that helped to cement the path to democracy (Mahoney, 2001; Pierson, 2004). A minor difference was that Taiwan experienced a relatively more peaceful democratization process than South Korea.

5.2 Women's Movement in Japan, South Korea, and Taiwan

The review revealed that women's movements in Japan, South Korea, and Taiwan thrived due to economic

growth and pressure from the international community. Japan did not experience the chaos of democratic transitions, and there were fewer opportunities for feminist activists to seize power. The government and bureaucracy were, and still are, the primary drivers of gender equality policy agendas.

In contrast, South Korea and Taiwan developed their women's movements during democratization. Feminist activists faced political turmoil, but political and social changes also created opportunities for them to learn and develop networks and strategies. As a result, South Korea and Taiwan implemented state feminism and built women's policy agencies to continuously promulgate gender equality.

The significant differences between South Korea and Taiwan in the women's movement are international support and the operation of state feminism. Since South Korea remained a member of the international community while Taiwan did not, the South Korean government was forced to respond to international initiatives. At the same time, it relied on voluntary action by the government in Taiwan. When implementing state feminism, South Korea is less affected by party alternation, while state feminism in Taiwan can be easily challenged by party alternation.

6. Finding and Conclusion

Reviewing the interaction between democratization and women's movements in Japan, South Korea, and Taiwan can provide important insights. Although Japan did not have a "democratic transition" after WWII, it still provides a good comparison to South Korea and Taiwan.

The comparison illustrates that democratization can benefit women's movements by helping feminist activists and women's groups acquire political power, accumulate energy, and develop strategies.

1. Acquiring political power: Women's groups and feminist activists gained power by fighting against the government. They built social trust and support networks during democratization. Their influence was later transformed into political power, which shaped policy agendas and processes after democratization. Women's groups and feminist activists also gained enough power to push the government to set up women's policy agencies.
2. Accumulating energy: Women's groups and feminist activists were forced to build networks and cooperation to resist government suppression. They established organizations to build their strength, sought cooperation with other civil groups, and developed coalitions.
3. Developing strategies: Women's groups and feminist activists developed strategies during their resistance against the government. They learned from the struggle to develop strategies for dealing with authoritarian and democratized governments. The development of state feminism in South Korea and Taiwan is a good example that reflects the lessons feminist activists learned during the movement and the intention to entrench their efforts within the government.

In contrast, the women's movement and feminist activists who did not experience radical political chaos and an urgent need for resistance had fewer incentives to struggle for power, form coalitions, and develop strategies. While democratization created chances to reset the power imbalance between the government and the people, feminist activists in Japan had fewer opportunities to break the status quo due to political stability. On the other hand, feminist activists and women's groups in Japan could not seize the opportunities to create bottom-up changes when party alternation created political changes. It still relies on women's groups and feminist activists' capability to leverage opportunities when political changes occur. Ultimately, state feminism in Japan remains government-controlled, with the government and bureaucracy dominating the policy agenda.

Therefore, the comparison between Japan, South Korea, and Taiwan shows that democratization can create an environment for women's groups and feminist activists to gain experience and develop strategies to influence the newly democratized regimes in the future. The power, networks, and strategies that women's groups and feminist activists developed during the radical transition could help them leverage political opportunities after democratic consolidation and achieve greater progress on gender equality.

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Recruiting Leaders: Headhunters' Role in Addressing Gender Bias and Board Expectations

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Abstract: Although women remain significantly underrepresented in business leadership roles, limited attention has been given to how headhunters influence the selection of candidates for these positions. This study examines gender biases in the CEO recruitment process in Iceland, focusing on the role of headhunters and their interactions with corporate boards. Semi-structured interviews were conducted with eight headhunters and 44 board members of all listed companies in Iceland. The findings revealed gender differences in perceptions of headhunters' methods. Female board members were more critical of the narrow pool of candidates and more likely to question headhunters' practices. In contrast, male board members exhibited greater trust in headhunters, relying heavily on their expertise. While some headhunters demonstrate a clear agenda to address gender disparities, expending considerable effort to find qualified women for their candidate lists, others focus primarily on meeting the boards' requests for candidates with extensive CEO experience, often favoring traditional, male-dominated profiles. Headhunters identify the need to address biases and the boards' constructions of merit. They experience a dilemma in their roles where they either align their goals with the broader objectives of promoting diversity or focus on delivering candidates that meet the specific, often experience-based, demands of boards. This study contributes to the literature on executive recruitment and gender by highlighting how headhunters' methods can significantly influence the gender balance of CEO candidate pools and selection. It offers practical recommendations for aligning headhunters' practices and board objectives to foster greater gender diversity in leadership roles.

Keywords: Board Dynamics, CEO Recruitment, Gender Bias, Headhunters, Meritocracy

1. Introduction

Since 2009, Iceland has led the World Economic Forum's Global Gender Gap Index and was the only country to have closed over 90% of the gap in 2024 (WEF, 2024). Nonetheless, women hold fewer than 10% of CEO roles in Iceland's listed companies (GEMMAQ, 2025), with only 20% of new hires being female (FKA, 2024). Recruiting a CEO is a complex and demanding task for corporate boards, often necessitating the engagement of headhunters to facilitate the process (Steuer et al., 2015). Executive search consultants, commonly referred to as headhunters, play a pivotal role in assisting boards by identifying, evaluating, and recruiting top-tier talent (Coverdill & Finlay, 1998). Their influence extends to shaping the pool of candidates for CEO roles and determining who qualifies as a candidate (Faulconbridge et al., 2009; Peltokorpi, 2023). Understanding how headhunters operate is essential to addressing gender disparities in executive recruitment.

As labor market intermediaries, headhunters leverage their expertise to assess CEO potential and are frequently regarded as the most qualified professionals for this task (Finlay & Coverdill, 2000; Steuer et al., 2015). While clients typically define the criteria for the search, headhunters assume an advisory role, influencing the final selection of candidates (Peltokorpi, 2023). Clients are frequently unaware of headhunters' specific methods to identify suitable candidates (Peltokorpi, 2021), which can include cold calls, online job boards, social networks, proprietary databases, and referrals (Bonet & Hamori, 2017; Finlay & Coverdill, 2007; Peltokorpi, 2021). These methods reflect executive recruitment's complex and resource-intensive nature, underscoring headhunters' critical influence in the recruitment process.

This study explores the role of headhunters in addressing gender bias in CEO recruitment at listed companies in Iceland. While previous studies have highlighted gender bias in hiring (Faulconbridge et al., 2009; Peltokorpi, 2023), less attention has been given to how headhunters and boards interact and influence candidate pools. The research question is: *How do headhunters and board members view the role and influence of headhunters in the CEO recruitment process?*

Board members and the country's leading headhunters were interviewed, providing a unique perspective of comparing and contrasting the experiences of clients and agents in the process. The study contributes to the literature as few studies have directly compared the perspectives of male and female board members despite evidence that gender influences perceptions of merit and risk. It provides an understanding of how biases are perpetuated or challenged within the CEO recruitment process by examining the findings through the lens of

gender biases and the social construction of merit. By exploring how both male and female board members and headhunters perceive gender bias in CEO recruitment, this study addresses a critical gap in understanding how the myth of meritocracy, gender bias, and risk aversion jointly shape executive selection. This perspective offers a novel contribution by highlighting the tensions between headhunters' agency and board members' expectations.

2. Literature Review

Headhunters, acting as intermediaries in the labor market, play a critical role in identifying, evaluating, and recruiting candidates for high-level executive positions, including CEOs (Finlay & Coverdill, 2000; Peltokorpi, 2023). This creates a trilateral relationship between the client, headhunter, and candidates (Baldo et al., 2019), distinct from the traditional employer-candidate dynamic (Bonet & Hamori, 2017). Headhunters' influence extends beyond mere candidate identification; they actively shape perceptions of what constitutes a qualified and suitable candidate, often determining the diversity and composition of the final candidate pool (Faulconbridge et al., 2009).

Headhunters employ diverse strategies, including professional networks, databases, and social media platforms such as LinkedIn (Faulconbridge et al., 2009; Finlay & Coverdill, 2007; Bonet & Hamori, 2017). However, their search methods often reflect a cost-benefit approach, prioritizing clients with whom they maintain strong relationships and favoring candidates from well-known companies to mitigate hiring risks (Peltokorpi, 2023). Such practices can inadvertently perpetuate gender biases by narrowing the pool of considered candidates to those who already align with traditional leadership norms, which predominantly include men (Meriläinen et al., 2015).

Despite the intention of merit-based recruitment, research shows that implicit and explicit biases persist in executive hiring processes, limiting opportunities for women. Headhunters often rely on informal networks, which tend to favor male candidates due to their greater representation in leadership roles (Yan et al., 2023). Furthermore, the criteria used to define merit frequently align with stereotypically male traits, sidelining women who exhibit alternative but equally effective leadership styles (Peltokorpi, 2021). Selection criteria that favor male candidates, such as prior CEO experience, endure despite evidence that prior CEO experience may negatively impact performance (Hamori & Koyuncu, 2014). Assumptions about women's family responsibilities further discourage their consideration for demanding CEO roles, contributing to systemic exclusion (Tienari et al., 2013).

The gendered nature of recruitment becomes especially evident when compiling candidate lists. Headhunters may unintentionally apply gendered assumptions when evaluating candidates' qualifications and personal circumstances (Fernandez-Mateo & Fernandez, 2016; Tienari et al., 2013). For instance, women are often excluded from consideration due to biases regarding their availability or perceived leadership "fit" (Yan et al., 2023). Even when diversity-focused searches are initiated, they rarely overcome the ingrained biases that favor male-dominated professional networks (Coffman et al., 2023).

While some headhunters seek to address gender disparities by including diversity as a search criterion, their efforts are often constrained by client preferences and the broader organizational culture (Fernandez-Mateo & Fernandez, 2016). Conservative approaches to hiring, emphasizing avoiding 'bad hires,' further limit opportunities for women, as boards and headhunters favor candidates with proven success in similar roles (Steuer et al., 2015). This risk-averse strategy disproportionately affects women, who are less likely to have held traditional leadership positions due to systemic barriers (Yan et al., 2023).

Meritocracy is widely upheld as a fair system for career progression based on individual talent and effort, but in practice, it often perpetuates gender and social inequalities (Clarke et al., 2024). The concept of merit plays a key role in corporate recruitment and promotions and posits that success is based solely on individual talent and effort. However, research has shown that enforcing merit-based systems can unintentionally entrench gender biases, as evidenced in studies on recruitment in academia and professional services (Clarke et al., 2024; Powell & Arora-Jonsson, 2021). Merit is not an objective measure but a culturally defined concept that often reflects the biases of dominant groups (Anderson-Gough et al., 2024; Benschop & van den Brink, 2023). Cultural norms within institutions shape what is considered 'meritorious,' often privileging masculine-coded traits such as assertiveness and risk-taking (Anderson-Gough et al., 2024). Meritocratic ideals tend to serve to justify social hierarchies, evident in the self-justifications of elites and organizational practices (Friedman et al., 2024; Clarke et al., 2024). Christensen and Muhr (2019) discussed how Danish managers often frame opposition to gender

equality measures as a defense of merit-based hiring. This argument overlooks how existing systems privilege men through implicit biases and structural advantages.

Benschop and van den Brink (2023) highlight the challenges in addressing structural gender inequalities and underscore that merit is a socially constructed concept shaped by power dynamics and cultural norms. They advocate redefining merit to reflect inclusivity and diversity, challenging the entrenched biases that sustain inequality. Having attained positions of privilege, individuals tend to credit their own merit, consequently, women in upper-echelon positions are more likely to subscribe to meritocratic ideals (Cech & Blair-Loy, 2010). Clarke et al. (2024) critique the meritocracy myth; the discourse of merit perpetuating gender inequities by presenting recruitment and promotion systems as neutral. They show how leaders' discourse often obscures structural barriers, framing women as individually responsible for their underrepresentation. Their findings emphasize the paradox of meritocracy, where efforts to appear fair exacerbate bias.

3. Method

This qualitative study, based on grounded theory methodology (Holloway & Schwarz, 2018), recruited participants for semi-structured interviews through purposive sampling. For the corporate boards, participants were recruited from all listed companies in Iceland, one male and one female from each company, resulting in 44 participants, 22 women and 22 men. All the board members who were contacted accepted the offer of participation in the research. Subsequently, the leading executive search consultants in the Icelandic market were contacted, four women and four men, all of whom accepted. The interviews lasted 27-130 minutes and were conducted through Teams or in person at the University of Iceland or the participants' workplaces. All interviews were audio-recorded and transcribed verbatim, supplemented by observational notes taken during the sessions. The small size of the Icelandic market precludes revealing any information about the participants other than their gender. The age range for the participants was 35 to 71 years, and all had substantial experience in their respective roles as board members and consultants. In the findings, headhunters are referred to as HH, women on boards as WB, and men on boards as MB. Each participant got a number, which is combined with these abbreviations.

The interview frames for board members included questions designed to explore their experiences with the CEO recruitment process, selection criteria, and gender biases. For the headhunters, the questions explored the consultants' work, methods, and criteria in recruitment processes, as well as their experiences with advertising practices and gender biases in the industry. The interviews were analyzed following the grounded theory approach outlined by Strauss and Corbin (1997), which emphasizes systematic and iterative coding to generate theory from data. The analysis proceeded through three key stages: open coding to identify recurring patterns, axial coding to establish connections between themes, and selective coding to refine the overarching findings. Throughout the process, constant comparative analysis was employed to ensure the codes and categories remained grounded in the data. NVivo software was used to organize and visualize coding relationships, enhancing the rigor of our thematic analysis. This process provided a robust framework for understanding the dynamics of executive recruitment and the potential for addressing gender disparities.

4. Findings

The analysis resulted in three themes, highlighting the participants' views on the headhunters' roles and impact on the key aspects of the recruitment process: gender bias, merit, and risk.

4.1 Gender Bias

The interviews revealed a sharp contrast in how male and female board members perceive gender bias in the recruitment process and headhunters' methods. Women on boards were more critical of the narrow pool of candidates supplied by headhunters and more likely to question headhunters' practices. They felt that the headhunters sometimes were complicit in the charade of pretending to look for women. For example, two quotes highlight their dissatisfaction with the lack of gender balance and experiences of prejudice:

"[the board] specifically requested a well-balanced, mixed list of women and men, and the list that came back was 80% men." WB14

"... unfortunately, there is a bit of what one might call ingrained, well, simply prejudice against women." WB12

These descriptions are in sharp contrast to the men on boards who exhibited greater trust in headhunters, relying heavily on their expertise. Most of the men on boards dismissed the notion that gender bias played any part in the recruitment process or the headhunters' practices:

"I didn't feel any kind of bias, that is, any gender bias, from the recruitment agency." MB18

"... after discussions with the recruitment agency, they have come up with a proposal which we have discussed and reviewed together, and it has usually been approved mostly unchanged. So, in these cases, we have passed the ball over to them." MB14

Although most of the headhunters felt that the process itself was unbiased and attributed the gender imbalance in CEO positions to women's disinterest or the board's conservative attitudes, some of them agreed that the biggest challenge might be gender bias in the process. One of them even admitted their own biases, but many considered it their primary role to counteract the boards' biases:

"... these preconceived ideas, you know, lead to prematurely dismissing some options ... we often don't fully discuss some candidates because someone has biased ideas about them. Unless we make a concerted effort to resist, we tend to dismiss someone just because one person says, 'no, she doesn't fit' or something." HH8

"My role is usually to bring this different perspective ... are we hiring based on experience, or what would we like to be?" HH5

4.2 Merit

The headhunters and women on boards identified implicit and structural biases as a primary challenge in the recruitment process. In contrast, men on boards were more likely to attribute gender disparity to women and their lack of merit. Consequently, considering a more gender-balanced candidate pool would mean a dilution of merit. The men tended to attribute the disproportionate gender ratio to a perceived lack of relevant experience among women or by referring to women's lack of interest in these positions:

"It's just a fact ... there isn't the same level of experience among enough women compared to men ... It's not that the companies lack the will ... You can't change it if the foundation isn't there. I just know from experience that there just aren't enough women out there who are ready for the job." MB3

"The fact is that there are many more men who are seeking, you know, if you think about it proportionally, there are far more men who are striving for these top executive positions than women. So the chances of a man being chosen are perhaps just higher because of that." MB12

Conversely, women on boards view gender equity not only as a matter of justice but also as a strategic benefit, emphasizing that recruiting from the entire talent pool could lead to an even better outcome for the organization. Both the headhunters and women on boards viewed gender-balanced candidate lists as a sign of quality and professionalism. The two quotes below show how women on boards pointed out that CEO experience as a sign of merit often did not apply to male candidates. Moreover, they questioned whether the criteria and selection methods could even be unbiased and focused on actual merit:

"...they do these tests and such to determine how well the candidates qualify, and you have to wonder if maybe they are inherently biased, you know?" WB13

"...one of the criteria is to have held a CEO position, but then the final selection ends up being someone who hasn't ever been a CEO! ... we seem to be much more reluctant to give women a chance if they don't check all the boxes." WB9

The women on boards and headhunters recognized the social structure of merit and how criteria tended to be derived from masculine-coded traits. The overreliance on prior CEO experience as a critical indicator of merit was criticized by many of the headhunters, for example:

"People who have less CEO experience are often the people who have really been developing their potential in the last few years. They are more open to innovation and can even benefit the company much more than someone who has been in the same position for the last twenty years. People need to be more open to considering that a person doesn't have to have all this CEO experience to be the most qualified ... open their eyes to the talent that's out there, not always let CEO experience trump everything else." HH7

4.3 Risk

Both women and men on boards perceived an element of risk in the process when considering candidates with limited CEO experience. Many men on boards considered it too risky to hire someone without proven CEO experience, and since women were not given those opportunities, they were naturally not considered. Most of them described women as too risk-averse, while a minority of them pointed the finger at company leadership:

"It has just been quite difficult to find candidates, and maybe that's because the women being considered don't have the experience, but somehow they need to gain experience. So, you know, maybe it's the companies' risk aversion in hiring someone, regardless of gender, who doesn't have the experience of being a manager." MB17

"There is a lot of pressure... [as CEO] you are constantly in the limelight, making tough decisions, this is really stressful ... women just don't want to take the risk and try to climb to the top..." MB4

The women on boards expressed their own feelings of precariousness in their positions as board members and how 'overemphasis' on gender balance was met with annoyance and disrespect by their male counterparts. They sensed men's reluctance and worried that they themselves would face negative consequences if they sponsored female candidates who proved unsuccessful:

"...women who have gone far and hard in [fighting for women's rights], and it often works against them. You know, they get the label that this is their only agenda. So, it's a fine line in keeping these viewpoints afloat; one can go too far in doing so." WB14

Headhunters similarly viewed it as a major challenge to persuade boards to consider high-potential candidates who do not fit the criteria of previous CEO experience. Some of them even questioned their role and whether they should be a risk-mitigator or more proactive:

"People worry about hiring some CEO who totally messes up ... So people often gravitate towards the security, which is the merry-go-round ... you know, men who move from one position, then another one gets that position, and so on" HH4

"Trying to figure out who the most qualified candidate is, or just stop the process and finalize the hiring once you have a candidate that people like for the job and meets the main criteria? Be less of a specialist or consultant and more of a facilitator?" HH8

5. Discussion

This study aimed to understand the role of headhunters in addressing gender bias within CEO recruitment processes at listed companies in Iceland, a country renowned for its progress in gender equality yet still facing significant underrepresentation of women in business leadership. The findings illuminate the complex dynamic between headhunters and board members, often reinforcing existing biases. This discussion contextualizes the findings within the broader literature on gender bias, meritocracy, and executive recruitment, highlighting theoretical and practical implications and how gender biases may be challenged.

5.1 Gender Bias and the Illusion of Meritocracy

The interviews reveal stark differences between male and female board members' perceptions of headhunters' practices. Male board members frequently subscribed to the "meritocracy myth" (Clarke et al., 2024), viewing the recruitment process as neutral and attributing gender disparities to women's lack of interest or experience. This aligns with prior research showing how meritocracy is often framed as a fair and unbiased system despite its role in perpetuating structural inequities (Anderson-Gough et al., 2024; Powell & Arora-Jonsson, 2021).

Conversely, female board members and most of the headhunters recognized that the concept of merit is socially constructed, reflecting masculine-coded traits such as assertiveness and risk-taking (Benschop & van den Brink, 2023). This perspective echoes Tienari et al. (2013), who found that recruitment processes often exclude women based on assumptions about their leadership "fit" or availability rather than their actual capabilities. By prioritizing prior CEO experience, a criterion criticized in the literature for its limited predictive value for performance (Hamori & Koyuncu, 2014), boards inadvertently disadvantage women who have historically faced barriers to such roles.

The reluctance to consider women without CEO experience appears deeply embedded in corporate governance norms that prioritize 'proven' leadership trajectories. Board accountability to shareholders can reinforce this risk aversion, where hiring decisions are scrutinized for immediate business performance rather than long-term diversity benefits. Consequently, risk-averse decision-making systematically disadvantages women, who are less likely to have held prior CEO roles due to historical barriers, creating a cycle of exclusion.

5.2 The Role of Headhunters as Gatekeepers or Change Agents

Headhunters can play a dual role as facilitators of client preferences and potential change agents. They possess significant influence over candidate pools, yet reliance on male-dominated networks appears to shape their practices. The findings indicate that while some headhunters actively advocate for diversity, their efforts are often constrained by board members' risk aversion and conservative definitions of merit.

The study highlights how headhunters' ability to challenge biases depends on their awareness and willingness to adopt inclusive practices. Fernandez-Mateo and Fernandez (2016) emphasize the importance of integrating diversity as a formal search criterion. Still, this study found that even when headhunters pursue such strategies, entrenched cultural norms within boards often undermine their efforts. For instance, women on boards reported that biased criteria and reliance on informal networks frequently led to the exclusion of diverse candidates, supporting research showing how implicit and explicit biases persist in executive hiring processes despite the objectives of merit-based recruitment, limiting opportunities for women. Headhunters often rely on informal networks, which tend to favor male candidates due to their greater representation in leadership roles (Yan et al., 2023).

5.3 Structural Barriers, Meritocracy, and Perceived Risk

The findings underscore how the myth of meritocracy entrenches gender disparities and limits strategic advantages by narrowing the talent pool. Women on boards advocated for gender diversity, arguing that broader recruitment criteria would enhance organizational performance. However, many male board members perceived gender-balancing efforts as a dilution of merit rather than a means of strengthening leadership. This reflects the paradox described by Clarke et al. (2024), where meritocracy, while appearing neutral, reinforces exclusionary hiring norms by prioritizing conventional career trajectories—most often favoring men. By equating experience with leadership potential, boards overlook the value of diverse perspectives and skills, ultimately hindering innovation and adaptability at the executive level.

The perception of risk further compounds these structural barriers, shaping both hiring outcomes and the actions of women on boards. Risk aversion in CEO recruitment leads boards to default to male-dominated leadership profiles, reinforcing a cycle where women remain underrepresented. Peltokorpi (2023) highlights how this bias disproportionately excludes women without prior CEO experience despite evidence that different career paths can cultivate strong leadership capabilities. While recognizing these biases, female board members often navigate a precarious position: advocating too strongly for women risks being perceived as pushing an "agenda," while failing to support female candidates reinforces the status quo. This internalized caution reflects broader systemic pressures discouraging deviation from traditional selection processes. Similarly, headhunters face the dilemma of either challenging board expectations or reinforcing them to maintain client relationships. Steuer et al. (2015) note that the conservative emphasis on avoiding "bad hires" often prioritizes short-term security over long-term diversity gains, ultimately limiting progress toward inclusive leadership.

5.4 Implications for Practice

To address the challenges, headhunters and boards must reconceptualize merit to include a broader range of leadership styles and experiences. Benschop and van den Brink (2023) advocate redefining merit through an inclusive lens, emphasizing skills over traditional credentials. This study corroborates their findings, showing that overreliance on masculine-coded criteria perpetuates gender imbalances.

By recognizing and mitigating their own biases, implementing structured processes, and fostering an inclusive hiring environment, headhunters can significantly influence the gender dynamics within executive positions. Headhunters can leverage their intermediary role to educate boards about the benefits of diversity and transparency in the processes. This could include adopting technology-driven tools, such as blind screening and AI-powered assessments, to expand candidate pools beyond established networks. Boards, on the other hand, must recognize the strategic value of gender diversity and develop clear goals for balanced leadership.

However, systemic barriers and ingrained organizational cultures often pose challenges that require concerted efforts and innovative strategies to overcome, thereby ensuring that the recruitment process is genuinely equitable for all candidates. Addressing gender bias in CEO recruitment necessitates a comprehensive approach, including establishing clear diversity goals, promoting skills-centric recruitment strategies, and leveraging technology to reduce biases in candidate selection.

As the landscape of executive recruitment evolves, the intersection of meritocracy and gender bias remains a critical area of focus for organizations striving to enhance diversity and foster inclusive leadership practices, thereby aligning the interests of headhunters and principals toward more equitable outcomes in executive appointments.

6. Conclusion

The findings emphasize that addressing gender bias in CEO recruitment requires a collaborative effort among headhunters, boards, and organizations. By integrating research-backed strategies, such as redefining merit and fostering inclusive practices, stakeholders can dismantle structural barriers and create a more equitable recruitment process. Future research should explore how these strategies can be implemented effectively across different industries and cultural contexts, providing actionable insights for global executive recruitment practices.

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Transforming Gender Equality and Inclusion in Higher Education in Ireland

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Abstract: Today, Ireland is recognised as a leader among European countries in advancing gender equality (GE) in higher education. The remarkable characteristic of this profile, though, is the speed at which the higher education (HE) sector has embedded GE as a distinctive and integral feature of the system. Although there were efforts to advance gender equality in the Irish higher education sector, the importance of the topic did not take hold until 2015-2016. At that point, two events of enduring significance occurred. One was consensus in the higher education institutions (HEIs), supported by the Higher Education Authority (HEA), to adopt the Athena Swan framework for gender equality plans (GEPs). The other was publication by the HEA of an investigative report, with recommendations, by a committee led by former European Commissioner for Research and Innovation, Maire Geoghegan-Quinn. Little is known about advancing change across a higher education system in one country as a national priority. This paper explores the changes within the Irish HE landscape to unearth lessons learned and to address how Ireland as a case study, with government focus and support, has transformed the EDI agenda in the context of GE. The paper is based on, and draws from, a recent publication on this subject to which change leaders have contributed reflections to embed an EDI landscape. It discusses the methods by which collaboration on this book project was developed and supported, and the value of this reflective approach in making sense of the fast-paced change of the last decade. The paper highlights challenges and well as opportunities encountered along the way and briefly reflects on the maturation of the gender equality agenda in the current context.

Keywords: Gender Equality (GE), Higher Education, Ireland, Public Policy, Practice, Intersectionality

1. Introduction

Higher education (HE) in Ireland has transformed in the past thirty years. In 1991, women and men aged 15 and over had approximately equal graduation rates (14%), but by 2022, women's third level attainment, at 50%, exceeded that of men (46%) (CSO 2023). Accompanying this unprecedented student expansion was a growth in the HE workforce. Between 2011 and 2023, overall employment in the sector increased by 40% (HEA, 2012; HEA, 2024). The gender distribution of academic staff changed from being male dominated in 2013 (63% male: 37% female, CSO, 2013), to being more gender balanced in 2023 (53% male: 47% female, HEA 2023).

These data provide contextual background to the drivers for sectoral change (Figures 1 and 2).

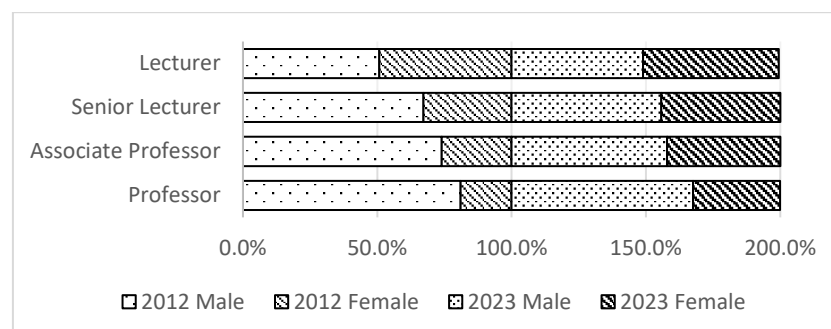


Figure 1: Academic staff by grade, Universities, 2012 and 2022.

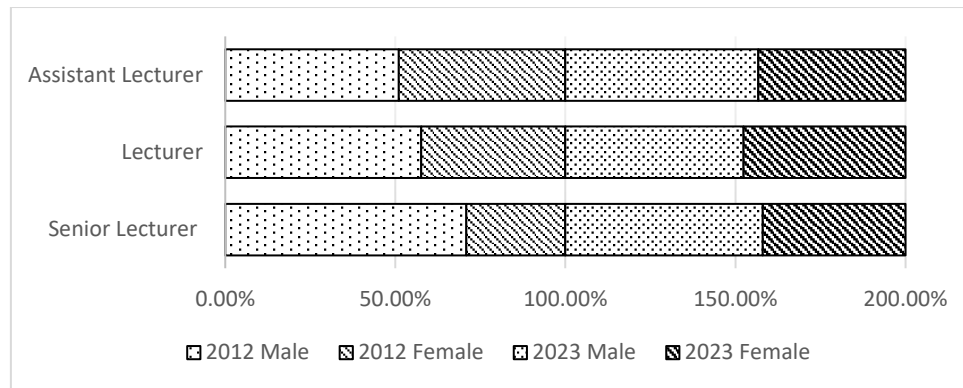


Figure 2: Academic staff by grade, Technological Universities and Institutes of Technology, 2012 and 2022

These charts demonstrate that women advanced in all academic categories across all higher education institutions (HEIs) in the decade. Women's professorial post holding increased by 70% in the traditional universities, from a low of 19% in 2011-12 to 32.4% in 2023 (Figure 1). In the five newly created technological universities and two institutes of technology, where a different career structure operates, women's share of Senior Lecturer posts (the highest grade) improved by 45%, from 29% in 2012 to 42% in 2022 (Figure 2).

Indeed, *She Figures 2021* recorded that the glass ceiling in Irish academia had decreased four points to 1.8 between 2015 and 2018, the largest improvement in the EU, attributed to the adoption by Irish HEIs of 'cascade' quota measures (European Commission, 2021: 192-194).

This progress over a decade was achieved through concerted action emanating from multiple sources and directions. Pressure for delivery of GE at professorial level was growing from 2009 onwards, as institutional disparities in promotion rates between women and men became obvious. Focus came on the National University of Ireland, Galway (NUIG, now the University of Galway), where one female academic who had failed to be promoted on successive occasions lodged a complaint of discrimination with the national labour tribunal, the Workplace Relations Commission. The case was heard in 2014, and it found in favour of the complainant, Michelle Sheehy-Skeffington (The Equality Tribunal, 2014). As part of its response, the NUIG Governing Body established a task force on GE in 2015 with a remit "To consider the University's present gender mix among staff, including academic and support staff, and advise the University what measures it should take to develop effective gender equality". The body was chaired by the distinguished academic, Professor Jane Grimson (Trinity College Dublin). The final report, published in 2016, detailed 24 recommendations for cultural, policy and procedural change, including the radical and potentially controversial one of introducing mandatory gender quotas based on a flexible cascade model for academic assessments and promotions (NUI Galway, 2016: 22).

The 2014 employment tribunal findings also had a national impact. As the sector regulator, the Higher Education Authority (HEA) established an independent expert group in 2015 chaired by former EU Commissioner for Research, Innovation and Science, Maire Geoghegan-Quinn. The group was tasked to investigate and make recommendations for sectoral change. Their 2016 report provided a framework for GE. Recommendations included the introduction of the cascade quota model for academic promotions and the creation of an executive role to lead GE strategy, policy and initiatives in universities. Both measures were partially influenced by the NUIG Task Force Report recommendations.

At the time of the events in 2014-16 described above, three Irish universities were involved in European-funded projects leading to the development of gender equality plans (GEPs): The University of Limerick was a partner in FESTA, Trinity College Dublin was a partner in INTEGER, and University College Cork was involved in GENOVATE. This work, the first focused on developing local responses to institutional gender disadvantage, laid the groundwork for the adoption of Athena Swan as the institutional accreditation process for GE (O'Connor and Drew, 2023: 65). By April 2024, there were 131 Athena Swan award-holders in the sector, including four institutions with silver accreditation.

An additional incentive to deliver on GE arose when three key Irish research funding bodies announced that HEIs would be required to have Athena Swan accreditation by 2019 to be eligible for funding (O'Shea, 2016). This move mirrored the 2011 UK National Institute for Health Research (NIHR) announcement, which indicated that from 2016 onwards only institutions with an Athena Swan silver award would make the shortlist for NIHR funding.

(Royal Society, 2016). These developments demonstrate the international diffusion of ideas and standards on GE, and the embedding of external GE-promoting frameworks into the Irish HE system.

Following early gains and as the extent of cultural change required of HEIs came to be understood, the delivery of GE slowed. To prompt action, Mary Mitchell-O'Connor, Minister of State for Higher Education, created a Gender Equality Task Force in 2017 and from its report published a two-year strategy and action plan focused on delivering the 2016 recommendations. This included a proposal to establish a HEA Centre of Excellence for Gender Equality to enable the sector to effect 'sustainable change by providing centralised support for the institutions, sharing of good practice, and funding for innovative organisational and cultural change initiatives nationally' (HEA, 2018: 2). The report also bolstered top-down efforts through integrating institutional target-setting for GE into the compacts agreed between the HEA and individual institutions, thereby making institutions accountable for progress. It also reinforced Athena Swan as the framework that all institutions were expected to adopt.

The GE Task Force Report identified where progress was unsatisfactorily slow – in women's share of full professorships (24% in 2017), and the almost complete domination by men of HE executive leadership. Further work in the Ministry of Education and the HEA led to the creation of a flagship female professorship programme, the Senior Academic Leadership Initiative (SALI). This competitive programme, launched in 2019, allocated 45 additional professorial posts (or equivalent leadership role) among HEIs, with salaries funded for ten years (HEA 2019a). Thirty posts have been allocated to end 2024, with an additional seven in reserve. The initiative had the desired effect. By 2023, women comprised 32% of full professors in Irish HEIs. In addition, the leadership of HE became more gender balanced. Eight women held the post of President in the 17 HE institutions in 2023 (47%), compared to four in 21 institutions in 2018 (19%) (HEA, 2023; HEA. 2019b: 6-10).

In March 2022, a progress review was commissioned by Simon Harris, Minister at the Department for Further and Higher Education, Research, Innovation and Science (DFHERIS) which sought to make recommendations on how "higher education institutions might enhance their equality policies and their implementation to support gender equality" (O'Shea, 2022). This report recommended retaining the actions of the 2016 report and 2018 Gender Action Plan and adding two further areas – adoption of an intersectional approach to GE, and tackling sectoral precarious employment (HEA, 2022a). The universities report annually on progress to the HEA on the combined recommendations.

2. Bringing the Changemakers Together

The resulting book, *Transforming Gender Equality and Inclusion within Higher Education in Ireland – Contemporary Perspectives*, acknowledges these past injustices within Irish HE and focuses on the multifaceted set of actions and steps taken at policy and practice levels to assess and redress gender inequality and intersectional injustices. While Ireland serves as a national case study here, the content of this volume merits wider attention as institutions and organisations internationally focus on the advancement and mainstreaming of equality, diversity and inclusion (EDI). This section describes the developmental phases of the book project from conception to completion.

2.1 Conception

In early 2022, four EDI leaders in four Irish HEIs met to discuss EDI progress over the course of a decade in the sector. This culminated in their desire to document the challenging but positive changes in an academic publication that aimed to bring diverse EDI stakeholders through their lived experiences as policy makers, academics and practitioners embedding change. This vision stemmed from Stenhouse's (1981) belief that EDI-related knowledge be made public to inform other HEIs, organisations and sectors looking to redress inequalities. There was also a cognisance that policy and practice-led transformations within HE are rarely articulated through academic publications given the applied nature of this work. This publication represented an ideal opportunity for documenting and reflecting on the Irish change process.

Funding was secured from the HEA's Gender Equality Enhancement Fund (GEEF) in 2022 to bring together a cross-section of those working on issues related to Athena Swan, gender identity and stereotyping, gender inequality, EDI data gathering, intersectionality and gender-based violence, among others. The funding facilitated two writing retreats and the cost of an Open Access publication.

2.2 Community of Practice and Co-Creation

Through an inclusive community of practice approach, the volume and its contents emerged as a co-designed and co-authored publication. This methodology, informed by Wenger's community of practice theory, has been described as "groups of people informally bounded together by shared expertise and passion for a joint enterprise" (Wenger and Snyder, 2000: 139-140). In addition, they typically "share a concern, a set of problems, or a passion about a topic, and [who] deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al, 2002: 4). It was also informed by a method of knowledge production that is characterised by transdisciplinary research clusters coming together to co-create knowledge from different sites and places and then put to practical use (Gibbons et al, 2005). These theoretical frameworks guided the project.

In December 2022, an open invitation was issued to all Irish HEIs inviting expressions of interest in joining the book project. Interested parties were asked to form thematic writing clusters creating cross and inter-institutional collaborations to provide more diverse insights into gender inequality and the complexity of embedding EDI. Broad thematic areas began to emerge ranging from gender inequality, sexual violence and harassment (SVH) to more intersectional issues relating to race equality, gender expression and identity, and inclusion. The 16 chapters and 5 vignettes selected for publication were written by 65 authors from 26 HEIs and other organisations including the HEA. Content emerged from their lived experiences as academics, policy makers, professionals and agents of change within HE in Ireland, and from their research. The authors have - and continue to be - active in enabling important transformational EDI change within HE in Ireland.

Social participation was central to the crafting of the book, to providing the space to reflect collectively, to share and co-create knowledge, and develop content. Two writing retreats across 2022/2023 were foundational spaces for social participation enabling successful writing clusters, and deepening knowledge and expertise in a collective environment. They facilitated face-to-face interaction and reflection on theory to practice, dimensions of EDI, and sectoral changes. This project evolved in a post-COVID environment and at a time in Ireland when many HEIs increased recruitment to EDI offices and units. The retreats helped develop solid working relationships after long periods of isolation. Collated chapter abstracts were shared with authors at each writing retreat to support a holistic sense of the book. An external facilitator supported development of a shared sense of the purpose and narrative design of the book.

2.3 Towards Completion

The final volume contains four themes that focus on pioneering change practices within the context of HE in Ireland. These align with the evolving sectoral EDI discourse and narrative over a ten-year period. The discourse commenced with an emphasis on GE/inequality. The focus of Section 1 - Contextualising Gender Equality within Irish Higher Education, offers lived experiences, pioneering efforts and outlines systemic challenges with a series of chapters that respond to how EDI was mainstreamed from the perspectives of high-profile women agents of change, policy makers and academics. Section 2 - Gender Transformations, Interventions, and Impact responds to Section 1, offering insights on how new policy initiatives, collaborative funding arrangements and GE frameworks have been enacted locally to advance and deepen equality underpinned by a reflective critique.

The national discourse then moved to wider aspects of inequality and discrimination related to gender-based violence and harassment within HE. Thus, Section 3 focuses on Ending Sexual Violence and Harassment in Higher Education, exploring the problematic landscape related to a national deficit of consent, disclosure, a prevalence of violence and discrimination and the exclusion of the LBGBT+ communities, with a focus on research and initiatives to educate and promote equality and inclusion. Section 4 - Gender and Intersectionality – focuses on recent wider intersectional challenges and the complexity of identity as it pertains to race, disability, gender and beyond. It considers aspects of inclusion/exclusion from the lived experience perspective with academic and student agents of change. The book was accepted by Palgrave as part of the Gender Equality and Education series.

2.4 What the Changemakers say

McIlrath et al (2025) synthesizing key insights from the chapters, identify several critical lessons. These include the necessity of *embedding EDI strategically at both national and institutional levels, targeting macro, meso, and micro spheres of influence, and ensuring institutional leadership assumes responsibility with transparency*. Progress requires courageous leadership that challenges entrenched norms and resources sufficient to support institutional objectives. Maher et al (2025) emphasize that strategic intent, supported by public legitimacy,

resources, and operational capacity, forms the foundation for addressing inequalities. Recent efforts integrate a gender lens while critically examining race and intersectionality, underscoring the importance of inclusive approaches. Addressing inequality requires acknowledging power dynamics and identifying the conceptual basis for equality in a critically reflective manner.

Changemakers note the *centrality of a data driven and evidence-based approach* as a crucial element in presenting the cases and challenges, firstly for tackling gender inequality in Irish HEIs, and secondly, in addressing the broadening and intersectional focus on inequality (Nestor, Reilly & Costelloe 2025). Systematic data collection and reporting fosters legitimacy, visibility, and transparency across institutions. This approach facilitates benchmarking, progress tracking, and the development of targeted responses informed by comprehensive quantitative and qualitative data. The HEA has played a key role in gathering and collating HEI staff and student data annually, illustrating patterns and trends within and across institutions (Rothwell and Woods, 2025; Cooke, Loftus and Maher, 2025). This has expanded to include surveys on SVH and race equality (HEA, 2016; 2021; 2022a; 2022b). Much of this work has had Ministerial oversight and engagement to support the agenda, strengthening the impetus within the policy arena at national level (Galligan, 2025; Rothwell and Woods, 2025). Linking research funding to the attainment of the Athena Swan Gender Equality Award exemplifies the *integration of data into policy*. Collaboration through structures like the Athena Swan National Intersectionality Working Group has broadened the focus to race inequality, further demonstrating the efficacy of data-driven approaches. However, gaps remain, such as the need for more robust datasets on ethnic diversity and annual diversity audits incorporating intersectionality. While some institutions have dedicated EDI data analysts, others rely on ad hoc arrangements, limiting capacity (Nestor, Reilly, and Costello, 2025).

The development of *clear national policies*, led by the HEA and DFHERIS, has been instrumental in advancing GE and the broader EDI agenda, facilitating significant change (O'Connor and Irvine, 2025). Policy pillars on gender, SVH, race, and equity of access provide a framework for institutional EDI strategies, with accountability reinforced through annual reporting to the HEA. These reports include governance statements, performance agreements, and detailed staff profiles alongside new EDI progress reports. Much of this data is aggregated by the HEA with cross-sectoral reporting, allowing for shared insights and measurement of progress at the macro level while continuing to impact on the policy landscape. The collective approach to EDI engages multiple actors, including staff and students, as agents of change. This dynamic partnership integrates voices at all levels, fostering a culture of shared accountability and continuous progress.

Governance structures at macro and meso levels bring together key stakeholders, supported by grassroots efforts at the micro level, into *integrated partnerships*. Accordingly, these interconnected layers collectively foster and shape national strategy. While it may appear that this is intentionally hierarchical, changemakers acknowledge fluidity between these different levels, allowing for some diffusion of power, particularly in enabling collective and individual agency supported by collaboration, consultation and consolidation. Inter-institutional collaboration, supported by initiatives like the HEA's GEEF, further strengthens sector-wide efforts (Rothwell and Woods 2025).

Cultivating and maintaining *meaningful engagement, participation and authentic representation* of staff and students with lived experience of inequality and exclusion in a sensitive, ethical manner, mindful of power relations, is paramount to the process of developing and embedding effective equality strategies and actions. Addressing historical power imbalances requires acknowledging institutional legacies of racism, sexism, ableism, and other forms of discrimination. Adopting a lens informed by critical race theory illustrates both the value and necessity of practicing methods of representation and engagement which recognise the Eurocentric and culturally normative institutional practices and spaces that serve to exclude people of colour, rendering their experiential knowledge invisible (Nwanze-Akobo & Benson-Olatunde, 2025). Similarly, McCarthy et al (2025) identify that an understanding of the lived experience of disabled students and staff contributes positively to change. Such engagement can only be meaningful if there is a critical consciousness supported by dialogue, reflection and reflexivity at the heart of the process of forming and implementing EDI policy and practice.

Thus, *allyship* is an important element of collectively addressing inequality. While it is recognised that those with lived experience are best placed to articulate the nature and impact of their experiences, it is not their responsibility to fix the structural, systemic and cultural issues which contribute to inequality. Awareness is only part of the process. Implementing this approach requires a fine balance and has its own challenges when power is centralised and hierarchical. In summary, taking some analysis from the consideration of power dynamics central to grassroots community development, it has long been noted that the process is as important as the

outcome, a tenet that is applicable to embedding EDI in HE when engaging with minoritised staff and students (Jackson and O'Doherty, 2012).

Building on this argument, McNeela et al (2025) and Crowley, McGing and Quin (2025) emphasize the need for trauma-informed, supportive, person-centred policies and procedures. This is particularly relevant when addressing *sexual violence and harassment*, highlighted as essential in the national implementation plan on ending SVH in HEIs (HEA, 2022b: 4, 8). It is equally applicable in all other EDI areas.

Adequate, *sustained funding and resourcing* is essential for implementing EDI initiatives and driving systemic change. Senior EDI leaders are now standard posts in Irish public-sector HEIs. Further developments have included specialist EDI managers and practitioners. While responsibility for progressing national EDI policy ultimately rests with the most senior representatives of a HEI (NUI Galway, 2016; HEA, 2016), it is accepted in the Irish context that a specific academic agent of cultural and organisational change is needed in each HEI to help embed GE within all aspects of the work of the institution. This follows international best practice (HEA 2016). The HEA has supported sectoral and institutional resourcing with funding such as the Senior Academic Leadership Initiative and the Gender Equality (now, EDI) Enhancement Fund.

Additionally, the HEA has committed to provision of annual funding to address SVH. This points to the value of committing long term and sustainable funding which helps attract experienced practitioners to deliver complex and multi-faceted strategies and programmes. As Fogarty and Scott (2025) note, given the scarcity of resources in the sector, it is important to ensure there are sufficient resources using both institutional and sectoral funding opportunities. Ultimately, the failure to adequately resource EDI personnel and programmes will result in an increased burden on those already adversely impacted by inequality, discrimination and exclusion, and above all, will maintain the status quo.

2.5 Conclusions, Challenges and Limitations

It would be remiss to omit consideration of the persistent inequalities and prevailing limitations in progressing EDI in Irish higher education. In some instances, actions have targeted individuals who experience discrimination to enable them to progress their careers while allowing the very systems that perpetuate inequality to remain intact. In terms of GE, this approach has been criticised for focusing on 'fixing the women'. There is also a lack of engagement from those not directly affected by issues which can lead to a disproportionate burden to advocate for change being carried by those most affected. EDI policy development is not without challenges too, and dissent in the form of critical perspectives plays a role in shaping knowledge and driving consistent change (Ruggi and Duvvury, 2023). The consequence of systemic inequality is even more pronounced when intersectional factors are taken into consideration, with characteristics such as race, class, age, disability and sexuality serving as important signifiers in exposing the cumulative impact of inequality. These insights are evident in the HEA reviews on GE which have emphasised the necessity of addressing systemic inequality and cultural change (HEA, 2016, 2022a).

Looking beyond Ireland to Europe and North America, the environment is not currently favourable to supporting EDI in many jurisdictions. Such perspectives also explicitly surface in the HE landscape. There are instances of resistance, backlash and attempts to delegitimise claims for equality and human rights in addition to outright dismantling of EDI policy, practice and infrastructure and the erosion of related legislation (Liyanage, 2022; Ellis, 2024). Although this is not the dominant environment in Ireland in 2025, it is necessary to remain proactive and to safeguard the gains made while continuing to progress towards full equality in Irish higher education.

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Exploring Gendered Effect of Perceived Organization Support on Self-efficacy

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Abstract: To compete in an increasingly diverse and rapidly changing marketplace, organizations are attempting to bring in varied perspectives and experiences to every management challenge by ensuring diverse representation at all levels of management. Women however continue to be under-represented in managerial positions. Recent studies have suggest that Perceived Organization Support (POS) enhances psychological empowerment amongst employees that helps them to grow in their careers. Self efficacy, a correlate of psychological empowerment that involves one's professional competence, is thus likely to play a significant role in career advancement of qualified women in organizations. Following Joan Acker (1990)'s Theory of Gendered Organizations, this research explores whether and how gender bias may still be embedded within organizational support practices like POS with respect to their impact on self efficacy amongst the managerial employees. Employing a sequential mixed methodology, data was collected in two waves. In the first phase of the study data was obtained using quantitative methods from a sample of managers (N = 294), followed by a qualitative study using in-depth interviews with 19 women professionals. The quantitative study reveals that POS impacts self efficacy of men and women in significantly different ways. Findings from the qualitative analyses draws interconnections among the intrinsic as well as socially constructed factors to make the internal mechanisms more explicit. It suggests that POS when filtered through the lens of gender identity leads to unintended effects on self efficacy and thereby lowers the sense of empowerment amongst female managerial employees. Implications of the research for both theory as well as practice are discussed.

Keywords: Perceived Organization Support, Self Efficacy, Gender Identity, Managerial Employees

1. Introduction

Diverse representation is seen to have a positive impact on society in meaningful ways and taps customer bases that were previously ignored leading to market expansion as well as a greater circle of influence (Ali M & Konrad A, 2017). Gender is one of the most visible yet largely under-represented strand of diversity that requires attention and thus organisations are under increasing pressure to enhance gender diversity in their managerial levels (Gallego & Gutierrez, 2018). Evidence is accumulating that women remain vastly underrepresented in management and major institutions in business in every country (World Economic Forum, 2015; Kossek, Su & Wu, 2017).

Studies have examined societal, family, organizational and individual characteristics as predictors of women's workforce participation and career advancement (Datta & Aggarwal, 2017; Pas et al., 2014). However, with varying theoretical explanations for these empirical findings, they have been the subject of much academic and public debate which have mostly neglected the inherently multi-layered nature of social identity involving psychological attributes (Pas et al., 2014). Recent literature review covering 28 studies revealed self-efficacy as a key personal characteristic that women professionals exhibited in their pursuit of STEM careers (Makarem & Wang, 2020).

Self-efficacy is "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura 1986, p. 391). In other words, it can be defined as the perception of one's capability to use skills and knowledge to achieve goals (Heslin et al. 2017; Downes et al. 2021). Some recent studies reported a positive relationship between self-efficacy and psychological empowerment (Ruiz-Fernández et al. 2022; Azizifar et al. 2020). In particular, Ruiz-Fernández et al.'s study found a strong correlation between self-efficacy and the competence dimension of psychological empowerment. For instance, a recent study by Kumar et al. (2022) found that employee empowerment improves extra-role behaviors, such as taking charge, under conditions of high organizational support. Perceived Organization Support (POS) has long been studied as a key antecedent for self-achievement, hygiene, psychological empowerment, self-efficacy, prestige, and career satisfaction (Dose et al., 2019; Tahira et al., 2022). Drawing from Gendered Organization Theory which postulates a complex view of gender as an ongoing social construction (Acker1992), it is not clear how POS plays out for women. There is increasing evidence to suggest that women and men respond differently to POS (Thompson et al., 2020).

It therefore calls for an inquiry into the role of POS in empowering women professionals for self-achievement and therefore their self-efficacy. The present research has two main aims viz. In what way does gender play a role in the perceived organization support – self-efficacy relationship to perpetuate gender based empowerment? And how does organization support get gendered if at all, with respect to empowerment?

A sequential explanatory mixed-method research design best serves such aims. Accordingly, the first phase of this research uses quantitative methods to examine the role of gender in the relationship between perceived organization support and career motivation. In the second phase, a qualitative study explores the nature, causes and social processes that shape perceived organizational support of women managers as well as its effect on their career motivation. Lastly, through triangulation of data analysis from the two phases, a model of un-gendered organization support for nurturing empowered women managers is proposed.

2. Theoretical Overview and Hypotheses

2.1 POS and Self-efficacy

Perceived organization support (POS) can be defined as employees' general beliefs that their organization values their continued membership, is committed to provide favourable working conditions, and by signalling that the organization is concerned about their well-being (Eisenberger et al. 1986). From the viewpoint of employees, POS mirrors the organization's respect and care for them and appreciation of their contributions (Rhoades and Eisenberger 2002). POS can be said to be a positive construct that give motivation to employee to work confidently and bring new and creative ideas. POS creates psychological empowerment amongst employees and motivates them to take a broader view towards the organization; that helps in enhancing employee's self-confidence as well as generate positive benefits for the organization (Tahira et al., 2022). Employees who perceive supportive work environment are intrinsically motivated and self-efficacious. Self-efficacy is the belief one has in one's capability to exercise control over events to achieve desired goals. The concept of self-efficacy is rooted in the social learning theory (Bandura, 1977) which argues that the goals held by individuals are one of the primary determinants of motivation for behaviour. Individuals with high levels of self-efficacy are said to be more likely to take up challenging assignments and take responsibility for personal development (Bandura, 1982). Backed by the organization, they have strong belief in their abilities to do the job effectively. They therefore choose challenging tasks and achieve them successfully. (Nikhil & Arthi, 2018). We thus hypothesize that:

Hypotheses 1: Perceived Organization Support is expected to be significantly positively related to self-efficacy.

2.2 Gender and Self-efficacy

Although men and women may show the same performance levels, they may estimate their capabilities differently (Bandura, 1997). With regard to self-efficacy, many studies have shown that this is lower for women (Sieverding & Koch, 2009; West et al., 2002), but some evidence supports that women have higher self-efficacy (Tsai & Lin, 2004). Furthermore, men and women may differ in their development of self-efficacy (Artistico et al., 2003; Chyung, 2007). Such mixed findings indicate that gender can affect self-efficacy but the relationships may be rather complex (Bausch et al., 2014). Buse et al. (2013) identified self-efficacy as one of the distinct individual factors that separated the persistent women engineers from others who opted out of the engineering workforce. In their study, women with self-efficacy were better prepared to find new assignments, deal with difficult situations, tackle tough problems, manage conflicts, and enact changes in their day-to-day work (Buse et al., 2013). Considering the fact that a large proportion of women drop out from white collared jobs by the time they reach higher levels of management, its important to understand the role that gender may be playing in terms of self-efficacy. In other words:

Hypothesis 2: Gender is expected to play an important role in formation of self-efficacy such that female managers report significantly different self-efficacy than male managers.

2.3 POS, Self-efficacy, and the Moderating Role of Gender

The research on POS mostly assumes that the felt obligation as an outcome of perceived support drives motivation, achievement and work behaviour similarly for men and women. However recent studies reveal that there is a gender difference in the effect produced by POS on work and career related outcomes (Kurtessis et al., 2015). One possible explanation on why POS seems to have a stronger impact on career and work outcomes

for men than for women is that POS assumes reciprocity and women are known to display more communal traits in fulfilling their job expectations, perhaps due to social expectations and not because of contracted obligation (Thompson et al., 2020). In other words women are expected to be communal in behaviour, without a reason while men are expected to feel obligated to reciprocate when done a favour eg. quid pro quo.

Moreover, women are said to be less ambitious and agentic than men when progressing in their chosen career, as they are typically more interested in balancing work/family domains than men (Spagnoli et al., 2020). Supportive practices at work may not support women to grow in their careers in the way they impact male managers. In other words POS might produce different effect on female managers than on male managers with respect to their empowerment and consequent career advancement. Thus, the relationship between POS and self-efficacy should be stronger among men than among women. Thus, we hypothesise a moderation model, where the relationship between POS and self-efficacy is moderated by gender. We propose that:

Hypothesis 3: Gender moderates the positive relationship between POS and Self-efficacy, such that the relationship is weaker for women than for men

3. Method

3.1 Research Context

With India emerging as an economic superpower, discussions on gender equality have assumed significant importance in recent times (Donnelly, 2015; Rath, Mohanty & Pradhan, 2016). With a population of more than 1.3 billion people, an average age of 29 years and being one of the fastest growing economies in the world, motivating, developing and retaining diverse talent in India is a complex challenge (Datta et al., 2021). The last decade or more in India has witnessed more women entering the organized labor market (Das, 2003; Haq, 2012; Jhabvala and Sinha, 2002;). However, the proportion of women leaving their job between junior to middle level is highest for India at 48 per cent, as compared to other major Asian countries (Community Business, 2011). This evidence calls for a deeper level of understanding about the impact of the support practices on career continuity and advancement of qualified women in corporate India.

Gender role theory posits that men and women face societal pressures to behave in ways consistent with their gender roles and this expectation leads both genders to adopt gender-appropriate behaviors (Kidder, 2002). Studies suggest that the paradox of family identity and career identity faced by Indian women managers at certain life-stages is a manifestation of the societal structures in India that associates women primarily with familial roles (Blake-beard, 2015). Based in this cultural reasoning, certain dimensions of culture might be more pertinent to womens' gender identity presenting an interesting context to examine the factors that have an effect on the career aspirations and advancement of Indian women managers.

3.2 Research Design

We conducted our study in two waves. In the first wave, the study sample was obtained from six large companies which were either an Indian subsidiary of an MNC or were Indian MNCs. The seven companies represented a wide array of products and services drawn from manufacturing and technology based companies which constitute a significant portion of the industry sectors in India, Altogether 294 respondents were drawn from managerial population spread across various levels of management and representing broadly all functions including sales, operations, accounts, finance and human resources. Managerial population defined those employees who had minimum bachelors degree or professional qualifications and were working in managerial roles. Originally, 300 questionnaires were distributed to respondents across the selected organizations out of which only 294 responses were usable which have been incorporated for testing the research model.

In the second wave, we interviewed 19 female managers across junior, middle and senior management levels, drawn from similar industry sectors for a better interpretation of our findings. Seven focus group discussions covering altogether 25 senior organizational leaders from the same organizations across functions and businesses, were also conducted.

3.3 Method – First Wave

3.3.1 Measures

Demographic Variables. Data on gender, age and marital status were obtained. Gender being a variable under study was coded as 1. No hypotheses have been formulated with respect to age and marital status.

Perceived Organization Support

Consistent with previous research (e.g., Moorman, Blakely, & Niehoff, 1998), we used the shortened nine-item version of Eisenberger et al.'s (1986) POS scale, which measures employee perceptions of the extent to which an organization cares about employees and values their contributions (Sample item: "Help is available from the organization when I have a problem").

3.3.2 Self-efficacy

Self-efficacy was measured using an eight items scale of general self-efficacy by Chen, Gully & Eden (2001). The items were scaled from 1 is 'strongly disagree' to 5 is 'strongly agree'. Sample items were 'I will be able to achieve most of the goals that I have set for myself' and 'I will be able to successfully overcome many challenges'. Alpha coefficient obtained for this scale was .86.

3.4 Results – First Wave

Data has been analysed using several statistical techniques including descriptive statistics, bi-variate correlation, t-test, hierarchical regression modelling. All the statistical techniques have been applied using SPSS 21.0 and PROCESS macros for SPSS. The total data (n = 294) was first subjected to descriptive statistics as well as correlation analysis. Descriptive statistics and results of bi-variate correlations among the study variables have been presented in **Table 1**. Composite scores of all the independent measures have been considered for this analysis. As evident from the table, there is sufficient variability in the responses on all the measures thus ruling out any concerns on social desirability.

Table 1 : Descriptive statistics and Correlations

Variable	Mean	Std Dev	Gender	POS	SE
Gender	0.209	0.408	-		
POS	4.703	0.722	-0.106	-	
SE	4.095	0.513	-0.025	0.203**	-

**correlation is significant at the 0.01 level (2-tailed)

Hierarchical linear regression was conducted on the data (n=294) to predict the dependent variable. The construct of POS was found to be significantly positively related to SE when the demographic variables were controlled for, thus supporting hypotheses 1. POS is positively related to SE ($\beta=.190$, $p<.001$), thus supporting H1.

Thereafter, for testing our hypotheses 2 we did t-test for gender on SE. We have considered two statistics in the t-test. t-test with equal variances assumed and t-test with equal variances not assumed. With respect to SE the results reveal that (significance level at 5 per cent), the t statistics with equality assumed as well as without equality state that the mean scores on this variable are not statistically different for males and females (mean difference of -0.30 on a scale of 1 to 5). Hypothesis H2 is thus rejected indicating that gender does not have any differential effect on SE as reported by the respondents.

Thereafter, using the Hayes' (2013) PROCESS macros for SPSS, the moderation effect of Gender in the relationship between POS and SE of employees was tested. The results suggest that POS has a significant positive impact on SE of employees ($p < 0.001$). Gender significantly moderated the relationship between POS and SE ($p < 0.01$). In line with Aiken *et al.* (1991) guidelines, we plotted the interaction effects of gender. We operationalized Gender as Female = 1 and Male = 0. The plots presented in Figure 1, show that for Males, the POS has a positive impact on SE, while for Females, POS has somewhat negative impact and is not significant. This is further explained when the interaction effect of Male and Female can be seen separately, establishing

that while the interaction effect for male is significant ($\beta = 0.190$, $p < 0.001$), for females, the interaction is not significant ($\beta = -0.061$, $p = 0.537$). The moderational hypothesis, H3 is thus supported.

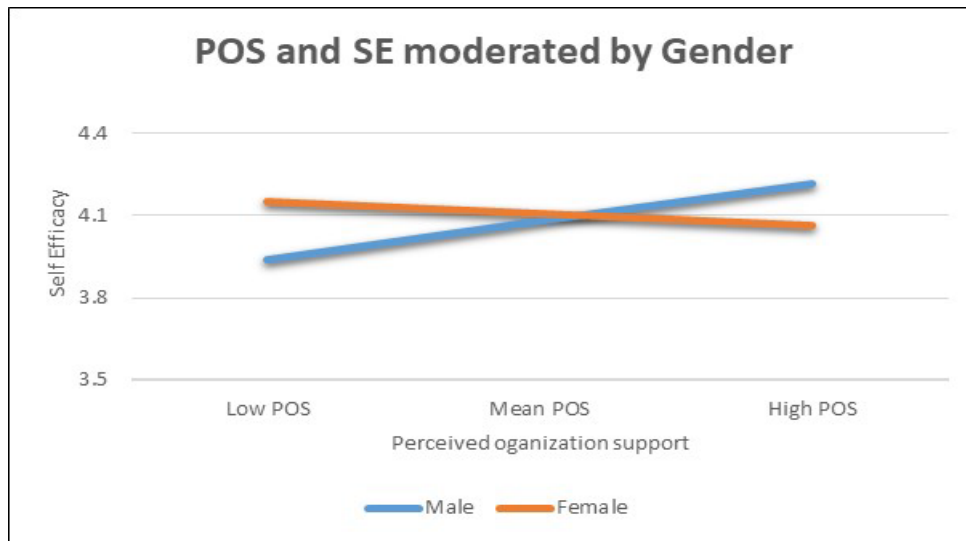


Figure 1: Moderating effect of gender on POS-SE relationship

Results from the data of N=294 managerial employees clearly revealed effect of gender in the relationship between POS and SE. While POS seems to produce career motivation among male managers it seems to have a somewhat negative effect on female managers. This result was surprising and counter-intuitive specially when gender does not play any role in determining one's SE and thereby called for further investigation.

3.5 Method – Second Wave

We employed a qualitative study to 'explain surprising results by providing insights' (Grant & Wall, 2009, p. 679), as it is argued to be helpful in deepening our understanding of the phenomenon. Furthermore, researchers have argued in favour of differentiating participants based on their roles and experiences (Bou-Llusar, Beltran-Martin, Roca-Puig, & Escrig-Tena, 2016) as female managers from different life and career stages were better able to explain their respective sense of empowerment and self-confidence with respect to the counterintuitive and previously argued hypotheses. Accordingly, we interviewed 19 female managers based on convenience sampling to understand how organizational support was being enacted and impacting career motivations of female managers.

3.6 Findings – Second Wave

The first level concepts, second level themes and the aggregate dimensions that emerged from the data analysis throw light upon how perceived organization support impacted the sense of empowerment of qualified women managers working in corporate India. Based on content analysis of the interviews with women managers, the key themes that emerged have been discussed below, aggregated as *patronising social support*, *gender identity*, *career aspiration*.

3.7 Patronising Social Support

3.7.1 Gender Stereotyping

Women managers in this study talked about presence or lack of social support at the workplace that they believe can serve as facilitators or barriers respectively to their career development. Elements of perceived support at the workplace from organization, co-workers and supervisors that emerged were often related to gender stereotypes. Several women reported being excluded from developmental assignments that would advance their careers because of a strong masculine culture that frequently grooms males for senior managerial roles. In many cases the support came with a patronizing intent when the supervisor took decisions on behalf of the female managers about making career development choices.

'We women suffer from negative perceptions about our abilities to take on revenue generating management positions. Management should not assume that I won't be able to manage such a role. My boss should at least try me out and not assume that I will not accept such a role' (Middle Manager, ITES sector).

Several leaders handling large teams mentioned about not promoting women as they did not want her to fail by virtue of not being able to cope with the demands of the job.

3.7.2 Rights seen as Privileges

The providing of family supports by organizations e.g. flexible scheduling, child and elder care assistance make it easier for women with family responsibilities to hold managerial positions especially in absence of good quality childcare facilities being available in the country. The domain of support for work family balance was a typical category endorsed by 12 out of 31 participants who discussed the importance of equilibrium between work and non-work activities. For example, as reported by one of the respondents:

'Thankfully I have been able to work from home as I have a small child and no childcare support and been able to retain my job (Middle manager, ITES sector)

Flexi-working policies when availed by women after maternity leave was also seen as special privileges by the male colleagues, especially if the co-workers had to take on additional work during certain time periods.

3.8 Gender Identity

3.8.1 Implicit Social Approval

Spousal and family support has been quoted as a significant factor in reinforcing career aspirations. The respondents also shared about the role of immediate family in influencing career decisions and shaping career trajectory. A woman career decisions are mostly influenced by implicit approval from the elders in the family and spouse. One of the respondents said:

'The family I got married into were of very traditional mindsets. My in-laws did not approve of my going out to work specially after my child was born. I have grown up with high ambitions so I had to go against the wishes of my in-laws to pursue my career. My husband of course is supportive of my decision' (Senior manager, ITES sector)

As a patriarchal society, women are eulogized for making sacrifices for their family. Conducting herself in accordance with such social expectations lead to more favourable evaluations for women in Indian society.

3.8.2 Role Conflict

Respondents were unanimous that their early life and work experiences helped them prepare for their career advancement so far. Propelled by desire for freedom and autonomy, the respondents talked about their personal motivations and values that have shaped their career aspirations and the trajectory and at the same time expressed their intra-conflicts about fulfilling familial expectations. The themes of role conflict and intrinsic motivation emerged repeatedly from the data.

'I am very happy with my job and the Company culture. But I often regret that I am not able to spend as much quality time with my family as I would like to. My daughter is still very young and I am thinking whether to take a break and stay at home to be able to give her time and attention' (Middle Manager, Manufacturing sector).

3.9 Empowerment for Career Advancement

3.9.1 Integrating Conflicting Social Identities

Answers to the question 'What does having a career mean to you?' provides interesting insights into the women managers of contemporary India and the meaning they attach to the social roles that they enact.

'I like being a mother and I like working. At times, I do question whether I can do justice to both. I try to make the best of it' (Middle Manager, manufacturing sector).

While child and family issues might be viewed by employers as potential liabilities, respondents mentioned that flexibility, family security, family achievement, meaningful work and financial independence were important sources of encouragement, satisfaction and a sense of well-being for them. Typical responses which suggest the above were:

'Working women face family challenges on a daily basis. If women had to choose between flexibility and professional growth, I think they would value flexibility'(Senior manager, ITES sector).

4. Discussion

Gender inequities in managerial careers have often been attributed to women professionals not being ambitious enough about pursuing career advancement. Extensive studies have suggested that women do not feel empowered to make career development choices as they are caught in the paradox of career versus family and they cannot have it all.

The sequential mixed method study of POS and self-efficacy amongst managers reveals interconnections between the intrinsic as well as socially constructed factors that make the internal mechanisms more explicit in the following ways a) with the *patronising social support* a woman manager is primed to be the weaker and less agentic candidate for career advancement b) as she evaluates her conflicting priorities in certain life-stages, she is guided by her *gender identity* as per her life stage than her own aspirations c) and finally her *psychological empowerment for achieving career aspirations* stems from her capacity to integrate her conflicting social identities.

The quantitative study taken up in the first phase revealed surprising and counter-intuitive findings. Although women and men do not differ in terms of their self-efficacy, the perceived organization support affects this intrinsic belief system of men and women differently. In fact, the results indicate that while POS impacts self-efficacy of male managers positively, in case of female managers it has a rather opposite effect. The findings from the qualitative study illuminated the underlying intrinsic as well as socially constructed mechanisms that are at play in producing gendered organization support as well as the intra-conflict experienced by women managers with respect to their self-efficacy for career growth. Further the findings helped in unpacking the construct – self efficacy of women managers, explicating the psychological mechanisms and also identifying contextual factors that can impact their career growth. These three aggregated themes have been labeled as *patronizing social support, gender identity, and empowerment for career advancement*.

Overall, the research elucidates how organization support is gendered in its practice and also intention. Often steeped in culturally driven patronizing social support and filtered through the lens of gender identity, POS produces detrimental effects on competence related psychological empowerment and thus the career aspirations amongst women managers.

5. Implications

Prior research had argued that women at different life stages would have different psychological needs and self-efficacy. However, there is absence of empirical research that has investigated the gendering effect of perceived organization support which is a key predictor of self-efficacy. Based on an empirical study, the present paper provides evidence for the differential influence of POS on self-efficacy and elucidates the underlying psychological mechanisms that are at play. Moreover, the study argues that curated external interventions can go a long way in inspiring competence based psychological empowerment of women managers. Our study clearly demonstrates the moderating effect of gender on the relationships between self-efficacy and its predictor - POS. It argues that organization support needs to be ungendered in order to produce positive effect on this important aspect of psychological empowerment uniformly.

6. Limitations of the Study

The review of literature focused on only theories of gender identity and culture to explain the context of perceived organization support by women managers. Notwithstanding the importance and the originality of the findings reported in this study, it would be interesting to see future studies take into consideration what kind of support would help women professionals to make more empowered to pursue career advancement that would strengthen the women leadership pipeline in corporate India. Despite its patriarchal and collectivist culture, India is often described as a confluence of sub-cultures, an attribute that might question the generalizability across the different parts of the country.

Annexure 1: Interview Guide

Interview Questions asked to the women managers

- Tell us about your background.
- What are your career aspirations and how have they changed over the years of your career till now?
- What do you think causes you to moderate or change your professional aspirations?
- What has supported you in your professional journey?
- What are the constraints you have faced so far in meeting your ambitions?
- What might hinder you in your future growth?
- What is expected from you in your social setting?
- Who has set these expectations?
- If you could wish for one thing in your present environment that would help you realize your potential, what would that be?

Further probing questions were asked to elicit the underlying cognitions for the responses to the above questions

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Pull Factors Driving Female Immigrant Entrepreneurship in Italy

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Abstract: Over the past two decades, the relationship between migration and entrepreneurship has gained prominence in Western economies. The increasing number of businesses led by foreign nationals has reshaped the entrepreneurial landscape in many countries, including Italy. In Italy, regulatory flexibility, shifting migration patterns, and market demand—combined with an economy dominated by small enterprises—have fostered a favorable environment for entrepreneurship. Grounded in micro and small businesses, the Italian economy supports self-employment and small-scale enterprises, making it particularly welcoming for immigrant entrepreneurship. Micro and small enterprises have historically driven national economic growth. Within this framework, female immigrant entrepreneurship has become a significant and growing component, reflecting broader trends in women-led and migrant-owned businesses. Female immigrant entrepreneurship in Italy today represents a dynamic phenomenon shaped by territorial factors and relational capital. These elements enable immigrant women to overcome barriers and seize opportunities in the Italian market. The concept of territory includes resources within local contexts, such as infrastructure, economic frameworks, and institutional support. Immigrant women often identify market gaps, especially in ethnic products and services, gaining a competitive edge. Relational capital, comprising networks built through family, community, and professional connections, is equally crucial. These networks provide access to financing, partnerships, mentorship, and market insights, helping immigrant women navigate socio-economic challenges. Together, territorial factors and relational capital drive female immigrant entrepreneurship in Italy, promoting social inclusion and economic diversification. This study examines how these elements support the emergence and growth of female immigrant businesses.

Keywords: Business Attractiveness, Territory, Immigrant Entrepreneurship, Female Immigrant Entrepreneurship, C.A.O.S. Model

1. Introduction

Over the past two decades, the relationship between migration and entrepreneurship has gained increasing significance in Western economies. The rise of businesses initiated by immigrant foreign nationals has reshaped the entrepreneurial landscape in many countries, including Italy. Factors such as regulatory openness, market demand, evolving migration flows, and Italy’s small enterprise-oriented economic structure have supported the growth of self-employment and small ventures (Fellini, Guetto, 2019).

The high rate of entrepreneurship among migrants reflects their predisposition for planning, risk-taking, and adapting to complex environments—qualities often linked to the migration experience. Many migrants, upon integrating into the labor market, utilize these competencies to establish businesses, sometimes in sectors where they initially worked as employees. This pattern mirrors the historical experiences of Italian emigrants seeking opportunities abroad (Fairlie, Lofstrom, 2015; Fauri, 2015).

Immigrant entrepreneurship encompasses ventures initiated by individuals relocating for work, study, or family reasons. It drives economic diversification, commercial growth, and job creation in host communities. Migrants, often more risk-inclined than natives, pursue entrepreneurial opportunities despite challenges such as language, cultural, and regulatory barriers, alongside limited financial and institutional support (Irastorza, Peña, 2014; Barth, Zalkat, 2019).

Local contexts significantly shape immigrant entrepreneurship, emphasizing the influence of cultural and relational factors tied to the territory. Ethnic identity and social networks strongly impact entrepreneurial decisions and outcomes. Analyzing immigrant occupational trajectories in Italy reveals their economic contributions, particularly within small enterprises and self-employment.

Immigrant entrepreneurship is now a structural component of Italy’s economy, marked by demographic dynamism contrasting with the stagnation of Italian-owned businesses. Relational capital, built through connections with clients, suppliers, partners, and institutions, plays a vital role, particularly in the early stages of a business.

This analysis focuses on immigrant entrepreneurship in Italy, emphasizing the territorial and relational dimensions from a managerial perspective. Social and professional networks are critical for the success of

foreign-owned micro-enterprises, influencing development and sustainability. Establishing external relationships complements internal organizational competencies.

Understanding the structure of relational networks reveals recurring needs, such as access to financing and managerial skill development. Success often depends on the entrepreneur's ability to leverage intangible resources. The interpretive C.A.O.S. model provides a framework for examining the evolution of immigrant female entrepreneurship within Italy's socio-economic context (Capello, Faggian, 2005).

2. Context Analysis and Literature Review

2.1 Immigrant Businesses in Italy

The analysis of foreign entrepreneurship in Italy highlights its growing significance within the national economy. Over time, this phenomenon has become well-established, characterized primarily by micro-enterprises but also including partnerships and corporations. In 2020, one in ten businesses was managed by foreign nationals, totaling over 630,000 enterprises, with three-quarters classified as sole proprietorships (Unioncamere, 2021).

By 2022, foreign-owned businesses surpassed 650,000, accounting for over 10% of all businesses in Italy, which total slightly over six million (Ministero del Lavoro e delle Politiche Sociali, 2024). While Italian-managed businesses declined by 2.3% from 2018 to 2022, foreign-managed businesses grew by 7.6%, adding 45,617 new enterprises and offsetting the loss of 126,000 Italian-owned businesses.

Most non-EU foreign-owned businesses (76.2%) are sole proprietorships. In 2022, there were 50,669 new registrations and 29,581 closures, yielding a net increase of 21,088 businesses. The majority (80%) of these businesses employ between 0 and 1 worker, confirming their predominance in the micro-enterprise category.

Sectorally, non-EU business owners are concentrated in wholesale and retail trade (39.9%), construction (23.1%), manufacturing (7.8%), accommodation and food services (6.3%), and business support services (6.2%). In sectors like construction and trade, foreign-owned businesses form a significant share of the national total.

The most represented communities—Moroccans, Chinese, Albanians, and Bangladeshis—account for nearly half of all foreign-owned businesses. Certain groups dominate specific sectors, such as Romanians and Albanians in construction and Moroccans and Bangladeshis in retail trade. Geographically, Lombardy has the highest number of foreign-managed enterprises, with notable concentrations in Tuscany, Liguria, Lazio, and Emilia-Romagna. In municipalities like Prato, Sesto Fiorentino, and Castel Volturno, foreign-owned businesses exceed 50% of the total, often led by specific ethnic communities.

Foreign entrepreneurship is a dynamic and structural component of Italy's economy, with characteristics tied to sector, size, and nationality. Relational capital, including social networks and community support, is critical to their success (Paoloni et al., 2024). This phenomenon has transformed the entrepreneurial landscape in Italy and the EU, with long-term relevance anticipated (Dana, 2007).

Migration, defined by the UN as relocation for at least 12 months, has intensified in the globalized era, making immigrant entrepreneurship a key field of study (De Haas et al., 2007; Ambrosini, 2005). Since the 1990s, Italy has transitioned from a labor-exporting to a labor-receiving country, with migrants becoming an integral part of society (Colucci, 2018).

The 1970s marked a turning point, with reduced emigration and increased economic growth, alongside the rise of small and medium-sized enterprises (SMEs). These SMEs became a pillar of Italian economic development, evolving from traditional merchant-entrepreneur models into industrial opportunities (Becattini, 1975; Colli, 2002; Brusco, 2016; Amatori, Colli, 2012; Conti, Modiano, 2012).

The 1980s saw significant industrial restructuring, improving efficiency and profitability for medium and large enterprises. However, in the following decade, these companies slowed down, focusing on less competitive sectors (Onida, 2014). SMEs faced growing global competition, particularly from countries with lower production costs. In this context, the Italian labor market increasingly relied on immigrant labor, which contributed significantly as workers, consumers, and entrepreneurs, with their presence in the Italian entrepreneurial landscape rising notably since the 2000s (Brancati, 2018).

This scenario highlights why foreign entrepreneurship attracts attention across various disciplines, including ethnic studies, sociology, and business studies, spanning from complex enterprises to sole proprietorships (Light et al., 1993; Bonacich, 1987; Rath, Kloosterman, 2000; Aureli, 2005). Research on immigrant entrepreneurship

examines subjective factors, such as individual entrepreneurial traits, and environmental factors, including regulations, infrastructure, and socio-economic conditions (McClelland, 1961; Brockhaus, 1982; Waldinger et al., 1985; Bruno, Tyebjee, 1982; Clydesale, 2008).

Economic-institutional factors, such as regional policies and market opportunities, are crucial for attracting foreign entrepreneurs (Clydesale, 2008). Additionally, socio-economic factors like strong immigrant communities foster "spontaneous incubators," providing support through internal networks that drive entrepreneurial growth (Greene, Butler, 1996; Aureli, 2005).

Theories on immigrant entrepreneurship emphasize ethnic specificity and cultural factors, highlighting how ethnicity shapes market specialization and reduces risks through trust-based networks (Lieberson, 1980; Barberis, 2011). However, the culturalist approach has limitations, including its inability to fully address market dynamics and supply-demand interactions (Engelen, 2001).

The structural approach complements this by focusing on economic and institutional factors like market conditions, access to capital, and barriers to entry. It underscores the importance of host-country conditions in shaping entrepreneurial success (Scoville, 1960). Yet, it struggles to integrate cultural and relational dimensions.

The mixed embeddedness model bridges this gap by combining cultural, relational, and structural elements, offering a comprehensive understanding of immigrant entrepreneurship. It examines how public policies, migration regulations, and community resources interact to shape entrepreneurial strategies, providing a holistic framework for analyzing this evolving phenomenon (Solano, Barberis, 2018).

Within the framework of mixed embeddedness, the analysis does not focus solely on the characteristics of the ethnic group or the opportunities offered by the territorial context but also considers the crucial role of public policies and immigration regulations. Elements such as migration flow laws, residence permits, and policies promoting political and cultural integration become integral to understanding the phenomenon. This model assumes that structural and cultural factors do not operate independently but mutually influence each other, shaping the strategies adopted by immigrant entrepreneurs. These strategies are, therefore, the result of a complex interaction between the resources inherent to the ethnic group and the opportunities offered by the territory (Waldinger et al., 1990).

In light of this integrative perspective, the dynamics of immigrant entrepreneurship can be summarized into three major areas of influence:

- cultural and relational aspects, which define both the characteristics of immigrant entrepreneurs and those of their community of origin. These factors determine the degree of interaction and integration with the local environment and influence the success of entrepreneurial initiatives;
- characteristics of the target market, including structural specificities, economic conditions, and opportunities available in various sectors;
- public policies and migration flow regulations, which directly impact immigrants' ability to start and develop entrepreneurial activities (Rath, Kloosterman, 2000).

The mixed embeddedness approach allows for overcoming partial views, fostering a more nuanced understanding of immigrant entrepreneurship. Integrating cultural, structural, and political dimensions not only provides deeper insights into the strategies adopted by entrepreneurs but also highlights how these strategies are closely tied to the interaction between immigrant communities and the host environment. This approach is particularly effective in describing a constantly evolving phenomenon where culture, economy, and public policies are inextricably intertwined.

The conditions influencing immigrant entrepreneurship can be structural or cultural. Among these is the availability and proximity of relational capital. An immigrant entrepreneur cannot simply be regarded as a foreign citizen entirely influenced by their ethnic roots, nor as an entrepreneur solely driven by profit motives. Instead, they should be viewed as an individual who integrates both elements within a context where even intangible factors can guide their entrepreneurial choices (de Andreis, Rusciani, 2023; Paoloni et al., 2024).

An innovative aspect of theories linked to the mixed embeddedness approach lies in the inclusion of individual factors that influence an immigrant entrepreneur's decision to continue their activity in the host country. These factors include characteristics and skills that extend beyond the cultural dimension and contribute to shaping entrepreneurial capacity. Among them are the level of education, age, previous entrepreneurial experience, migration experience, and the degree of integration into the host country's social and economic context. These

elements enhance the understanding of entrepreneurial dynamics, demonstrating how the combination of personal and structural factors shapes immigrants' entrepreneurial trajectories.

After analyzing the numerical dimension of foreign-owned businesses in the country, it is useful to introduce a classification of entrepreneurial types as outlined in the literature. These businesses can be categorized into five main types: ethnic, intermediary, exotic, open, and refugee enterprises (Ambrosini, 2005).

Ethnic businesses develop within established immigrant communities, characterized by specific demands for products and services from their country of origin, which are often difficult to find in the local market. These businesses typically focus on the sale of traditional food products, catering to the cultural and consumption needs of their community.

Intermediary businesses, on the other hand, provide goods and services that go beyond strictly ethnic boundaries. Examples include legal services, consulting, or medical assistance, which require a trusted mediation between immigrant clients and professionals from their home country. This relational connection facilitates access to and understanding of such services within the community.

Exotic businesses are distinguished by their ability to offer traditional products and services from their country of origin to a diverse audience, including both fellow nationals and individuals from other backgrounds. A typical example is ethnic restaurants, which attract customers interested in exploring different cultures.

Among the most prevalent categories are open businesses, which operate in highly competitive, labor-intensive sectors such as construction, transportation, hospitality, and cleaning services. These businesses are characterized by flexible internal organization and the ability to draw on subordinate labor from the same ethnicity as the owner. These factors enable them to compete effectively with non-foreign-owned businesses.

Lastly, refugee businesses represent informal activities that are often difficult to identify by their products or target market. These businesses typically emerge due to the challenges immigrants face in accessing the formal market, hindered by regulations perceived as overly rigid relative to operational realities. A common example is unlicensed street vending, which meets economic survival needs in marginalized contexts.

This categorization highlights the diversity and complexity of foreign-owned business forms, shedding light on the strategies employed to address the specific social and economic demands of the contexts in which they operate.

2.2 Immigrant Female-owned Businesses

The analysis of immigrant female entrepreneurship in Italy highlights its evolution and integration into the socio-economic fabric. Studies emphasize that immigrant women's entrepreneurial journeys are shaped not only by structural and territorial factors but also by personal skills, resources, motivations, and relational networks (Ndoro, Kanyangale, 2018). This narrative aligns with the broader phenomenon of foreign entrepreneurship, predominantly occurring in micro and small businesses, though some take the form of partnerships or corporations.

Female entrepreneurship, globally on the rise, signals a shift from male-dominated ventures to approaches integrating professional and personal dimensions, driven by networking and reduced barriers (Paoloni, 2011; Ferrera, Kyriazi, 2024; Wilson et al., 2007). While immigrant female entrepreneurship shares characteristics with general entrepreneurship, it also presents unique challenges tied to intersectionality—where identities as women and immigrants converge (de Andreis, Rusciani, 2023; Essers et al., 2010).

The literature explores various dimensions: entrepreneurial identity across contexts (Grohs et al., 2017; Kuhlmann, 2021), enabling factors and constraints for women entrepreneurs (Yunis et al., 2018; Sandhu et al., 2021), and relational approaches emphasizing nuanced classifications (Valeri, Paoloni, 2016; Paoloni et al., 2024).

The shift toward the tertiary sector in the 1970s marked a turning point for women's economic self-sufficiency, accelerating their participation in entrepreneurship (Ramadani et al., 2015). Although still a minority, female entrepreneurs have expanded their presence significantly (Itani et al., 2011). Businesses led by immigrant women, marked by demographic dynamism, reflect this trend. From 2018 to 2023, foreign-owned businesses grew by 45,617, while Italian-owned businesses declined by 126,013, resulting in a net reduction of 80,396 enterprises. Immigrant women now account for over half of Italy's immigrant population, which exceeds five million, with most coming from Romania, Albania, Morocco, Ukraine, and China.

As of 2022, women entrepreneurs made up 28.1% of all Italian and immigrant entrepreneurs. The largest numbers of female entrepreneurs were from China (35,304) and Romania (23,430). Proportionally, Russian (70.5%), Polish (60.7%), and Ukrainian (58.8%) entrepreneurs led the rankings for female-owned businesses within their national groups.

3. Research Methodology

The study is based on Yin's (2009) case study method, using interviews to explore the phenomenon of immigrant female entrepreneurship. The interviews capture perceptions, motivations, and subjective experiences that quantitative data cannot reveal.

A multi-case approach was chosen to analyze the phenomenon, identifying similarities and differences between the cases (Stake, 1995; Baxter, Jack, 2008). This methodology is particularly useful for predicting contrasting or similar outcomes across different studies, allowing for the validation of results (Eisenhardt, 1991). The qualitative approach enables a deeper exploration of the research questions and supports theoretical development.

The focus of the investigation is immigrant female entrepreneurship in Italy, described as a journey of growth, interaction, and integration, reflecting the increasing diversity of Italian society. As highlighted in the literature, the contribution of migration to development depends not only on favorable structural conditions but also on the skills, resources, motivations, relationships, and personal stories of migrant entrepreneurs (Ndoro et al., 2018).

The study emphasizes the importance of social capital, understood as the overall value of relational resources within a business. This includes internal and external networks that promote cooperation, information sharing, and mutual trust, contributing to organizational success (Festa et al., 2019; Civitillo et al., 2019). It also encompasses forms of financing based on in-kind returns rather than capital dividends (Festa et al., 2022).

Information was collected through direct interviews with ten female entrepreneurs between January and May 2024. The interviews were based on an open-ended, flexible, and adaptable questionnaire tailored to the characteristics of the interviewees. They were conducted orally to overcome potential language barriers, leveraging non-verbal communication as well.

The objective was to determine whether relational capital established in the destination territory could facilitate foreign women in starting entrepreneurial activities. According to recent approaches to entrepreneurship, such as the knowledge-based perspective, possessing unique and rare knowledge is the primary resource for creating business value (Paoloni, Dumay, 2015; Nonaka, Takeuchi, 1995; Nájera-Sánchez, 2023).

The questionnaire was structured according to the C.A.O.S. model (Paoloni, 2021), which analyzes the following distinctive aspects of micro and small female-led enterprises:

- C: Personal characteristics of the entrepreneur.
- A: The environment in which the business operates.
- O: Organizational aspects and management style.
- S: The start-up process and motivations for creating the business.

The C.A.O.S. model is the result of recent research on female-led businesses and highlights the distinctive factors characterizing female enterprises compared to male-led ones (Paoloni, 2021).

4. Discussion of the Results

The responses from the entrepreneurs highlight the main factors influencing immigrant women-owned micro and small businesses in Italy, focusing on four key areas: personal characteristics of the entrepreneur (C), the business environment (A), management style (O), and motivations for starting the business (S). These areas were explored through interviews, revealing their perceptions, motivations, and experiences.

Personal characteristics (C): The entrepreneurs manage small, individually owned businesses. They range in age from 39 to 60, with different levels of education and previous work experience in their home countries. All of them transitioned from being employees to entrepreneurs, supported by informal relationships.

Their motivations include personal fulfillment and using their skills, often driven by challenges or limited career options. They see self-employment as a way to gain independence and achieve their goals.

Business environment (A): Their relationships are mainly commercial, involving clients, suppliers, and consultants. These connections are both formal (with professionals and institutions) and informal (with friends and family), and both are critical for business success.

Before starting, they conducted market research to assess economic potential and continue exploring opportunities for growth and diversification.

Management style (O): Despite running small businesses, they use a participatory management approach, avoiding rigid or authoritarian styles. Their priority is to provide high-quality services that meet customer needs, supported by relationships with stakeholders.

They actively monitor business performance and collect customer feedback to ensure success.

Motivations for starting the business (S): None of the entrepreneurs come from entrepreneurial family backgrounds. They started their businesses independently, often inspired by their past work experience in Italy or family members.

The main challenges they face include difficulty accessing credit and achieving financial stability. Informal networks are essential during the start-up phase, offering financial and practical support.

The study shows that relationships, both formal and informal, are essential for the success of immigrant women entrepreneurs, especially at the start. Personal and professional connections help them identify opportunities and influence their motivation and strategies.

The analysis focused on four aspects of immigrant women-owned businesses: personal characteristics (C), the business environment (A), management style (O), and motivations (S). The results show that relational capital, or the networks they build in their new location, is crucial for their business success. It helps them manage their businesses effectively and reduces the risk of failure during the start-up phase.

Their relationships are mostly commercial, including formal ties with consultants and institutions and informal ones with friends and family. Informal networks are particularly important during the early stages, providing financial and practical support.

Using the C.A.O.S. model, the study found both similarities and differences among the entrepreneurs. It confirms that immigrant female entrepreneurship in Italy is not unusual but an established part of the economy. The strategic use of relational capital is a key resource for overcoming challenges like limited funding and business management issues.

The success of these businesses depends on the entrepreneurs' ability to build and maintain support networks in their new communities, drawing on their experiences and overcoming social and economic challenges. Strong relationships and networks are essential for addressing the unique difficulties of small businesses, particularly in the start-up phase.

5. Findings and Conclusions

One of the most significant findings of the study is the crucial role of relational capital in the destination territory of immigrant women entrepreneurs. Relational capital refers to the network of personal and professional relationships that the entrepreneur can build and activate. Through these networks, immigrant women entrepreneurs obtain the necessary support to start and grow their businesses, especially during the critical start-up phase.

The interviews clearly demonstrate the central importance of relational capital in the establishment and development of immigrant women-owned businesses in Italy. Relational capital serves as a strategic and multifunctional resource, helping to address the typical barriers faced by start-ups and successfully navigate a complex economic and social environment. A clear distinction emerged between informal and formal relationships: while informal relationships, such as ties with family and friends, are crucial in the early stages for financial and motivational support, formal relationships, such as those with consultants, suppliers, and institutions, become vital for ensuring business sustainability and growth in the medium to long term.

A key finding from the analysis is the complexity and multidimensional nature of the motivations driving immigrant women toward entrepreneurship. Far from being merely a response to immediate economic needs,

self-employment often represents a path to self-realization and a means to overcome structural obstacles and labor market discrimination. Many of the interviewed entrepreneurs transformed skills acquired in previous jobs, both in their home countries and in Italy, into strong foundations for their businesses. However, these entrepreneurial trajectories are often hindered by structural barriers, including limited access to formal financing. In many cases, the entrepreneurs relied on personal savings or informal loans, highlighting the critical role of relational networks, particularly in their informal form, for securing initial capital.

The relevance of relational capital extends beyond the start-up phase. Over the long term, it continues to play a fundamental role in business development by facilitating professional collaborations, access to new market opportunities, and the economic and social integration of entrepreneurs into the local context. The relational networks operating in the business's territory act as catalysts for innovation and resilience, enabling entrepreneurs to address organizational, financial, and operational challenges more effectively.

The application of the C.A.O.S. model provided a structured analytical framework to examine the dynamics of immigrant female entrepreneurship. The primary insight from this model is the interconnectedness of its dimensions, which mutually influence one another through relational capital. Relational capital acts as a bridge linking the entrepreneur's personal background with the macroeconomic context and the business's organizational structure, supporting the transition from an entrepreneurial idea to its concrete and sustainable realization.

Immigrant female entrepreneurship significantly contributes to Italy's economic, social, and cultural fabric. Economically, these businesses enrich the market with new ideas and innovations, create jobs, and strengthen key sectors such as hospitality, personal services, and trade. Socially, they serve as a vehicle for economic independence for immigrant women, promoting social integration and reducing inequalities related to gender and migration status. Culturally, these businesses make a significant contribution to the diversity and plurality of the entrepreneurial landscape, challenging stereotypes and fostering greater inclusivity.

The analysis further highlighted that relational capital, while intangible, is a strategic resource with a tangible impact on business performance. It not only helps overcome practical obstacles but also acts as a catalyst for other forms of capital, such as financial, human, and emotional capital. The relational networks of the entrepreneurs interviewed played a crucial role not only in providing initial support but also in opening up long-term development opportunities.

The practical implications of this research are numerous. From a policy perspective, there is a clear need to develop targeted programs that facilitate access to credit for immigrant women entrepreneurs, such as microcredit or subsidized financing schemes. Promoting professional networks that connect entrepreneurs with mentors, consultants, and investors is also essential, providing them with practical and strategic support. In terms of training, specific courses are needed to equip entrepreneurs with management, legal, and financial skills, addressing knowledge gaps and enhancing their ability to navigate Italy's economic environment.

Immigrant female entrepreneurship is not only a well-established reality but also a dynamic phenomenon that enriches Italy's economy and society. Relational capital emerges as an indispensable element for the success of these businesses, demonstrating that building strong networks and leveraging personal skills can transform challenges into opportunities. Investing in support for these entrepreneurs means fostering an inclusive and sustainable development model that connects diversity, innovation, and economic progress. Finally, the study invites a broader reflection on the political, economic, and social implications of immigrant entrepreneurship, highlighting its role as a crucial resource for the country's future.

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Towards the Journey of Women Empowerment: The Development of a Digital Platform for Women Entrepreneurs

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Abstract: Women, representing nearly half of the global population (approximately 3.97 billion), often face marginalisation in their families, communities, and regions due to various reasons. Like any other, every woman has the right to make her own choices in life, leading to an empowered life. Entrepreneurship serves as a crucial tool for empowerment, yet women entrepreneurs encounter numerous challenges along the way. Digitalisation, especially in modern and developed societies, has significantly improved lives, including those of women. Digital platforms can play a key role in supporting women entrepreneurs, providing them with the resources and networks they need to thrive. In countries like Sri Lanka, which is evolving from a patriarchal to an egalitarian society, there is a growing need to develop comprehensive ecosystems to support women entrepreneurs. This study introduces and evaluates a digital platform prototype named "Empower Her," designed to facilitate the entrepreneurial journeys of women entrepreneurs in Sri Lanka. Using a mixed method approach, the study evaluates how effective this digital platform is and explores what improvements are required. The research was looked at through the lenses of empowerment, digital empowerment, feminist theories and capability approach. In the quantitative approach, the User Experience Questionnaire (UEQ) was shared with 30 women entrepreneurs, along with the link for the "Empower Her" app to evaluate. The data were analysed using the UEQ analysis version 10.0. The analysis showed that "Empower Her" is an extremely good app to use. It was appealing and attractive, and the task-related qualities, such as perspicuity, efficiency, and dependability, were scaled at high levels. Attribute-wise evaluation indicated that the app is understandable, motivating, friendly and clear but does not have a leading edge. In the qualitative approach, five women entrepreneurs were interviewed on effectiveness and to take feedback on further developments. User friendliness, a motivator, a supporting hand, a learning platform and connectivity and collaboration were the themes for user effectiveness. On further developments, tailor-made education programmes, access to funding and financial tools, e-commerce integration, wellness and well-being, and social empowerment were suggested. Empowerment is a challenging journey, and entrepreneurship facilitated by digital technologies could enhance women's capabilities, letting them achieve the lives they aspire to.

Keywords: Women Empowerment, Digital Platform, Women Entrepreneurship, Capability, Feminist Theory

1. Introduction

In the contemporary world that we live in today, digital technologies have become a transformative agent for the initiation, operations and survival of entrepreneurial endeavours (Verhoef *et al.*, 2021). In a developing country such as Sri Lanka, where women make up half of the population but economic participation is relatively lower than that of the male population, entrepreneurship is a critical notion for development (Elam *et al.*, 2019). Originally identified as a patriarchal society, contemporary Sri Lanka shows progress toward equality for women and the prominence of women's participation in different facets of society (De Alwis and Hernvall, 2020). However, despite the educational achievements, women's participation in economic activity is around 35%, compared to the economic participation of men at 75%. Women face challenges such as limited access to resources and opportunities, wage disparities, and work-life balance due to lack of support (De Silva *et al.*, 2021). The active participation of women in economic activity could lead to increased economic and societal results. Economical results could be economic output, a diversified talent pool, and poverty reduction. Societal results could be empowerment and autonomy, improved health conditions, reduced gender-based violence, social cohesion, work-life balance and improved social norms. All these could lead to enhanced business performance, innovation and market growth, resilience and sustainability of businesses (Sen 1999). Women face many inequalities in acquiring resources, networking, and business opportunities. Social norms on their role as the nurturer of the family are challenging for women to start or run their businesses despite the great perks of having a business of their own (Kaur and Kumar 2020). The advent of digital technologies, specifically social media, has provided a great platform for women to start their businesses and the women entrepreneurs to carry on their businesses, overcoming many challenges they face. These digital tools provide women with the accessibility and flexibility to do their business from anywhere, balancing work and family commitments, providing cost-effective marketing and sales opportunities to their businesses, providing innovation ability, and

enhancing the scalability of business (Ahmad *et al.*, 2018). The integration of digital apps like social media in women entrepreneurship has positively impacted women through financial independence, economic growth, and job creation and facilitated them to overcome traditional barriers of being a woman, paving the way for empowerment (Kabeer 1999a).

This study of developing a prototype app called “Empower Her” was completed as an outcome of a series of research studies on the use of social media, women entrepreneurship and women empowerment in the context of Sri Lanka. The purpose of this study was to evaluate the effectiveness of the app and further improve the app by answering two main research questions: how effective is the digital app to empower women entrepreneurs in Sri Lanka? and what improvements does such a digital tool require for the empowerment of women entrepreneurs?

2. Theoretical Framing

The theoretical framing of the current study of developing a digital platform for women entrepreneurs and evaluating its experience is looked at from the lenses of the empowerment theory, digital empowerment theory, capability approach and feminist technological studies. Enhancing a woman’s capacity, autonomy and participation in decision-making is crucial for the development of women entrepreneurship and empowerment. The empowerment theory emphasises the importance of taking control of one’s own life, access to resources and getting the opportunity to develop the skills required for life achievements (Zimmerman 1995). In contrast, the digital empowerment theory specifies how digital inclusion, digital literacy and access to technology could support marginalised groups for empowerment (Helpser 2012). On the other hand, the capability approach discusses expanding freedoms and capabilities as a means to achieve what an individual values in life (Sen 1999). Feminist technological studies reflect on how power structures like patriarchy impact the lives of women and the challenges they face, especially in using technology. Gender biases could be embedded in the design, and development of technological tools. The access to technology usage by women, and facilitating technology for women's agency and identity formation are tenure tasks (Lohan 2000).

The development of a digital app could provide women entrepreneurs with access to resources such as funding, educational tools and mentorships to empower them. Digitally empowering them through access to technology allows them to scale their businesses, provide visibility and reach wider markets. The digital app could be used to develop their capabilities such as financial management, leadership and market access as a means to achieve their goals. It could also be a tool to empower them, allowing them to make informed decisions about their personal development and business. Reflecting on feminist technological studies, the app is designed for women to break gender norms, promote gender equity, and create an inclusive environment that can support women entrepreneurs in overcoming the barriers to women's entrepreneurship.

3. Methodology

3.1 The Context and the Participants

This study was conducted in Sri Lanka, where 51.5% (10.8 million) of the population are women, and their participation in economic activity is around 35% when compared to the economic participation of men at 75% (Department of Census and Statistics Sri Lanka (Annual) 2022). After reviewing relevant previous studies, this study employed action research to develop and evaluate the effectiveness of a digital app called “Empower Her”, aimed at empowering women entrepreneurs in Sri Lanka.

Action research is an iterative method that combines actions and reflections to provide solutions to a problem or to improve practices (Stringer 2013). The action was developing the app “Empower Her”. This concept was derived from researchers’ consistent interactions with women entrepreneurs since 2017 and from the results of the four systematic research studies conducted priorly. All prior research studies explored the experiences of women entrepreneurs in Sri Lanka. The first study revealed that women face unique challenges compared to men, primarily due to balancing multiple roles, and highlighted social media as a vital tool to overcome these barriers. The second study examined how women entrepreneurs use social media, identifying its role in marketing, networking, and driving business growth and empowerment. The third study, through surveys and focus groups, demonstrated that social media significantly influenced women’s entrepreneurial intentions and business performance, serving as a source of motivation and knowledge sharing. A survey in the fourth study, involving 509 university students, emphasised the importance of peer support in shaping entrepreneurial intentions among women. The final study culminated in the creation of the “Empower Her” app, designed to

enhance women's entrepreneurial skills and foster their growth and empowerment in Sri Lanka. In previous studies, it was revealed that women entrepreneurs considered digital platforms as a platform to express their ideas without a barrier. They thought they could connect with other women role models who do well and get the best motivation from another woman (a peer) for their work. They thought digital platforms were convenient, and they could make connections and meet suppliers and customers easily. Further, it was discovered that digital platforms such as social media could be used as a medium to grow and advertise the business, as a medium of communication and customer care, as a medium of learning and skills sharing and as a medium for collaborative work (De Silva and Hansson 2022). All these ideas and results were taken into consideration when conceptualising the app. This digital platform was created to provide an opportunity for women entrepreneurs to create a profile as a woman entrepreneur and showcase their credentials and products to a wide community. This app offers learning opportunities by creating awareness of new trends in business and opportunities to learn relevant skills. Further, the app is a platform to raise any concerns they have and get feedback from peer women entrepreneurs and mentorship. The app has the possibility to add financial service providers and other stakeholders in terms of advertising and providing women entrepreneurs opportunities to get services, buy the materials they want, or even use them as a market to display and sell their products. Figures 1 and 2 demonstrate the appearance of the prototype of the “Empower Her” app.

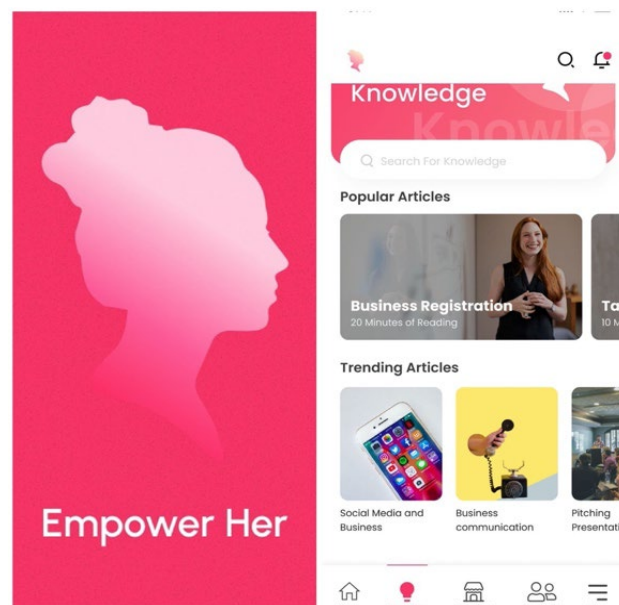


Figure 1: Empower her app outlook

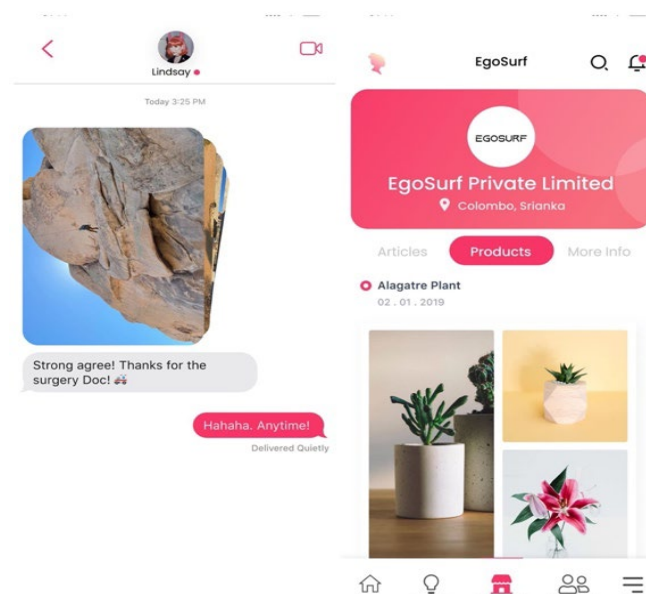


Figure 2: Sample of a user profile and support chat

The study was then expanded to see how effective this digital app is to empower women entrepreneurs in Sri Lanka and to see what improvements this prototype requires for betterment. For this purpose, the study used both quantitative and qualitative methods in data collection and data analysis.

3.2 Data Collection and Instruments

In the quantitative data collection, the prototype of the app “Empower Her” was shared with 30 women entrepreneurs along with the User Experience Questionnaire (UEQ) (Schrepp 2019) to measure the effectiveness of the designed app. UEQ is an easy and free tool that provides resources to check the level of effectiveness of digital tools. The UEQ questionnaire contains 26 questions (detailed in the analysis) on a Likert scale of 1- 7 and is available to download at <https://www.ueq-online.org/>. The data were collected during the months of April and May of 2024. The sample of 30 women entrepreneurs was selected through a simple random sampling method. Afterwards, a qualitative data collection was conducted using the interview method. Later, in early June 2024, 05 women entrepreneurs were personally interviewed to get their feedback on the effectiveness of the app and their opinions on how to develop the features of the app to further support their empowerment journey. Each interview took nearly 30 to 35 minutes and was conducted at their own business premises. Their consent was obtained before the interviews were recorded, and anonymity was ensured.

3.3 Data Analysis

The data gathered from the User Experience Questionnaire were analysed using UEQ (User Experience Questionnaire) data analysis version 10. The data collected from the individual interviews were analysed using thematic analysis.

4. Results and Discussion

This section outlines the results of the quantitative and qualitative analysis separately.

4.1 Quantitative Data Analysis

Table 1 depicts the profiles of 30 female entrepreneurs who responded to the UEQ questionnaire.

Table 1: Profile of the respondents of quantitative data

Characteristics	Frequency	%
Age		
20 – 25 years	12	40
26 – 30 years	7	23.3
31 – 35 years	2	6.67
36 – 40 years	3	10
41 – 45 years	1	3.37
46 – 50 years	4	13.3
51 years and above	1	3.37
Educational Level		
Ordinary level	1	3.37
Advanced level	14	46.67
Graduate	8	26.67
Masters	3	10
Doctoral	0	0
Professional qualifications	4	13.3
Sector of the business		
Fashion and accessories	8	26.67
Beauty	3	10

Characteristics	Frequency	%
Food and beverages	8	26.67
Decorations	2	6.67
Electronics	1	3.37
Event Planning	3	10
Other	5	16.67

The results of the UEQ, as in Table 2, show that all six main scales (attractiveness, perspicuity, efficiency, dependability, stimulation and novelty) are extremely good, with the lowest being novelty (1.625) and attractiveness (2.296) at the highest. The Cronbach's alpha coefficient values are included to present the scale consistency. All six scales show a positive alpha coefficient greater than 0.7, the accepted value.

Table 2: UEQ main six scales

Ueq Scale	Mean	Variance	Cronbach's Alpha Coefficient
Attractiveness	2.296	0.33	0.85
Perspicuity	2.175	0.42	0.78
Efficiency	2.100	0.56	0.74
Dependability	2.133	0.40	0.72
Stimulation	2.167	0.67	0.80
Novelty	1.625	1.25	0.76

According to the UEQ analysis, the scales could be grouped into prametic and hedonic quality. Pramatic quality describes tasks related to quality aspects such as perspicuity, efficiency and dependability. Hedonic quality is non-tasks related quality aspects such as stimulation, novelty and attractiveness, which stands alone. The table 3 semonstrates those quality values, and according to the results the highest quality is attractiveness (2.30 out of 3). When comparing pramatic and hedonic values, pramatic (2.14 out of 3) stays higher, specifying that tasks related aspects of the prototype of the app are appreciated better.

Table 3: UEQ quality dimensions

UEQ Quality Dimensions	
Attractiveness	2.30
Pragmatic quality (perspicuity, efficiency and dependability)	2.14
Hedonic quality (stimulation and novelty)	1.90

The values of all 26 items in the UEQ are demonstrated in the figure 3. All women participants have evaluated the prototype of the app "Empower Her" as providing good experiences depicted through positive mean values for all 26 items. Out of the 26 items 19 are above 2.0 (72%), indicating that the proposed app is very good. According to the results, the most appreciated attribute of the app is that it is understanding and motivating to use (2.6), whereas the least appreciated is the attribute of leading edge (0.9). They mainly consider that the app is friendly (2.5), attractive (2.5), supportive (2.4), efficient (2.3), clear (2.3) and practical (2.3).

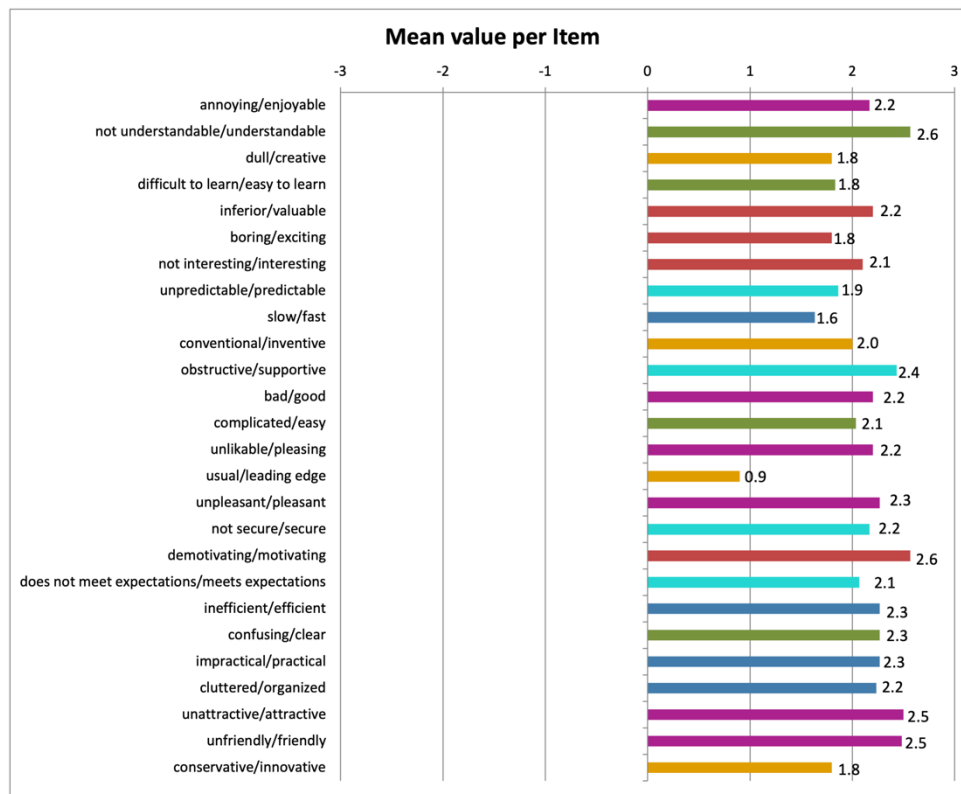


Figure 3: Mean values of 26 UEQ items

4.2 Qualitative Data Analysis

The structured interviews of 30 – 35 minutes were conducted with 05 women entrepreneurs on the effectiveness of the app and their opinions on how to develop the features of the app to further support their empowerment journey. Table 4 provides the profile data of the participants.

Table 4: Profile of the respondents of qualitative data

Participant	Age	Educational Level	Sector of Business
A	24 Years	Undergraduate	Food and beverages
B	48 Years	Masters and Professional	Architecture
C	31 Years	Graduate	Fashion and accessories
D	29 Years	Graduate	Event planning
E	34 years	Advanced level and Professional	Beauty salon

The interview data collected were analysed using the thematic analysis. Regarding the effectiveness of the app “Empower Her”, the below themes emerged. According to the qualitative analysis, “Empower Her” is effective for five main reasons.

Theme 01: User friendly

When using a digital platform for the first time, it takes time for the user to get used to it and its features. Even after, it is vital that all the features of the app are understandable for users of all ages and educational levels. The usage of colours, texts, fonts, themes, and design should be appealing to the user to get the feeling of using it.

B: “It was very easy to use the app from first step. It guided me clearly from setting up my profile to using the features. It was not complicated at all.”

A: “I loved the colour and the design of the app, it was soothing and felt very welcoming.”

E: “It is a user-friendly app unlike many other I use. I could try all the features relatively in a short time period.”

Easy to use, clarity, attractiveness, and easy understandability are effective features of a digital platform, and they encourage users to get services to the best of their ability. Further, the fact that women of any calibre could use the digital app easily increases its credibility and improves its ability to serve a larger audience that requires such an ecosystem.

Theme 02: A motivator

“Empower Her” app was developed to create a community for women entrepreneurs with fellow peers and stakeholders such as material suppliers, financial suppliers, advisors, educators and learners. It features articles of success stories, and users can view the profiles of fellow women entrepreneurs on the platform. For many women, it inspires and motivates them to see how another woman wins life. Listening to the stories of how others face the challenges of work-life balance, managing time for children, how they overcome the restrictions of partners or family, and the stigma prevailing in societies about working women can truly motivate fellow women when facing their own challenges.

D: “It is a motivation to see the work of other women, especially the amazing products and services offered by the women of my age.”

A: “I would love to listen to the winning stories of women and how they overcome the barriers they face. It is inspiring.”

In the journey to empowerment, these women require motivation and inspiration, so digital platforms should allow them to be motivated and inspired by each other.

Theme 03: A supporting hand

One of the main barriers for women in entrepreneurship is that they do not get sufficient support for financing, materials, markets, and support from society as men do. Therefore, this ecosystem facilitating women entrepreneurship could be developed using a digital platform. It is convenient for them to have the support they require in their smart device to overcome many challenges.

C: “The app has many features as a chat platform to put our problems and discuss details on how to find financial and other suppliers. It is a great support to us because otherwise, it is difficult for women.”

E: “This kind of app can give you all the support you need on your smartphone. It is a fingertip away. It is great.”

Digital technologies can save time, provide access to demographic locations that were impossible to reach, be cost-effective and offer many opportunities for support. Women require a supportive ecosystem to facilitate their entrepreneurial activities.

Theme 04: A learning platform

A digital platform for women entrepreneurs must facilitate their acquisition of knowledge, skills, and personal and professional development. The women entrepreneurs could come from various educational backgrounds, exposure, and experiences. However, as entrepreneurs, they need specific basic knowledge and skills and some specialised skills in the business sector they have chosen. The basic knowledge and skills required by any women entrepreneur would be finance handling, communication, marketing and advising, human resource handling and basic IT skills. Examples of having specific knowledge would be baking techniques for a baker or hair-cutting techniques for a beautician.

B: “The feature on the opportunity to learn about financials, how to register a business in Sri Lanka, and tax is interesting. We do not know these things. The content can be translated to Sinhala too, and that is great.”

C: “With the businesses and families, we do not have time to pursue any education or skills, so the feature which provides education is very good.”

E: “I think we can learn from the profiles of other women entrepreneurs who work in our sector, too. We can upload videos on how we do make-up and haircuts, for example.”

The digital platform can provide the direct opportunity for women to educate themselves, or indirectly, it could offer the opportunity to learn from fellow women entrepreneurs too. The opportunity to continuously learn can keep these women updated and aware, make their lives more effective, and support them to empower them more.

Theme 05: Connectivity and collaboration

In a world devoid of digital technology, any person or organisation would have minimal access to markets, connectivity and liaise with people from their own region, country or world. But digital platforms open opportunities for the world. Today, people can connect with anyone, and they can reach the markets in the corners of the world. This digital platform can connect women with fellow women entrepreneurs, various suppliers, and customers. Further, it will allow them to work collaboratively with others.

B: "This app can give me the opportunity to meet fellow architects, and we can collaborate on new projects rather than working as individuals."

C: "We need to connect to others to see what is happening. There are a lot of opportunities you can receive from connecting to suppliers and customers."

When developing an entrepreneurial ecosystem, connectivity and collaboration play a considerable role, and the advantages of digital technologies can facilitate it.

In the same interview, the respondents were asked for their opinions on how to develop the features of the app to further support their empowerment journey. In the thematic analysis, the data could derive five themes in areas they suggested further improvements in the app, such as tailor-made education programmes, access to funding and financial tools, e-commerce integration, wellness and well-being, and social empowerment.

Theme 01: Tailor-made education programmes

The respondents suggested that there could be a separate feature in the digital app for them to follow courses online on basic accounting, English communication, HR practices and marketing. Further, they suggested that it would be great to include courses in bakery, software coding, tailoring, make-up, haircuts, and designing. They have identified the importance of continuous education and skills development to progress professionally and personally.

B: "I am an architect, and I don't know any finances and I would love to learn it. But with work, I cannot go to a place and learn it, but if I can do it online will be great."

E: "No one can survive in the beauty industry if you do not know the newest trends in makeup and hair. So, tutorials on these new things will be very helpful."

The app can collaborate with such course providers and connect a link for the women entrepreneurs to complete the courses online. It is great to see that they have understood the value of education and skills in their journey of empowerment.

Theme 02: Access to funding and financial tools

The app has a feature that allows financial providers to advertise. The respondents in the interview suggested improving the feature that will enable them to chat with these financial providers about the facilities they want. Also, they suggested a financial tool to record their financials to control and manage their financials on personal and business fronts.

A: "The financial providers we meet in this app have to have special financing programmes for women entrepreneurs. If we can chat with them directly, it is easy."

D: "It would be good if the app had a tool for our finance management and also some courses we could complete in finance and marketing."

They require an all-services integrated app.

Theme 03: E-commerce integration

In the prototype, the app could connect suppliers and buyers with women entrepreneurs. They suggest the developments to make this app an e-commerce platform to facilitate buying and selling.

A: "I do a restaurant and a takeaway. If I can order food materials via this app through reliable suppliers, that would be great. At the same time, it would be great if I could take my orders via this platform, too."

D: "We require many raw materials, and countries like Thailand and China have them at cheap prices. If we can have those suppliers here to order goods, that will be easy."

The women require simple tools to create e-commerce websites, manage orders, track delivery, and make payments, facilitating to list their products and services in the app for visibility and market access.

Theme 04: Wellness and well-being

Mental and physical wellness and well-being have become important lifestyle changes. The app currently does not feature anything in this category. They suggest a feature that promotes mental health, work-life balance tips, time management, mindful exercise, and physical fitness activities.

C: "It would be great if the app could provide exercise routines, diet suggestions for our busy schedules, and instructions for meditation and yoga. It will be great, actually."

B: "There is nothing like peace of mind. With the work of home and business, I am very restless all the time. A little piece of advice each day on how to stay calm and happy would be so useful."

Mental and physical health and well-being are crucial in the journey of empowerment for women. They need to be strong enough to face any challenge coming their way and also to handle many tasks at hand.

Theme 05: Social empowerment

The respondents believe in giving back to the society. They want to support and empower underprivileged women and support their children. They suggest that the app should have a feature to publish the social empowerment activities they do and promote success stories to encourage others.

A: "There are many women who need help. Sometimes, they lack opportunity and suffer. We need to promote small businesses for them so that they can help not only them but their children."

E: "We need to give back to society by helping the needy as much as we can."

This is something extra to an entrepreneurial ecosystem; however, this thinking and initiative could take society a long way.

Entrepreneurship leads to empowerment, enhancing women's capabilities and contributing to societal freedom and development. Women's agency, defined by their economic independence as entrepreneurs (Brush 1992), enables them to lead lives aligned with their values, positively influencing their families and broader society (Kabeer 2001). The integration of digital tools like social media represents a modern and transformative aspect of women's entrepreneurship (Olsson and Bernhard 2021). These digital platforms offer unprecedented access to customers and networks, enabling women to start and grow their businesses (Ukpere *et al.*, 2014). For women entrepreneurs, these platforms play a crucial role in overcoming challenges like marginalisation and lack of inclusion, fostering empowerment through innovative concepts such as sharing and collaboration (Cesaroni *et al.*, 2017). Financial independence, facilitated by entrepreneurship, enhances women's empowerment and family well-being (Kabeer, 1999b). Initially used for socialising and entertainment, digital apps have evolved into a gender-neutral platform empowering women through advocacy, business promotion, and social causes (Melissa *et al.*, 2015). Digital platforms designed for women entrepreneurs aim to provide essential support, networking, resources, and branding opportunities (Åsberg and Lykke 2010). This study developed a prototype focusing on education, mentorship, funding access, business tools, and community support, addressing critical areas identified by McGowan *et al.* (2015) as crucial for women entrepreneurs. Study findings underscore that digital platforms tailored for women entrepreneurs can serve as sources of motivation, inspiration, and support, enhancing their capabilities and fulfilling strategic gender needs (De Silva *et al.*, 2021).

5. Conclusion

We live in a digital age where tools like social media offer opportunities to enhance capabilities and empower women, promoting gender equality and diversity. Economic independence through entrepreneurship is crucial for women's agency and expanding their choices. Social media can significantly support women in establishing and improving their businesses, thereby enhancing their capabilities and overall well-being. The development of the "Empower Her" app reflects a commitment to understanding and supporting women entrepreneurs in Sri Lanka, leveraging technology to provide resources and empower them economically. This initiative aims to not only benefit women entrepreneurs individually but also uplift their families and communities by fostering greater opportunities and empowerment.

Research in women entrepreneurship and empowerment should explore industry and country-specific challenges to assess variations and entrepreneurship's potential for empowerment across contexts.

Understanding how diverse factors like age, gender, education, and generational differences influence social media platform preferences requires investigation. Additionally, studying innovative digital tools can help overcome global barriers to technology access, enhancing capabilities and quality of life for women entrepreneurs worldwide. The need of the hour is to develop an app where these women entrepreneurs could get many of their requirements met and integrated – “one stop for all”. Future studies can investigate how to support women who are not digitalised and how to promote and facilitate their use of digital technologies. This requires collaboration with many parties and developing a wholesome app, which, in other words, could be a digitally efficient entrepreneurial ecosystem for women. The findings of this study could be the concept development for such a holistic digital ecosystem for women entrepreneurs. It could enhance the opportunities and capabilities of women, leading to their empowerment and allowing them to live the lives they aspire to while transforming the community for the better.

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Gender Dimension in Research: Bridging Gender and Science

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Abstract: The European Commission (EC) has become a global leader in setting policy for integrating the gender dimension into research and innovation (R&I) content. It is a priority for ERA and, for Horizon Europe, an award criterion that becomes a requirement by default. Thus, after the impetus that the Gender Equality Plans (GEPs) have given to advancing gender equality, integrating the sex and gender dimension in research is now an unavoidable step for RPOs. A large body of literature has highlighted that ignoring sex/gender as key variables in R&I leads to incomplete and flawed results that perpetuate significant gender biases and gaps in knowledge. In parallel, there is strong evidence that integrating sex/gender analysis enhances the quality and impact of scientific results and adds value in terms of excellence and social relevance. However, sex/gender dimensions are still absent from several STEM research. There are at least two main constraints to their incorporation: the limited knowledge of gender issues among researchers, compounded by the shortage of gender experts in many Research Performing Organizations (RPOs), and the lack of adequate tools to support and streamline this process. Following EC guidelines, the Institut de Ciències del Mar (ICM) integrated into its GEP a measure aimed at promoting the inclusion of sex/gender dimension in research as a factor for improving quality. In this framework, we have developed a toolkit to provide practical tools for researchers, covering all phases of the research cycle (from formulating research questions to dissemination) and different research scenarios: research that deals with biological material (animals, cell cultures, etc.), research in which there are differentiated relationships between women and men with the research topic, or basic science research. The toolkit double approach aims to assist researchers in integrating sex/gender analysis into research content while improving equal opportunities for women and men in research teams. The toolkit also proposes indicators that both guide actions and allow the subsequent measurement of achievements. The toolkit has been designed considering previous experiences and best practices from different EU-driven projects and initiatives. ICM wants to share its experience in producing and implementing this toolkit.

Keywords: Gender Dimension in Research, Sex Variable, Gender Equality, Research Performing Organizations (RPO), Gender Equality Plan (GEP).

1. Introduction

Science, like any other field of human activity, is not free from the cultural and social conditioning that supports the development of stereotypes and biases. In many fields of knowledge, the sex variable and the gender dimension are still not sufficiently considered. There is a serious risk that “neutral” R&I, being sex/gender-blind, may have biased results that affect women and men differently by not considering their diversity.

One of the main limitations for incorporating the variables of sex/gender dimension in STEM R&I has been the limited availability of tools that guide and facilitate this integration. In the field of marine sciences, this absence is even more significant since much of the scientific production is considered basic science.

To reverse this perception, at the ICM, we have developed a toolkit to support researchers to integrate sex/gender dimension throughout the entire research cycle. While recognizing the usefulness of these tools, we must also acknowledge their limitations. Its use cannot be limited to ticking off each question; it must be accompanied by reflection. Their maximum effectiveness will be possible if it is supported by the necessary skills and, in many cases, by integrating gender expertise into the conceptualization and design of the research. Research that appears “neutral” may benefit different groups. For instance, it is not the same to research in the field of deep-sea fishing, coastal fishing, or shell fishing, as the communities that depend on these marine resources are different. This necessarily links scientific production with social impact and leads us to the need to consider the connection between scientific production and social needs. Sex/gender are notably important variables in this context.

Thus, from the ICM, we wish to share our journey in the design of these tools. The toolkit integrates tailored tools that maximise the learning of previously available tools and good practices, and responds accurately to the specific research in the ICM. Since the integration of the gender dimension is an essential requirement for the credibility and social accountability of research, the ICM wants the toolkit to be an instrument that facilitates and ensures such inclusion in ICM research, where relevant.

The paper is organised into five sections. Besides this introduction, section 2 reviews the key elements of the normative framework for gender equality and gender dimension in research in RPOs within the EU and Spain. Section 3 discusses gender equality and sex/gender dimension in R&I. Section 4 illustrates ICM's experience and

the key elements of the ICM toolkit to guide the integration of gender dimension in the centre's research projects. The paper ends with succinct conclusions and discussion (5).

2. Normative Framework for Gender Equality and Gender Dimension in Research

The existence of binding and enabling regulatory frameworks has significantly advanced gender equality in research-performing organizations (RPOs). Gender equality is a core value of the European Union (EU), and the European Commission (EC) is committed to promoting it across all EU policies, including research and innovation. These commitments are addressed through the European Research Area (ERA) and Horizon Europe (HE).

ERA focuses on policy coordination and support for inclusive gender equality plans and policies, combating gender-based violence in the European R&I system, ensuring gender mainstreaming in both research content and institutional policies.

HE reinforces ERA priorities through several key provisions. To receive funding, organizations must meet three key criteria: (1) having a Gender Equality Plan (GEP) is an eligibility requirement; (2) the inclusion of a gender dimension in R&I content is mandatory and evaluated under the excellence criterion; and (3) gender balance in research teams serves as a ranking criterion in cases where proposals receive the same evaluation score. Moreover, the integration of the gender dimension in research and teaching content is one of the five recommended content-related (thematic) areas that organizations may consider in their GEPs.

Additionally, Horizon Europe (HE) supports specific gender equality projects, known as 'sister projects,' which are consortium-based initiatives led by RPOs and High Education Institutions (HEIs). These projects are essential for knowledge generation and the development of best practices.

The Spanish regulatory framework transposes European regulations. The *Organic Law 3/2007, of 22 March, for the effective equality of women and men*, establishes the legal, institutional, and policy framework for gender equality across sectors. By its obligatory nature, GEPs have become essential to institutionalizing equal opportunities. *Law 14/2011 on Science, Technology, and Innovation*, updated in 2022, further reinforces GEPs in research centres and mandates the integration of gender perspectives in science, technology, and innovation. Spain's regulatory framework requires concrete actions to ensure gender equality, with GEPs serving as a powerful tool for institutional transformation.

3. Gender Equality and Sex/Gender Dimension in Research in RPOs

Real gender equality remains an unfulfilled goal in R&I. Structural barriers and persistent gender inequalities, particularly in STEM fields, continue to hinder women's careers, as they are embedded within organizational cultures, values and practices. Addressing gender bias, inequitable norms, and power imbalances is essential for achieving meaningful progress at all levels of R&I.

Beyond increasing representation, achieving gender equality requires fostering gender-sensitive and intersectional working conditions. RPOs advance equality through GEPs, which must be reflexive and context-specific, employing tailored strategies to address institutional challenges (Wroblewski & Palmen, 2022). However, structural change processes often encounter resistance, requiring sustained efforts, strong institutional commitment and negotiation among stakeholders (Linková & Mergaert, 2021) to ensure lasting impact—particularly given the persistent segregation and underrepresentation of women in leadership positions (Reuben, Sapienza, & Zingales, 2014).

This issue is especially evident in research groups, where women are frequently concentrated in lower academic ranks—such as researchers, technicians, or support staff—limiting their access to resources, recognition, and opportunities for merit accumulation. Their contributions often go unrecognized, and their voices remain marginalized in knowledge production. Ensuring full and equitable participation throughout the research cycle is essential to unlocking their potential.

Given women's underrepresentation in R&I, knowledge production itself reflects a male-dominated perspective (Müller & Pollitzer, 2021). Gender can influence research outcomes, as research subjects may respond differently to male and female researchers, shaped by mutual gender attitudes (Kane & Schippers, 1996). Likewise, a researcher's sex can impact interactions with animal subjects; for instance, male experimenters have been shown to induce stress-related analgesia in mice and rats (Sorge et al., 2014). Acknowledging these biases is essential for ensuring rigorous and unbiased scientific research.

The integration of the sex/gender dimension into research content is a recent challenge for many RPOs. As summarized in the *Gender Innovation 2* report (European Commission, 2020), there is strong evidence that this integration: a) adds value to research in terms of excellence, creativity and business opportunities; b) helps researchers and innovators question gender norms and stereotypes, and rethink standards and reference models; c) leads to an in-depth understanding of diverse gender needs, behaviours and attitudes; d) addresses the diverse needs of citizens and thereby enhances the societal relevance of the knowledge, technologies and innovations produced; and e) contributes to the production of goods and services better suited to new markets.

Addressing sex/gender dimension means considering sex/gender as key analytical and explanatory variables that are “(...) systematically controlled throughout the research process without necessarily being the main focus of analysis” (Rogg Trine and Rustad, 2018). The distinctions between *sex* and *gender* capture fundamental aspects of our biological and socio-cultural realities; therefore, these terms should not be used interchangeably.

Sex refers to the biological attributes that distinguish males, females, and intersex individuals based on chromosomal composition, reproductive organs, specific hormones, or environmental factors affecting the expression of phenotypic traits in sexually reproducing organisms. In non-human animals, sex distinguishes males, females, and hermaphrodites according to genetic factors as well as non-genetic. In the context of engineering and product design research, sex encompasses anatomical and physiological characteristics that may influence the design of products, systems, and processes (European Union, 2020).

Gender refers to the socially constructed norms, identities, and relationships that are learned through socialization processes. These constructs are context- and time-specific, subject to change, and determine what is expected, permitted, and valued in women, men, and gender-diverse people. Gender shapes how individuals perceive themselves and one another, influences behaviour and interactions, and affects the distribution of power and resources within society.

Human beings are both social and biological entities. Although gender is distinct from sex, they interact in unexpected ways. Sex and gender also intersect with other social categories—such as age, disability, socioeconomic status, sexual orientation, and ethnicity—to shape individual identities and experiences. This interplay, known as *intersectionality*, highlights the overlapping forms of discrimination that arise from these intersections (Shields, 2008).

No research, in almost any field, should be gender blind (Schiebinger *et al.*, 2011-2020). In fact, sex/gender can influence every stage of research process, from setting strategic priorities and defining research questions and hypotheses, to selecting research methods (including data collection and interpretation), conducting research activities, and analysing and reporting results. If relevant sex/gender issues are overlooked or poorly addressed, research findings will be partial and potentially biased. Furthermore, researchers should not consider sex/gender in isolation; as both shape and are shaped by other social attributes. It is always important to conduct research with high societal value and that to respond to the needs of society's different groups.

The lack of awareness regarding the benefits of integrating the sex/gender dimension has led to significant knowledge gaps. A substantial body of literature indicates that ignoring sex/gender as key variables produces incomplete and flawed results, which in turn perpetuate biases and limit the relevance of science to society — or not equally relevant to all groups— and, in some cases, even poses life-threatening risks (Schiebinger *et al.*, 2011-2020; Kalpazidou & Cacace, 2019; European Commission, 2020).

4. ICM Experience Producing a TOOLKIT to Integrate Gender Dimension in Research

The *Institut de Ciències del Mar* (ICM) is the largest marine research institute of the Spanish National Research Council (CSIC), which is the largest public institution in Spain dedicated to scientific and technical research and one of the most prominent in the ERA.

Through its participation in two Horizon 2020 projects, *LeTSGEPs* and *ResBIOS*, the ICM developed its first GEP (ICM, 2021), that serves as a framework to address gender biases and drive structural change for effective gender mainstreaming across all organizational activities. The GEP includes the measure “Integrating Gender Dimension in Research” to enhance research quality and broaden its societal impact. The design of this measure —and the actions it encompasses— were informed by the in-depth, cross-cutting institutional gender diagnosis conducted before the GEP's formulation with data from 2019. This diagnosis identified gender biases, inequalities, and discriminations, as well as the factors contributing to them. In particular, the diagnostic findings related to gender equality in research teams and the integration of the sex/gender dimension in research content provide a clear illustration of the existing reality.

Women's careers were characterized by vertical and horizontal segregation. Although women were well represented in the lower academic grades, the *leaky pipeline* effect was conducive to the progressive loss of female talent as one progressed to the higher grades. Women were only 14,3% in Grade A –full professor– and represented the 21,4% of principal investigators of the existing 14 research groups. The analysis of the barriers showed that some systemic issues continue to be inhibiting factors to their participation and success in research career, such as work-life balance, cultural norms related to gender and harassment.

An anonymous and voluntary survey on gender equality perception among ICM's staff (2023), with a 41.6% response rate (nearly 60% women), revealed significant differences and nuances on key issues. When asked about the possibility of integrating sex/gender dimension into their research projects, 46% of men and 36.8% of women responded affirmatively. Among women, 57.1% were researchers, 32.1% were technicians, and 10.7% were support staff, while among men, 69.5% were researchers and 30.5% were technicians. Most respondents associated gender dimension integration with achieving gender balance in research teams, overlooking the key aspect of incorporating sex/gender variables throughout the research cycle. Meanwhile, 28.9% of women and 28% of men answered negatively, primarily citing the nature of their work as basic science.

The lack of gender-sensitive knowledge production is evident in the scarcity of publications by ICM researchers addressing the gender dimension in their researches. There were no ICM publications explicitly incorporating terms such as "gender dimension," "gender mainstreaming," "gender approach," or "gender analysis" in their research content (search in Scopus, years 2021–2024). However, a few publications on gender equality in marine sciences include contributions from ICM researchers (Giakoumi S., Pita, C., Coll, M. *et al.*, 2021; Figuerola, B., Valiente, N., Barbosa, A. *et al.*, 2021).

4.1 The Toolkit: Step by Step

The Toolkit development includes 4 key phases:

a. Identifying Best Practices Concerning Integration of Sex/Gender Dimension in Research Content

With emphasis in best practices in the field of marine sciences, previous efforts from different EU-driven sister projects and initiatives were mapped (Yellow Window, 2011; WISSET, 2026). Among these resources, the work led by Schiebinger *et al* (2011), which is regularly updated on the Stanford-hosted website, serves as an essential resource by providing practical methods for analysing sex, gender, and intersectionality, along with case studies that demonstrate how such analyses can drive innovation.

GenderWave, a digital tool developed by the Baltic Gender project (2020) to support the integration of gender perspectives in marine R&I, highlights how gender issues in marine science vary across topics and research contexts. These issues are often subtle and not immediately visible, requiring active exploration. Integrating the sex/gender dimension in research cannot rely on standardized tools or a mere 'check-the-box' approach; instead, it demands contextualization and adaptation.

b. Mapping ICM Projects to Assess Potential for Integrating Sex/Gender Dimension

The study reviewed 110 active projects in 2024 through document analysis and 28 interviews with principal investigators and researchers. Projects were categorized by funding source, leadership, research focus, methodology, spatial and temporal scale, and application and impact. To assess gender dimension integration in research, the key criterion was "application and impact," using European and national plan projects (95) as a reference, as they require justification for such inclusion.

In terms of funding, 49% comes from European funds and 51% from national funds. Regarding leadership, women serve as principal investigators (PIs) in 25% of projects and co-PIs in 22%, compared to 37% and 35% for men, percentual gaps that highlight the need for action (Table 1).

Table 1: Funding sources and leadership

FUNDS	LEADERSHIP											TOTAL	%T
	Individual PI				Co-PI								
	Women	%/T source	Men	%/T source	1w/1M	%/T source	2W	%/T source	2M	%/T source			
European Funds	12	26%	26	55%	4	9%	1	2%	4	9%	47	49%	
Spanish Funds (Plan Nacional)	12	25%	9	19%	14	29%	2	4%	11	23%	48	51%	
TOTAL	24	25%	35	37%	18	19%	3	3%	15	16%	95	100%	

Based on the "application and impact" criterion, the analysis found that 63% of research projects focused on basic science (e.g., plankton ecophysiology, microbial genomics, micro-benthos ecology), 17% on applied research (e.g., resource management, ecosystem restoration, aquaculture), and 3% combined both. The remaining projects —participatory, not exclusively research-focused— were classified as citizen science, 17% (Table 2).

Table 2: Distribution of research considering application and impact

	APPLICATION									
	Basic Science	%/T source	Applied Science	%/T source	Basic/ Applied Science	%/T source	Citizen Science	%/T source	TOTAL	%/ TOTAL
FUNDS										
European Funds	22	47%	11	23%			14	30%	47	49%
Spanish Funds (Plan Nacional)	38	79%	5	10%	3	6%	2	4%	48	51%
TOTAL	60	63%	16	17%	3	3%	16	17%	95	100%

Regarding the sex/gender dimension in research content (considering only the projects classified as basic science and applied science, 76), the sex variable is considered relevant in 17% of research projects (Table 3). For example, when studying the impact of endocrine-disrupting plastic additives —chemical compounds used to enhance plastic properties— on marine fish species. These "invisible" plasticizers can interfere with the endocrine system, triggering cellular, hormonal, and reproductive disruptions that may compromise long-term health (Delbes *et al.* 2022). While the research is centred on aquatic organisms, its findings have potential implications for human health.

Sex is also a key factor in fish biology research, particularly in understanding the genetic, epigenetic, and environmental influences on sex determination and differentiation (Piferrer & Guiguen, 2021; Moraleda-Prados *et al.*, 2020). These insights optimize sex ratio control in aquaculture and improve fisheries management, conservation, and breeding programs. From a gender perspective, the transfer phase should acknowledge that women often lead aquaculture initiatives in certain contexts, and ensuring their access to this knowledge can enhance their opportunities and impact.

Table 3: Project consideration of sex/gender dimension and gender equality

FUNDS	Sex/Gender Dimension									Gender equality										
	Sex	%/ CRP	Gender dimension	%/ CRP	Gender neutral/ Not applicable	%/ CRP	Not required	%/ CRP	TOTAL	Equal opportunities	%/ CRP	ICM/ CSIC GEP	%/ CRP	Specific project measures	%/ CRP	Equality Task Force	%/ CRP	Female STEAM Awareness	%/ CRP	TOTAL
European Funds	8	11%	9	12%	6	8%	6	8%	29	11	15%	7	9%	7	9%		0%	5	7%	30
Spanish Funds (Plan Nacional)	5	7%	2	3%	27	36%	1	1%	35	16	21%	22	29%		0%	9	12%	3	4%	50
TOTAL	13	17%	11	15%	33	44%	7	9%	64	27	36%	29	39%	7	9%	9	12%	8	11%	80

Only scientific research projects (76) (CRP)

Summation is not applicable, as a single project may include multiple concepts.

In analysing the integration of the gender dimension in research content, key trends emerged from the "gender dimension" section in the proposals. Of these, 44% classified their projects as "gender neutral/not applicable" (mainly in basic science), 15% considered integrating the gender dimension, and 9% corresponded to projects submitted before the 2021 requirement to justify this integration.

A notable number of projects used the "gender dimension" section to address issues of "gender equality" (Table 3). Thus, 36% used this section to affirm their commitment to equal opportunities, while 39% referenced adherence to the ICM and/or CSIC GEP. Additionally, 9% informed about specific gender equality measures in their projects, 12% acknowledged the advisory role of the Equality Task Force, and 11% cited initiatives promoting women in STEM.

The results of this process highlight that, while it is true that not all marine research can integrate the gender dimension, there are projects where it can be incorporated, even if the potential social impact is not immediately apparent or evident. Some projects classified as "gender neutral" could have integrated gender analysis and, potentially, yielded different results. Meanwhile, projects that claim to incorporate the gender dimension often limit this aspect to the dissemination of results. Research can be used to create new technologies, inform legislation, shape the way we think and understand the world, or develop skills and knowledge, and so, have social dimension. Even studies without human subjects can have social implications. When social implications exist, integrating the gender dimension becomes inevitable. Enhancing researchers' awareness and understanding is a necessary step in this process.

c. Develop an Internal Toolkit

The toolkit was developed based on institutional gender assessments, research mapping, literature review, and best practices. This comprehensive approach ensures it addresses key challenges in marine sciences through a dual strategy: (a) promoting gender equality in research team composition and dynamics (Tool 1), and (b) integrating sex/gender as essential analytical variables, generating broader societal benefits (Tool 2).

The toolkit provides researchers with practical guidance throughout all research phases, emphasizing gender considerations from project conception to completion. While it fosters reflection on gender equality and the sex/gender dimension, it does not replace the need for specialized gender expertise. Designed also as a comprehensive reporting tool, it guides the formulation of indicators to measure achievements. It will be available as an open-access learning resource on the ICM website.

Tool 1. Gender Equality in Research, is designed to ensure gender equality in the integration and functioning of research teams. In alignment with gender equality provisions in Horizon Europe, it not only promotes gender balance and equal opportunities within research teams, but fosters an enabling environment for effective equality. To ensure that this principle permeates every phase of the project cycle, the tool raises pertinent issues to be consider (see Figure 1).

Each phase is supported by a checklist that includes targeted questions to verify compliance with gender-related considerations. For instance, when assessing gender balance in team composition, it is essential not only to determine the percentage of women and men in the team but also to consider their distribution across different categories and leadership positions.

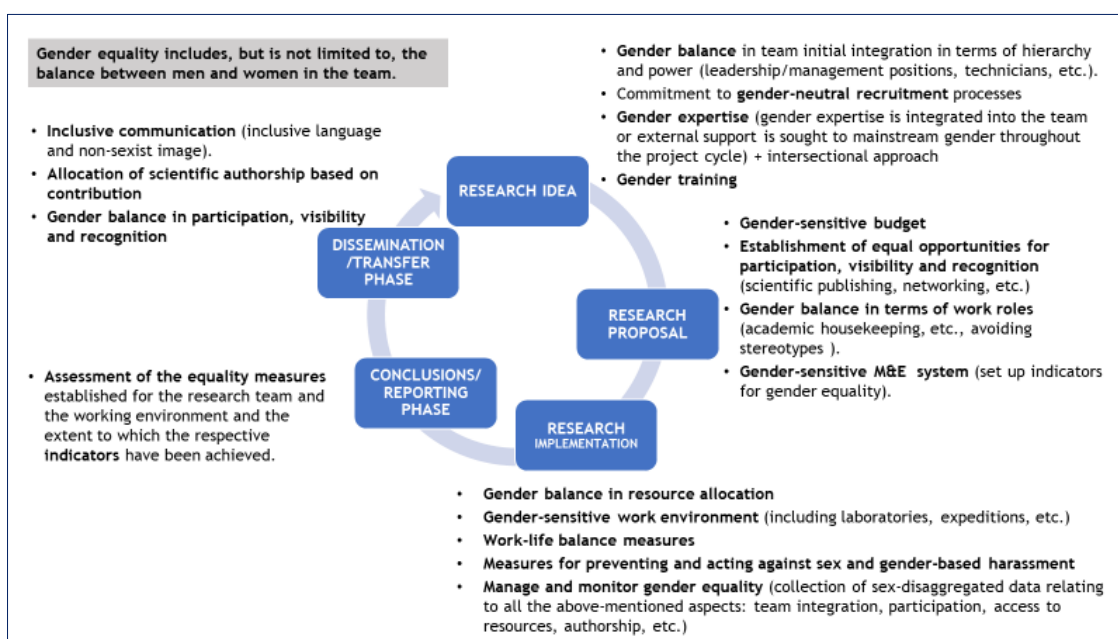


Figure 1: Ensuring gender equality in the research cycle

Finally, the tool aims to establish a set of indicators integrated into a monitoring and evaluation (M&E) system, enabling the progress measurement at different levels. These gender equality indicators serve as measurable benchmarks of performance and achievement, requiring the collection and analysis of sex-disaggregated data. The development of gender-sensitive qualitative and quantitative indicators depends, in part, on the availability

of reliable data. A critical requirement is that all databases incorporate sex/gender variables, include relevant information for every aspect under analysis, adhere to standardized data collection procedures, and generate periodic reports to support monitoring and evaluation

When establishing target values for indicators, pre-existing conditions —such as vertical and horizontal segregation— may shape initial benchmarks. However, these targets should be set to align with gender equality objectives. During the evaluation process, data collected from the original sources will be disaggregated by sex, enabling the update of indicator values and a comparison with baseline measurements to assess progress toward gender equality goals.

The effectiveness of this tool can be enhanced if the RPO has a GEP that integrates measures to support the proposed actions.

Tool 2. Gender dimension in research, is designed to ensure the consideration of sex/gender in marine research when appropriate. If the research - knowledge, results or outputs - is to have a social impact, researchers must assess who benefits and why, and then address the sex/gender dimension. However, social impact is complex and often long-term, making it difficult to measure immediately. Although the results may not have an immediate impact, they can lay the groundwork for future changes, so the need to take the gender dimension into account should always be considered.

Both basic and applied research can be societally impactful. Then, gender dimension must be systematically incorporated into research design, methodology, and the intended application.

Studies involving organisms that are distinguishable by sex should be designed to identify potential sex-related differences, even if these differences are not initially anticipated. If the sex/gender dimension is deemed irrelevant, its exclusion should be explicitly justified with a well-reasoned explanation.

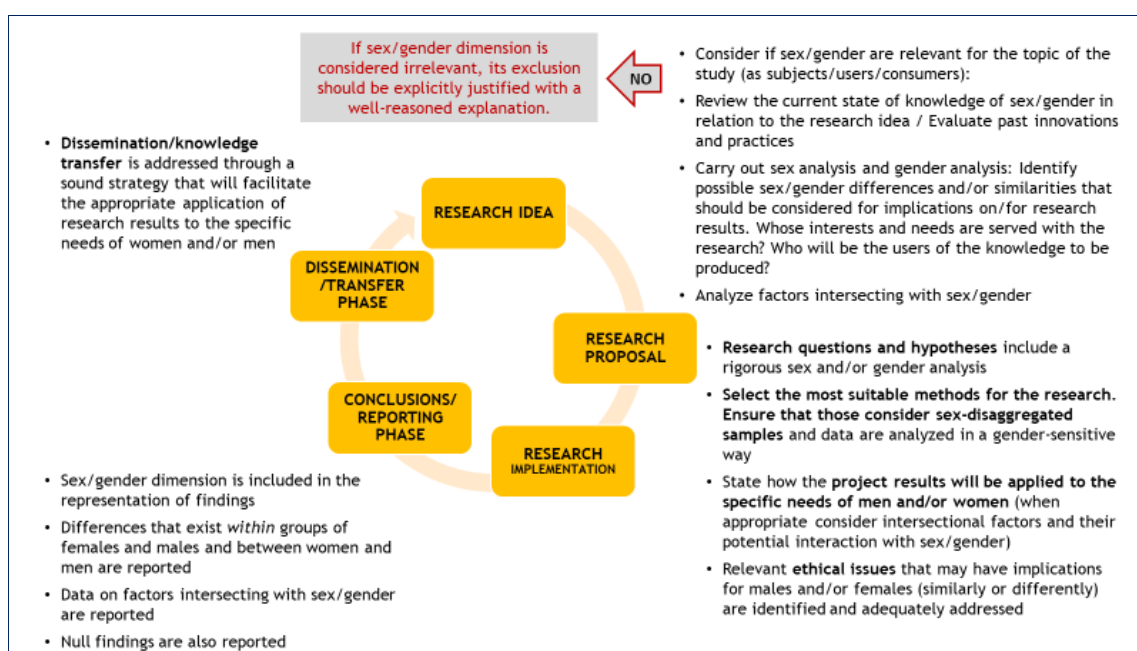


Figure 2: Integrating sex/gender dimension in the research cycle

The tool guides researchers through the different phases of the research by highlighting key issues at each stage (see Figure 2). Each phase is supported by a checklist featuring key questions on integrating sex/gender into research, complemented by illustrative subquestions and practical recommendations for implementation. The checklist encompasses various groups of questions that address the different fields and research scenarios previously mapped. For example, when designing a marine resource research project, integrating the gender dimension is crucial for ensuring equitable, inclusive, and effective resource management. A comprehensive gender analysis should assess how men and women interact with marine ecosystems, identifying disparities in access to resources, decision-making power dynamics, and labour distribution, particularly in small-scale fisheries and aquaculture. Engaging diverse and representative stakeholders—including fishers, policymakers, scientists, and local communities—is essential for capturing gendered challenges and knowledge gaps. Research

methodologies should be context-specific, and data collection must include sex-disaggregated data to enable accurate analysis and inform results.

d. Training and Promoting Toolkit Implementation

This last step is aimed at training research and technical personnel in the use of these tools which is expected to be applied on an ongoing basis.

5. Conclusions and Future Considerations

The ICM is committed to scientific excellence and collaboration with diverse social actors, using ocean knowledge to strengthen the relationship between humanity and the ocean. However, bridging society and scientific research remains a challenge, particularly when the gender dimension lacks an obvious application. Integrating sex/gender variables into R&I is essential for scientific quality, reproducibility, and social impact, as it reduces biases, enhances experimental efficiency, and fosters new opportunities for discovery. Yet, its implementation faces barriers such as limited awareness, methodological challenges, and resistance from some researchers, highlighting the need for a stronger social focus in marine research to ensure inclusive and socially relevant outcomes.

Based on the ICM's experience, several key lessons can be drawn:

- **Institutional commitment and support are essential**, requiring not only resource allocation but also fostering an enabling environment for gender equality initiatives. However, this commitment must extend to researchers, particularly those leading research groups.
- **Gender Equality Plans (GEPs) in Research Performing Organizations (RPOs)** must be institutionalized and aligned with Horizon Europe guidelines to ensure implementation with institutional backing. While GEPs have provided a framework for addressing gender biases and driving structural change, their adoption at the research group level remains limited, representing a pending effort.
- **Gender expertise is crucial** in both the development and implementation of tools. Training researchers is key to ensuring the qualified application of these tools.
- **Practical and adaptable tools must be designed** for different research settings and disciplines within institutions. These should offer structured guidelines and practical recommendations for integrating the sex/gender dimension across all research stages. A dual approach is essential: promoting gender equality in the composition and functioning of research teams while systematically incorporating sex/gender variables into scientific content.
- For maximum effectiveness, tools must be continuously updated, incorporating new approaches and best practices that are contextually relevant for their users. Likewise, their implementation should be closely monitored to ensure their ongoing suitability.

To advance the integration of the sex/gender dimension in marine sciences, future efforts should focus on:

- Strengthening interdisciplinary and transdisciplinary approaches by fostering synergies between social sciences, gender studies, and STEM disciplines.
- Institutionalizing gender expertise by ensuring access to training and resources that facilitate meaningful integration.
- Enhancing policy support and evaluation mechanisms by developing systematic tools to measure the gender impact of research outcomes.
- Contributing to recognising women's contributions—beyond the scientific sphere—to ocean knowledge. Scientific research must integrate their voices and needs, ensuring that women benefit from ocean science advances.

ICM's initiative underscores the importance of institutional commitment and continuous adaptation to fully integrate gender perspectives in research, paving the way for more equitable and impactful scientific advancements.

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Ethics Declaration

Ethical clearance was not required for the research.

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Remote Work, Job Quality and Work-life Balance: A Comparative Study of European Men and Women

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Abstract: The rapid growth of remote work, accelerated by the COVID-19 pandemic, has sparked increased interest in its effects on job quality and work-life balance. This study examines the role of job quality for work-life balance of European men and women when working remotely. While remote work offers benefits such as enhanced flexibility and autonomy, it also presents challenges including social isolation and stress management. Research indicates that these effects are not gender-neutral, with women often experiencing disproportionate challenges despite potential improvements in work-life balance. This study employs a quantitative approach, utilizing data from the 2021 European Working Conditions Survey, with a sample of over 70,000 European workers. Through multi-group analysis and Partial Least Square method, the research investigates gender differences in job quality and work-life balance in remote work settings. The study aims to contribute to the understanding of how remote work influences job quality and work-life balance, with a particular focus on gender disparities. Findings will provide insights for developing equitable remote work policies and practices.

Keywords: Remote Work; Job Quality; Gender; Work-life Balance; Europe

1. Introduction

During the pandemic lockdowns from 2020 to 2021, remote work made became a topic of debate in the European discussion on the quality of jobs and work-life balance, targeting men and women. While millions set themselves up in digital workspaces, this shift had transformed how employees interacted with their job environments, offering opportunities together with challenges. Remote working offers greater flexibility and autonomy, increasing satisfaction with job roles and greater work-life balance, but social isolation and mental stresses arise from significantly reduced social interaction and enhanced self-regulatory demand (Lorentzon et al., 2023; Garcia-Salirrosas & Rondon-Eusebio, 2023). There is also the important nuance of how these dynamics relate differently to men and women, prompting questions about the variation in experiences of remote work for men and women. Prior research has uncovered distinct challenges unique to female workers, namely, greater intensity in telework coupled with household responsibilities, informing evolving understandings of job quality and work-life interplay (Moreno-Colom et al., 2023; Joshi & Kumar, 2023). Though these dual impacts of remote work are discernible across gender, recent research points to the urgent need to explore the gender-specific impact of remote work, which often manifests in varying ways for men and women (Nowrouzi-Kia et al., 2024). Against this backdrop, this research focus on these dynamics across Europe to unveil insights about gendered implications of remote work and constraining factors, thus contributing to gender equality in modern work arrangements.

Remote work introduces distinct gender-specific challenges, particularly in how women experience higher levels of work intensity compared to their male counterparts. This disparity is often attributed to the dual burden of professional and domestic responsibilities that women typically manage, which intensifies when working remotely. According to Moreno-Colom et al. (2023), the flexibility and autonomy offered by remote work can be a double-edged sword for women. While it allows them to better integrate their work and family duties, potentially enhancing their quality of life, it simultaneously blurs the boundaries between personal and professional life, leading to stress and decreased job satisfaction. Shen and Zamani (2024) further explore boundary management tactics and find that women often endure greater telework intensity, which, although linked to enhanced skill development and engagement, adversely affects working time quality and increases fatigue. This compounded stress arises because women are more likely to take on a disproportionate share of household tasks, resulting in an imbalanced work-life dynamic even in remote settings (Campos García et al., 2024). Such dynamics necessitate a deeper examination of how remote work impacts job quality and work-life balance, particularly for women who experience these compounded responsibilities and challenges.

This study employs a quantitative research design, utilizing data from the 2021 European Working Conditions Survey, which encompasses a considerable sample size of more than 70,000 European workers. Participants were selected from those who work remotely and, after that, the sample was divided into two sub-groups, categorized by gender, to facilitate a comprehensive analysis of the experiences of men and women. The primary variables under scrutiny - job quality and work-life balance - were measured using selected items from this extensive database. In examining these variables, the study deploys a Partial Least Square (PLS) analysis to rigorously test the hypotheses concerning the relation between job quality and work-life balance and gender differences in remote work experiences. This approach enables the investigation of intricate relationships within the dataset, allowing for a nuanced understanding of how job quality and work-life balance are experienced differently by men and women in remote work contexts. By focusing on these dimensions, the research is positioned to illuminate disparities and commonalities in how men and women experience remote work, based on the relation between job quality and work-life balance, thereby addressing a critical gap in existing literature on gender disparities in employment environments under the remote work paradigm (Nowrouzi-Kia et al., 2024).

The potential of this study to inform future work arrangements and gender policies is significant, particularly as the landscape of employment continues to evolve in the post-pandemic era. By elucidating the differences in job quality and work-life balance between male and female remote workers, this research provides useful insights that can drive policy and organizational change aimed at reducing gender disparities in the workplace. Existing literature underscores the multifaceted impact of remote work, revealing both opportunities for enhanced employee autonomy and risks of exacerbating existing gender inequalities (Van der Lippe & Lippényi, 2020; Joshi & Kumar, 2023). This study aims to bridge gaps left by prior research by focusing on the need to explore gender differences in job quality (Clark et al., 2021; Ficapal-Cusi et al., 2018). By using a large sample of European workers, this study offers a deeper understanding of how job quality influences overall work-life balance for different genders within the specificities of remote work. The findings from this research could be pivotal in crafting targeted interventions that support equitable work environments, where men and women can thrive equally in remote settings. As organizations consider the sustainability of remote work models, integrating gender-sensitive considerations will be crucial for fostering a fair and balanced future of work.

2. Literature Review

Investigating the gendered lens of remote work narratives has become a growing area of interest especially after the COVID-19 pandemic that hastened the ethos of working remotely. Such a domain of this way of work has been tackled by several studies, most of which provide peculiar interpretations of how men as opposed to women are affected by more or less the same remote work circumstances. As an illustration, the work done by Nowrouzi-Kia et al. (2024) has reported differential effects on worker wellbeing, level of presenteeism and level of absenteeism across the genders, suggesting that while remote work may offer increased flexibility in job roles, not everyone stands to gain the entire benefits with women being the worst affected. Likewise, Moreno-Colom et al. (2023) point out that during the lock down period, women in Catalonia had to deal with and were expected to perform different tasks from men thus suggesting there were huge gender differences that existed. Shen and Zamani (2024) demonstrate that men and women differ in boundary management strategies that are important for a number of factors in this case remote work, often leaving women more likely to experience role conflicts due to combining work and home roles. Furthermore Joshi & Kumar (2023) further elucidate gendered discriminatory practices embedded in the system of remote work, calling for measures to salvage the culprit.

Job quality, on the other hand, is a puzzling subject surrounded by scholarly debate regarding its influencing factors and criteria for its measurement. The central theme of this debate focuses on whether job quality may be defined utilizing objective indicators or, alternatively, assessed from a subjective perspective. The objective measures conventionally include hard, measurable characteristics of work, such as employment contracts, remuneration levels, hours worked, and working conditions (Muñoz de Bustillo, 2011; Stefana et al., 2021). However, subjective assessments take into account the perceptions and experiences of work from the worker's standpoint, such as satisfaction with their jobs, perceptions of job security, and the meaningfulness of their work (Cascales Mira, 2021; Kortmann et al., 2022). Although the supporters of objective assessments advocate their consistent cross-individual comparative approach providing an empirical basis for policy action, those in favor of subjective evaluation contend that job quality is in an essential sense experiential and must take into account the variety of values, expectations, and personal contexts of workers, thus capturing the multi-dimensional character of job quality in a more nuanced manner (Leschke & Watt, 2014).

In exploring the intrinsic dimensions of job quality, one must consider the salient indicators that encapsulate the essence of desirable work conditions from the worker's perspective. Autonomy in the workplace, cited

frequently in literature, refers to the degree of control and discretion an employee has over their tasks and methods of work (Knox et al., 2011). A closely related indicator, skill utilization, measures the extent to which workers can apply their knowledge and competencies in their current roles, which, as suggested by Simões et al. (2017), is intricately linked to job satisfaction and innovation within an organization. Job security emerges as another pivotal indicator of Intrinsic Job Quality (IJQ), reflecting the stability and predictability of employment deemed vital for an individual's well-being (Findlay et al., 2017). These indicators are increasingly quantified and analyzed through comprehensive indices such as the European IJQ Index (Cascales Mira, 2021), which offer nuanced insights into the multifaceted nature of job quality. By incorporating factors such as diverse working conditions, contractual stability, and the meaningfulness of work, these indices lay a critical empirical groundwork for examining the various shades of job quality across differing societal contexts within Europe, setting the analytical framework upon which this study is based.

A critical concern in the sphere of job quality pertains to the persistent disparities observed between genders. Seminal studies, such as those by Stier & Yaish (2014), and more recent analyses by Clark, D'Ambrosio & Zhu (2021), have drawn attention to the significance of occupational segregation and the resulting inequality in job quality. These works delineate the substantial role played by entrenched social roles and expectations in the perpetuation of gendered labour markets where men and women are differentially represented across occupational fields and hierarchies. The labour market is often seen through the lens of segmentation theory, with women disproportionately occupying positions in the secondary segment characterized by precariousness, lower pay, and lesser opportunities for advancement. Santero-Sanchez et al. (2015) and Ficapal-Cusi et al. (2018) provided empirical evidence of such segmentation in gender-dominated industries like hospitality and highlighted an often-observed disparity in job quality. Additionally, legal frameworks, which are effectively the formalization of social values, have a profound influence on job quality, as shown in studies by Antón et al. (2023) and Jones, Cook, and Connolly (2023). These studies offer substantial grounding for the argument that despite progress in gender equality, legally enshrined policies continue to have a differential impact on the job quality experienced by men and women, further underlining the complexity of the motherhood penalty and gender discrimination in the workplace. The literature, therefore, substantiates the existence of a complex interplay between gender, social roles, market segmentation, and legal imperatives that coalesce to systematically shape the job quality landscape in ways that often disadvantage women.

The work-life balance of men and women in remote work settings has revealed significant gender disparities, particularly exacerbated during the COVID-19 pandemic. Women often experience a "double burden," managing both professional responsibilities and increased domestic tasks, leading to higher reported stress levels and workload compared to men (Wattenberg et al., 2023; Aiswarya & Perwez, 2023). Despite women reporting greater satisfaction in some aspects of remote work, they still face challenges in achieving a balanced distribution of time and energy between work and personal life (Ramos & García-de-Diego, 2022; Alfano et al., 2024). Men, while generally reporting higher life satisfaction, tend to prioritize their work, resulting in a more fragmented experience for women, who juggle caregiving and professional duties (Parry, 2024). This dynamic suggests that traditional gender roles persist, influencing the effectiveness of remote work arrangements and highlighting the need for organizational strategies to support equitable work-life balance for all employees (Wattenberg et al., 2023; Alfano et al., 2024).

Job quality appears to significantly influence the work-life balance of men and women in remote work settings, with gender and telework type being critical factors. Research indicates that home-based teleworkers, particularly women, often experience better working time quality compared to highly mobile teleworkers, who face greater challenges in job quality and work-life balance (Rodríguez-Modroño & López-Igual, 2021). The COVID-19 pandemic further highlighted these disparities, revealing that women, traditionally seen as caregivers, struggle more with balancing professional and familial responsibilities in a hybrid work environment (Katsabian, 2022). While men reported higher life satisfaction during this period, women continued to bear the brunt of household tasks, indicating a persistent gender imbalance (Gonzalez Ramos & García-de-Diego, 2022). Additionally, the interplay of flexibility and traditional roles suggests that while teleworking can enhance work-life balance, it may also reinforce existing gender norms (Sullivan & Lewis, 2001). Thus, addressing these inequalities requires systemic solutions that consider both job quality and the unique challenges faced by different genders in remote work contexts (Touzet, 2023).

3. Methods

Although the literature provides valuable insights on the gendered experiences of remote work, job quality and work-life balance, they often fall short of offering a comprehensive comparative analysis of job quality and work-

life balance across genders within the European context. Our study seeks to fill this gap by examining the interconnectedness of job quality and work-life balance for European men and women operating in remote settings, thereby contributing to the discourse on equitable work arrangements and highlighting areas for policy intervention.

As such, figure 1 presents the research model to be tested empirically. The hypothesis to be tested are as follows:

H1a: Autonomy, as a dimension of the European intrinsic job quality index, is positively related with work-life balance.

H1b: Interaction, as a dimension of the European intrinsic job quality index, is positively related with work-life balance.

H1c: Intensity, as a dimension of the European intrinsic job quality index, is positively related with work-life balance.

H1d: Meaningful, as a dimension of the European intrinsic job quality index, is positively related with work-life balance.

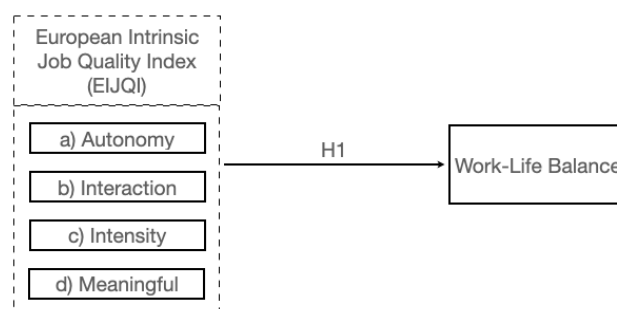


Figure 1: Research Model

Source: authors

Using secondary data from the 2021 European Working Conditions Survey (EWCS) (Eurofound, 2022), this study employs a quantitative methodology. The EWCS, which is renowned for its extensive reach and the depth of its data, offers crucial insights into the job quality that employees encounter in diverse European contexts. There are 71758 people in the entire EWCS sample, spread across 37 nations. Only those who reported working remotely were taken into consideration for this study. Thus, 23,748 workers make up the study's sample.

Regarding the sociodemographic description of the sample participants, the most representative countries of participants are Belgium (6.8%), Germany and Norway (6.3% each), and France (5.4%). There is a balance in gender (48.6% are male and 51.1% are female). The average age of those interviewed is 42.89 years old, with the minimum age being 17 and the maximum age being 84. In educational terms, 77.4% have higher education and 22.2% have completed secondary education. Regarding seniority in the profession, these workers average 10.85 years. 88.5% of workers have just one job or business, 83.6% have a full-time job, and 71.8% have an unlimited contract. Regarding employers, 63.4% are workers in the private sector and 26.2% in the public sector.

Our operationalization of IJQ is based on the European Intrinsic Job Quality Index (EIJQI), a multifaceted metric that encompasses the fundamentals of job quality, including decision-making autonomy, interpersonal interactions, work intensity, and work meaning (Cascales Mira, 2021). The EIJQI comprises four dimensions: autonomy (workers' ability to make decisions about their work), interaction (the social context in which workers interact), intensity (the psychological demands of their effort), and meaningful (social usefulness of their work). While the variables were measured using a likert scale with five points, the variables composing the "intensity" dimension were reversed in order to reflect the low-high orientation of job quality. One variable from the dimension "interaction" was not included due to the lack of data in 2021 EWCS database. Work-life balance is measured by three items (e.g. "Since you started your main paid job, how often have you kept worrying about work when you were not working?") and measured on 5-point likert scale, from 1 (never) to 5 (always). As such, higher scores mean less work-life balance.

A quantitative methodology was used. The first stage consisted of a statistical description of the items that measure the constructs using SPSS software (v25). Afterward, a factor analysis was carried out, and an exploratory factorial analysis (EFA) and a confirmatory factorial analysis (CFA) were carried out using SPSS

software (v25). The third stage consisted of testing the relationships established in the research model shown in Figure 1, using the Partial Least Squares (PLS) method in the Smart PLS (3.0) software (Latan et al., 2023). The PLS method has already been applied to other studies on similar themes (e.g., Amri et al., 2021; Abdullah et al., 2021). In the fourth stage, the model is evaluated after applying the PLS method regarding convergence, reliability, and discriminant validity, using the measures proposed by Latan et al. (2023): Cronbach's Alpha coefficient ($C\alpha > 0.70$), Composite Reliability ($CR > 0.70$) and Average Variance Extracted ($AVE > 0.50$). Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) of correlations ($HTMT < 0.85$). Finally, a bootstrap analysis was carried out to estimate the relationships between constructs in the research model.

4. Findings

4.1 Statistical Description of Construct Items

Table 1 contains the statistical description (mean and standard deviation) of the items that measure the constructs. Regarding the job quality indicators, the items that generated, on average, greater agreement among remote work professionals were those relating to Interaction, namely Good Cooperation between the worker and their colleagues ($M = 4.54$) and support colleagues ($M = 4.25$) and, then, Meaningful Work, namely Useful Work ($M = 4.34$). Regarding work-life balance, the items with the highest frequency on average are those related to concerns about work-life balance ($M = 2.91$).

Table 1: Intrinsic Job Quality dimensions and Work-life Balance (exploratory factor analysis)

Constructs	Items	Mean	Std. Deviation
Autonomy	Consulted (CON)	3.85	1.214
	Decision Influence (DI)	3.86	1.032
	Improv-Workorg (IW)	3.74	1.153
Interaction	Support Colleagues (SC)	4.25	0.873
	Suport Manager (SM)	4.09	1.032
	WP GoodCoop (Coop)	4.54	0.756
Intensity	Highspeed (HS)	2.58	1.069
	Tightdead (TD)	2.49	1.064
Meaningful Work	Work Welldone (WW)	4.20	0.794
	Usefull Work (UW)	4.34	0.800
Work-Life Balance	Work Life Balance Worry (WLB_W)	2.91	1.172
	Work Life Balance Tired (WLB_T)	2.70	1.062
	Work Life Balance Concentration (WLB_C)	2.21	0.988

Source: authors

4.2 Factor Analysis

Appendix A1 presents the results of the factor analysis. Regarding the implementation of EFA, the 13 initial items were divided into five factors corresponding to each of the constructs included in the research model. No items are being deleted. The accumulated variance of the factors is 63.6%, and none of the individual factors explains more than 50% of the variance. The CFA results confirm the reflective nature of the model and show that all items have high confirmatory factor loading (> 0.70).

4.3 Assessment of the Measurement Models

Table 2 contains the results of evaluating the research model after applying the PLS method. The results demonstrate that the model is reliable and convergent since results obtained for Cronbach's Alpha coefficient ($C\alpha > 0.70$), composite reliability ($CR > 0.70$), and Average Variance Extracted ($AVE > 0.50$) are superior to the reference values. Furthermore, according to the HTMT ratio of correlations (Henseler et al., 2015), there is discriminant validity since the HTMT ratio of correlation values is well below the reference value of 0.85,

Table 2: Reliability, consistency and discriminant validity

	HTMT Criterion							
	C α	CR	AVE	Autonomy	Intensity	Interaction	Meaningfull Work	WLB
Autonomy	0.737	0.791	0.561					
Intensity	0.750	0.851	0.740	0.053				
Interaction	0.731	0.744	0.596	0.514	0.085			
Meaningfull Work	0.720	0.830	0.712	0.521	0.076	0.468		
Work Life Balance (WLB)	0.776	0.776	0.540	0.155	0.313	0.254	0.233	

Source: authors

The model has a good fit: i) the Goodness-of-Fit Index (GFI) (0.932; reference value > 0.90); ii) the Normative Fit Index (NFI) (0.956; reference value > 0.90) and iii) the Root Mean Square Approximation Error (SRMR) (0.064; reference value < 0.08). The research model was also evaluated in terms of collinearity with the variance inflation factor (VIF) and explanatory (R^2), and predictive power (Stone-Geisse's – Q^2) (Hair et al., 2019). The largest internal VIF of the items is 1.315, referring to the item "support colleagues", so collinearity is not critical. The dependent variable, Work Life Balance ($R^2 = 0.272$), present a "substantial effect", according to Cohen (1988). The model also has predictive capacity since Q^2 of the dependent variables is greater than zero (Work-Life Balance - $Q^2 = 0.238$).

4.4 Research Model Estimation

Table 3 presents the relationships established between the constructs of the research model comparing female and male remote workers.

Table 3: Reliability, consistency and discriminant validity

				Confidence Interval		
Direct Effects	Path (b)	t Value (Bootstrap)	p-value	2.5%	97.5%	Hypothesis Support
Male Workers						
Autonomy -> WLB	-0.018	1.640	0.102	-0.041	0.002	No
Intensity -> WLB	-0.176	17.836	0.000	-0.196	-0.157	Yes
Interaction -> WLB	-0.101	7.448	0.000	-0.129	-0.076	Yes
Meaningfull Work -> WLB	-0.093	9.391	0.000	-0.111	-0.074	Yes
Female Workers						
Autonomy -> WLB	-0.023	2.258	0.024	-0.044	-0.004	Yes
Intensity -> WLB	-0.197	21.568	0.000	-0.214	-0.180	Yes

Direct Effects	Path (b)	t Value (Bootstrap)	p-value	Confidence Interval		Hypothesis Support
				2.5%	97.5%	
Interaction -> WLB	-0.117	10.259	0.000	-0.140	-0.095	Yes
Meaningfull Work -> WLB	-0.104	10.282	0.000	-0.125	-0.087	Yes

Source: authors

The results reveal that the influence of job quality indicators on the work-life balance of European remote workers presents differences in terms of gender. Thus, in the case of male workers, the relationship between autonomy and WLB is not statistically significant. Intensity, interaction, and meaningful work negatively influence WLB (i.e. more job quality means more work-life balance), although with different intensities ($\beta = -0.176$; $\beta = -0.101$; $\beta = -0.093$, respectively). In the case of female workers, all job quality indicators (autonomy, intensity, interaction, and meaningful work) are statistically significant and negatively affect WLB ($\beta = -0.023$; $\beta = -0.197$; $\beta = -0.117$; $\beta = -0.104$, respectively; i.e. more job quality means more work-life balance). The influence of job quality indicators on WLB is greater in the case of female workers than it is in male workers.

5. Discussion and Conclusion

This study aimed to explore the role of gender in the influence of job quality on the work-life balance of European workers who performed remote work between March and November 2021, using data from the 2021 European Working Conditions Survey. The results show that more job quality (autonomy, intensity, interaction, and meaningful work) is associated with more work-life balance levels, this result being more pronounced in women than in men. Furthermore, in the case of male workers, the results demonstrated that autonomy is not statistically significant in influencing their work-life balance.

Despite the study's many contributions, the study is not without limitations, and these limitations could lead to future lines of research. Firstly, the results of this study are for remote work workers and could be applied to other professionals. Secondly, the sample was collected between March and November 2021, that is, during the COVID-19 pandemic, and as such, workers ended up being forced to carry out remote work from their homes. Therefore, it would be interesting for future studies to use a more updated sample to compare the differences in job quality between the pandemic and post-pandemic periods. Third, the variables present in this research are limited to those available in the database used. Fourth, the study only considers meaningful work, autonomy, interaction, and intensity as conditions for job quality. Other indicators of job quality could be included in future studies, such as physical and environmental conditions, job security and stability, training and training opportunities, organizational climate, and work engagement. Fifth, this study does not consider cultural differences arising from the workers' countries of residence. Therefore, it would be interesting to carry out a cross-sectional study to allow a diagnosis of job quality in Europe. Furthermore, it is suggested that some variables be included in the research model as moderators, such as seniority, employment relationship, professional category, and the average number of weekly hours worked.

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Appendix

Table A1: Results of factor analysis (EFA and CFA)

Constructs	Items	Confirmatory Factor Loads	1	2	3	4	5	Communalities
Autonomy	Consulted (CON)	0.835	0.765					0.753
	Decision Influence (DI)	0.778	0.799					0.794
	Improv-Workorg (IW)	0.716						0.765
Interaction	Support Colleagues (SC)	0.720		0.716				0.783
	Support Manager (SM)	0.784		0.759				0.796
	WP GoodCoop (Coop)	0.793		0.816				0.786
Intensity	Highspeed (HS)	0.840			0.789			0.735
	Tightdead (TD)	0.880			0.786			0.827
Meaningful Work	Work Welldone (WW)	0.927				0.738		0.774
	Usefull Work (UW)	0.751				0.748		0.774
Work Life Balance	Work Life Balance Worry (WLB_W)	0.763					0.711	0.728
	Work Life Balance Tired (WLB_T)	0.817					0.719	0.736
	Work Life Balance Concentration (WLB_C)	0.708					0.754	0.825

Understanding Gender Pay Inequalities: A Comparative Analysis of Women and Male Salaries

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Abstract: Gender equality is enshrined in the Italian Constitution, particularly in Article 3, which emphasizes both formal and substantive equality between genders. However, recent data from the *Istituto Nazionale per la Previdenza Sociale* (INPS, 2024) reveal that gender equality in Italy's labor market remains elusive, especially regarding employment and pay. The employment rate for women is just 57%, significantly lower than the European average by thirteen percentage points. Moreover, while the gender pay gap appears modest, equal to 4.3%, this statistic can misleadingly suggest minimal wage disparity (INAPP, 2022). A more comprehensive measure—the gender overall earnings gap, which accounts for multiple factors—places the pay gap at a striking 43% (INAPP, 2022). In response to these persistent inequalities, Italy introduced Legislative Decree 198/2006, mandating gender reporting for companies with over 50 employees (*Rapporti biennali sulla situazione del personale maschile e femminile*). Our research uses these reports and adopts a cross-sectional approach to analyze the gender pay gap in Brescia (a province in Lombardy, Italy), through three different levels of analysis: the company's size, the sector to which the company belongs, and the type of contract implemented in the company, we offer an in-depth analysis of the firm factors influencing the existence of discriminatory practices. The results provide an up-to-date snapshot of gender inequality in one of Italy's most economically advanced provinces and offer insights into potential compensatory measures and policies to address these imbalances.

Keywords: Gender Pay Gap, Salary Additional Components, Firm-Level Analysis, Lombardy

1. Introduction

Italy appears, formally, as one of the most virtuous European Union Member States regarding the gender pay gap, reporting a gap of only 4.3% in 2022 (Eurostat). However, this indicator is misleading as it fails to account for factors such as employment rate disparities, horizontal and vertical segregation, and non-wage-related components of salaries beyond the base pay (Oelz, 2013).

In Italy there are two types of bargaining. First-level collective bargaining occurs at the national level through Inter-confederal Agreements and National Collective Labor Agreements (*Contratti Collettivi Nazionali di Lavoro* - CCNL), regulating employment within specific sectors. Second-level bargaining takes place at the territorial or company level, addressing issues not covered or improving upon national agreements. CCNL agreements ensure no wage differences between women and men, but discrepancies in additional salary components may occur, leading to the gender pay gap. To mitigate this gap, Italy introduced in 2006 the Decree No. 198/2006, known as the "Code of Equal Opportunities." Among other provisions, it introduced the obligation for companies with more than 50 employees to prepare "Reports on the situation of male and female staff" (*Rapporti periodici sulla situazione del personale maschile e femminile*), which include detailed data regarding the types of contracts adopted, career advancements, reasons for resignations, and additional salary components for women and men (European Commission. Directorate General for Justice and Consumers. et al., 2022).

By leveraging these reports, this study examines how additional salary components (i.e., overtime pay, individual salary supplements, productivity bonuses, and other components) vary among job positions (i.e., managers, middle managers, white-collar workers, blue-collar workers, protected categories workers, and workers - total) and three different levels of analysis: the company's size (50 to 100 employees or more than 100 employees), the sector to which the company belongs (secondary or tertiary sector), and the type of contract implemented (only CCNL or CCNL and other contracts—territorial and/or company-level). This analysis is performed separately for women and men and the results of the t-tests are then compared. Our sample consists of 899 companies with more than 50 employees located in the province of Brescia, in the heart of Lombardy, during 2021.

2. Literature Review

2.1 Salary Components

The right to fair remuneration is firmly established in Italian legislation, ensuring both formal and substantive equality (Italian Constitution, Law 903/1977, Law 125/1991, and the subsequent Decree No. 198/2006). This right appears to be well safeguarded in Italy, with a gender pay gap of 4.2% in 2020 and 5% in 2021, significantly lower than the European Union average of 12.7% in 2020 and 12.9% in 2021 (Eurostat). However, as argued by Carta et al. (2023), this relatively narrow gap is partially attributable to compositional effects. Italian women, in fact, exhibit lower participation in the labor market, and when they do participate, they face pronounced horizontal and vertical segregation (Carta et al., 2023). Furthermore, Italian culture continues to perpetuate deeply ingrained gender roles, often confining women to caregiving responsibilities (Lombardo & Del Giorgio, 2013). This dynamic significantly affects women's time flexibility, reducing working hours, ultimately restricting and hindering their career advancement and adverse financial outcomes (Goldin, 2024, EIGE, 2023). The limited availability of time prevents women from accessing the supplementary components of salary, ultimately defining the gender pay gap.

Indeed, according to a report by the International Labour Organization (ILO) (2013), determining whether a salary is genuinely fair requires evaluating all elements of the earnings package. These include base pay, overtime, production bonuses, performance-related bonuses, seniority increments, opportunities for business travel, prospects for career advancement, the absence of restrictions following maternity leave, and flexibility in working hours (Oelz, 2013). Together, these components provide a more comprehensive picture of wage equity, and the barriers women may face in the labor market. The relevance of this assumption is emphasized in the report "Reporting obligation regarding gender equality and equal pay" which references the 2012 protest by Fiat/FCA women workers. The protest, brought to the attention of then-Labor Minister Elsa Fornero, highlighted how family leave or leave to care for their children penalized them for obtaining the annual performance bonus (European Parliament. Directorate General for Internal Policies of the Union., 2021).

So, to understand the true financial impact of this social dynamic, it is necessary to look beyond the minimum wage, which is equitably guaranteed by National Collective Labor Agreements (CCNL) and focus instead on the additional components of remuneration which can vary based on the characteristics of the company under consideration. As highlighted in the INAPP 2022 report, the composition of wages is influenced by multiple factors, including the size of the company, the sector to which the company belongs, and the collective or sectoral bargaining agreements. Exploring the disparities that arise from these variables offers a more nuanced and comprehensive perspective on the complexities of gender pay inequality, shedding light on its multifaceted nature beyond standard wage metrics.

2.2 The Province of Brescia: in the Heart of Lombardy

Italy is characterized by significant territorial disparities between the northern regions and the southern. Lombardy stands out as Italy's economic powerhouse, hosting the highest number of active businesses in the country. In 2020, the region registered a total of 826,051 active enterprises, which increased to 848,449 in 2021 (Istat, 2023). This robust entrepreneurial landscape spans various industries, including finance, technology, manufacturing, and services, reflecting Lombardy's diverse and dynamic economy.

The province of Brescia, situated in the heart of Lombardy, plays a pivotal role in this economic framework. After Milan, Brescia ranks as the province with the second-highest number of active enterprises. In 2020, Brescia had 102,473 active businesses, which increased to 104,911 in 2021 (Istat, 2023). Known for its strong industrial base, particularly in metalworking, machinery, and automotive sectors, Brescia's economy is highly export-oriented, with substantial output in both traditional and high-tech industries (Istat, 2023). In terms of sectoral distribution, some industries are particularly dominant. The province's economic performance mirrors that of the region, characterized by a high level of business activity, but also faces the challenges of achieving gender equality in the labor market, particularly regarding wage disparities and workforce participation. Moreover, the province of Brescia presents a particularly low employment rate for women, recorded at 41.7% in 2023, compared to 61.3% for men (Istat).

3. Method

3.1 Data

The data used for the analysis comes from the periodic reports on the gender composition of the workforce (*Rapporti biennali sulla situazione del personale maschile e femminile*). The sample consists of 899 companies in Brescia, with at least 50 employees. The reports categorize employees into management, middle management, white-collar workers, blue-collar workers, and protected categories. These reports provide overall values, disaggregated by gender and role, for the additional components of salary, which include overtime, individual salary supplements, productivity bonuses, and a comprehensive category encompassing all other components, referred to as “other”.

Overtime work is defined as work performed beyond the standard working hours established by law, a collective bargaining agreement, or an individual contract that provides more favorable terms for the employee. Article 5 of Royal Decree-Law No. 692 of December 6, 1923. The component “individual salary supplements” (*Superminimi individuali*) refers to an additional remuneration agreed upon individually between the employer and the employee, exceeding the base salary established by the National Collective Bargaining Agreement (CCNL). This component is discretionary and reflects specific agreements tailored to the worker's role or performance. Productivity bonuses refer to variable compensation components tied to individual, team, or organizational performance outcomes. These bonuses aim to incentivize efficiency and productivity improvements, often based on predefined metrics or targets established by the employer. The “other” component includes all additional wage elements that cannot be classified as overtime pay, individual salary supplements or productivity bonuses.

Data refers to 2021, partly mitigating issues from the Covid-19-induced economic contraction.

3.2 Analysis

The analysis was conducted using t-tests to examine how additional salary components (i.e., overtime pay, individual salary supplements, productivity bonuses, and other components) vary among job positions (i.e., managers, middle managers, white-collar workers, blue-collar workers, protected categories workers, and workers - total) and three different levels of analysis: the company's size (50 to 100 employees or more than 100 employees), the sector to which the company belongs (secondary or tertiary sector), and the type of contract implemented (only CCNL or CCNL and other contracts—territorial and/or company-level).

Specifically, the following comparisons were analyzed with t-tests. First, we compared the mean salary component for each job position in companies with 50 to 100 employees (Group 1) and the corresponding amount in companies with more than 100 employees (Group 2). The classification of “company size” into Group 1 and Group 2 was informed by the sample composition. Out of 899 companies, 478 (53,2%) companies fell within Group 1, while 421 companies (46,8%) are classified into Group 2. Second, we compared the mean salary component for each job position in companies operating in the secondary sector (Group 1) and the corresponding amount in companies operating in the tertiary sector (Group 2). Out of 899 companies, 556 (53,4%) belong to the secondary sector, while 343 (46,6%) companies operate in the tertiary sector. Third, we compared the mean salary component for each job position in companies adopting only the CCNL (Group 1) and the corresponding amount in companies adopting CCNL and other contracts (territorial and/or company-level) (Group 2). Out of 899 firms, 522 (58,1%) companies adopt only the CCNL, while 377 companies (41,9%) adopt CCNL and other contracts.

The analysis was performed separately for women and for men. The results of the t-tests were then compared.

4. Results

Tables 1, 2, and 3 report the results of the t-tests conducted on the mean salary components received by women in various job positions, categorized by firm size, industry, and contract type. Similarly, Tables 4, 5, and 6 present the results of the t-tests for men across the same classifications. Table 7 compares the mean salary components between women and men for each job position, segmented by firm size, industry, and contract type.

Focusing on these comparative tables, it emerges that firm size has varying impacts on additional salary components across the categories analyzed. Specifically, firm size significantly affects the overpay component for women in managerial positions, while it is not statistically significant for men across any job position. Regarding individual salary supplements, the effect is significant for women managers, whereas for men, it is statistically significant for white-collar workers, blue-collar workers, and protected categories. Productivity

bonuses show a statistically significant impact only for women in protected categories. Similarly, the "other" salary component is significant only for women in blue-collar roles. Notably, one category—women blue-collar workers' productivity bonuses—does not reach statistical significance but is close to the threshold (p -value = 0.111), indicating that a larger sample size might render the variable significant. Regarding the firm's industry, statistical significance is observed for the "overtime" salary component for women managers. For men, significance is observed for most salary components and job positions. Finally, the analysis of contract types highlights their impact on the salary supplement for women, for productivity bonuses in specific positions (i.e., middle management, protected categories, and total), and for all other components (except for women managers). For men, statistical significance is observed only for overtime pay of middle managers.

Observing the summary results in Table 7, it emerges that firm's size and firm's contracts affects only some salary components of specific job positions occupied by women and men. Instead, the effect of firm's industry is stronger: it affects many salary components across many job positions, especially for men.

Table 1: Mean salary components received by women in various job positions. Comparison by company size.

Firm's size											
	Group 1 (50-100 employees)				Group 2 (> 100 employees)						
Variables	Obs	Mean	Std. err.	Std. dev.	Obs	Mean	Std. err.	Std. dev.	t	p-value	
Overtime pay - mean											
Women managers' overtime pay	22	36.40	36.40	170.72	74	159.39	57.51	494.70	-1.807	0.037	**
Women middle managers' overtime pay	96	564.32	194.75	1908.18	158	180.72	47.25	593.98	1.914	0.971	
Women white-collar workers' overtime pay	462	505.43	41.45	890.96	416	543.17	38.86	792.61	-0.664	0.253	
Women blue-collar workers' overtime pay	299	505.82	58.09	1004.41	308	539.47	48.24	846.66	-0.446	0.328	
Women protected categories workers' overtime pay	211	265.11	48.38	702.76	299	323.64	42.44	733.91	-0.909	0.182	
Women workers' overtime pay	475	541.53	46.00	1002.60	420	518.36	34.57	708.42	0.403	0.656	
Individual pay - mean											
Women managers' individual salary supplements	22	8649.05	2750.99	12903.27	74	19025.57	3992.60	34345.67	-2.140	0.018	**
Women middle managers' individual salary supplements	96	15377.46	1528.85	14979.60	158	12402.84	1045.23	13138.38	1.606	0.945	
Women white-collar workers' individual salary supplements	462	2127.80	133.04	2859.50	416	2276.16	151.88	3097.76	-0.735	0.231	
Women blue-collar workers' individual salary supplements	299	389.71	56.72	980.76	308	371.31	48.35	848.52	0.247	0.598	
Women protected categories workers' individual salary supplements	211	879.55	49.08	2165.50	299	699.47	107.97	1867.01	0.978	0.836	
Women workers' individual salary supplements	475	1827.42	121.02	121.02	420	1854.97	134.74	2761.27	-0.152	0.440	
Productivity bonuses - mean											
Women managers' productivity bonuses	22	3457.84	1491.55	6996.01	74	3146.78	733.66	6311.18	0.187	0.574	
Women middle managers' productivity bonuses	96	1494.83	371.60	3640.96	158	1694.12	249.80	3139.97	-0.445	0.328	
Women white-collar workers' productivity bonuses	462	901.83	436.96	9392.16	416	702.78	62.43	1273.32	0.451	0.674	
Women blue-collar workers' productivity bonuses	299	559.14	313.32	5417.81	308	483.41	55.13	967.59	0.238	0.594	
Women protected categories workers' productivity bonuses	211	288.47	58.71	852.75	299	640.47	78.88	1364.01	-3.580	0.000	***
Women workers' productivity bonuses	475	697.52	203.40	4433.06	420	691.59	62.41	1279.10	0.028	0.511	
Other - mean											
Women managers' other	22	2424.10	2087.97	9793.43	74	2127.57	542.57	4667.40	0.138	0.554	

Table 2: Mean salary components received by women in various job positions. Comparison by company sector.

Firm's Industry										
Variables	Group 1 (Secondary Sector)				Group 2 (Tertiary Sector)				T	P-Value
	Obs	Mean	Std. Err.	Std. Dev.	Obs	Mean	Std. Err.	Std. Dev.		
Overtime pay - mean										
Women managers' overtime pay	56	43.55	43.55	325.93	40	253.91	87.19	551.42	-2.158	0.018 **
Women middle managers' overtime pay	147	329.49	114.16	1384.13	107	320.49	107.21	1109.01	0.058	0.523
Women white-collar workers' overtime pay	548	607.49	41.04	960.82	330	383.52	32.07	582.59	4.300	1.000
Women blue-collar workers' overtime pay	367	618.41	45.30	867.74	240	376.85	64.25	995.42	3.073	0.999
Women protected categories workers' overtime pay	325	291.51	35.04	631.72	185	313.34	63.04	857.48	-0.303	0.381
Women workers' overtime pay	552	596.54	38.73	909.87	343	424.64	43.74	810.14	2.942	0.998
Individual salary supplements - mean										
Women managers' individual salary supplements	56	15952.04	3844.24	28767.68	40	17621.43	5421.53	34288.76	-0.251	0.401
Women middle managers' individual salary supplements	147	17217.40	1235.86	14984.03	107	8457.27	1003.17	10376.84	5.503	1.000
Women white-collar workers' overtime pay	548	2917.90	141.08	3302.50	330	1002.77	97.66	1774.02	11.162	1.000
Women blue-collar workers' individual salary supplements	367	541.68	53.52	1025.39	240	133.70	41.49	642.82	6.024	1.000
Women protected categories workers' individual salary supplements	325	888.96	109.61	1975.99	185	571.96	148.50	2019.76	1.718	0.957
Women workers' individual salary supplements	552	2458.17	129.29	3037.56	343	846.07	85.54	1584.28	10.399	1.000
Productivity bonuses - mean										
Women managers' productivity bonuses	56	2714.12	884.34	6617.78	40	3923.59	978.71	6189.89	-0.917	0.181
Women middle managers' productivity bonuses	147	1799.02	289.53	3510.33	107	1371.22	296.82	3070.35	1.032	0.848
Women white-collar workers' productivity bonuses	548	707.29	65.30	1528.73	330	973.96	607.40	11033.88	-0.437	0.331
Women blue-collar workers' productivity bonuses	367	479.36	51.01	977.12	240	583.95	389.10	6027.95	-0.267	0.395
Women protected categories workers' productivity bonuses	325	656.23	77.12	1390.35	185	211.32	46.25	629.08	4.947	1.000
Women workers' productivity bonuses	552	710.66	65.16	1531.00	343	669.12	272.47	5046.19	0.148	0.559
Other - mean										
Women managers' other	56	3141.84	1053.91	7886.74	40	870.68	203.36	1286.13	2.116	0.981
Women middle managers' other	147	2607.74	561.46	6807.34	107	995.96	331.46	3428.66	2.472	0.993
Women white-collar workers' other	548	644.34	78.84	1845.68	330	282.02	49.52	899.49	3.892	1.000
Women blue-collar workers' other	367	339.33	51.64	993.12	240	155.83	25.61	396.82	3.174	0.999
Women protected categories workers' other	325	508.43	88.54	1596.18	185	121.18	33.38	454.03	4.092	1.000
Women workers' other	552	653.78	81.61	1917.35	343	240.39	38.82	718.97	4.574	1.000

p-value < 0.01 ***; p-value < 0.05 **, p-value < 0.1 *

Table 3: Mean salary components received by women in various job positions. Comparison by contract.

Firm's Contracts										
Variables	Group 1 (only CCNL)				Group 2 (CCNL and other agreements)				t	p-value
	Obs	Mean	Std. err.	Std. dev.	Obs	Mean	Std. err.	Std. dev.		
Overtime pay - mean										
Women managers' overtime pay	36	186.33	89.95	539.70	60	98.13	48.61	376.51	0.863	0.804
Women middle managers' overtime pay	114	482.71	165.13	1763.14	140	197.84	52.54	621.61	1.644	0.949
Women white-collar workers' overtime pay	506	532.58	41.47	932.93	372	510.70	36.84	710.61	0.394	0.653
Women blue-collar workers' overtime pay	355	570.83	58.43	1100.81	252	455.38	37.71	598.59	1.660	0.951
Women protected categories workers' overtime pay	276	350.63	50.53	839.45	234	239.03	35.65	545.30	1.805	0.964
Women workers' overtime pay	520	568.01	44.29	1009.96	375	478.87	33.32	645.32	1.608	0.946
Individual salary supplements - mean										
Women managers' individual salary supplements	36	14980.88	3137.67	18825.99	60	17647.66	4720.14	36562.07	-0.471	0.320
Women middle managers' individual salary supplements	114	13326.27	1275.68	13620.51	140	13690.65	1198.97	14186.39	-0.208	0.418
Women white-collar workers' overtime pay	506	2102.68	132.07	2970.78	372	2327.87	154.37	2977.42	-1.108	0.134
Women blue-collar workers' individual salary supplements	355	345.10	47.99	904.21	252	430.06	58.60	930.32	-1.122	0.131
Women protected categories workers' individual salary supplements	276	809.44	132.22	2196.59	234	732.14	113.30	1733.16	0.444	0.671
Women workers' individual salary supplements	520	1727.43	117.26	2674.05	375	1996.93	140.41	2719.11	-1.473	0.071 *
Productivity bonuses - mean										
Women managers' productivity bonuses	36	3110.50	1214.45	7286.70	60	3282.60	766.18	5934.82	-0.120	0.453
Women middle managers' productivity bonuses	114	906.68	269.14	2873.67	140	2198.67	301.73	3570.09	-3.195	0.001 ***
Women white-collar workers' productivity bonuses	506	700.74	398.18	8956.77	372	952.77	77.13	1487.60	-0.621	0.267
Women blue-collar workers' productivity bonuses	355	400.91	263.26	4960.21	252	689.49	70.39	1117.39	-1.059	0.145
Women protected categories workers' productivity bonuses	276	139.69	36.17	600.96	234	913.73	100.19	1532.59	-7.267	0.000 ***
Women workers' productivity bonuses	520	504.15	183.87	4192.84	375	959.02	77.00	1491.07	-2.282	0.011 **
Other - mean										
Women managers' other	36	1433.36	627.22	3763.33	60	2652.82	932.28	7221.38	-1.085	0.140
Women middle managers' other	114	990.39	299.61	3198.94	140	2692.87	592.61	7011.87	-2.564	0.006 **
Women white-collar workers' other	506	397.76	68.84	1548.42	372	658.32	82.14	1584.34	-2.431	0.008 **
Women blue-collar workers' other	355	179.15	25.51	480.63	252	390.22	70.59	1120.54	-2.812	0.003 **
Women protected categories workers' other	276	199.12	55.28	918.40	234	567.10	107.66	1646.94	-3.040	0.001 **
Women workers' other	520	337.93	61.33	1398.47	375	713.65	92.22	1785.84	-3.393	0.000 ***

p-value < 0.01 ***; p-value < 0.05 **, p-value < 0.1 *

Table 4: Mean salary components received by men in various job positions. Comparison by size

Firm's size										
Variables	Group 1 (50-100 employees)				Group 2 (> 100 employees)				t	p-value
	Obs	Mean	Std. err.	Std. dev.	Obs	Mean	Std. err.	Std. dev.		
Overtime pay - mean										
Men managers' overtime pay	111	3.94	3.94	41.52	222	304.11	234.66	3496.32	-1.279	0.899
Men middle managers' overtime pay	195	655.90	199.48	2785.55	273	495.01	153.19	2531.17	0.640	0.261
Men white-collar workers' overtime pay	435	1128.28	102.87	2145.46	411	1046.67	74.46	1509.44	0.643	0.260
Men blue-collar workers' overtime pay	441	1165.40	58.99	1238.75	390	1151.81	57.69	1139.22	0.165	0.435
Men protected categories workers' overtime pay	321	577.29	62.67	1122.82	351	656.42	49.68	930.82	-0.989	0.839
Men workers' overtime pay	478	1084.29	57.28	1252.24	421	1035.20	52.89	1085.28	0.630	0.265
Individual pay - mean										
Men managers' individual salary supplements	111	17736.08	3049.28	32126.20	222	22223.42	2306.07	34359.70	-1.174	0.879
Men middle managers' individual salary supplements	195	18730.30	1261.89	17621.35	273	19812.55	1179.30	19485.24	-0.627	0.734
Men white-collar workers' individual salary supplements	435	5573.46	355.81	7421.10	411	4660.27	268.51	5443.52	2.049	0.020
Men blue-collar workers' individual salary supplements	441	1392.78	99.73	2094.25	390	1042.64	77.47	1529.89	2.773	0.003
Men protected categories workers' individual salary supplements	321	1524.60	233.10	4176.40	351	1090.13	119.28	2234.63	1.659	0.049
Men workers' individual salary supplements	478	2857.48	180.46	3945.39	421	2700.34	158.20	3245.96	0.655	0.256
Productivity bonuses - mean										
Men managers' productivity bonuses	111	2256.22	935.35	9854.56	222	4520.15	1105.27	16468.19	-1.564	0.941
Men middle managers' productivity bonuses	195	1636.57	330.91	4620.85	273	2420.56	330.75	5464.92	-1.676	0.953
Men white-collar workers' productivity bonuses	435	961.14	137.88	2875.75	411	1104.32	113.02	2291.18	-0.803	0.789
Men blue-collar workers' productivity bonuses	441	637.03	171.40	3599.47	390	782.55	74.09	1463.19	-0.779	0.782
Men protected categories workers' productivity bonuses	321	433.38	59.77	1070.84	351	780.92	79.87	1496.28	-3.484	1.000
Men workers' productivity bonuses	478	745.75	161.47	3530.19	421	982.66	87.19	1789.07	-1.291	0.901
Other - mean										
Men managers' other	111	2987.19	1032.43	10877.35	222	5826.18	862.47	12850.44	-2.110	0.982
Men middle managers' other	195	2275.21	465.93	6506.38	273	2819.26	386.41	6384.56	-0.899	0.815
Men white-collar workers' other	435	926.00	130.22	2716.00	411	1024.18	113.07	2292.24	-0.569	0.715
Men blue-collar workers' other	441	578.10	86.23	1810.73	390	632.55	86.79	1713.93	-0.445	0.672
Men protected categories workers' other	321	400.49	98.76	1769.47	351	535.91	77.62	1454.20	-1.078	0.859
Men workers' other	478	664.94	91.50	2000.53	421	821.88	94.75	1944.18	-1.191	0.883

p-value < 0.01 ***; p-value < 0.05 **; p-value < 0.1 *

Table 5: Mean salary components received by men in various job positions. Comparison by industry.

Firm's Industry										
Variables	Group 1 (secondary sector)				Group 2 (tertiary sector)				t	p-value
	Obs	Mean	Std. err.	Std. dev.	Obs	Mean	Std. err.	Std. dev.		
Overtime pay - mean										
Men managers' overtime pay	249	231.77	208.76	3294.22	84	121.91	48.50	444.47	0.513	0.304
Men middle managers' overtime pay	326	577.87	154.50	2789.59	142	525.72	189.84	2262.16	0.213	0.416
Men white-collar workers' overtime pay	542	1386.27	93.66	2180.47	304	557.99	49.70	866.48	7.812	0.000
Men blue-collar workers' overtime pay	554	1392.31	49.65	1168.84	277	692.46	66.13	1100.69	8.463	0.000
Men protected categories workers' overtime pay	485	720.11	51.98	1144.77	187	355.38	39.94	546.23	5.564	0.000
Men workers' overtime pay	556	1337.36	51.46	1213.30	343	613.82	51.83	959.93	9.907	0.000
Individual salary supplements - mean										
Men managers' individual salary supplements	249	20525.84	2083.06	32870.18	84	21325.83	3934.69	36062.04	-0.180	0.571
Men middle managers' individual salary supplements	326	22613.30	1059.72	19133.70	142	11896.47	1289.67	15368.22	6.420	0.000
Men white-collar workers' overtime pay	542	6957.17	311.36	7248.79	304	1871.84	173.20	3019.92	14.273	0.000
Men blue-collar workers' individual salary supplements	554	1609.89	85.83	2020.13	277	465.57	69.29	1153.25	10.374	0.000
Men protected categories workers' individual salary supplements	485	1538.54	166.38	3664.06	187	672.94	148.01	2024.00	3.887	0.000
Men workers' individual salary supplements	556	3620.40	167.75	3955.55	343	1427.93	135.45	2508.66	10.169	0.000
Productivity bonuses - mean										
Men managers' productivity bonuses	249	3489.67	920.46	14524.62	84	4583.16	1633.47	14970.99	-0.583	0.720
Men middle managers' productivity bonuses	326	2034.82	252.38	4556.84	142	2229.53	528.07	6292.70	-0.333	0.630
Men white-collar workers' productivity bonuses	542	1231.33	121.86	2837.00	304	672.99	120.20	2095.71	3.262	0.001
Men blue-collar workers' productivity bonuses	554	814.34	81.35	1914.67	277	487.30	242.37	4033.78	1.279	0.101
Men protected categories workers' productivity bonuses	485	705.04	60.65	1335.73	187	381.14	91.80	1255.30	2.944	0.002
Men workers' productivity bonuses	556	950.30	86.99	2051.21	343	704.96	205.49	3805.77	1.099	0.136
Other - mean										
Men managers' other	249	5515.29	829.04	13082.10	84	2996.22	1020.74	9355.27	1.916	0.028
Men middle managers' other	326	3065.57	396.68	7162.29	142	1506.67	347.76	4143.99	2.955	0.002
Men white-collar workers' other	542	1226.17	125.55	2923.00	304	523.57	83.32	1452.65	4.663	0.000
Men blue-collar workers' other	554	769.91	87.73	2064.94	277	271.14	48.80	812.16	4.968	0.000
Men protected categories workers' other	485	598.16	84.74	1866.28	187	142.01	30.00	410.19	5.074	0.000
Men workers' other	556	947.18	99.68	2350.52	343	400.06	56.33	1043.25	4.778	0.000

p-value < 0.01 ***; p-value < 0.05 **; p-value < 0.1 *

Table 6: Mean salary components received by men in various job positions. Comparison by contract

Firm's Contracts											
Variables	Group 1 (only CCNL)				Group 2 (CCNL and other agreements)						
	Obs	Mean	Std. err.	Std. dev.	Obs	Mean	Std. err.	Std. dev.	t	p-value	
Overtime pay - mean											
Men managers' overtime pay	135	47.93	25.36	294.64	198	310.50	262.67	3696.10	-0.995	0.840	
Men middle managers' overtime pay	221	965.75	251.26	3735.31	247	200.84	43.14	678.04	3.000	0.002	**
Men white-collar workers' overtime pay	483	1129.02	100.87	2216.95	363	1034.90	65.42	1246.49	0.783	0.217	
Men blue-collar workers' overtime pay	480	1179.69	58.63	1284.45	351	1130.77	56.29	1054.68	0.602	0.274	
Men protected categories workers' overtime pay	377	614.75	58.08	1127.75	295	623.56	51.44	883.56	-0.114	0.545	
Men workers' overtime pay	522	1096.06	56.99	1301.98	377	1013.17	50.29	976.50	1.091	0.138	
Individual salary supplements - mean											
Men managers' individual salary supplements	135	21681.99	3122.84	36284.09	198	20076.94	2260.46	31807.48	0.416	0.339	
Men middle managers' individual salary supplements	221	18812.09	1264.03	18791.10	247	19853.29	1188.54	18679.41	-0.600	0.726	
Men white-collar workers' overtime pay	483	5143.46	322.06	7078.07	363	5111.68	303.18	5776.42	0.072	0.471	
Men blue-collar workers' individual salary supplements	480	1234.73	84.84	1858.82	351	1219.87	99.27	1859.76	0.114	0.455	
Men protected categories workers' individual salary supplements	377	1337.26	199.00	3863.98	295	1247.06	141.88	2436.81	0.369	0.356	
Men workers' individual salary supplements	522	2674.16	163.55	3736.59	377	2935.83	179.49	3484.97	-1.078	0.859	
Productivity bonuses - mean											
Men managers' productivity bonuses	135	2708.73	1049.53	12194.37	198	4486.04	1141.41	16061.02	-1.146	0.874	
Men middle managers' productivity bonuses	221	1765.45	389.29	5787.28	247	2387.77	284.62	4473.08	-1.291	0.901	
Men white-collar workers' productivity bonuses	483	796.96	132.13	2903.92	363	1341.71	111.02	2115.24	-3.156	0.999	
Men blue-collar workers' productivity bonuses	480	469.09	155.55	3407.88	351	1028.38	86.14	1613.84	-3.146	0.999	
Men protected categories workers' productivity bonuses	377	216.65	43.17	838.19	295	1123.88	94.25	1618.78	-8.752	1.000	
Men workers' productivity bonuses	522	623.91	148.53	3393.58	377	1179.01	93.30	1811.53	-3.165	0.999	
Other - mean											
Men managers' other	135	3395.46	901.95	10479.76	198	5891.93	945.75	13307.95	-1.910	0.972	
Men middle managers' other	221	1721.60	344.95	5128.12	247	3371.87	466.63	7333.67	-2.844	0.998	
Men white-collar workers' other	483	790.53	110.99	2439.30	363	1217.42	136.60	2602.62	-2.425	0.992	
Men blue-collar workers' other	480	455.40	72.73	1593.35	351	806.39	104.63	1960.27	-2.755	0.997	
Men protected categories workers' other	377	336.86	79.59	1545.37	295	642.93	97.93	1681.93	-2.426	0.992	
Men workers' other	522	533.93	70.41	1608.60	377	1021.59	121.77	2364.32	-3.467	0.9997	

p-value < 0.01 ***; p-value < 0.05 **; p-value < 0.1 *

Table 7: Summary results

Variables	Firm's Size				Firm's Industry				Firm's Contracts			
	Women		Men		Women		Men		Women		Men	
	p-value		p-value		p-value		p-value		p-value		p-value	
Overtime pay												
Managers	0.037	**	0.899		0.015	**	0.970		0.804		0.840	
Middle managers	0.971		0.261		0.093	*	0.875		0.949		0.002	**
White-collar workers	0.253		0.260		0.001	***	0.002	**	0.653		0.217	
Blue-collar workers	0.328		0.435		0.045	**	0.000	***	0.951		0.274	
Protected categories workers	0.182		0.839		0.034	**	0.000	***	0.964		0.545	
Total Workers	0.656		0.265		0.003	**	0.000	***	0.946		0.138	
Individual salary supplements												
Managers	0.018	**	0.879		0.604		0.013	**	0.320		0.339	
Middle managers	0.945		0.734		0.918		0.000	***	0.418		0.726	
White-collar workers	0.231		0.020	**	0.991		0.000	***	0.134		0.471	
Blue-collar workers	0.598		0.003	**	0.999		0.000	***	0.131		0.455	
Protected categories workers	0.836		0.049	**	0.954		0.000	***	0.671		0.356	
Total Workers	0.440		0.256		0.986		0.000	***	0.071	*	0.859	
Productivity bonuses												
Managers	0.574		0.941		0.039	**	0.936		0.453		0.874	
Middle managers	0.328		0.953		0.083	*	0.872		0.001	***	0.901	
White-collar workers	0.674		0.789		0.018	**	0.023	**	0.267		0.999	
Blue-collar workers	0.594		0.782		0.105		0.000	***	0.145		0.999	
Protected categories workers	0.000	***	1.000		0.196		0.001	***	0.000	***	1.000	
Total Workers	0.511		0.901		0.029	**	0.005	**	0.011	**	0.999	
Other												
Managers	0.554		0.982		0.064	*	0.452		0.140		0.972	
Middle managers	0.633		0.815		0.129		0.379		0.006	**	0.998	
White-collar workers	0.247		0.715		0.349		0.011	**	0.008	**	0.992	
Blue-collar workers	0.071	*	0.672		0.069	*	0.000	***	0.003	**	0.997	
Protected categories workers	0.281		0.859		0.738		0.002	**	0.001	**	0.992	
Total Workers	0.272		0.883		0.114		0.006	**	0.000	***	0.9997	

p-value < 0.01 ***; p-value < 0.05 **; p-value < 0.1 *

5. Conclusion

The firm's sector emerges as the variable with the most significant impact on both men and women across all hierarchical levels and for most salary components. On the contrary, firm size and firm contracts influence only specific salary components in certain hierarchical positions.

In terms of the magnitude of salary differences, we observe that for firm size, the statistically significant components for women show an increase in mean values as firm size increases. This trend, however, is not observed for men. For the statistically significant components among men (i.e., men white-collar workers' individual salary supplements, men blue-collar workers' individual salary supplements, and men protected categories workers' individual salary supplements), mean values increase as firm size decreases. This divergence may be explained by men's potentially greater ability to negotiate individual salary increments, particularly in smaller firms where a more familiar and close-knit environment may facilitate such negotiations.

Regarding firm's sector, a higher mean remuneration for all additional salary components is observed overall, with the secondary sector showing the highest values. However, for women, statistical significance is found for the women managers' overtime pay component. For men, the firms' sector appears to have a broader impact. This finding aligns with the fact that women are predominantly employed in the tertiary sector compared to men, potentially granting men greater bargaining power in this domain, where they are perceived as the primary workforce.

Finally, concerning firm's contracts, a consistent trend is observed for both men and women in terms of quantitative differences across the various components. Specifically, for overtime pay, the mean is lower when additional contracts beyond the National Collective Labor Agreement (CCNL) are applied. However, this is statistically significant only for the men middle managers' overtime pay variable. Italian legislation mandates that additional contracts to the CCNL must always be advantageous. Therefore, further analysis would be necessary to understand the reasons behind this discrepancy.

For the other salary components, the means are generally similar or higher when multiple contracts are applied concurrently, aligning with the provisions of Italian law. However, the effect of contract differences is statistically significant only for women, particularly for the variables regarding productivity bonuses and the "other" component. This finding is particularly noteworthy as it underscores the importance of collective bargaining, especially for women.

This study is not without limitations. First, the sample used is relatively small and markedly homogeneous in terms of firm size (over 50% of our sample includes firms with 50 to 100 employees) and geographical location (all firms are based in the province of Brescia). These characteristics embed the sample in a uniform economic context that also influences the typology and sectors of the firms, potentially biasing the sample structure itself. Second, the analysis considered only one type of variable—namely, the mean salary component—without accounting for factors such as other firm characteristics that could have influenced the robustness of the analysis.

Despite these limitations, the significance of the results highlights the need for more in-depth studies on the additional components of salaries and the dynamics that shape their composition. Future research could explore additional variables, such as the gender pay gap.

This study is not exhaustive in defining and analyzing the phenomenon but serves as a starting point for future investigations. Such research could shed light on the gender pay gap and provide the awareness necessary to build a society where men and women have equal rights and opportunities.

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Leadership Mentoring Programme for Women: Framing Leader Identity through Dialoguing and Relating

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Abstract: This paper restores the focus on the essence of human *beings* as fundamentally relational. It underlines a concern for genuine relatedness (Pope and Nicolaides, 2021) between mentee and mentor, as foundational to leader identity formation for women in a leadership mentoring programme. Expressions of the centrality of connection, the relational self, have been extended by feminist scholars, in particular, across the twentieth and twenty-first centuries. Fletcher (2001) pointed to the “disappearing” of the very behaviour needed to be successful in the workplace. The capacity of human *beings* to connect and care, Gilligan (2014) argues, is lessened when living the values of patriarchy (Fishbane, 2023). Positioned at the intersection of mentoring at work (Kram, 1983, 1985/1988) and relational science (Berscheid, 1999), this multiperspectival qualitative study explored the research question: How do women mentees experience leadership mentoring in an Irish Higher Education context? Interpretative Phenomenological Analysis, (IPA) underpinned by three major areas of the philosophy of knowledge, namely, phenomenology, hermeneutics and idiography, offered a pathway to illuminating the intersubjectivity between mentees and mentor within their dyads. The mentoring dyads comprised of women mentees who participated in a leadership mentoring programme and their matched mentors. Semi-structured interviews followed by three levels of analysis were conducted with mentees, mentors and the dyads. Energised by close attention to participant accounts, consistent with the principles of IPA, exploring the experience of participants in their own terms, required setting aside pre-existing assumptions and ideas (Smith, Flowers and Larkin, 2022). Conducting multiple iterations of analysis and interpretation, the findings underscored the importance of a focus on both the quality of the *Developmental Relational Mentoring Space (DRMS)* (Ganly, 2024) and the relational orientation within each dyad, for meaningful and effective mentoring experiences. This study developed the innovative DRMS construct to describe the relational dynamics in mentoring dyads, thus significantly enhancing insights into mentoring relationships. The DRMS is the mentoring space between mentee and mentor, co-created through dialogue influenced by both. A novel conceptual model, a feminist perspective, is presented emphasising the importance of intentionally attending to dialogue as a catalyst for reframing leader identity in mentoring dyads.

Keywords: Dyads; IPA; Leadership Mentoring Programme; Women in Mentorship

1. Introduction

In a turbulent working world, mentoring, in the form of meaningful developmental relationships, continues to receive attention in academic and practitioner journals. Formal mentoring programmes for women are viewed as a tool to contribute to leadership development, career advancement and to address challenges faced singularly by women in gendered organisations.

A specific impetus for this study was the recommendation of mentoring, by the Higher Education Authority (HEA) (2016; 2018), as an intervention to address the underrepresentation of women in senior leadership positions within Irish higher education. Notably, it was apparent at the outset of this research that despite the growth in the number of women in the Irish higher education workforce, the chasm between the number of women relative to the number of men across senior leadership positions was nonetheless discernible. During the research, women dominated the number of Irish university presidents (Walshe, 2023) for the first time in the history of Irish higher education. The primary research question was: **How do women mentees experience leadership mentoring in an Irish Higher Education context?**

This study employed an Interpretative Phenomenological Analysis (IPA) dyad methodology to examine the leadership mentoring process where sense was made of the lived experience of both mentees and mentors, on their terms, within their unique dyads. IPA makes accessible the fundamental nature of human *beings*. In particular, this study developed a construct, the *DRMS* (Ganly, 2024), to describe the relational dynamics in mentoring dyads (Figure 1).

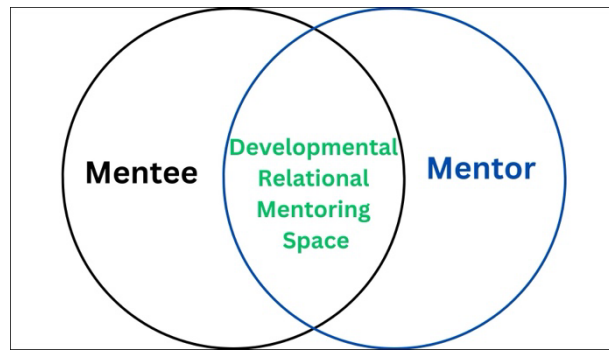


Figure 1: Situating the *DRMS* (Ganly, 2024)

Emphatically framed within the work of Martin Buber (1923/1970) and Kathy Kram (1985/1988), this paper emphasises the importance of dialogue within the *DRMS*. An awareness and ability to alternate between the two basic attitudes that constitute the essence of human *being*, the impersonal, I-It, and the personal, I-Thou (Buber, 1923/1970), must be at the heart of how mentee and mentor engage. When in balance, a reframing of leader identity is enabled within the *DRMS*. As a relational and dialogical construct, the *DRMS* encapsulates a bridge between the mentee and mentor, conceptualising the intersubjective space where mentee and mentor come together within a leadership mentoring dyad. Therefore, attention to relationality and dialogicality constitute the essence of this paper.

2. Mentoring

A substantial volume of research attempts to demonstrate the benefits of mentoring and the centrality of the relationship for transformational outcomes (such as Deng and Turner, 2024; Eby and Robertson, 2020; Ghosh and Chaudhuri, 2023). The implications of understanding mentoring relationships as attachments is advanced by Robertson and Zhang (2024). This study is different. Taking a step further in our understanding of the process of leadership mentoring, this study found out what impacts what goes on within the *DRMS* in a meaningful leadership mentoring relationship, which makes the leadership mentoring work or not work.

The early work of Kram in the 1980s brought mentoring into contemporary organisational scholarship. More recent collaborative work (Murphy and Kram, 2014; Murphy, Gibson and Kram, 2024; Yip and Kram, 2017) emphasises the importance of developmental networks echoed by other mentoring scholars (Ghosh and Chaudhuri, 2023; Joo and Cruz, 2024; Munro et al, 2024). Furthermore, mounting evidence asserts meaningful connections impact well-being (Dreer-Goethe, 2023; Hurd & Singh, 2021). Many scholars assert, compared to men, women lack access to informal mentors, are often not included in networks and can benefit from safe spaces for leadership identity development (Ibarra, Ely and Kolb, 2013; Maguire, Anderson and Chavez, 2024; O'Connor, 2020; Picariello et al., 2023). Accessing multiple developmental relationships enriches relational learning and contributes to the advancement of women in leadership in the workplace. Consequently, women mentees were the concern of this study.

3. Methodology

IPA, a qualitative methodology, is anchored in the philosophical underpinnings of phenomenology, hermeneutics and idiography. Pausing to reflect on the immensity of the philosophical learning journey, before embarking on participant recruitment, enabled the researcher gain perspective on the distinctive features of IPA for this study (Table 1).

Table 1: Distinctive Features of IPA

No.	Feature	Description
1	Epistemological Grounding	The epistemological grounding is anchored in three pillars upon which IPA is built - phenomenology, hermeneutics, and idiography.
2	Amplifying Voice	Giving attention to the individual voice of each participant was enabled through a rigorous systematic analysis of each transcript revealing a deep understanding of each voice.

No.	Feature	Description
3	Inductive Deepening	The individual themes, called Personal Experiential Themes (PETs) in IPA, and the cross-case themes, called Group Experiential Themes (GETs) pointed the researcher to the dialogical work of Martin Buber (1923/1970). This inductive deepening of insights brought attention to the I-It and I-Thou, and the centrality of engaging in genuine dialogue in leadership mentoring dyads.
4	Systematic & Rigorous	The rigour demanded of the systematic analysis process of IPA is not for the faint-hearted. For this researcher, conducting a pilot study was essential to get experience-close to doing IPA before embarking on fieldwork.
5	Versatility	Engaging in the “messy chaos of the lived world” (Smith et al., 2022, p. 52) that is the essence of IPA brings versatility in modes of sense-making as the multiple layers of meaning-making unfold.
6	Co-Creation	Embracing and acknowledging the role of the researcher in making sense of each participant's sense-making of leadership mentoring demands reflexive moments throughout the IPA process.

Overall, IPA made accessible the fundamental nature of human *beings* within a leadership mentoring dyad by inviting participant voices on their terms, not employing interview questioning in line with pre-existing mentoring scholarship.

This multi-perspectival research design comprised 12 participants consisting of six mentoring dyads. The six mentees were women and five mentors were women. Semi-structured interviews were conducted individually, recorded and transcribed.

4. Data Analysis

Analysis was conducted at three levels: mentee, mentor and dyad (Figure 2) to get a rich understanding of participants' sense-making of their leadership mentoring experiences.

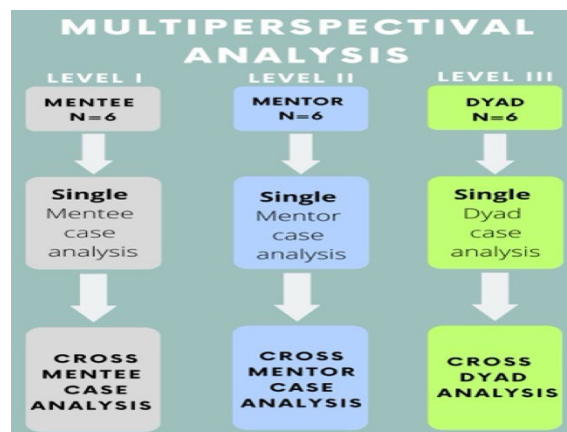


Figure 2: Levels of Analysis

In IPA, participants are also referred to as cases. Thus, each participant case was analysed from transcript to Personal Experiential Statements (PESs) to the level of Personal Experiential Themes (PETs), exploring, describing, interpreting and situating how each participant made sense of their leadership mentoring experience. A cross-case analysis was conducted to the level of Group Experiential Themes (GETs), for both mentee and mentor cases (Figure 2). In the third level of analysis, the dyad analysis, the individual mentee and mentor transcripts and themes were brought together to make sense of the experience of each dyad. The sense-making and meaning-making of what mattered to participants in the lived experience of their leadership mentoring dyads directed the gaze to the *space between* mentee and mentor. The active relational ingredient across the six dyads, the space between, was conceptualised as the *DRMS*.

5. Findings

This study explored the leadership mentoring process, where sense was made of the lived experience of both mentees and mentors, on their terms, within their unique dyads. The findings identified the quality of the *DRMS* and the mentoring style (or relational orientation) as the factors delineating the differing mentoring relational experiences (Figure 3) across the six dyads.

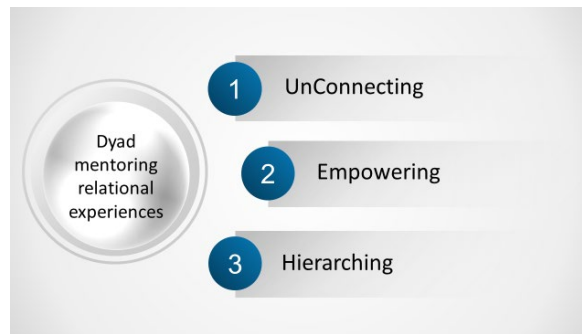


Figure 3: Dyad Relational Experiences

5.1 Dyad Mentoring Relational Experiences

Deepening the understanding of the interplay between mentee and mentor, bringing the mentee and mentor of each dyad together in analysis, enabled an interpretation of the mentoring relational experience of each dyad, classifying as unconnecting (Dyad 4), hierarching (Dyad 1), and empowering (Dyad2, Dyad3, Dyad5, Dyad6). Without bringing mentee and mentor together for dyadic analysis, an area of future research to better understand the dyadic microsystem advocated by Chandler, Kram and Yip (2011), these dyad relational experiences would remain hidden (Table 2).

Table 2: Types of Mentoring Relational Experiences Across Dyads

Dyad No.	Mentoring Relational Experience	Verbatim
1	Hierarching	Aoife: <i>it definitely wasn't a relationship of equals</i> L226 Aoife: <i>to be honest it did feel a bit like a tick the box exercise</i> L96 Sinead: <i>we had addressed all of the professional aims and goals</i> L161
2	Empowering	Máire: <i>for me it felt like very welcoming</i> L179 Monica: <i>we were both part of the movement</i> L393
3	Empowering	Tatiana: <i>it was nice opportunity...to speak I suppose quite freely with somebody</i> L400/2 Tatiana: <i>I would feel more confident I've done a little bit of mentoring in a tiny small way myself since the experience</i> L690/2 Gemma: <i>my style would always be quite collaborative</i> L69 Gemma: <i>I probably would be not a bad listener so I always knew myself it would be ... a more collaborative kind of an approach to mentoring, although I reckoned I would learn a lot from it myself just from the skills of mentoring but also from that person's experience and what they were doing</i> L70/5
4	Unconnecting	Fiona: <i>our mentoring on that programme pretty much didn't happen</i> L100/1
5	Empowering	Orla: <i>it was very very much two colleagues talking</i> L117 Susie: <i>there is always that piece which is the focus on task but there is also the really important goal which is this social that social relational</i> L516/7
6	Empowering	Shauna: <i>she would share some of her experiences with me which helped me to develop my own confidence</i> L118 Saoirse: <i>it became a bit more of a two-way thing</i> L55

In the unconnecting mentoring experience, the dyad did not extend beyond the first meeting, thus not allowing the mentoring relationship to be cultivated. Mentee4 stated, *it wasn't compartmentalised enough to be separated from the operation* (284), impacting negatively on the mentee's level of trust and bringing the leadership mentoring programme to a close for Dyad4. The proximity of the working relationship outside of the mentoring programme was an obstacle and presented a missed opportunity to experience a growth-fostering leadership mentoring programme. In the hierarching relational mentoring experience, the sense-making of the mentee lived experience indicated adopting a one-directional approach to the dyad. Mentee1 stated: *you're definitely 'oh I'm a little mentee down here* (224), indicating mentee1 was adopting a traditional student-teacher mentoring identity. Viewing mentor1 as the "prevailing source of power, influence and expertise in the

relationship" (Fletcher and Ragins, 2007, p.375), underestimating the mentee source of influence and expertise, inhibited the growth-fostering potential of the leadership mentoring dyad for mentee1. In the empowering relational mentoring experience, bi-directionality in a welcoming relational mentoring space is discerned in four dyads. Both partners in these dyads concurred on mutual positive learning experiences. For example, in Dyad2, the mentor stated: *we were both part of the movement in the programme* (393); in Dyad5, the mentor stated, *if we care enough we'll ask them all the tough questions, we will ask people to look at what it is that's stopping them and is it always other people that are doing that* (445/8); in Dyad6, *it became a bit more of a two-way thing* (55). The reciprocal two-directional empowering experience of four dyads aligns with high-quality relational mentoring (Ragins, 2016). The dyad mentoring relational experiences put the spotlight on the quality of the DRMS and relational orientation as central characteristics of high-quality mentoring experiences.

5.2 Delineating Dyad Mentoring Experiences

In delineating an effective and meaningful leadership mentoring experience, it is the quality of the DRMS and the mentoring style or relational orientation that mattered to participants.

5.2.1 Quality of DRMS & Psychological Safety

The DRMS, capturing the essence of the "black box of mentoring" (Chandler, Kram and Yip, 2011), epitomises the space between both partners in a dyad, within which the mentoring relationship was experienced. "Like the other great forces of nature", Berscheid (1999) asserts, "a relationship itself is invisible; its existence can be discerned only by observing its effects" (p.261). Exploring the effects of the DRMS on the dyads helped discern the potency of psychological safety (Edmondson, 1999; Kahn, 1990) in determining a quality relational outcome. Various defined as: "feeling able to show and employ one's self without fear of negative consequences to self-image, status, or career" (Kahn, 1990, p.708); "a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns or mistakes...a sense of confidence that your voice is valued" (Edmondson, 2020), the interpersonal construct of psychological safety mattered to mentee experiences of leadership mentoring within the DRMS.

Furthermore, interpersonal trust, central to psychological safety (Edmondson and Lei, 2014), can be discerned in Dyad6 as an empowering mentoring experience, although interpreted in different ways by the mentee and mentor. Trust, in particular relational trust, Robbins (2016) asserts, consists of three elements. Firstly, it is a "tripartite concept" (p.975) concerning two individuals and the matter at hand, in this study the mentee, mentor and mentoring focus. Secondly, it is a "cognitive process" (p.975) concerning a belief about the world held by an individual. Thirdly, it is "a function of the trustworthiness of others" (p.975). For Mentee6, the trust within the DRMS was attributed to her knowledge of the previous experience of her mentor, and the positive feedback from others whom she had previously mentored, an expression of her mentoring schema (Ragins and Verbos, 2007): *she had the experience and she mentored people before and I did trust her from the beginning and then as we talk more and more you know the trust was built that way* (Mentee6 212/4). Although a feeling of trust was expressed within the dyad, Mentee6 indicated uncertainty about whether this trust was reciprocated: *I don't know if she trusted me straight away* (212/4). Mentor6, not explicitly using the word trust, indicated a comfort in engagement within the DRMS: *I don't think it went through stages, I think it pretty quickly went from Hi nice to meet you to so you'll never guess what happened last week and maybe that was because of the personalities involved* (427/9). Thus, psychological safety, displayed through trust, was observed in analysing the accounts of Dyad6, which influenced the positive nature of the DRMS towards an empowering dyadic experience. Feeling comfortable to ask questions was embedded in the feeling of trust in her mentor, Mentee6 stated: *I trusted her that I could ask a question and that I would get a positive response* (400/1). Emanating from the contracting at the outset of the mentoring programme influenced the expression of trust within the dyad. Mentor6 stated: *and of course that trust is going to be a huge part of the social relational element* (718/23).

In Dyad5, a growth-fostering relationship can be interpreted through the presence of trust and the outcome of confidence to take action, observed by Mentor5: *the person tried some things that they might not have... confidence was probably one of the critical things* (603/5). Echoing the importance of trust (Eby and Robertson, 2020) within the mentee-mentor bond, the DRMS in this study, the work of Kahn (1990) reveals trust as a key characteristic within work relationships enabling the engagement or disengagement of individuals. In the presence of psychological safety, in Dyad3, the mentee felt comfortable being vulnerable, and with that, a freedom to be vulnerable within the DRMS: *to speak I suppose quite freely with somebody* (402). Enabling the development and articulation of a new perspective on leadership for Mentee3 in the workplace, shifting her

mindset in a quality *DRMS*, beyond leadership as a position, embracing “leadership as a social practice of influence (Showunmi and Moorosi, 2022, p.2), Mentee3 shared her learning, too: *look for opportunities where you can do things and you can bring solutions maybe to things that are needed* (80).

The presence of trust in the dyads in this study illuminated the engagement of mentees and mentors in the relationship, experiencing leadership mentoring at its best as a high-quality relationship, an empowering relational experience (Table 2). Conversely, the absence of trust created a sense of dissociation or Unconnecting in Dyad4, the mentee seeking support in other developmental connections, affirming the need for a constellation or network of developmental relationships (Higgins and Kram, 2001; Murphy, Gibson and Kram, 2024) for career development of women in the workplace. Although Dyad4 was classified as an UnConnecting mentoring relationship, being in the formal mentoring programme brought benefits to the mentee, acting as a catalyst to reach out for informal mentoring by the mentee.

Empirical studies of psychological safety (PS) in organisational and industrial contexts spanning individual-level, organisational-level and group-level research reveal the potency of psychological safety for workplace effectiveness (Edmondson and Lei, 2014). Reviewing these studies, Edmondson and Lei (2014) amplify three key outcomes of a climate of PS: a) having a role in enabling performance, b) mitigating interpersonal risks or consequences “inherent in learning in hierarchies” (p.36), and, c) promoting speaking up in the workplace. In Dyad2, Dyad3, Dyad5 and Dyad6, a climate of psychological safety was indicated in mentee accounts where speaking freely and building their voices mattered (Table 3).

Table 3: Discerning Psychological Safety

Verbatim	Dyad
<i>Just building the confidence and building my voice</i> L22)	Dyad6 Shauna
<i>I felt like somehow I was understood</i> L320	Dyad2 Máire
<i>I was confident with them I wasn't afraid to ask questions</i> L398/9	Dyad5 Orla
<i>It was a nice opportunity to clear your head and get away from the whole space</i> L400/1	Dyad3 Tatiana

Conversely, for Dyad4, the absence of trust and confidence in the relationship indicated an absence of a climate of psychological safety, where consequences of risking speaking up disabled the mentee voice within the mentee-mentor *DRMS*. Mentee4 stated: *my ability to engage with this person as a mentee where you should be able to have confidence and trust in the relationship was seriously lacking* (83/5). Beyond Dyad1's *DRMS*, within the mentee's peer network, Mentee1 stated: *really rewarding and a really rich experience* (62), amplifying the developmental impact of sharing and discussing workplace challenges between peers in similar positions: *that sounding board of people in the same or similar positions to be able to discuss frustrations with, discuss positive aspects of the job with, to discuss successes with, to talk about opportunities for progression ... And so that was really rich because if there was a frustration or something that one of us was struggling with the rest of us could say oh well when I had to deal with that last year this is what I did and this is who I talked to* (72/6).

The quality of the mentoring space is further illuminated by the sense of the importance of being part of a formal organisational mentoring programme. For mentor in Dyad5: *formalisation of it was that it was invested with an importance because it went into the diary, it went into the planner* (320). As a mentor working in the same organisation as her mentee, having had *some excellent allies* (600) during her career, despite not having spare time, fulfilling a mentoring role was important in making her contribution to women in academia: *I think we should be giving back for a start but also because it makes you see the other persons experience and we all learn from each other* (558/60).

5.2.2 Mentoring Style/Relational Orientation

The mentoring style captured the essence of the relational orientation adopted in traditional mentoring, a one-way power-over approach, and relational mentoring, a two-way power-with approach, delivering, respectively, average or high-quality mentoring experiences (Ragins, 2016). Consciously moving between a focus on task-related outcomes while also building the social-relational component of the dyad, emphasised in Dyad5, contributed to sustaining the mentoring through the disruptive Covid-19 pandemic. Mentor5 enabled and observed mentee during this disruptive time: *steer a steady course for themselves* (194). Conversely, in Dyad1 with a focus on a practical solution-focused approach, which worked well for mentee and mentor, reinforced variability in approaches depending on mentee goals at the time of mentoring. Mentor1 stated: *we worked in*

a very similar way, very practical, very goal oriented, looking for a solution (54). Recognising mentee had further expectations of mentoring to pursue other aspects of career advancement, for example, understanding how things get done beyond the academic level, brought the mentee to peer developmental support.

Becoming a two-way relational experience brought a sense of satisfaction to the relationship within Dyad5, enabled by sharing of experiences by both mentee and mentor. Mentee5 stated that: *she would share some of her experiences with me which helped me to develop my own confidence* (118).

In Dyad4, the mentoring relationship can be interpreted as less satisfying illuminated by the aforementioned lack of trust felt by the mentee in a relationship that was not considered, by the mentee, a mentee-mentor relationship. Mentee4 stated: *my ability to engage with this person as a mentee where you should be able to have confidence and trust in the relationship was seriously lacking* (83/5). Capturing the experience of high-quality mentoring in their peer relationships rather than one-to-one mentoring was an area of divergence for Dyad1 and Dyad4, with Mentee1 reflecting that group or peer mentoring may be best for her: *maybe that's always the thing that would work much better for me is having a group of people to engage with* (212).

For Dyad6, the mentee applauded the *push and focus* which she felt within her mentoring encounters with her mentor, engendering accountability and *a very positive experience* (116) resulting in building mentee confidence and voice. For her mentor, taking what can be interpreted as an empowering relational stance, contributed to this outcome. Mentor6 stated: *it is not about telling a person what to do it's about guiding that person to reflect on where they're at in certain things and what they want to work on* (155/6).

Contrasting with this empowering approach was the pursuit of solutions in Dyad1, both mentee1 and mentor1 working in a very similar way *very practical, very goal oriented, looking for a solution* (54). One interpretation of the interplay within Dyad1 was the impact of this pursuit of solutions on bringing a feeling of a *tick the box* (102) to the mentoring experience, compared to interacting with a peer mentoring group that was *more of a leadership mentoring experience* (124) for mentee1. Therefore, illuminating the sense-making of participant lived experiences emphasises the impact of mentoring style on the learning experience for both mentee and mentor within dyads in this study. Furthermore, it illuminates the "black box of mentoring" (Chandler, Kram and Yip, 2011) to better understand the psychology of workplace mentoring (Eby and Robertson, 2020), thus, laying the foundation for the meaning-making of a novel leadership mentoring model (the focus of another paper).

6. Discussion

Thinking together the view of self as relational (Mead, 1934/1967), the dynamic relatedness, comprising inter-personal and intra-personal dialogic interactions, and participant sense-making of their lived mentoring experience, guided the proposed conceptual model (Figure 4). Concomitant with the phenomenological concept of intersubjectivity, the uniquely situated quality of *being* human, participant concerns with "the shared, overlapping and relational nature of our engagement in the world" (Smith, Flowers and Larkin, 2022, p.13) were illuminated. Illustrating the inductive nature of IPA, prompted by a central concern with *the space between* in the sense-making of participant experiences, the researcher was guided to the work of Martin Buber (1923/1970) in particular, the "sphere of the interhuman" (Buber, 1965, p.65). Examining and developing a construct to describe the relational dynamics in mentoring dyads, *the space between* mentee and mentor was conceptualised as the *DRMS*. Other scholars have contributed to the space between. In the therapeutic relationship, Linda Finlay (2011) emphasises "that mysterious intersubjective space where the client and therapist meet" (p.22). Exploring the discourse of relatedness, Ruthellen Josselson (1996) emphasises the *between*, asserting, "the way the space is filled or reverberates - becomes all-important" (p.5). To develop an understanding of meaningful and flourishing relationships, Galovan and Schramm (2018) integrate empirical evidence with the work of Buber, asserting that the idea that self is formed in dialogue with others is "fundamental to the dialogical perspective" (p. 200). However, despite mentoring being fundamentally a relational phenomenon, the concept of dialogue deep-rooted in Martin Buber's work is notably absent from mentoring scholarship.

Understanding and alternating the two basic attitudes of relating, two poles of human interplay (Buber, 1923/1970), the impersonal I-It and the personal I-Thou, are central to the practical application of the ATN leadership mentoring model. The capacity to display dialogic fluidity concerning these attitudes of relating enables the shaping and reshaping of the leader identity of dyad participants. Furthermore, framing within the "phenomenological attitude" (Finlay, 2008), striving to "suspend presuppositions and go beyond the natural attitude of taken-for-granted understanding" (p.2) allowed the researcher to make sense of participant sense-making in reframing leader of identity (Figure 4).

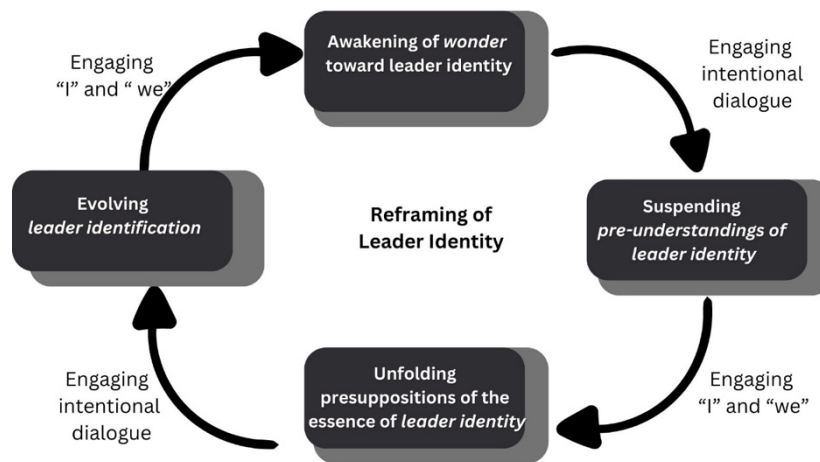


Figure 4: Dialogue and Leader Identity

In adopting 'I-It' way of relating, an individual stands in relation to the other as an object. In contrast, adopting 'I-Thou' way of relating, an individual stands in relation to the other as a whole person, open to the realities of the other. For Buber (1923/1970), being in dialogue is more than a conversation; it can be a transformative experience by not relating exclusively in I-It mode, rather paying attention to I-Thou where the individual of the individual other is appreciated.

7. Conclusion

Overall, this paper spotlights the duality of both a relational and dialogical focus when navigating the space between mentee and mentor within a mentoring dyad. Making sense of the "black box of mentoring" from within dyad data revealed the centrality of a quality *DRMS* and relational orientation in the space between mentee and mentor to make visible the process of reframing leader identity. Embedded in the tradition of Martin Buber's (1923/1970) work and understanding the meaning of dialogue offers opportunities for meaningful and effective mentoring experiences where leader identity can be shaped and/or reshaped within the *DRMS*. Restoring a focus on the role of dialogue is enabled through engaging two relational constructs of I-It and I-Thou encounters (Buber, 1923/1970) within mentoring dyads. In I-It encounters, an individual treats the other as an object. In I-Thou encounters, each individual "sees the fullness and humanity of the other (the other as subject)" (Fishbane, 2023, p.449). The empirical findings from this study underscore the centrality of a quality *DRMS* and relational orientation to make visible the process of reframing of leader identity. Furthermore, formal leadership mentoring programmes for women act as a pathway for propagating an organisational culture supportive of mentoring and the advancement of women, gender equality, and leader identification within the workplace.

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Gender Diversity in Internal Auditing: A Catalyst for Sustainability

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Abstract: Concepts such as environmental, social, governance, sustainable development, and responsibility towards the environment are not new concepts. They appeared and were defined a long time ago, but more recently their importance has increased significantly. Governments, companies, regulatory institutions, non-profit organizations, and even educational institutions have emphasized the activities carried out from the perspective of the notion of sustainable development. Thus, the number of problems related to sustainability, the risks that may arise in this process, and the need to find the most effective solutions, have also increased. The purpose of this study is to analyze whether the gender of internal auditors influences their involvement in ESG reporting. Our study was carried out by applying a questionnaire to internal auditors and/or coordinators of the internal audit function in Romania. Following the application of the questionnaire the final sample size employed in this analysis is 93 with a gender structure that allows a differentiated analysis (29.18 men, 63.53 women, 7.29 unspecified). Our interest was directed towards internal auditors because the specific activities of insurance and advisory have to work to create a sustainability management system in the first phase and audit the system in the second phase. The analysis of the received results was done by clustering also, we considered it appropriate to statistically test the correlations between the variables using nonparametric correlation analysis (Kendall). The main findings show a strong and directly significant link between the gender of the internal auditor and the way the entity can contribute to achieving sustainable development goals. The limits of the study are found in the size and category of the sample of respondents. The category of respondents is limited to internal auditors from Romania and their number can be expanded.

Keywords: Internal Audit, Gender, Barriers, Sustainability

JEL classification: Q56, M42, Q01

1. Introduction

The involvement of internal auditors in Environmental, Social, and Governance (ESG) reporting is significantly influenced by their gender, particularly in the context of the assurance and advisory services they provide. Gender diversity within audit committees and internal audit functions has been shown to correlate with enhanced ESG disclosures and overall reporting quality. Specifically, studies indicate that female representation on audit committees positively affects the quality and quantity of ESG disclosures, suggesting that gender diversity can lead to more comprehensive oversight and a broader perspective on sustainability issues (Bravo & Alvarado, 2018; Arif et al., 2020). Internal auditors, regardless of gender, play a crucial role in enhancing the credibility of ESG reporting through both assurance and advisory services. Applying ordinary least square and fixed-effect estimators Luh (2024) found that women on the audit committee board enhance the integrity of internal controls and internal audit procedures leading to higher quality of financial reporting, lower audit effort and consequently lower audit fee.

The internal audit function is increasingly recognized for its ability to provide independent assurance on ESG metrics, which is essential for fostering trust among stakeholders (Sabauri, 2024; Rakipi & D'Onza, 2023). Moreover, the advisory role of internal auditors has expanded, allowing them to contribute to the development and implementation of ESG strategies within organizations. This shift towards advisory services is particularly relevant as organizations seek to align their operations with sustainability goals and improve their ESG maturity (Bonrath et al., 2022; Ramadhan et al., 2023). The gender of internal auditors may influence their approach to these roles. Research suggests that women in leadership positions, including internal audit functions, often bring different perspectives and priorities to the table, which can enhance the effectiveness of ESG initiatives (Bravo & Alvarado, 2018; Zalata et al., 2019). For instance, female auditors may be more attuned to social and environmental issues, leading to a more robust engagement with ESG reporting processes. This is supported by

findings that highlight the positive association between female directors and the quality of ESG disclosures, indicating that gender diversity can enhance the effectiveness of governance structures related to sustainability (Bravo & Alvarado, 2018; Arif et al., 2020). Furthermore, the evolving landscape of internal auditing emphasizes the importance of gender diversity in fostering a culture of inclusivity and innovation. As organizations increasingly recognize the value of diverse perspectives in decision-making, the involvement of women in internal audit roles can lead to more effective risk management and governance practices related to ESG (Arena & Jeppesen, 2010; Sabauri, 2024). This is particularly relevant in the context of internal auditors' advisory roles, where diverse teams are better equipped to address complex sustainability challenges and drive organizational change (Soh & Martinov-Bennie, 2015).

In this context, the purpose of this paper is to analyze whether the gender of internal auditors influences their involvement in ESG reporting by providing specific assurance and advisory services. To understand the contribution of Romanian internal auditors to ESG initiatives, we conducted a survey-based analysis to explore their current practices and perceptions. By identifying how the gender of internal auditors influences their contribution to ESG reporting processes, this study advances the field of internal audit research. It responds to the demand for further research on the assurance of ESG practices and provides valuable insights into the extent of corporate involvement in ESG factors.

2. Previous Research

The growing emphasis on ESG factors in corporate governance necessitates a robust internal audit function capable of providing assurance and consulting services related to sustainability reporting. Internal auditors are uniquely positioned to enhance the quality of ESG disclosures through their expertise in risk management, internal controls, and governance processes. Internal audit is part of the organization and has a critical importance not only in detecting and preventing fraud (Khikmah et al., 2023; Eulerich et al., 2021; Mihret et al., 2010; Hazaea et al., 2024) but also in ensuring the implementation of sustainable business development strategies. Internal auditors play a pivotal role in the ESG reporting process by ensuring that organizations adhere to established standards and frameworks. According to Ramadhan et al., internal auditors are increasingly recognized for their advisory capabilities, which are essential in implementing effective social and environmental governance practices (Ramadhan et al., 2023). This advisory role allows internal auditors to contribute significantly to the development and execution of ESG strategies within organizations. Internal audits can contribute to improving ESG reporting by Romanian companies, as highlighted by Gherai et al. (2024), also proving the strong and direct link between the ways of achieving sustainable development goals and the perception of internal auditors on the sustainability management strategy implementation.

Bonrath et al. emphasize that internal auditors possess the necessary expertise to promote ESG maturity, thereby enhancing the quality of ESG reporting (Bonrath et al., 2022). Their involvement extends beyond mere compliance; they actively participate in the assurance processes that validate the accuracy and reliability of ESG disclosures. This dual role of assurance and consulting is critical, as it helps organizations navigate the complexities of ESG reporting and ensures that stakeholders receive credible information. The effectiveness of internal auditors in ESG reporting is closely linked to their ability to assess and improve governance processes. Haryani highlights that internal auditors assist management in enhancing operational efficiency and risk management, which are vital for producing high-quality ESG reports (Haryani, 2023). By providing unbiased feedback and recommendations, internal auditors can help organizations identify areas for improvement in their ESG practices. Moreover, the integration of ESG factors into internal control systems is essential for achieving reliable reporting. Harasheh and Provasi argue that effective internal control systems that incorporate ESG considerations can significantly enhance the quality of ESG disclosures (Harasheh & Provasi, 2022). This integration not only improves compliance with regulatory requirements but also fosters a culture of accountability and transparency within organizations.

The influence of gender on the involvement of internal auditors in Environmental, Social, and Governance (ESG) reporting is an emerging area of research that highlights the intersection of gender diversity, corporate governance, and sustainability practices. This literature review synthesizes findings from various studies to elucidate how the gender of internal auditors and board members affects their engagement in ESG reporting. Research indicates that gender diversity on corporate boards positively influences ESG disclosure practices. For instance, Bhatia and Marwaha found that boards with greater gender diversity tend to have higher ESG disclosure scores, as female directors often bring higher ethical standards and a focus on social and environmental issues (Bhatia & Marwaha, 2022). Similarly, Yadav and Prashar noted that female directors significantly impact the social component of the ESG framework, which necessitates reporting on efforts to serve

both internal and external stakeholders (Yadav & Prashar, 2022). This suggests that the presence of women in leadership roles, including internal auditors, can enhance the quality and transparency of ESG reporting. Moreover, the role of internal auditors is crucial in the implementation of ESG initiatives. Ramadhan et al. highlighted that internal auditors are increasingly involved in ESG efforts, particularly in advisory capacities, which can add substantial value to organizations (Ramadhan et al., 2023). This involvement is further supported by findings from Soh and Martinov-Bennie, who noted that internal auditors are more engaged in ESG assurance activities, indicating a shift towards a more consultative role that emphasizes the importance of ESG governance (Soh & Martinov-Bennie, 2015). The gender of internal auditors may influence how these roles are executed, as diverse teams are often associated with broader perspectives and innovative solutions. Judith Butler's theory of performativity, introduced in her 1990 book *Gender Trouble*, has significantly shaped individual and collective understandings of gender. This essay examines performativity as a framework for critically assessing gender performances in patriarchal workplace environments, including the institutional rules and norms that shape behaviors and interactions.

The impact of gender diversity extends beyond board composition to the internal audit function itself. Some studies (Green and Homroy, 2018; Lee and Thong, 2023) have shown that female members in internal audit departments have a positive influence in ensuring overall performance, not just influencing financial performance. Hashim et al. (2019) analyzed the impact resulting from the interaction between board diversity and internal audit on the quality of profits, but this proved to be insignificant, with a limitation of the moderating variable, although there are more and more studies showing that the internal audit function plays an important role in the company's performance, either from a social, or financial point of view. Thus, Bravo and Alvarado emphasized that gender diversity within audit committees correlates with improved sustainability disclosures, suggesting that female auditors may advocate for more rigorous ESG reporting practices (Bravo & Alvarado, 2018). Furthermore, Dempere and Abdalla found that organizations with greater gender diversity in leadership roles are more likely to exhibit enhanced ESG-related disclosures, reinforcing the notion that gender diversity fosters transparency and accountability (Dempere & Abdalla, 2023). However, the relationship between gender diversity and ESG performance is not universally positive. Some studies, such as those by Nicolò et al., indicate that while female directors positively influence overall ESG scores, their impact on individual components, particularly social disclosures, may be weaker (Nicolò et al., 2021). This complexity suggests that the effectiveness of gender diversity in enhancing ESG reporting may depend on various contextual factors, including the organizational culture and the specific governance structures in place. Mazumder, M.M.M. (2024) investigated the influence of gender diversity on Environmental, Social, and Governance (ESG) disclosures within Chinese listed energy companies, specifically examining the moderating role of the audit committee. The study utilized data from 2012 to 2022 sourced from the Chinese Stock Market and Accounting Research database. Gender diversity was quantified using the Blau and Shannon indices, which measure the percentage of female representation on the board. His results demonstrated a significant positive relationship between board gender diversity and ESG disclosure, encompassing both overall and individual dimensions, and the audit committee was found to moderate this relationship.

Migration studies is a dynamic and often contentious field, reflecting the complexities of global movement and social and economic change. While migration research draws from numerous disciplines, accounting scholars have been relatively uninvolved, despite the field's use of concepts like cost, benefit, risk, and control, which are central to accounting. The paper of Ruth D. Hines (1992) explores how accounting researchers can contribute to migration studies, particularly focusing on the potential of critical accounting perspectives to reshape the conversation.

In conclusion, the literature suggests a nuanced relationship between the gender of internal auditors and their involvement in ESG reporting. Gender diversity on boards and within audit functions appears to enhance the quality of ESG disclosures, driven by the unique perspectives and ethical considerations that female leaders bring to the table. However, the extent of this influence can vary, necessitating further research to explore the mechanisms through which gender diversity impacts ESG reporting practices. In this context, we tested the following hypotheses:

H1: There is a positive relationship between ESG and the number of females in a firm.

H2: Gender significantly influences internal auditors' engagement with ESG issues.

3. Research Methodology and Sample Selection Process

Our study was based on the results of earlier research (Gherai et al., 2024) that aimed to test the impact of internal auditor's activities in Romania, through their specific activities, on ESG reporting and sustainable development goals (SDGs). To facilitate this investigation, a questionnaire comprising 24 questions was developed and distributed to professional accountants, including internal auditors and those overseeing the internal audit function within Romania. The sample population consisted of members of the Association of Internal Auditors from Romania (AAIR) and the Chamber of Financial Auditors from Romania (CAFR). A total of 93 valid responses were collected for analysis. Based on the questionnaire applied, the first published article analyzed the impact of an internal auditor's activities in Romania, through their specific activities, on ESG reporting and sustainable development goals (SDGs).

The primary aim of this study is to examine the extent to which the gender of internal auditors affects their participation in ESG reporting, particularly in the context of providing specialized assurance and advisory services. The analysis of survey data is crucial for understanding the relationships between different variables, particularly in studies involving human behavior and professional practices. In this study, the primary aim is to investigate how gender influences the involvement of internal auditors in ESG reporting. Given the nature of the data collected through the questionnaire, a nonparametric correlation analysis was deemed appropriate to assess the strength and direction of the relationships between variables (Conover, 1999).

Kendall tau-b is a nonparametric measure of correlation that assesses the strength and direction of association between two variables. It is particularly effective in situations where the data may not be normally distributed or when dealing with ordinal scales. The Kendall tau-b (Kendall, 1938) coefficient ranges from -1 to +1, where: a coefficient of +1 indicates a perfect positive correlation, meaning that as one variable increases, the other variable also increases. - A coefficient of -1 indicates a perfect negative correlation, meaning that as one variable increases, the other variable decreases. - A coefficient of 0 indicates no correlation between the variables. The results of the Kendall tau-b correlation analysis will provide insights into the relationships between gender and various aspects of ESG reporting participation, such as the frequency of involvement in assurance activities, the perceived effectiveness of contributions, and the level of training received in ESG matters. The analysis will help identify whether gender plays a significant role in shaping the experiences and perceptions of internal auditors regarding their involvement in ESG reporting.

4. Results and Discussion

The analysis of the collected data will focus on the correlation between the gender of internal auditors and their reported levels of participation in ESG reporting activities. The findings will be categorized based on the frequency of involvement in ESG assurance and advisory services, as well as the perceived effectiveness of their contributions. The majority of respondents, approximately 45%, identify as internal auditors, while around 28% hold the position of internal audit function coordinator, and 27% are members of the executive board. In terms of sectoral representation, as illustrated in the frequency table below, a significant portion, approximately 83%, is employed in various other areas and services.

Table 1: Distribution of respondents by sector of activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Credit institution and non-financial services	13	14.0	14.0	14.0
	Insurance/Reinsurance	3	3.2	3.2	17.2
	Other areas and services	77	82.8	82.8	100.0
	Total	93	100.0	100.0	

The distribution of respondents across various sectors of activity reveals the following breakdown: 13 individuals are affiliated with credit institutions and non-financial services, 3 are involved in insurance and reinsurance, while a substantial majority, totaling 77, belong to other areas and services. This distribution indicates a significant representation from sectors outside of traditional financial services, suggesting that the findings of the study may reflect a broader perspective on internal auditing practices and ESG reporting across diverse industries.

Table 2: Gender structure of the surveyed internal auditors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	F	59	63.43	63.43	63.43
	M	27	29.05	29.05	92.48
	N	7	7.52	7.52	100.0
	Total	93	100.0	100.0	

The gender structure of the surveyed internal auditors reveals a composition of 59 females, 27 males, and 7 individuals identifying as non-binary. This distribution indicates a significant female representation, comprising approximately 63% of the total respondents. The predominance of female auditors may influence the dynamics of ESG reporting, as research suggests that gender diversity within audit teams can enhance the quality and comprehensiveness of sustainability disclosures. To confirm this result and for the validation of the first hypothesis H2: *There is a positive relationship between ESG and the number of females in a firm*, we used the Kendall T (tau) rank correlation coefficient. The crosstab data reveals the following distribution of responses among internal auditors regarding their ESG reporting experiences:

Table 3: The gender distribution of internal auditors who have reported on ESG issues

			Gender of Internal Auditors			
			F	M	N	Total
Have you ever reported on ESG so far?	Not	Count	8	4	0	12
		% of Total	8.6%	4.3%	0.0%	12.9%
	Rarely	Count	5	1	0	6
		% of Total	5.37%	1.07%	0.0%	6.44%
	Sometimes	Count	9	8	5	22
		% of Total	9.67%	8.6%	5.4%	23.67%
	Often	Count	20	7	1	28
		% of Total	21.5%	7.52%	1.07%	30.09%
	Very often	Count	17	7	1	25
		% of Total	18.3%	7.52%	1.07%	26.89%
Total		Count	59	27	7	93
		% of Total	63.44%	29.03%	7.52%	100.0%

Table 4: Symmetric Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.171	.088	1.940	.052
N of Valid Cases		93			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

The findings reveal significant insights into the participation of auditors by gender in ESG reporting, highlighting both the frequency of reporting and the overall representation of different gender identities within this professional context. The analysis of the crosstab data reveals important insights into the gender dynamics of internal auditors engaged in ESG reporting. The predominance of female auditors in the categories of "Often" and "Very often" suggests that women are taking a leading role in this area, which may reflect broader trends in the profession where female auditors are increasingly recognized for their contributions to sustainability and governance issues. Conversely, the lower representation of males in the "Rarely" and "Not" categories indicates a potential shift in engagement levels, with females more likely to participate in ESG reporting activities. The absence of non-binary auditors in the "Not" category raises questions about inclusivity and the barriers that may exist for this gender identity within the internal audit profession.

Studies have shown that organizations with a higher proportion of female board members tend to exhibit improved ESG performance and reporting practices. For instance, Monteiro (2024) highlights that gender diversity within the workforce, coupled with sustainability reporting, can lead to superior ESG performance due to the unique perspectives that diverse teams bring to decision-making processes (Monteiro, 2024). Similarly, Manita et al. (2018) discuss the "critical mass" effect, suggesting that a significant presence of women on boards positively correlates with enhanced transparency and ethical compliance in ESG disclosures (Manita et al., 2018). This implies that the high percentage of female internal auditors in this study could contribute to more robust ESG reporting practices. Furthermore, the findings from Nguyen et al. (2023) suggest that board gender diversity mediates the relationship between ESG performance and firm value, indicating that female auditors may play a crucial role in shaping the ESG narrative of their organizations (Nguyen et al., 2023). The presence of women in internal audit functions can foster a culture of accountability and transparency, which is essential for effective ESG reporting.

In conclusion, the gender structure of the internal auditors surveyed, with a notable majority of females, may significantly influence their involvement in ESG reporting. This aligns with existing literature that emphasizes the positive impact of gender diversity on corporate governance and sustainability practices. For the validation of the second hypothesis *H2: Gender significantly influences internal auditors' engagement with ESG issues* we used the Kendall T (tau) rank correlation coefficient.

Table 4: The Influence of Gender on Internal Auditors' Engagement with ESG Issues

			Gender of Internal Auditors			Total
			F	M	N	
Does internal audit provide objective assurance and advice on ESG reporting?	No	Count	7	4	1	12
		% of Total	7.52%	4.30%	1.07%	12.89%
	Rarely	Count	17	4	3	24
		% of Total	18.27%	4.30%	3.22%	25.8%
	Sometimes	Count	23	6	0	29
		% of Total	24.73%	6.45%	0.00%	31.18%
	Often	Count	10	6	2	18
		% of Total	10.75%	6.45%	2.15%	19.35%
	Very often	Count	1	4	1	6
		% of Total	1.07%	4.30%	1.07%	6.44%
	Always	Count	1	3	0	4
		% of Total	1.07%	3.22%	0.00%	4.34%
Total		Count	59	27	7	93
		% of Total	63.44%	29.03%	7.52%	100.0%

Table 5: Symmetric Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.271	.083	2.982	.003
N of Valid Cases		93			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

The Crosstab data indicate a varied perception among internal auditors regarding their effectiveness in providing objective assurance and advice on ESG reporting. The responses indicate that a significant number of auditors believe they do not provide such assurance (7 females, 4 males, 1 non-binary), while a notable portion feels they do so rarely (17 females, 4 males, 3 non-binary). In contrast, a more positive outlook is reflected in the "sometimes" category (23 females, 6 males, 0 non-binary), with fewer respondents indicating they provide assurance "often" (10 females, 6 males, 2 non-binary) or "very often" (1 female, 4 males, 1 non-binary). Only a

small number of auditors claim to provide assurance "always" (1 female, 3 males, 0 non-binary).

Results proved a lack of consensus among internal auditors about the effectiveness of their role in ESG assurance, with a notable proportion expressing skepticism about the objectivity of the assurance provided. The findings imply that there may be significant room for improvement in internal audit practices related to ESG reporting. Gao & Chen (2024) supports this interpretation by highlighting the importance of ESG assurance in shaping investor perceptions and preferences. The research indicates that the presence of ESG assurance can enhance investor confidence, suggesting that if internal auditors are perceived as providing objective assurance, it could positively influence stakeholder trust and investment decisions. However, the lack of standardization in ESG assurance practices, as noted in the reference, may contribute to the mixed perceptions observed in the crosstab data. This underscores the need for clearer guidelines and improved practices within internal audit functions to enhance the credibility and effectiveness of ESG reporting assurance.

5. Conclusion, Limits, and Further Research

The role of internal auditors in ESG reporting has gained prominence in recent years, as stakeholders increasingly demand transparency and accountability in corporate governance. This study seeks to contribute to the understanding of gender dynamics in the internal audit profession, particularly concerning ESG reporting. By examining the participation of internal auditors based on gender, the research aims to highlight areas for improvement and encourage organizations to foster an inclusive environment that values diverse perspectives in sustainability practices.

This study analyzes the gender distribution of internal auditors who have reported on ESG, utilizing crosstab data to explore the frequency of reporting across different gender identities. Understanding these dynamics is essential for fostering inclusivity and enhancing the effectiveness of internal audit functions in ESG contexts. The crosstab analysis of gender distribution among internal auditors reporting on ESG issues highlights significant trends in participation and engagement. The findings suggest that female auditors are more actively involved in ESG reporting compared to their male counterparts, while non-binary representation remains limited. These insights underscore the need for organizations to foster an inclusive environment that encourages participation from all gender identities in ESG reporting, ultimately enhancing the effectiveness and credibility of internal audit functions in this critical area. In conclusion, the gender of internal auditors plays a significant role in shaping their involvement in ESG reporting through assurance and advisory services. Gender diversity within internal audit functions not only enhances the quality of ESG disclosures but also contributes to a more comprehensive understanding of sustainability issues, ultimately leading to improved organizational performance in this critical area. Despite the positive implications of gender diversity, challenges remain in fully realizing the potential benefits.

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Crisis Management in the Hospitality Industry Analyzed Through a Social Sustainability Focus on Male and Female Leadership Styles

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Abstract: Human capital management's managerial practices during a crisis ensure the achievement of main strategic objectives and result in long-term values, such as organizational learning, resilience, innovation, and business flexibility. Therefore, this study considers the social sustainability perspective in the hospitality industry as a critical aspect of crisis management. It specifically discusses differences and similarities between males' and females' leadership styles during the COVID-19 pandemic, adopting Goll and Zięba's (2025) Hospitality Human Capital Process Model in Crisis Management as the guiding framework. The value of the given qualitative view is a more in-depth understanding of how gender can determine a leader's focus in stressful events such as a crisis. The results indicated that female leaders adopt a more relationship-oriented leadership style during crises, utilizing emotional intelligence to determine effective ways to ensure the team's and the business's safety. In contrast, male leaders take a more strategic approach, focusing on organizational adaptation, finances, and morale. Additionally, the findings revealed that female leaders prioritize social capital, evident in their emotional support for employees and a strong emphasis on health, safety, and overall well-being through team and company bonding. Male leaders placed greater focus on structural capital. Despite their differing priorities, male and female leaders shared the goal of enduring extreme situations. Ultimately, the practical conclusion is that gender-diverse boards will likely be more efficient in ensuring long-term survival in the hospitality industry. Unlike previous studies focused on HR professionals in large hospitality enterprises, this research targeted small restaurant owners and managers in a distinct hospitality sector to offer a typically neglected perspective. It provides food for thought not only for academics but also for small business owners/managers.

Keywords: Hospitality Industry, Crisis Management, Qualitative Study, Leadership Style, Gender Studies, Extreme Context

1. Introduction

Managing the business in times of crisis or disruptive changes is an inevitable challenge for business owners and managers, especially concerning the hospitality industry (Leta and Chan, 2021). Since this industry is highly human-dependent (Aman-Ullah et al., 2022), it is reasonable and justified to investigate crisis management issues through the lenses of Human Capital (HC) management practices (Alnassafi, 2022). Those practices are important due to the industry's challenges and the United Nations' (Ahmad et al., 2024) expectations regarding Sustainable Development Goals, especially concerning social aspects like decent work and employees' well-being. By cultivating qualities such as responsiveness, competency, flexibility, and adaptability, organizations can reach a level of sustainability that mitigates their negative impacts and proactively generates positive contributions to society and the environment (Dyllick and Muff, 2016). At the heart of sustainability lies the responsibility to manage resources, including human resources, wisely for the long term while fostering a commitment to solidarity in development—not at the expense of others. Company culture reflected in organizational behaviors affects employees and significantly impacts sustainability (Kucharska and Karwowska, 2025). Leaders create a company culture through their behavior examples. Therefore, this study focuses on leadership.

As the primary decision-makers responsible for implementing sustainable practices, managers play a pivotal role in initiating and ensuring social sustainability within their organizations through their leadership and actions directed toward the workforce (Heath and Norman, 2004; Wellton and Lainpelto, 2021). Recent studies on Human Capital management during a crisis in hospitality show that many managerial actions of managers/owners are very much focused on assuring employees with stable income, mental health, and overall well-being (Goll and Zieba, 2025), which is in line with sustainability principles. According to empirical research on employees' needs and expectations from leaders in the hospitality industry during the crisis, hospitality business leaders should show emotional intelligence, be empathetic, care about the mental health of the staff, and at the same time, think reasonably and react very fast to disrupting changes and unexpected challenges (Erburu et al., 2024; Kachniewska and Para, 2023). However, little is known about specific leadership styles or approaches adopted by hospitality business management, especially concerning male and female leadership

(Manoharan and Singal, 2017). Therefore, this study aims to address this gap and determine what leadership styles females and males in hospitality businesses represent regarding the social sustainability aspects of HC management in hospitality during a crisis.

2. Literature Review and Conceptual Framework

2.1 Human Capital in Crisis Management in the Hospitality industry

Human Capital (HC) encompasses the skills, abilities, and experiences of individuals within a business (Nafukho et al., 2004). As one of the most human-centric industries, the hospitality sector—comprising primarily restaurant and hotel businesses—relies heavily on HC to achieve high performance (Aman-Ullah et al., 2022; Kianto et al., 2010; Taegoo et al., 2012). The distinctive nature of HC in hospitality sets it apart from other industries, leading to the concept of hospitality-specific Human Capital (Young et al., 2005). The critical importance of HC in the hospitality industry is reflected in its role in driving innovation, securing competitive advantages, and enhancing financial outcomes, all of which are enabled by the workforce (Jogarathnam, 2018; Kang et al., 2007; Molina-Morales and Martínez-Fernández, 2010).

A crisis is an unpredictable event that disrupts stakeholder expectations and impacts organizational performance (Coombs, 2021). Effective Crisis Management requires rapid adaptation of managerial activities, with Human Capital (HC) playing a crucial role (Alnassafi, 2022). Integrating HC into Crisis Management plans is essential, as employees are pivotal during all crisis phases (Vardarlier, 2016). Empirical studies confirm that proper human resource management practices positively influence business performance in crises (Mirzapour et al., 2019). Managers' understanding of employees' needs and abilities enhances organizational resilience (Lazarov, 2020). In tourism, developing HC's capacity for crisis response is critical for risk mitigation (Pforr and Hosie, 2007). According to Goll and Zięba (2025), Human Capital Management managerial practices during a crisis ensure the achievement of main strategic objectives and result in long-term values, such as organizational learning, resilience, innovation, and business. Therefore, this study considers the social sustainability perspective in the hospitality industry as a critical aspect of crisis management.

2.2 Social Sustainability in Hospitality

Social sustainability in hospitality emphasizes the critical role of Human Capital (HC) and the well-being of employees, reflecting the industry's reliance on people-centered services (Melissen, 2013), which is in line with Sustainable Development Goals 3 and 8: well-being and decent work (Huck, 2014). Despite its importance, hospitality research often prioritizes environmental and economic aspects, overlooking employee welfare (Higgins-Desbiolles et al., 2019). Managing HC effectively involves fostering employee engagement, addressing well-being, and ensuring management's fair labor practices, which are essential for sustainable operations (Filimonau and De Coteau, 2019). However, a detailed view of human capital management practices regarding assuring well-being and decent work conditions for employees is still lacking (Wang and Cheung, 2024). Therefore, this study aims to provide deep insight into HC management practices during the pandemic crisis, when health, safety, and well-being issues were especially prioritized, to find out: 'if' and 'how' hospitality managers/owners seek social sustainability with regard to their workforce.

2.3 Gender and Leadership in Hospitality

Considering feminine and masculine leadership styles, in the literature, we distinguish relationship-oriented and task-oriented leadership, respectively. These two distinct styles are briefly analyzed in Fiedler's Contingency Theory (Bons and Fiedler, 1976; Kachniewska and Para, 2023; Peters et al., 1985). Task-oriented leaders prioritize achieving objectives and maintaining productivity, while relationship-oriented leaders emphasize interpersonal relationships and team cohesion, fostering a supportive and collaborative environment. According to recent studies regarding crisis management in the hospitality industry, employees expect from leaders androgynous leadership. They require both concentration on their well-being (Erburu et al., 2024) and, at the same time, fast reactions, firm decision-making, and straightforward communication (Kachniewska and Para, 2023). However, in hospitality management literature, even though gender is the most popular diversity dimension investigated, it is mostly concentrated on employee's perceptions and expectations. Studies focusing on male or female performance and roles as leaders of hospitality businesses are lacking (Manoharan and Singal, 2017; Mooney, 2020). Therefore, in this paper, the authors want to find out what males' and females' leadership styles during

the COVID-19 pandemic and identify possible differences and similarities between them, adopting Goll and Zięba's Hospitality Human Capital Process Model in Crisis Management (2025) as the guiding framework.

2.4 Hospitality Human Capital Process Model in Crisis Management

The Hospitality Human Capital Process Model in Crisis Management (Goll and Zieba, 2025) provides a strategic framework for effectively managing human capital during crises. The model centers on three core strategic objectives of hospitality managers/owners during a crisis: keeping employees, adapting to new conditions, and minimizing costs. These objectives serve as the guidance for management actions regarding employees. Key management practices include open communication, engaging employees in decision-making, diversifying roles, and prioritizing employee well-being and safety. The financial stability of employees is maintained by ensuring regular salaries. By involving staff in diverse activities and leveraging their creativity, businesses can unlock hidden potential and drive innovation. The model emphasizes the long-term value gained through managerial actions and HC, including increased flexibility, enhanced organizational learning, and resilience. The model describes the general process of crisis management regarding HC and the guiding principles for this process, but it does not provide information on leaders' characteristics or approaches. Depending on the leadership style of managers/owners, the priority of specific strategic objectives or managerial activities may differ (Bons and Fiedler, 1976; Peters et al., 1985). This study aims to provide a deeper understanding of how the model works in the case of male and female hospitality leadership styles.

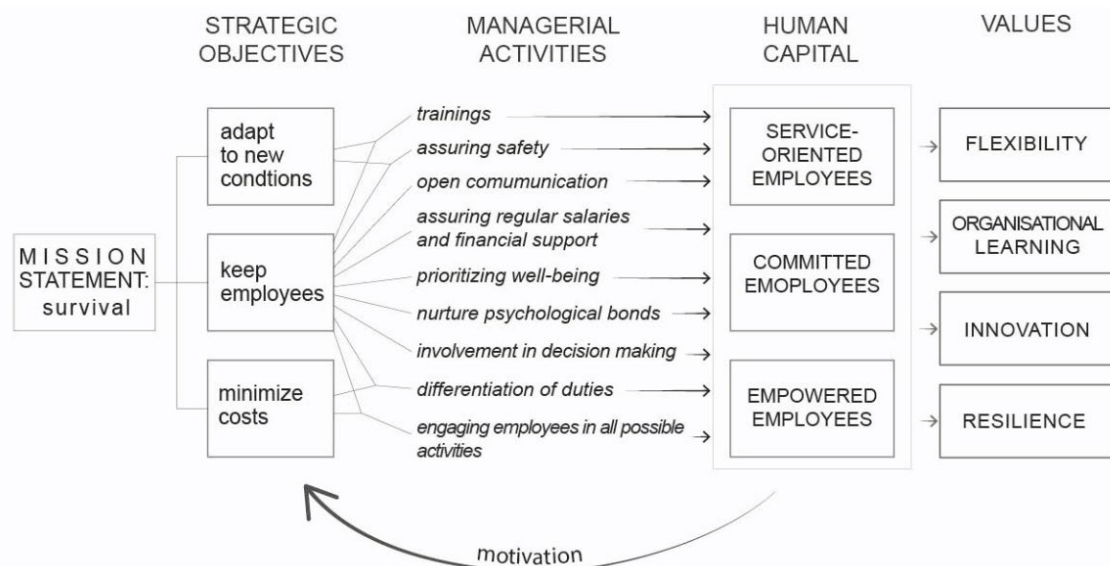


Figure 1: Hospitality Human Capital Process Model in Crisis Management Source: Goll and Zieba (2025)

3. Methodology

The study is based on the same data as the assumed guiding framework (Goll and Zieba, 2025). The authors employed face-to-face semi-structured interviews to understand organizational processes, interviewees' emotions, expressions, motivations, and reasons for decisions during the COVID-19 pandemic, particularly in the context of employees. This approach allowed flexibility in conversations and resulted in high-quality, open-ended narrative data (Creswell, 2009).

Convenience sampling was used to maximize data quality and credibility (Maxwell, 2012). Unlike previous studies focused on HR professionals in large hospitality enterprises (e.g., Young, 2005), this research targeted small restaurant owners and managers in a distinct hospitality sector to offer a typically neglected perspective. The sample comprised 12 restaurant managers or owners—6 male and 6 female—from diverse types of restaurant establishments in Tricity (Gdańsk, Gdynia, Sopot), Poland. The table below summarizes the sample structure and statistics.

Restaurants were selected based on their survival of the COVID-19 pandemic (operational for at least one year before the pandemic and still open as of April 2022). We also excluded the businesses that were used to takeaway services before the pandemic or operated only during the summer tourist season since such restaurants faced different challenges regarding pandemic restrictions. The study was conducted in 2022,

focusing on the crisis event (March 2020) and early post-crisis phases (December 2021) of the Crisis Management framework.

Table 1: Sample structure and statistics

Restaurant	Type	Interviewee	Gender	Time of the interview	Amount of obtained data [words]
A	Fine-dining	Manager	Female	68 minutes	4927
B	Fine-dining	Manager	Male	32 minutes	3300
C	Fine-dining	Owner	Female	58 minutes	5872
D	Fine-dining	Owner	Male	50 minutes	6801
E	With specific cuisine	Owner	Female	37 minutes	5153
F	With specific cuisine	Owner	Male	33 minutes	4945
G	With specific cuisine	Manager	Female	28 minutes	3001
H	"Home kitchen"	Owner	Female	35 minutes	5085
I	"Home kitchen"	Manager	Female	24 minutes	2806
J	Based on regional products	Manager	Male	30 minutes	3065
K	Canteen	Co-owner	Male	47 minutes	7102
L	Canteen	Brand manager	Male	57 minutes	4164

As a data analysis method, we used narrative analysis (Earthy and Cronin, 2008) to capture the complex emotions, feelings, attitudes, and behaviors of interviewees, which are critical for assessing leadership style. We aimed to identify which strategic objectives and managerial activities respondents prioritized and why. Data saturation was reached, confirming that extending the sample would not yield additional insights (Creswell, 2013).

4. Results and Discussion

When asked about the first days and weeks of the pandemic and what did it look like female and male respondents described different memories. Women, focused mainly on emotions, like fear or sadness and helplessness. For example, respondent A (details in Table 1) said: *"The greatest stress I had was about the people. I was truly overwhelmed, I cried many nights... I had printed termination letters, reductions... and I didn't know what to do, what I will have to do but do not want to... In the end I decided not to do any of that because I believed when they said some aid was coming. [...] they have families, children, and homes, all of which come with expenses covered by their current salary."* This shows the emotional turmoil the owner faced when considering the impact on her employees, she was aware of their financial obligations and empathized them, and also her emotionally driven decision to protect employees even in uncertain circumstances. Other female respondents also expressed deep concern regarding the staff, and their future, as they felt responsibility for assuring them stable income, which was emphasized by respondent E: *"I thought, 'Oh God, what's going to happen?' Because with so many people on employment contracts, I couldn't possibly let them go – I didn't want to!"* Female respondents often called their staff "family members" (A, E, H). Some even declared that caring for and maintaining the staff as employees was as crucial as ensuring a safe financial situation for their families. Such data proves that female restaurant business owners have higher emotional intelligence (Mayer et al., 2008), a deep connection, a feeling of responsibility for employees, and prioritize keeping employees as a goal during the crisis. It all presents female leaders as remarkably socially capital-oriented.

Considering the male perspective, their first answers regarding the beginning of the pandemic concentrated mainly on specific actions taken, decision-making processes, and analysis of the situation. Respondent B, while elaborating on the moment of the first lockdown and some doubts regarding keeping the restaurant open or closing, said: *"It was about what we could gain and what we could lose. Pure calculation. On paper, we looked at what we [could] gain and what we lose."* His response was very firm and showed that the prioritization of actions was driven by the aim to adapt to a new reality while minimizing possible losses. A very similar approach was described by respondent L. Respondent L very directly pointed out his priorities concerning financial obligations during the crisis: *"For us, the priority was the employee working with us, then bills, and lastly*

ourselves. We knew that if we lost people, we'd lose the restaurant." However, even though he mentioned employees' regular salaries to keep employees, he emphasized that the goal was framed around the operational necessity of retaining skilled staff. Respondent K said: *"Every day, we read new regulations and thought about what we could do to get through it all."* This reflects his leadership focus on continuous adaptation and rapid execution of solutions. Other male respondents, while referring to the beginning of the pandemic, also mentioned many direct actions and decisions made, like the pasteurization of food that could be wasted to avoid losses, quick redesign of the menu to switch to delivery mode overnight, what highlights their focus on adaptation as the strategic objective.

Both male and female leaders set the three main strategic objectives outlined in Goll and Zieba's (2025) Hospitality Human Capital Process Model: keeping employees, adapting to new conditions, and minimizing costs. However, this study's results show that the emphasis on each objective varied based on gender. While female leaders quite straightforwardly emphasized maintaining the workforce, male leaders' top priorities were cost minimization and adaptation to new realities, with employee retention viewed as a means to sustain operations.

Furthermore, considering specific managerial activities adopted by leaders during the pandemic, results also showed some discrepancies regarding prioritizing specific actions. Men mainly concentrated on operational challenges and financial constraints regarding pandemic effects on the business and staff. Female respondents directly expressed deep care for the health and safety of the staff to a much wider extent, emphasizing its importance during the lockdowns.

Respondent A, while explaining why she decided to fully close the restaurant at the beginning, said: *"None of us [respondent referring to her as the owner and her husband as her support] wanted to put the team or our and their loved ones at risk..."*. Moreover, female leaders also described additional efforts (besides those advised by the government regulations) taken to mitigate the risk of employees getting infected, like specific communication channels and notification systems when someone had contact with an infected person (respondent G). Another managerial activity emphasized by female respondents was open communication. They wanted to be fully transparent with employees and express their concerns regarding the future of the business. For example, respondent C said: *"We openly discussed what worked and what didn't. This way, everyone felt like part of the team and understood why we made certain decisions."* This highlights the trust-building approach of a women leader.

Female leaders also showed awareness and empathy towards their team members; for example, respondent C said: *"Everyone wanted to return to normal... Isolation was a terrible psychological change [for them]."* During the interviews, female leaders, while referring to reasons behind their actions, very often emphasized that they wanted to comfort their employees, give them a sense of normality in times of hard restrictions, and assure them of emotional support, which is reflected in statements of respondent E:

"We continued running an organic farmer's market [a new service provided by restaurant]... so that the team would feel they'd have something to return to. It was about not losing our minds and ensuring our team's morale didn't drop to the point where we wouldn't know what to do."

Respondent H: *"We worked only to keep the people. Even though the deliveries didn't even cover our costs, we kept going because it was more important to us that the employees had something to do and felt that we weren't abandoning them."*

Respondent A: *"For my mental health and that of the employees, we needed to start doing something to maintain a connection to everyday life."*

The owners' decisions were driven by a desire to protect mental health and general well-being, even when operations were not profitable. Furthermore, all female respondents claimed that they treated the pandemic as time for tightening bonds and bringing the whole team closer together.

Another highly emphasized aspect of managing human capital mentioned by female respondents considered involving all staff members into all decision-making processes. They emphasized that it was a way of showing employees that their opinions mattered, giving them hope for a better future and a sense of influence over the situation. For example, respondent H claimed: *"Every day we would gather and develop new dishes. Everyone got involved in creating the new menu, which not only occupied us but also built the belief that we were preparing for better days"*.

In contrast to females, male respondents paid much more attention to the assurance of regular salaries as the main form of supporting employees. They much more often referred to governmental aids, regular or even

advanced payments as a way of maintaining the staff. Respondents B and K even mentioned sacrificing owners' personal savings to cover all salaries on time. In general, during the interviews, males were much more concise and descriptive regarding their actions taken to manage their employees. They pointed out multiple examples of how they differentiated the workload among the staff members or engaged them in unusual activities. For instance, respondent K said: *"Those who were waiters or bartenders became our delivery drivers."* Respondent J said: *"We spent time thoroughly cleaning the restaurant. Those who weren't on duty painted furniture and cleaned."* Respondent F said: *"We always created a plan for the coming week, setting out who was responsible for what. Employees had clearly defined roles, which allowed us to maintain control in the chaos."*

Even though they expressed that they were aware of the importance of employees' well-being, they did not use any words or statements that would indicate their emotional connection to staff members. Figure 2 below visualizes the summary of the differences in the prioritization of strategic objectives and managerial activities of female and male leaders following Goll's and Zięba's (2025) model.

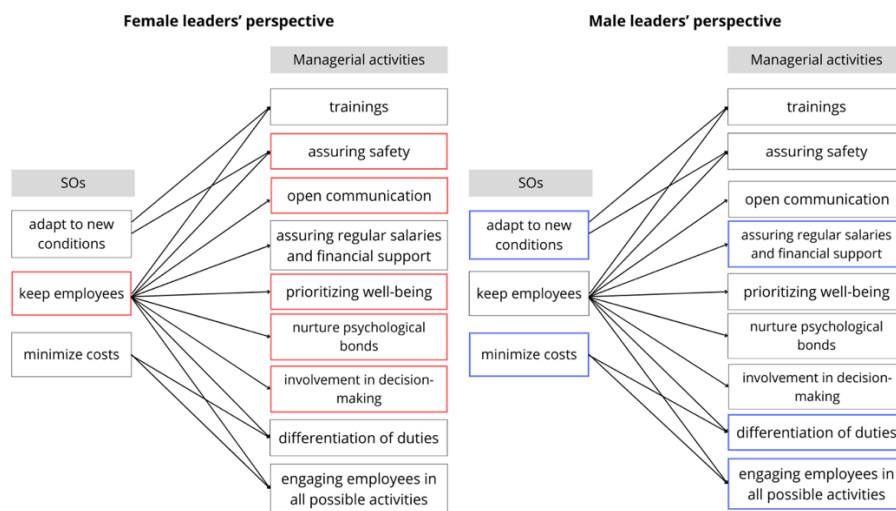


Figure 2: Prioritization of the specific strategic objectives and managerial activities with regard to Human Capital during crisis by female (left graph) and male (right graph) leaders.

Source: Authors' own elaboration based on the Hospitality Human Capital Process Model in Crisis Management by Goll and Zięba (2025)

Current gender leadership research shows varied and complex findings on what type of leadership (task- or relationship-oriented) females and males represent (Gipson et al., 2017). Our study partially clarifies this issue concerning the crisis management context. Taking an overall look at interviewees' expressions and attitudes and bearing in mind their prioritized strategic objectives and managerial activities, female leaders represent a more relationship-oriented leadership style during the crisis (Peters et al., 1985). They put more emphasis on their own and employees' feelings and psychological needs, treating them as a very important aspect of their decision-making. Respondent A even straightforwardly stated: *"I strongly believe in a woman's instinct [as my key to success]... women that are responsible for the emotions [in the workplace and work environment]. I definitely make daily decisions based on emotions."* That highlights females' belief in emotional intelligence and instinct as core elements of the leadership style (Kachniewska and Para, 2023; Mayer et al., 2008). On the other hand, male leaders were much more concentrated on the achievement of the strategic objectives and how they did it through the lenses of Human Capital management during the crisis. They described actions taken without diving into many details or personal reflections. That goes in line with the characteristic of task-oriented leadership (Peters et al., 1985). This approach can be briefly summed up by a quote from respondent D: *"It was an idea, a reaction, and we implemented it immediately. I'm someone who moves fast, so when an idea arises, I act right away... [...] I want to see results immediately."*

Overall, female leaders displayed a much stronger relationship-oriented leadership style, emphasizing emotional intelligence, employee well-being, and team cohesion, which supports findings by Hoque and Islam (2022). Male leaders, by contrast, exhibited a more task-oriented approach, prioritizing operational stability, resource management, and financial pragmatism.

However, obtained findings do not suggest that female leaders are exclusively relationship-oriented or that male leaders lack emotional intelligence and focus solely on task completion. Instead, the results highlight the predominant leadership styles observed among female and male leaders during the pandemic. From a broader perspective, both male and female leaders emphasized the importance of emotional intelligence and strategic thinking in navigating crises. These findings align with previous research, which suggests that androgynous traits are most effective in leadership roles (Kachniewska and Para, 2023). Furthermore, our study reinforces the significance of integrating relationship-oriented and task-oriented leadership traits for successful crisis management. This approach includes fostering an environment where employees are encouraged to propose creative solutions, such as by actively involving them in decision-making processes and contributing to the continuous improvement of crisis management strategies (Ledi et al., 2024).

Overall, Both male and female leaders recognized the same strategic objectives and implemented similar managerial activities concerning Human Capital during the crisis, but the prioritization of these efforts varied by gender. Our findings, alongside the work of Goll and Zieba (2025) on human capital management, provide empirical evidence that hospitality managers and owners view employees as the cornerstone of their business success. This perspective is deeply rooted in the recognition of employees' general and mental well-being as very important aspect of human capital management, resulting in organizational resilience and performance. Leaders' focus on empathy, team cohesion, and supportive workplace dynamics not only fostered high staff morale and loyalty but also directly aligned with the principles of social sustainability. These principles, as outlined by Ahmad et al. (2024) and Quintana-García et al. (2018), emphasize the importance of providing decent work conditions, promoting employees' well-being, and ensuring good treatment across the workforce. Actions taken during the pandemic, such as prioritizing mental health, maintaining open communication, and reinforcing team unity, highlight a commitment to creating a socially sustainable work environment. This alignment underscores the critical role of the hospitality industry in advancing social sustainability goals, particularly during times of crisis. By fostering a culture of care and well-being, hospitality leaders demonstrated that prioritizing the human element is not only a moral imperative but also a strategic advantage (Wang and Cheung, 2024). These findings emphasize the necessity of integrating social sustainability into workforce management strategies to enhance resilience and long-term success in the hospitality sector.

5. Limitations, Practical Implications, and Further Research Directions

The study provides valuable insights into male and female leadership styles in the context of the pandemic crisis but acknowledges several limitations. Firstly, it focuses primarily on the experiences and perceptions of owners and managers regarding the pandemic, without including employees' perspectives, which could offer a more well-rounded understanding of leadership. Secondly, the research is framed within the specific context of the COVID-19 pandemic, covering the crisis period and the early stages of post-crisis recovery, which may limit its generalizability to other situations. Additionally, the sample size is relatively small and geographically restricted to restaurant owners and managers in Northern Polish cities. Finally, using narrative qualitative data analysis introduces a potential for bias.

As future research directions, we propose intersecting leadership styles and social sustainability beyond crisis contexts, focusing on gender-specific approaches in diverse cultural and industry settings. Moreover, longitudinal studies are needed to assess the long-term aspects of gender leadership styles within the hospitality industry. Additionally, future work could investigate employees' perspectives to complement managerial viewpoints, offering a holistic understanding of leadership styles and their impacts on employees' well-being. Expanding geographic and sectoral scope would also bring additional insights, showing potential differences depending on culture, environment, and organizational settings.

Ultimately, the general practical implication is that gender-diverse boards will likely be more efficient in ensuring long-term survival in the hospitality industry. However, this statement requires further empirical evidence. Moreover, the conclusion regarding women's emotional intelligence as a leadership advantage over males sounds convincing in the light of the given data, but it should also be more directly proven.

6. Conclusions

The results of this study reveal that during crises, female leaders of small and medium-sized restaurant enterprises often adopt an emotional intelligence-driven (visible in extreme empathy), well-being-oriented approach to human capital management. In contrast, male leaders focus more on task completion and operational efficiency. Despite these differences, both genders recognize the critical role of employees in

achieving business success and long-term resilience, making efforts to provide not only financial security but also emotional support to their teams.

The study showed that the alignment of leadership behaviors with social sustainability goals during the COVID-19 pandemic underscores that prioritizing HC is not only an ethical obligation but also a cornerstone of long-term organizational success. A people-centered approach is vital for hospitality leaders to secure competitive advantage, drive business success, and contribute to the sustainable development of the entire industry. The leadership style, however, may vary from more task-oriented to relationship-oriented, with the leader's gender being a significant factor explaining this variation. Our study casts some light on this issue concerning the crisis management context.

We found clear evidence that both genders recognize the critical role of employees in achieving business success and long-term resilience. They make efforts to provide financial security and emotional support to their teams. Consequently, both male and female leaders emphasize the importance of emotional intelligence and strategic thinking in navigating crises. Regardless of gender, the leaders set three strategic objectives: keeping employees, adapting to new conditions, and minimizing costs.

This being said, we find significant differences concerning emphasis on each objective. Female leaders focused primarily on maintaining the workforce, and male leaders concentrated on cost minimization and adaptation to new conditions. They also perceived employee retention mainly as a means to sustain operations during a crisis. When in hardship, female owners turn to an emotionally driven, well-being-oriented approach to HC management, whereas male owners execute leadership by focusing on task completion and operational efficiency.

Our findings suggest balancing traditionally masculine and feminine leadership styles is essential for effective crisis management. Both relationship-oriented and task-oriented leadership traits should be integrated for successful business operations in turbulent times of crisis. In the context of small businesses, where leadership is concentrated in the person of the owner, that signals the need for fostering an environment where employees of both genders are encouraged to propose creative solutions, such as by actively involving them in decision-making processes and contributing to the continuous improvement of crisis management strategies. This way, a more integrated leadership style in small businesses may be achieved.

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AI and Gender Equality: One Step Forward or Two Steps Back?

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Abstract: This research focuses on potential gender biases in AI algorithms and their implications for gender equality. The recent sudden and unexpected growth in the artificial intelligence (AI) user base has attracted significant attention. It has raised public concerns about AI's impact on jobs becoming redundant in the future, and about the accuracy of AI's content and its power to influence and manipulate users. However, the AI-driven transformation began earlier and yielded several ongoing changes in organizations – for example, enhancing service quality, reducing costs in routine tasks, and improving access to existing information. Nevertheless, from the gender perspective (one of the UN's sustainable development goals), there is a risk that this AI-driven transformation could negatively impact the complex journey toward equality between men and women. This may occur either from women's reduced involvement in the technology development processes (which can lead to developer biases being reflected in the technologies) or because the historical data used to inform and develop AI algorithms may reinforce existing gender biases. We address the challenge proposed by Manasi et al. (2023) to test AI algorithms in this context. Using an experimental approach, our research examines how three popular AI tools (ChatGPT, CoPilot, and Gemini) behave in relation to sensitive gender-related topics and scenarios. This study aims to clarify the associated risks and assist stakeholders, particularly policymakers, in defining guidelines to prevent the replication of gender-biased content. Nonetheless, we believe that AI can serve as a resource to advance the field of gender equality. Given the recent massification of AI use and the recent challenges to progress on gender equality (including the asymmetric impact of COVID-19 and recent armed conflicts), this research is timely and carries direct implications for organizations' managers, policymakers, and the research community. We position it as exploratory research and propose avenues for future research, and we highlight the need to monitor the evolution of AI by regularly conducting similar analyses.

Keywords: Gender Equality; Artificial Intelligence; Gender Gap; AI Gender Bias.

1. Introduction

According to the United Nations, “The world is not on track to achieve gender equality by 2030” (United Nations, 2022, p. 36). And, the World Economic Forum (2022, p. 13) argues that it could take up to 132 years to close the “overall global gender gap”. This evidence reflects a failure of strategies, policies, actions, and efforts worldwide to achieve gender equality. However, we must acknowledge that the success of any strategy depends on the ever-evolving external environment, which can either facilitate or hinder the fulfillment of goals, with technology being a significant component of that environment. Since 2015 (the reference year for the UN), various external factors have influenced progress in this field, including Covid-19, which disproportionately affected women, and recent armed conflicts that, in addition to their direct effects on all populations, have shifted several goals to a lower priority and may reverse advances made in previous years (World Economic Forum, 2022; Manasi et al., 2023).

Previous research highlights the significant gender gap in technology-related fields (Manasi et al., 2023). However, looking beyond this existing gap, we need to consider the impact and relevance of technological advances in achieving the sustainable development goal of gender equality (SDG 5), particularly target 5.1, which aims to end all forms of discrimination. This research focuses on a specific application of artificial intelligence (AI), although there are many other applications in fields such as medical, education, and human resources, as noted by Manasi et al. (2023) and Abdelhalim et al. (2024). Thus, in our context, we need to question whether this technological advance will positively or negatively influence the path toward equality. Reflecting on this issue is not only important in enhancing knowledge in this area but also valuable in developing guidelines that assist stakeholder groups to define their future objectives and actions – namely, whether to mitigate negative impacts or to capitalize on the opportunities presented by AI (Abdelhalim et al., 2024). Specifically, it aims to support the development of policies, which remains an open and relevant issue (Manasi et al., 2023).

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In this research, our focus is not on the differences between women and men regarding their use of and contribution to the development of AI (Manasi et al., 2023). These are significant topics, especially since the limited involvement of women in creating AI algorithms may trigger biases (Manasi et al., 2023). Instead, we aim to identify how the use of AI might help perpetuate existing biases. To train and inform the algorithms, AI datasets might be drawn from information and/or content that reflects the historical paradigm of gender discrimination and biases, instead of portraying the ongoing (albeit slow) transformation toward gender equality. To accomplish this, we established the following research objectives: 1) create and apply a simple experiment to identify existing biases in AI-generated content; 2) analyze the content provided by AI to discern the presence of gender-related biases; and 3) identify the limitations of the experiment to inform the development of more advanced approaches.

To address the research questions, we interacted with three different AI tools (ChatGPT, CoPilot, and Gemini) to determine the presence of biases that could negatively influence gender equality efforts. This response answers directly to the call made by Manasi et al. (2023) to perform tests “to eliminate any form of discrimination”.

2. Literature Review

Management research has devoted considerable attention to the advantages that diversity can bring to organizations, leading them to higher levels of performance. To take advantage of this diversity, companies are encouraged to implement internal policies that support it. Yet, there are still barriers that need to be overcome, especially regarding the well-known glass ceiling that limits access for specific groups, such as women and minorities, to the top positions. Gender bias is a phenomenon with a history spanning millennia, deeply embedded in the social and cultural frameworks of various civilizations. Societies have long-established norms that favor men over women, shaping their roles and positions within society. These norms became institutionalized, leading to persistent gender inequalities that are still evident today (Bullough et al., 2022; Cheryan & Markus, 2020; Cislighi & Heise, 2020; Heilman et al., 2024).

Today, gender bias is still subtly manifested in modern life. Disparities in pay, under-representation in leadership roles, and cultural stereotypes endure. Recent studies utilizing data analysis tools have revealed these inequalities, emphasizing the need for ongoing and innovative strategies to achieve true gender parity. In education, gender bias appears early, shaping boys’ and girls’ perceptions and aspirations. Research indicates that gender stereotypes influence teachers’ and parents’ expectations, affecting academic performance and subject selection. For instance, girls are frequently discouraged from pursuing STEM (Science, Technology, Engineering, and Mathematics) careers despite demonstrating equal capabilities to boys in these fields (Casad et al., 2021; Ertl et al., 2017; Makarova et al., 2019).

Despite efforts to rectify the situation, women's under-representation in STEM and academic leadership positions remains a significant challenge. Educational policies promoting gender equality, combined with awareness campaigns and mentoring programs, are essential to transform the educational landscape. The progress of these initiatives must be monitored, and strategies adjusted as needed to ensure equal educational and professional opportunities for all children (Prieto-Rodriguez et al., 2020; Tam et al., 2020).

Moreover, the workplace is a crucial setting where gender bias is evident. Research shows that women frequently face significant pay gaps compared to men, even when performing similar roles (Bennedsen et al., 2023; Bishu & Alkadry, 2017; Budig et al., 2021). They are under-represented in leadership roles and face additional obstacles to promotion (Beckwith et al., 2016; Seo et al., 2017). Moreover, these disparities cannot be solely attributed to differences in education or experience; they reflect deeper structural and cultural biases (Yeganeh & May, 2011), which this research seeks to address. Hiring and promotion processes often favor men, whether through informal networking or subjective evaluation criteria that reveal implicit biases (Carlsson et al., 2021; Galos & Coppock, 2023).

The technology industry is a sector where gender bias is evident, influencing everything from hiring practices to product development. Women remain under-represented in technology careers and encounter substantial obstacles to career advancement (Avolio et al., 2024; Eisenhart & Allen, 2020; Onyeador et al., 2021). Consequently, technological products and algorithms created by predominantly male teams may embody implicit biases, leading to systems that inadequately serve the needs of all users. A lack of diversity in development teams can result in outcomes that reinforce gender inequalities, from security devices that neglect women's needs to facial recognition algorithms that are less accurate for female and non-white faces (Hyrnsalmi, 2019; Varma 2018).

Artificial intelligence (AI) tools have the potential to transform many aspects of society, from healthcare and transportation to work and leisure. However, as AI becomes more widespread, significant concerns about biases embedded in these systems have emerged (UNESCO, IRCAI, 2024). These biases can reflect and amplify existing gender inequalities, negatively affecting automated decisions in various areas. Identifying and addressing these biases is essential to ensure that AI promotes, rather than hinders, gender equity (Domnich & Anbarjafari, 2021; Gupta et al., 2022; Newstead et al., 2023; Parra et al., 2021). Gender bias in AI algorithms can have several origins. A common source is the dataset used to train these algorithms, which may reflect historical and cultural prejudices (UNESCO, IRCAI, 2024). In addition, the lack of diversity in AI development teams can result in systems that inadequately consider women's needs and perspectives (Leavy, 2018; Nadeem et al., 2022; Ntoutsis et al., 2020; UNESCO, IRCAI, 2024).

Based on the existing literature, considering the widespread use of AI tools, we formulate the following research hypotheses:

- H1: When discussing career perspectives, AI tools reveal gender biases linked to careers for men and women;
- H2: When discussing career perspectives, AI tools reveal gender biases linked to traditional characteristics attributed to men and women.

3. Methodology

3.1 Experiment Design

Based on the literature review and the findings of Project POWER – Portuguese Women's Equality Observatory, supported by FCT (reference 2022.08793.PTDC), we observe a culture-driven bias in the selection of university-level education programs, which, in turn, affects the availability of men and women for various professional activities. In this context, we prioritize studying the stimuli that lead young people to decide on their field of education. Therefore, to focus on content that AI may provide to young people, we interacted with three AI tools: ChatGPT, CoPilot, and Gemini. We used the same prompt for each tool, asking it to provide a short story (which may perpetuate culture-driven biases) about a boy or a girl deciding on a career path. This approach targeted the possible associations that these AI tools form between gender and professional-role activities.

The literature has already suggested that, when asked directly for advice on careers to pursue, AI models may deliver culturally biased recommendations. However, the influence is not limited to these specific career advising tools. Therefore, we decided to explore the presence of such biases in stories that may be created through AI involvement. In August 2024, using the three tools, we collected data in response to the following prompt 25 times²:

1. Tell me one story about a girl choosing her career + university + motivations + characteristics and a full story;
2. Tell me one story about a boy choosing his career + university + motivations + characteristics and a full story.

3.2 Data Analysis

The first step of the analysis focused on content uniformity. It involved checking whether the AI tools represented similar careers and characteristics in varied ways (e.g., Software Engineer vs. Software engineer; resourceful vs. Resourceful) that could be interpreted differently by the data analysis software (SPSS for quantitative analysis) or utilizing any detail that could lead to different classifications (e.g., Entrepreneur vs. Entrepreneur/Startup Founder; problem solver vs. problem-solving skills). We then grouped the careers based on principal characteristics, such as considering an automotive engineer simply as an engineer, an environmental scientist merely as a scientist, or a pediatrician as a doctor. As for the characteristics, no such grouping was needed. The second step focused on the descriptive analysis of the collected data. In the subsequent step, we

² We decided to maintain the threshold of 25 stories (which we consider a limited number) because, during the data collection process, we realized that two of the AI tools, after a while, tended to repeat stories rather than create new ones, which we had not anticipated when designing this experiment.

sought to determine whether different careers and characteristics were suggested for girls and boys. However, in order to conduct such an analysis based on the list of careers provided by the AI tools, we needed external benchmarks to evaluate whether the suggestions made by the AI tools were biased.

4. Results

4.1 Descriptive Analysis

The experiment yielded 85 different careers. In the first analysis, we noticed that 55 alternative careers are considered for boys, while 60 alternative careers are available for girls. Following the steps outlined in Section 3.2, we organized similar careers, which allowed us to reduce the total number of careers to 56, with 46 available for boys and 38 for girls. Based on this analysis, the *first takeaway* is that, initially, there was a noticeably larger variety of careers available than after merging similar career alternatives. In a complementary analysis, we checked whether the probability of girls and boys being considered for university degrees differed and found no evidence of such biases. We deem this to be the *second takeaway* from our analysis. In proceeding with our analysis of careers, we report only those with a minimum of four suggestions³, as shown in Table 1.

Table 1: Selected career suggestions by AI tools for boys and girls

Careers	Boys	Girls	Total
Astrophysicist	1	3	4
Biologist	2	3	5
Chef	5	1	6
Designer	2	8	10
Doctor	3	1	4
Engineer	6	6	12
Entrepreneur	3	6	9
Historian	3	1	4
Lawyer	1	3	4
Musician	2	2	4
Scientist	5	4	9
Therapist	1	3	4
Video Content Director	2	2	4
Writer	2	2	4
Observations	38	45	83
% of the sample	50,7%	60,0%	55,3%

Source: Authors' analysis

The analysis in Table 1 reveals varying levels of proximity between boys and girls regarding the career suggestions provided by AI tools. Careers with no differences include Engineer, Musician, Video Content Director, and Writer. Small differences are observed in the careers of Biologist and Scientist. Other careers show some degree of difference, including Astrophysicist, Doctor, Historian, Lawyer, and Therapist. The remaining cases, which became the main focus of our analysis, reveal intriguing differences. These careers include Chef, Designer, and Entrepreneur. It is interesting to note the existence of several STEM careers for which there is no specific evidence of bias, despite the traditional dominance of men in these fields. Conversely, it is in careers

³ We recognize that this decision has relevant implications for the analysis. However, we believe this is the minimum threshold that can be beneficial for the analysis. For instance, a threshold of three suggestions, while it would capture a higher percentage of the sample, would raise a debate about whether a distribution of two suggestions versus one suggestion would indicate any biases, which we believe does not add value.

outside these STEM areas that we observe the most significant differences. This is the *third takeaway* from our research.

To better understand the bias, we need to determine whether the careers of Chef, Designer, and Entrepreneur have traditionally been occupied by men or women. Prior research shows that, in top restaurants (for example, those listed in the Michelin guide), the role of Chef is predominantly held by men. The data we collected on this background information is reflected in the stories developed by AI tools, confirming that the data used to inform AI algorithms may be replicated in the algorithms' outputs.

Regarding the Designer career, which includes a diverse range of roles such as Floral Designer, Fashion Designer, Graphic Designer, Interior Designer, and User Experience (UX) Designer, some roles, such as Fashion Designer, are notably associated with women, while others exhibit a balance or even a predominance of men. Considering the specifics of each designer role, it appears that the predominance of girls in our sample does not align with previous data.

Finally, focusing on entrepreneurship, our data reveals a marked association with girls. All represent opportunity-driven entrepreneurship (not reported in Table 1). Existing statistics indicate that the number of female entrepreneurs is lower than that of male entrepreneurs, in contrast to our sample results. Based on this finding, we confirm there are some risks associated with AI tools potentially confirming and replicating existing gender biases. However, we acknowledge that these tools recognize opportunities for women to enter fields that have, until now, been predominantly occupied by men. This represents the *fourth takeaway* of this research. Despite the high number of alternative careers for a relatively small sample (implying a cell count of fewer than 5 in too many cells), we conducted a Chi-Square test with a Monte Carlo simulation to assess the significance of the difference, confirming the reported ambiguity.

4.2 Characteristics Associated With Boys and Girls

In addition to the careers provided, we also analyzed the characteristics that AI associates with boys and girls. Two or three characteristics were attributed to each character in each story. The initial analysis shows that, for 75 individuals, there were a total of 225 characteristics identified for girls but only 194 for boys. This indicates that AI tools struggled to maintain the three characteristics for all boys as effectively as for girls. After implementing some adjustments for content uniformity, we proceeded with the analysis. Focusing on the different characteristics, we noticed that boys are associated with 69 different characteristics while girls are associated with 76 different characteristics. Selecting the characteristics that occur more than three times in the sample, we obtained the information presented in Table 2.

Table 2: Selected characteristics presented by AI tools for boys and girls

Characteristics	Boys	Girls	Total
Adventurous	4	4	8
Analytical	20	15	35
Artistic	2	3	5
Compassionate	7	6	13
Creative	19	21	40
Curious	9	10	19
Dedicated	4	4	8
Detail-Oriented	7	8	15
Determined	4	13	17
Eco-Conscious		5	5
Empathetic	10	12	22
Imaginative	2	3	5
Innovative	3	7	10
Inquisitive	2	2	4
Meticulous	4	2	6

Characteristics	Boys	Girls	Total
Observant	4	2	6
Passionate	11	8	19
Patient	9	11	20
Persistent	1	3	4
Persuasive	3	2	5
Problem Solver	3	3	6
Resilient	2	3	5
Resourceful	3	3	6
Strategic	3	4	7
Tenacious	1	3	4
Visionary	4	4	8
Sum	141	161	302
% of the total	72,7%	71,6%	72,1%

Source: Authors' analysis

Considering the three most popular characteristics, we notice a balance between creativity and empathy. However, regarding the analytical trait, it appears that AI tools perceive boys as more analytical than girls. Expanding the analysis to other characteristics, differences are evident in greater determination, environmental consciousness, and innovation among girls. These differences may be based on underlying biases, which is the *fifth takeaway* from our analysis. To complete the analysis, we focused on characteristics with frequencies of eight observations or more and conducted a Chi-Square test with a Monte Carlo simulation. Based on this analysis, our results reveal that the possible biases are not spread over all characteristics.

5. Discussion and Conclusions

Previous research and public debate have pointed out the potential biases that AI tools may convey, resulting from a scarcity of women developing such tools and the use of historical public information to inform AI algorithms. Considering these concerns and responding to appeals to test existing algorithms, this research envisaged an approach to check whether the outcomes of the AI tools revealed any gender-related biases. Our research hypotheses posited that prospective careers and characteristics for boys and girls would reflect existing, culturally supported biases.

The results reveal that prospective careers – such as one of the proposed careers, chef – may reflect the existing predominance of men in top restaurant positions. However, we must recognize that the AI tools suggest that girls may be suitable and prevalent in other careers that have, so far, been dominated by males. Therefore, concerning Hypothesis 1, we determine that we have mixed findings.

Considering boys' and girls' characteristics, the literature supports the idea that women are more likely to care for others, while men tend to have greater determination and be more rational. In this context, we expect similar biases in our results. The AI tools indicate that men are more analytical, aligning with social and cultural biases, but they also assess girls as more determined and innovative than boys. Therefore, in the case of Hypothesis 2, we have mixed findings.

This research established three objectives. The first was to develop and apply a simple experiment that could help identify existing biases in AI-generated content. The experiment focused on content that may influence young people in learning about the roles of men and women in society, thereby impacting their own career and education decisions. While the experiment was successful, we acknowledge several limitations, including those related to the diversity of the outputs. The second objective pertains to the identification of gender-related biases, which we have noted. However, we recognize that the AI tools also provided interesting outputs to combat existing biases. Finally, we identified the limitations of our experiment to facilitate future efforts in this field.

Regarding our research's contribution – as highlighted in the presentation of our results – there are five key takeaways to note:

1. The number of suggested alternative careers is greater for boys than for girls;
2. Both boys and girls are considered equal in terms of enrollment in university degrees;
3. The most significant differences in terms of prospective careers for boys and girls are found outside the STEM areas;
4. AI tools recommend careers for girls that are currently dominated by men, although the chef career seems to replicate existing biases;
5. AI tools perceive boys as more analytical than girls but, as in prospective careers, they also perceive girls as currently having characteristics more associated with men.

6. Limitations and Recommendations for Future Research

Despite existing calls to check whether AI delivers biased contributions, we recognized during this research the importance of establishing a comprehensive instrument that can be regularly deployed to assess whether and to what extent AI offers biased suggestions. Without such a tool, it will be challenging to support arguments about potential existing biases. However, we still need to establish a common understanding of what constitutes a biased perspective or not.

In this research, we have not considered language-induced biases. There are languages where words (for instance, “doctor” in English) provide no information on gender (e.g., female or male doctor). There are also languages where such distinctions are the norm. For instance, the word “doctor” in Portuguese, as in other widely spoken languages, translates into two different words, one for a woman and one for a man). Furthermore, there may be an expectation based on the popularity of particular professions for women and for men (for example, male doctors and female nurses), which can influence AI outputs. In this context, recognizing pre-existing issues in Natural Language Processing (Manasi et al., 2023), we must acknowledge efforts to develop AI tools that can interact with users in their native languages. These often employ automatic translation features that may or may not be sensitive to the topic of gender equality. For example, in writing this paragraph, we used Google’s translation tool to translate the word “doctor” from English to French. Immediately, we received an appropriate translation (“médecin”) as well as an example of a sentence using the word (“Elle voulait devenir médecin”). We could not help but wonder whether the gender-specific sentence was generated by chance or represented an effort to mitigate biases. Therefore, in future research, researchers should replicate the same analysis in languages other than English (e.g., Romance languages) and determine whether the findings are affected.

A future topic to explore is the background. We noticed while conducting the analysis that the AI tools deliberately assigned names from Romance, Asian, and other language regions. However, we have not analyzed the extent to which this reflects the diversity of people or if there is a connection between those origins and the types of career suggested. In addition, we have only addressed one specific form of bias related to sex. However, we acknowledge that other forms of gender-related biases need to be assessed.

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Uncovering Female Academics' Unmet Needs in Starting Their Journey Towards Entrepreneurship Through a Participatory Workshop

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Abstract: Globally, there are gender inequalities in research, entrepreneurship and innovation (E&I), with fewer women led startups and long-term successful businesses, and gender inequalities in funding and support for new businesses. In STEM (Science, Technology, Engineering and Mathematics) research, fewer women hold patents, receive large grants to support their work, or develop successful spinouts. This may be attributed to many reasons – both professional and personal – such as fewer women in STEM, gender discrimination in research cultures, career breaks and systematic undervaluing of women's research. For the EU, this uneven playing field creates a significant waste of talent and resources. Greater diversity is needed if we are to collectively solve global problems. The Horizon Europe funded GILL project (<https://gi-ll.eu>) aims to address such gender inequalities by providing actionable strategies to foster gender sensitive changes at all stages of the E&I lifecycle. With a goal of better addressing the needs of female researchers who want to develop spin outs out of their research, a literature review, phenomenological interviews and an exploratory workshop were used to understand women's entrepreneurial journeys, their needs and the barriers they had faced, with a view to designing better support. The paper briefly reviews the results from the literature and interviews before concentrating on the workshop and emergent needs of a group of previously unrecognised staff wishing to set up their own businesses. Workshop participants, mostly from minority, ethnic backgrounds generously shared their ideas and challenges in starting their business journeys, e.g. focussing on business creation as part of their life journey and a route to self-fulfilment set against their roles, and cultural expectations placed on them as daughters, wives and mothers. The results generated from the small workshop has opened up a new research direction and clearly revealed an unmet need in Higher Education Institutions, and elsewhere, to support for women's entrepreneurial journeys.

Keywords: Female Entrepreneurs, Startups, Participatory Workshop, Minority Groups

1. Introduction

The Gendered Innovation Living Labs (GILL) project (<https://gi-ll.eu>) addresses gender inequality in entrepreneurship and innovation (E&I) by providing actionable strategies to foster gender sensitive changes at all stages of the E&I lifecycle. Widespread inequalities within the E&I ecosystem mean that women, and those falling outside of the traditional entrepreneurial stereotype are disadvantaged at all stages of their research, innovation and entrepreneurship journeys. In the UK, only 13% of university-based spinouts are founded or co-founded by a woman or a mixed-gender team (Griffiths et al. 2020). Reasons for this include:

- Unequal workloads Female academics have higher administration and pastoral workloads (Bagilhole 1993), which leads to less time for research and for considering commercialisation opportunities. They are more likely to balance dual careers as carers/homemakers and paid employment (Carrasco 2014). Female academics are less likely to be involved in entrepreneurial activities, consultancy or contract research and informal activities required to progress spin outs (e.g. networking) (Abreu and Grinevich 2013). Having reduced opportunities to collaborate in commercialisation by being excluded from the boy's club (Murray and Graham 2007, p. 670), women lack access to the necessary powerful networks and may not have time to engage with spin out activities due to family commitments (Rosa and Dawson 2006).
- Underrepresentation of women in STEM disciplines (Elsevier, 2020). The vast majority of academic spinouts are from science and technology disciplines. The outputs from research in these disciplines can be first patented as scientific or technological inventions, leading to the creation of a spinout company.
- Support from Technology Transfer Offices (TTOs). TTOs provide support for the commercialisation of research outputs. They can support academics who wish to apply for patents for inventions, who want to develop licensing agreements with external companies, or who are looking into setting up a spinout company. TTOs can also offer entrepreneurship training to academics. However, the quality of services they provide is variable as is evidenced by the polarisation of the university innovation ecosystem, with

70% of university spinouts originating from Russell Group institutions (Griffiths and Humbert 2019). Good practice was found at Royal College of Art (47% female led spinouts), WE Innovate at Imperial College, SETsquared Bristol incubator. ECRs (Early Career Researchers) were more likely to be critical of TTOs' slow response rates which resulted in missed funding opportunities, challenges to getting support and convincing universities to invest in their ideas (Griffiths et al. 2020) and the level of competence of TTO advisers (Rosa and Dawson 2006).

- Gender differences in levels of support needed. Murray and Graham (2007, p. 671) found that women academics were more likely to use the services provided by TTOs to learn about entrepreneurship, and to guide them through an 'uncertain landscape'. Their male counterparts did not need to link with companies, as they already had existing networks that connected them to entrepreneurship.

Outside academia, the 'business world' remains male dominated. For example, 83% of the European tech community is dominated by men, and 46% of women responders reported that they have faced discrimination (Atomico 2018). The vast majority of investors and 'business angels' are men. For example, within the 100 top venture firms only 7% of partners are women (Teare and Desmond, 2006). Being the only woman in the room, and pitching in front of an all-male panel, are situations that many women aspiring to be entrepreneurs mention as obstacles in their business journeys, for example due to the fact that the male investors did not have the personal experience to see the relevance of their business idea, if that is a product targeted for women (Griffiths et al., 2020). Hanson and Blake (2005) explored the influence of employment history, geographic and social context on women entrepreneurs arguing that a lack of experience in an industry may be a barrier or shaping factor in the business startup.

Entrepreneurship is socially constructed as a gendered field. For example, the characteristics associated with being a successful entrepreneur, and the words used to describe these characteristics, are overwhelmingly masculine (Ahl 2006). Aspiring women entrepreneurs are told that they need to 'think like a man' (Marlow and McAdam 2010, p. 212) if they want to succeed. Deficit discourses suggest that women have no place within entrepreneurship, unless they 'fix' their femininity with masculine behaviours (Ahl and Marlow 2012). With less influential networks, fewer role models and funders who favour their own gendered interests, women and those from less traditional backgrounds struggle to acquire notice for their ideas and funding. This is a significant, recognised problem. Europe aspires to create a level playing field for all creative thinkers, aspiring innovators and entrepreneurs to make use of its full talent pool and find new ways of solving the most urgent societal, environmental and health related problems. By breaking into new territories, women change the industry, the E&I ecosystem and can become role models/trail blazers for others.

1.1 The Gendered Innovation Living Labs Project (GILL)

Fundamental to the work of the GILL project are 15 case studies (termed Action Orientated Experimentations, see <https://gill.bisite.usal.es/explore/action-oriented-experimentations>) whose collective goals are to effect gender responsive smart innovation and entrepreneurship within their own E&I ecosystems. Following living lab principles (Colobran, 2019), each AOE works with Quadruple Helix Agents (i.e. industry, education, civic society and public bodies) through, in this case of GILL, two iterative design cycles to create impactful outputs. The design cycles include phases of understanding, codesign, implementation and evaluation (Ståhlbröst et al., 2024).

This paper relates to work conducted chiefly in the first iterative cycle of AOE2 based at Coventry University but recruiting participants from other West Midlands and/or UK universities as well. AOE2's objectives were to understand barriers faced by female academics in starting up their own businesses, and to cocreate an 'innovation bridge' which would cross the gulf between the support offered by the university and the needs of female academics. Obviously, it was hoped that improvements in the support would also benefit levels of entrepreneurship across all genders.

Each AOE in GILL is expected to follow 2 iterative cycles which may lead to a validated tool, method of process which can increase gender responsive smart innovation, Some AOE's work in a specific field such as health, AT or green transition. AOE2 concerns support for any member of an HEI (Higher Education Institute) wishing to set up a business in whatever field, and at whatever stage they may be on their journey. During the first iterative cycle, the AOE's concern themselves with QH engagement (in this case academics), better understanding the nature of the problem, codesigning with their stakeholders a prototype solution, implementing it in some way (e.g. as a paper based mock up) and evaluating the idea with potential stakeholders. The second cycle proceeds in a similar manner, but the final output is a finished or transferable output.

To help and ensure that the AOE2s maintain a gender focus in their activities, the GILL consortium has collated, tested and refined over 40 tools and methods to engage in gender responsive design all stages and settings in which E&I take place. Available through the GILL platform, the interactive interface (<https://www.gillhub.eu/explore/gender-responsive-methods/>) enables selection of suitable, useful and easy to use at each stage of the iterative cycle. By using these tools in practice, each of the 15 AOE2s contributes to their iterative development. The methods used by AOE2 are outlined below. For each research method used, the AOE2 was required to fill in an evaluation sheet on the usefulness of the method to contributing to gender responsive design or understanding.

2. The First Iterative Cycle of the Development of the Innovation Bridge

Adopting a user centred design approach to its work, AOE2 needed to understand the nature of the problem it sought to address, i.e. what problems female academics faced in their journeys towards becoming an entrepreneur, where the TTOs failed in supporting them on this journey, and codesign potential solutions. Although the first iterative cycle was supposed to also implement and evaluate solutions, this particular AOE2 did not progress to the 'implement' phase. Roughly 3 months was given to each phase of the activity, in the expectation that some activities may require longer than others.

2.1 Understanding Phase

In the understanding phase, 6 qualitative activities were undertaken in 2023 – a literature review and review of TTOs (see previous section), site visits to 5 technology incubators in Pakistan, semi structured interviews with 9 academics, who had started an entrepreneurial journey, as well as participant observation and follow up interviews with the European Business Network's (EBN) TechCamp held at Coventry University (CU). A reflective diary was also kept of all events attended or conducted.

2.1.1 Specimen Results

Nine semi structured interviews were held with women and their male counterparts (successful and otherwise) which confirmed the barriers identified in the literature especially in relation to difficulties in time management, information gathering, communication between academics and operational teams and gender bias. They confirmed the massive learning curve, and the difficulty of finding information such as asking different people to you get a 'lead', slowness of the university, time overload, prioritizing time and ordering the tasks they need to do to set up a business, difficulty finding information, managing parenting problems, or commitment and never give up. This is exemplified in the responses provided to the question 'what advice would you give to a female colleague wishing to become an entrepreneur'; as well as taking all the courses and help available, "but also don't feel that there is a particular way is the right way."

"I think there would be an irony in me as a white male academic expressing too strong a view or maybe anything in terms of what a female academic needs. I would say that female academics seeking to be entrepreneurs and hopefully through this exercise they will self-define what ecosystem should be, but for me there needs to be an ecosystem."

This was perhaps echoed in a comment to "ignore the men (🙄)"

The need to redefine the E&I ecosystem from within was also reflected in the following comment:

"I would encourage female academics to enter the business world, they are needed possibly also to come up with a different style, "we don't have to do entrepreneurship this way"

This, although essential, puts an added burden on female aspiring entrepreneurs, as it was acknowledged that

"it's tough for women, tougher than men... Women have to prove that they have the leadership abilities, just because they are not men. The business world can be very aggressive and competitive; these might not be qualities attributed to women"

As the paper now focuses on the participatory workshop, these and the final quote should be remembered

"the company should be based on passion... if it's just about money, it's not worth it; will just be a source of "so many headaches" one has to clarify: WHY do you want to do it? love the topic, want to help other people..."

During the understanding phase, an opportunity arose to visit TTOs in 5 universities in Pakistan as part of a British Council exchange visit. These appeared to be extremely well funded and successful. Looking at these through a gendered lens, it was noted that IBA offered special courses and mentorship programmes for female academics and had developed a model of female entrepreneurship (Qureshi et al., 2022) which could be highly transferable to address the needs of female migrant would-be entrepreneurs in the UK.

Observations at the EBN TechCamp showcased exciting technological innovation, but there was a huge male and white bias (the majority of male participants were white, with no non-white female participant at all). Interestingly, female students were used in auxiliary roles as helpers and to escort visitors round the buildings. Again, this confirmed the findings from the literature review.

2.2 Codesign Phase – Understanding the Entrepreneurial Journey and Support Needs

Overlapping somewhat with the understanding phase, a cocreation workshop, inspired by LEGO® Serious Play® (Blair and Rillo 2016, Fearn 2020) was undertaken with 7 members of staff. Following an email campaign, 20 attendees were expected, including 4 from tech support functions. Of the women who did attend, 6 were connected with CU, 5 were women who were considering spin outs, most were from ethnic minority groups. Incentivisation was provided in the form of £15 gift vouchers and lunch. The aim of the session was to understand the experiences of the women and use this to inform the codesign of extra support systems for female would-be entrepreneurs.

Given the sample, a lot of adaptations were made to the workshop format – hence we did not strictly adhere to the training manual (<https://seriousplay.training/lego-serious-play/>). It is also recognised that the sample was not drawn from our target population. However, we believe the results we obtained are valid, powerful and novel. The session lasted for around 3 hours, starting with a buffet lunch.

The session included three creative exercises; in each session participants were asked to use bricks as symbols. Each exercise was structured the following way:

Step 1 – Challenge. The session leader shares the task, the “challenge” to think about.

Step 2 – Build. People build models out of the LEGO® bricks on the table.

Step 3 – Share. People explain their model to others.

Step 4 – Reflect. People write a few words or sentences of reflection on post-it note before they demolish their models, and the cycle starts again with another exercise or finishes.

The three exercises were the following:

Exercise 1: build a tower with you in it!

Exercise 2: what are the dragons (obstacles, barriers, fears) that hinder you in your way?

Exercise 3: build a model of solutions, of overcoming barriers!

Participants' ages ranged from early 30s to late 40s – 2 were from Europe (Spain and Poland), 3 identified as Muslim, 1 as Black, 1 as Iranian. Four of the participants had children. They were equally divided between ECR, lecturers and those in support functions (in the Students Union, STEM advocacy or E&I support). Five had aspirations to set up their own business, one had extensive knowledge of support needed to enable this, and a final participant had succeeded in setting up her own successful business despite (ongoing) family and cultural pressures. All women enthusiastically engaged with the session and had no difficulty in understanding what was required of them, or in talking honestly, openly and with feeling about what their models meant. A selection of the models is shown in Figure 1. The results are discussed in terms of the 3 exercises.

During the session field notes and photographs were taken by 3 project team members. These were transcribed and sent back to the participants for verification. Also, the interpretation of events was cross checked with the wider GILL project team for missing themes and alternate interpretations.

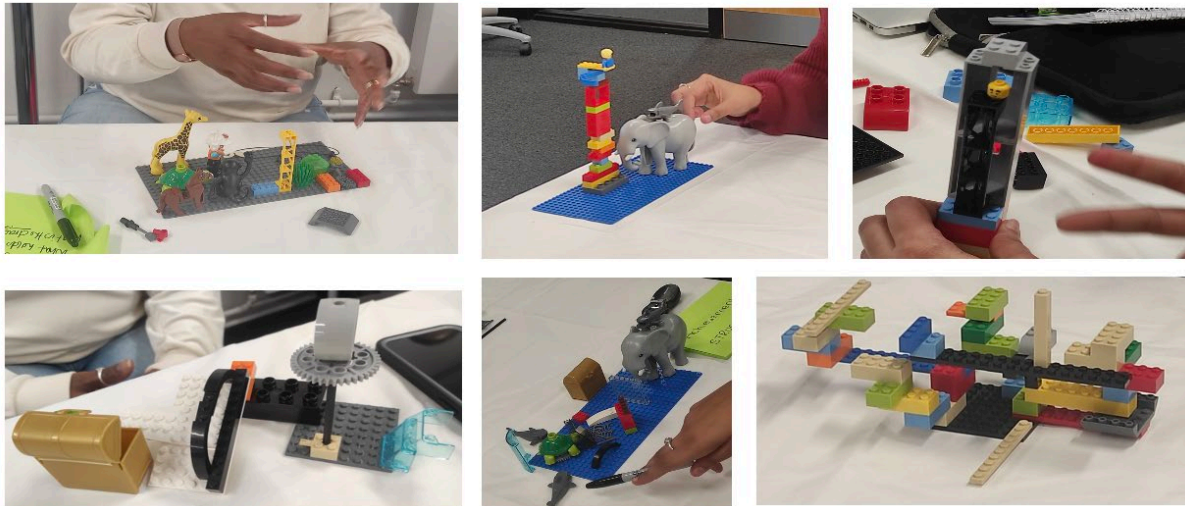


Figure 1: selection of models created by workshop participants to reflect aspects of their entrepreneurial journey

2.2.1 *Build a Tower With you in it (Which Related to Your Feelings About Your Entrepreneurial Journey)*

The towers shared similar features representing the struggle of being a woman. Some represented themselves as a powerful animal (e.g. a tiger) balanced precariously at the top of a tower. Some towers holes in them – to symbolise something missing in their lives. During the discussion of the models, it was revealed that ‘missing’ bricks related to various things – unfulfilled life goals/ambitions, or lack of knowledge/ideas. Another characteristic was the undermining of the tower, or structure by others, notably family members who were represented variously as elephant (nudging the base of the tower) or sharks. Opaque bricks were also used to represent glass ceiling or glass cliffs (Ryan et al. 2016). Scattered bricks acted as metaphors for the different things women had to manage before they found time for themselves. Coloured bricks at the top of the tower were used to denote unknown difficulties ahead, and whether the journey was worth the effort. Such difficulties were represented in subsequent rounds as crossroads, unstable bases.

‘Perfect towers’ with a woman inside a straight waled tower was used to denote all that a woman had given up and the cultural pressures to strive for perfection. Women at the base of the towers represented the need to reflect on experiences before achieving something that will have lasting impact and be seen as outstanding and fun. Asymmetric and unstable towers with an off-centre figure were used to denote someone who has a view of it all and who is managing different trajectories. Scaffolding and support structures were used to indicate the help needed to achieve ambitions.

Key emergent themes for these women were that they were unfulfilled, did not know how to start their journey, or even if they should, in some cases starting a business meant giving up a successful, and perhaps well-paid job, in order to achieve a sense of satisfaction and personal fulfilment. This had to be balanced against the risks of not succeeding, family pressures and financial insecurity.

Reflecting on their models and discussions, participants recognised that *‘the power of storytelling is magnificent’*, the similarity of the struggles and the longing to achieve something ‘other’ as expressed as *“not got to where you want to get yet”* or *‘what and where am I’*. When discussing business ideas in the subsequent exercises, it was apparent that the businesses that the women were considered did not relate to the work they did at the university, but were ones that would give them personal satisfaction and happiness. This may be one of the reasons why they may have been opposed to setting up support within the university.

2.2.2 *‘Here be the Dragons’*

In this exercise, participants were asked to build a model that represented the barriers to their journey. The creation of the models helped the participants to open up and share their experiences. This led to a lot of empathy (*‘Feel on same page as you, I understand you’*) within the group and narration of personal stories and aspirations.

- ‘Dragons’ came in all shapes and sizes – children, work, time, cultural pressures (e.g. of early motherhood), parental motivation, pressures to do a PhD, have a successful academic career. They were represented by large and small animals and human figures that symbolise family, friends and competitors. These act in different ways to undermine and judge, set barriers and expectations.
- Towers were used to represent the need to build, but how big should or could the tower be?
- Cups and treasure chests s hidden trophies (rewards), nets as symbols that limit the journey;
- Rotating wheels symbolised the need to constantly spin round and manage many things;
- Barriers were those constructed by others and oneself, e.g. self-doubt, weight of expectations ‘*We are expected to do too much. Don’t want daughters to go through the same things*’, loneliness, need to attain certain achievements to be admirable, comparing oneself to others;
- Dark bricks were used to represents fear if you go in the wrong direction; nets as symbols that limit the journey; bridges (i.e to the next stage of the journey) were unsupported.

Whilst not unhappy and making light of the personal battles they had overcome; they were in some ways unfulfilled by their career choices – hence the desire to set up their own business. This is exemplified in comments such as ‘*women carry a lot of baggage*’, ‘*Don’t know what to leap to..... Spent a long time building a steady stable environment, have 20-25 years left. So at the crossroads. The next bit could be anything*’. She had a black cloud hanging over her related to family responsibilities. Another comment, ‘*...can be good at a lot of things.... wants to know how to connect my small thing with a bigger picture... stuck in the gap between thought and action*’.

Participant 5 represented herself in a new house. ‘*Starts small, vague, once takes one step everything becomes lucid, clearer, but she doesn’t know what the next step is. When she gets to the end of the path, reaches the objective, it becomes a complete void, “everything falls apart”. You have beaten yourself up to get there, but what are you going to do with it. It was futile. You get the qualification, MA, PhD, so what? Then try to map the next goal and another objective..., feels like she is playing around. All these things that come and go, you are in a flow. I totally get the process, massive anti-climax.*’

Most participants admitted they loved the process (of succeeding in their careers/education), but may be did not celebrate the small achievements, ‘*but when you reach the end it is nothing*’. Do they carry on to the next stage, stop where they are, or start something new – if so, what? Will their decision be the right one, will it be approved by their (extended) families.

The role of families (especially male relatives) featured strongly as dragons for women from Asian backgrounds. Participant 3 commented ‘*sometimes we try to achieve what we think our subconscious-made heroes want, e.g. fathers, uncles. We have set these standards by the time we are mature; we have already achieved half of it, e.g. get married, and then realise it is not what we wanted.*’ Another participant recounted how she had been told that the deafness of her son was a punishment from God for her lack of piety. She split her family, leaving her husband and daughter in the Middle East, and came to the UK with her son and do a PhD. Her ‘dragon’ became a motivator. Participant 4 commented: ‘*At 35 I have learnt to let go. Putting barriers in front of me will protect me. Don’t feel I am respected strong enough, cultural barriers – get told off constantly for saying this is my house; no, it is your husband’s house. I am always told that’s not correct. I’ve learnt to ignore it.*’

Reflecting on this stage, participants felt that they had been to a ‘therapy session’ e.g. ‘*I feel I am just representing negative energy, darkest, deepest thoughts are coming*’. They felt they were more open to others that they did not know.

The bonding of the group and their personal stories has strengthened the commitment of the research team to create a vehicle by which we can support these and similar women. These are strong, articulate and competent women, who need support and encouragement at the start of their journey. Two unexpected, positive outcomes of the recruitment bias in the session were that

- we met a group of female employees from minority groups at the university whose needs and aspirations currently are not being met and perhaps would not be met by TTOs whose efforts are channelled towards high yield technology led businesses.
- Increased recognition of the need to understand cultural biases and the deep-rooted effects this can have.

2.2.3 Build a Model of Solutions to Overcoming Barriers

This was the final session of the workshop in which it was hoped that possible solutions could be codesigned, leading to a tangible outcome that could be implemented in the next phase of the work. Solutions put forward included

- be a lion – ignore all the dragons and sharks, take control and ownership, letting people in only when needed (e.g. mentors), be more persistent and self-reliant, learn to appreciate oneself when achieve small milestones, open to new experiences. asking for help and enjoying the process;
- sailing forth to a goal in a boat including family, with necessary skills and confidence, *‘as long as I feel supported will be ok’*.

From the discussions it was clear that the participants valued the session, and it was proposed that follow on meetings could be used to explore ways of providing them/connecting them with support. Networks and mentorship were valued, along with culturally sensitive discussion and solutions. Participants concurred that they did not want this to be an IT based solution such as whats app group or team’s site, and that they did want to meet at the university.

2.2.4 Limitations and Disappointments

- Organisational churn, restructuring and austerity measures meant that it was extremely difficult to understand the history of support at CU. Memories of support pre-covid were that support had been available, that the TT team had met with departments and individuals. No institutional memory/records existed of this. Likewise attempts to find out levels of support/success in supporting academics did not yield any responses.
- It should be noted that many universities do not keep, or make available this information, and that no sex disaggregated data is available.
- Initial proposals for funding to develop an interface and ‘one-stop-shop’ for local advice linked to university systems was unsuccessful.
- Closure of CUs FabLab which meant a ‘safe meeting space’ could not be secured and the model of entrepreneurship not tested.
- Lack of buy in from TTO, Enterprise and Innovation office and staff, which made recruitment for events very difficult.
- Difficulty in arranging times when the workshop participants could meet.

3. Discussion and Conclusions

The initial aim of AOE2 was to address gender inequalities in E&I of female academics enabling them to create businesses and take up senior and influential research leadership roles where they might influence EU research. Hilary Clinton recognised that ‘women are the largest untapped reservoir of talent in the world’; the studies conducted in the first stage of the research confirmed that there is an uneven playing field and that some HEI TTOs could provide better support for their female staff. Interviews with those who had navigated their way towards entrepreneurship stress the importance of taking up practical courses, persistence in seeking out information, and the need for women to change the existing E&I ecosystem. One example of good practice was found at IBA in Pakistan which has led to ongoing research looking at indigenous and non-western models of entrepreneurship. This seems particularly appropriate given the results from the participatory workshop.

The attendees of the workshop were not those from the target group. Nevertheless, it was recognised that the needs of women from minority groups, and those employed in non-research functions of the university who had aspirations to start their own businesses, were not being met and would be unlikely to be met under the current services provided. Participants collectively expressed both their fears and desires to set up businesses that would enable them to fulfil unmet personal needs. A woman entrepreneur may be ‘defined as confident, creative, and innovative desiring economic independence individually and simultaneously creating employment opportunities for others’ (Singh, 2021). Supporting such women requires new models of entrepreneurship and methods of delivery, drawing on social entrepreneurship, and recognising the importance of intersectionality and psychological factors as barriers and enablers.

4. Next Steps

At the start of this research, we determined to study ‘academic women’ who might wish to start a business, for three reasons. Firstly, as fellow academics, we understood the context/industry in which such women worked; secondly, we were aware of barriers/lack of support within academia; and thirdly, the wider implications of thwarting or imposing a glass ceiling on these academic highflyers for the European Research Arena. The research journey led us down a different pathway, with the observational studies in Pakistan and the workshop highlighting the need for a more nuanced, ‘gender-aware framework for women’s entrepreneurship’ (Brush et al., 2009). According to the data included in the latest Gender Equality Strategy the EIGE reported that 44% of Europeans think that the most important role of a woman is to take care of her home and family and that 43% think the most important role of a man is to earn money.

Against this background, it is not surprising to find that the personal histories shared by women in the participatory workshop related not to barriers associated with the fundamental building blocks of new ventures (i.e. market, money and management) but on motherhood, and meso/macro environment. The latter address considerations beyond the market, such as expectations of society and cultural norms (macro), and intermediate structures and institutions (meso), pointing to the need for structural changes to enable women to succeed. Societal and cultural expectation are a fact of life. For Brush et al. (2009, page 9), “‘motherhood’ is a metaphor representing the household/family context’. For workshop participants who emphasised their status as mothers, or who had come from Muslim families this emerged as both a strong motivational force (doing this for their children) or a barrier (breaking free from repressive upbringing and expectations).

From a methodological perspective, despite the obvious limitations of a small and biased sample, we would echo the sentiments of researchers such as Henry et al (2015) for the use of more qualitative approaches, and a more nuanced consideration of women entrepreneurs (e.g. Owalla et al, 2021) which recognises their heterogeneity, the influence of their culture, motivations, goals, measures of success and contexts.

The next stage of the work is to co-create an impactful, transferable solution that will support the needs of this group. Initial meetings have been conducted and ideas put forward such as an informal network, entrepreneurial cafes, or serious games (following a suggestion from one of the interviewees). However, we are mindful that our participants’ time is valuable, and that running another cocreation session with them might provide them with few tangible benefits. Inspired by the work of Lisa Bowleg (n/d) on Intersectionality Research Salons, we have put together a schedule of meetings with invited guest speakers on topics of local interest, which will also provide participants with opportunities to share experiences, and offer suggestions for future events.

Alongside the practical support for participants outlined above, the information collated at these meetings will be published on a website, with the dual purpose of being useful for women in academia who are interested in starting a business, but also for university TTOs (both in terms of flagging unmet needs and providing ideas of how these can be met). On the basis of this information, the results of the AOE may be summarised in a policy briefing/report, targeted towards HEIs; this will be co-developed with participants throughout 2025.

Ethics

Prior to the conduct of the research, ethical approval was gained from Coventry University as medium risk, certificate P161486 for the interview studies and P173148 for the workshop.

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Obstetric Violence: Inequalities and Vulnerabilities of Being a Racialised Brazilian Woman During Pregnancy in Portugal

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Abstract: This article presents issues related to obstetric violence (OV) during pregnancy, which affects women all over the world. This form of gender-based violence results in the subordination of women's access to sexual and reproductive health. OV can be defined as disrespect for women's rights during the pregnancy-puerperium cycle, manifesting itself in various ways, such as omission, neglect, physical and psychological violence, sexual abuse, the use of interventions and medications without scientific proof, and the deprivation of basic needs that generate suffering for women. It is a multifaceted practice, present in health institutions and rooted in power relations, which materialises through the manipulation of women's bodies, disrespectful forms of communication, inadequate provision of services and systematic violations of fundamental rights. This practice is often perpetuated by health professionals who exercise power over pregnant women, reflecting the inequality rooted in a patriarchal, monogamous and sexist society. It is thus an example of oppression and control over women, revealing a regime of domination and exploitation. In Portugal, this reality not only affects national women but also accentuates inequalities, especially among racialised Brazilian women. This topic is still invisibilized in the academic and social environment, and this exploratory qualitative study aims to fill this gap. Based on an intersectional feminist epistemology and the approach of social constructionism, the research examines the experiences of OV during pregnancy of these women in the Portuguese National Health System (NHS). The aim is to understand the reality of obstetric violence and its consequences for women, with attention to the intersections of migration and race that heighten their vulnerability. These women often have no social ties or support, and when they cross borders, they face realities marked by discrimination, which intensifies their vulnerability and makes it difficult for them to express their desires and intuitions in an environment that often makes their bodies invisible. This paper seeks to discuss the interrelationships between gender equality, race, and nationality, gathering information that can contribute to the formulation of health management strategies, especially in the care of migrant women during pregnancy in Portugal.

Keywords: Health Inequalities, Intersectionality, Maternal Healthcare, Obstetric Violence, Sexual and Reproductive Healthcare.

1. Introduction

The factors that lead a person to migrate are complex and multifaceted, motivated largely by the search for better living conditions, employment, health, and education (UNHCR, 2016). Migration involves moving away from familiar environments and adapting to a new and uncertain context in the host country (Daure & Reveyard-Coulon, 2009). For this reason, the analysis of migratory flows must be interdisciplinary, with economic, social, psychological and demographic approaches contributing to a more complete understanding of this phenomenon.

In Portugal, the migrant population has grown in recent years, and Brazilians represent 35.3 percent of foreigners in the country, making them the largest migrant community (AIMA, 2023). According to the Brazilian Ministry of Foreign Affairs (2023), Portugal has the second-largest number of Brazilians outside Brazil. When studying migration, it is important to consider the gender perspective, as the experiences of men and women differ, and generic analyses do not capture the particularities of female migration (Sant'ana, 2008). Historically, gender has been little explored in migration theories, and the role of women in migration and in the social networks that sustain this process has only recently received due attention (Assis, 2003).

International migration is predominantly female, reflecting social and economic inequalities (Bertoldo, 2018). The growing presence of racialised Brazilian women in the labour market and their increased autonomy dispels the view of women as ""

The integration of migrant women is essential for strengthening social cohesion, equality and well-being, especially concerning rights, citizenship, and opportunities (Ramos, 2008). Racialised Brazilian women, when moving between distinct cultural and social contexts, become agents of change, but also face significant challenges, such as discrimination, isolation, and problems of identity and violence. Psychosocial and cultural difficulties, especially in the early years of migration, affect family life, health, education and social roles. This scenario makes the feminisation of migration a complex phenomenon, requiring inclusion policies (Ramos, 2008). In addition, the process of becoming a mother involves cultural and social learning, and far from family and cultural networks, these women face additional difficulties in motherhood, experiencing isolation and emotional challenges that impact the maternal role and family routines (Moro, 2017). In migratory contexts with limited support networks, the lack of familiar cultural values exacerbates the feeling of loneliness (Padilla et al., 2009).

On top of this, these women face discrimination and vulnerabilities, which influence their experience at different stages of the migration process (Assis, 2003). This expands when these women become pregnant, which makes this issue complex, as it is affected by social, cultural and economic factors that impact maternal health and family well-being (Rusu et al., 2024). Many of these women face unique challenges, such as limited access to health services, language barriers, and possible economic constraints, which can result in inadequate prenatal care and complications in childbirth. In host countries, housing and working conditions often also influence maternal and child health, exacerbating the psychosocial and emotional vulnerability of racialised Brazilian pregnant women (Rusu et al., 2024).

As a result, these women end up suffering violence during prenatal care in the Portuguese National Health System (SNS), which impacts the development of other phases of this event because, in addition to cultural issues that can affect the experience of pregnancy, discriminatory and stereotyped practices in healthcare and beliefs about pregnancy are surrounded by violence that can be called obstetric violence (OV). OV is considered to be a form of gender-based violence experienced by parturient who are subjected to acts of violence that result in subordination, naming a multifaceted and diffuse phenomenon that can occur during contact with sexual and reproductive health care, as well as the specific practices of some health professionals, often exacerbated in the exercise of power with women who become pregnant (Sesia, 2020).

With this, there is an urgent invitation to look at these issues since this event passes through the bodies of racialised Brazilian women from an intersectional perspective. This perspective implies that the concept of gender cannot be dissociated from the political and cultural intersections that produce and sustain it (Butler, 1990). Especially when they are subjected to a colonial relationship between Brazil and Portugal, where gender is inscribed in racialised bodies (Akotirene, 2019), invoking somatic characteristics used to differentiate groups of common origin. These characteristics are shaped by hierarchical and colonial discourses (Kilomba, 2019). The process of racialisation legitimises Eurocentric standards that produce differences and perpetuate racial privileges, which imposes oppression on those considered 'Others' (Kilomba, 2019).

Violence as the imposition of a 'self' on the 'other' is not limited to physical aggression but cancels out identities, conditioning female subjectivities to mould women as the 'Other' (Akotirene, 2019). For Barros (2020), race is a historical construct mediated by colonialism. Léila Gonzalez (1980) notes that the belief in racial harmony in modern societies can perpetuate violent effects for racialised women, including obstetric racism, a concept proposed by Dána-Ain Davis (2019) to describe the intersection between obstetric violence and medical racism. Obstetric racism emerges as a fusion of institutional and structural violence, characterised by diagnostic lapses, negligence, intentional pain, coercion and medical abuse. These practices of reproductive dominance are aggravated by racial factors, affecting the treatment of patients based on stereotypes.

In addition, studies by Wall et al. (2005) and Padilla (2007) highlight the vulnerability of Brazilian migrant women, who are subject to discrimination and stereotypes of sensuality and submission. For racialised Brazilian women, these processes of dehumanisation are articulated by gender, race and sexuality and reveal a structure of exclusion promoted by the state (Dia & Dias, 2011; Lugones, 2014, 2020), resulting in segregation, stigma and social and economic restrictions (Nwoke & Leung, 2021). In addition to the inequalities and violence faced by racialised Brazilian women, these migrants are vulnerable due to the lack of support networks and the difficulties inherent in the migration process, which can generate trauma, stress and depression, especially for mothers who face the challenge of raising children in a different culture (Ramos, 2010).

In Portugal, which is home to around 1,044,606 non-national citizens, the majority of whom are Brazilians, women account for more than half of this population (50.9%) (AIMA, 2023), which means that there has been an increase in the inclusion of immigrants in the National Health System (SNS). Despite access policies,

unfortunately, racial and nationality disparities persist in the use of health services (Costa et al., 2022). These services must adapt to cultural diversity to promote equity (Oliveira, 2023), given that the invisibility of migrant women's experiences is still a challenge, especially in the context of obstetric violence.

With this in mind, this work is based on an intersectional feminist epistemology and the social constructionism approach, and this research examines the experiences of obstetric violence (OV) during pregnancy of these women in the Portuguese National Health System (SNS). The aim is to understand the reality of obstetric violence and the main consequences of this violation for women, considering the intersections with situations of migration and race, which increase their vulnerability.

2. Methodology

This study adopted a qualitative approach, using semi-structured individual interviews as the main data collection method. The choice of this approach allowed for a more detailed understanding of the experiences lived by racialised Brazilian women in maternal health settings during pregnancy, seeking an in-depth analysis of their beliefs, attitudes, values and motivations about the different contexts and social actors involved, effectively addressing the objectives of the study.

To guarantee the validity of the instrument used, a scientific review of the subject was initially carried out to assess the extent to which the collection instrument adequately represented the content it was intended to measure. The interview consisted of two parts, the first collecting sociodemographic data and the second made up of seven sections: 1) migratory journey (e.g., What changes have taken place since immigrating? (explore identity, family, personal, social, cultural), 2) being a pregnant migrant in Portugal (e.g., What has it meant for you to be a pregnant woman in Portugal?) 3) pregnancy (e.g., Could you tell me about your pregnancy, especially your prenatal care? What was it like for you?), 4) childbirth (e.g., Did you feel that your fundamental rights were guaranteed during labour?), 5) postpartum (e.g. Could you tell me a little about what changed in your life before and after giving birth?), 6) obstetric violence (e.g. Do you think you have been the target of obstetric violence? If so, what elements facilitate these situations?) and 7) final considerations (e.g., How satisfied are you with maternal care (perinatal, childbirth, puerperium), considering the conditions of being a racialised Brazilian woman in Portugal?)

The development of the instrument followed six main stages: drafting the initial script, validation by the reviewers, preliminary evaluation of the results, pre-testing, final validation of the script and construction of a theoretical-empirical version. The validation process included the assessment of four attributes: alignment with the objectives, relevance to the constructs, clarity of language and adherence to qualitative expectations. The instrument was considered valid, covering the essential elements of the concept investigated based on the definition of the variables.

The research was submitted to and approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Porto, respecting all ethical principles, including informed consent, anonymity and protection of the participants' data. Participation was voluntary, and the data was treated confidentially.

Participants were recruited through convenience sampling, using social networks such as Instagram and Facebook to publicise the study. The inclusion criteria required the participants to be Brazilian women, living in Portugal, aged 18 or over, identified as racialised, who had given birth in the last three years in the country and reported experiences of obstetric violence in the Portuguese NHS. In addition, the snowball sampling technique was used, in which the participants indicated other women who met the criteria, broadening access to potential interviewees. The interviews were scheduled by direct contact, telephone, or e-mail and carried out via ZOOM, ensuring greater convenience for the participants. The meetings took place between February and April 2024 and lasted an average of 60 minutes each.

Ten racialised Brazilian women took part in the study, aged between 31 and 44. All identified as cisgender; nine declared themselves heterosexual and one was bisexual. In terms of education, four had a bachelor's degree, four had a master's degree and two had a doctorate. The length of residence in Portugal ranged from two to eight years.

Braun and Clarke's Thematic Analysis (2006, 2013, 2020) was used to analyse the data, going through six stages: familiarisation with the data, generation of initial codes, search for themes, review, definition and naming of themes, and production of the final report. This approach allowed for an in-depth exploration of the narratives, resulting in a detailed mapping of the patterns in the data collected.

Table 1: Sociodemographic characteristics of participants.

Participant	Age	Nationality	Ethnic-racial identity	Sexual orientation	Academic qualifications	Gender identity	Employment situation	Number of kids	Time living in Portugal (years)
P1	31	Brazilian	black	heterosexual	graduated	cis woman	employed	1	4
P2	34	Brazilian	racialized	heterosexual	master	cis woman	employed	1	6
P3	33	Brazilian	black	heterosexual	graduated	cis woman	employed	1	5
P4	35	Brazilian	racialized	heterosexual	master	cis woman	employed	1	6
P5	34	Brazilian	racialized	heterosexual	graduated	cis woman	employed	1	2
P6	41	Brazilian	black	bisexual	doctorate	cis woman	employed	2	7
P7	31	Brazilian	racialized	heterosexual	master	cis woman	employed	1	5
P8	40	Brazilian	racialized	heterosexual	graduated	cis woman	employed	2	7
P9	42	Brazilian	racialized	heterosexual	doctorate	cis woman	employed	2	8
P10	44	Brazilian	racialized	heterosexual	master	Cis woman	employed	1	5

3. Presentation and Discussion of Results

This study sought to analyse experiences of obstetric violence and understand the motivations behind this practice. Three main types of violence were identified: physical, verbal and psychological. In addition to presenting these types, the study applied an intersectional analysis to highlight the multiple identities of the women involved, exposing the discrimination and stereotypes that emerge from the combination of factors such as gender, race and nationality. Understanding women's perceptions of this reality and views on obstetric violence is an essential step towards transforming this practice and ensuring that it does not become part of other women's reality in the future.

3.1 Physical, Verbal and Psychological Violence, Intersectional Discrimination and Vulnerability

Delving into the interviews confirmed that the consequences of disrespectful care are profound, resulting in physical and psychological complications for women. This violence involves acts that cause physical harm, whether accidental or not, generating pain and injuries. The women reported repetitive vaginal examinations and touches, constituting a violation of their right to information and autonomy in harmful practices. In addition to this, the reports include cases of verbal and psychological violence such as: mistreatment, rudeness, unpleasant comments, debauchery, threats, blackmail, humiliation, disregard and misinformation, exposing these women to physical and psychological risks. The interviewees' statements clearly reflect these practices, highlighting the need to carefully analyse care practices and how these interactions impact on women's health and well-being during obstetric care.

'She touched me with an absurd pain that I had never felt during my entire pregnancy' (P1).

'The family doctor, during my antenatal care, started shouting at me wildly, calling me irresponsible because I had an ultrasound in a private hospital' (P4).

'The doctors always treated me very badly' (P5).

'The family doctor was unfriendly, she was the boss, she didn't listen, she just wanted to impose' (P8).

The violence that women face during obstetric care during pregnancy manifests itself in various forms, with physical, verbal and psychological violence being particularly worrying. According to Sesia (2020), this violence causes physical harm, resulting in pain and injuries, with reports highlighting excessive examinations and vaginal touches, which violate women's right to information and autonomy, as well as being scientifically harmful practices.

These practices violate women's right not to be mistreated and reveal the inequality of power in relations with health professionals, who often perpetuate obstetric violence (Rusu et al., 2024). In addition to physical violence, many women also report verbal and psychological aggression, including slander and defamation, which impacts their psychological health and reputation (Sesia, 2020). These reports highlight a multifaceted pattern of violence, emphasising the urgency of interventions that promote respect, information and autonomy in obstetric practices.

In addition, because these women are racialised Brazilians, they end up suffering discrimination and stereotypes as a result of the production of non-national bodies. These practices have direct and indirect consequences on these women's daily lives. In the case of the participants, the stereotype of hypersexualised, promiscuous women is valued, as are practices of racism and xenophobia

'Several times I was recognised as a whore or a maid' (P6).

'The nurses cursed the immigrants, called them smelly' (P7).

'Also, you're too old to get pregnant' (P10).

The text addresses the stigmatisation of Brazilian women, who are often associated with hypersexuality and promiscuity, with impacts on everyday life, including health (Padilla, 2007; Rusu et al., 2024). These perceptions are rooted in gender coloniality, a concept that Lugones (2014) uses to explain the animalisation of non-white women, who are seen as not belonging to the ideal of white European femininity. This modern-colonial gender system racialises and imposes gender norms, contributing to the historical abuse and dehumanisation of racialised bodies (Gonzalez, 1980). Furthermore, obstetric racism persists, manifesting itself in inequalities in access to services and opportunities, defined by ethnic-racial factors. Kilomba (2019) describes how racism is based on the creation of an 'Us' and an 'Other', hierarchised and maintained by power, which allows for institutional discrimination (Akotirene, 2019; Davis, 2019). Intersectionality is crucial to understanding these contexts of exclusion, silencing and discrimination (Akotirene, 2019). Adopting an intersectional perspective is key to developing effective interventions and protection mechanisms.

For Dias and Dias (2011), race and gender are also some of the most important principles of hierarchical division that do not fail to interact with the national principle in maternal care, reinforcing relations of domination, capturing how women in situations of vulnerability tend to face many more obstetric and gynaecological problems than other women. The interviewees are aware of these historical and social markers, which place them in a position of vulnerability, as can be clearly seen in their accounts.

'I was all sensitive... then the doctor: but have you done it? complained to me like that, she was rude, you know? don't you know you have to do it?' (P3).

'I was treated at the health centre as if I didn't know anything' (P7).

The consequences of the OV suffered by these women end up causing obvious damage in each report. Memories from prenatal care remain vivid, deeply affecting them on a cognitive and psychological level, with significant impacts on their experiences (Rusu et al., 2024). At this stage of life, the body becomes central, and any event can affect their emotional and psychological well-being.

'I felt afraid' (P2).

'I cried a lot, I never imagined they would touch me without consent' (P9).

The experiences of violence reported by migrant women during obstetric care in Portugal reveal a painful distancing between body and subjectivity, where the body, in becoming 'sensitive to the other', is the target of practices that sever ties with the special event of motherhood. This violence, resulting from a lack of sensitivity and preparation to deal with socio-cultural differences, generates a feeling of helplessness and loneliness, marked by feelings of guilt, sadness, fear and frustration. Rusu et al. (2024) emphasise the importance of understanding the experiential dimension of the body in the subjective constitution, which is essential for psychology, while studies indicate that such traumas can increase the risk of postpartum depression, affecting the mother (Sesia, 2020). The lack of adequate public policies accentuates the negative impacts, especially for migrant women, who have less access to quality care due to prejudice and a lack of preparation on the part of professionals (Fernandes and Miguel, 2009; Padilla and Miguel, 2009; Padilla et al., 2009).

4. Conclusion

From the analysis presented, it is clear that female migration, especially of racialised Brazilian women in Portugal, reveals a complex scenario of intersectional inequalities. This study highlights the challenges and vulnerabilities faced by racialised Brazilian women during pregnancy in Portugal, highlighting social isolation, the absence of support networks and barriers to accessing health services. These barriers can aggravate mental health issues and contribute to increasing the inequalities faced by these women. 'Gender vulnerability' manifests itself even more intensely when it intersects with other social markers, such as race and nationality, deepening structural inequalities and revealing the need for an intersectional approach to these experiences.

OV emerges as a pressing issue in the Portuguese National Health System (SNS), where a lack of understanding of cultural dynamics and a shortage of psychological support limit the quality of care. The research points to the prevalence of OV among racialised Brazilian women, who often suffer from stigmatisation and discrimination due to social constructs involving race and gender. In particular, the concept of 'obstetric resistance' suggests that some women, based on their racial or class belonging, are perceived as being able to endure more pain, perpetuating practices of dehumanisation and neglect.

Added to this, obstetric racism, as a specific form of intersection between institutional violence and medical racism, highlights the inequalities of gender, race and nationality that permeate the Portuguese health system. In Portugal, racialised Brazilian women face systematic discrimination during pregnancy, reflecting a profound disrespect for fundamental human rights. This issue is not limited to prejudiced individual practices but is the result of deep-rooted historical and cultural structures that perpetuate the subordination of racialised bodies and compromise access to sexual and reproductive health that values equity and well-being.

Dialogue between policymakers, health professionals, migrant women and organisations is key to promoting change and tackling this urgent problem, especially in the face of the country's demographic challenges. Understanding these specific needs and adopting intersectional practices in care are fundamental steps towards building a health system that promotes equity, respect and protection, reducing obstetric violence and guaranteeing the well-being of these women.

5. Limitations and Future Directions

This study has some limitations that should be considered. The small sample size limited the ability to capture the diversity of experiences among racialised Brazilian migrant women in Portugal's SNS, considering variables such as gender, nationality, age, education, geographical location, citizenship and migration status. A larger sample could provide a more comprehensive understanding of the processes, dynamics and types of obstetric violence (OV). Accessing migrant women who identify as survivors of OV was particularly challenging, probably due to the sensitive nature of the topic, which can lead to reluctance to participate in research.

Future research could expand on these findings with several approaches: (1) conducting broader studies to better understand the intersections of class, nationality and other forms of discrimination; (2) establishing studies to determine the prevalence of VO; (3) longitudinal studies examining complaints and the long-term impacts of VO; (4) comparative studies between different nationalities to gain broader perspectives; (5) promoting the recognition of OV in policies as a preventive measure; (6) exploring how institutions respond to OV complaints in different healthcare settings; (7) analysing the role of support networks in mitigating the effects of OV; (8) assessing awareness of OV among healthcare professionals; and (9) developing targeted training programmes to reduce OV in healthcare facilities. These efforts could provide valuable information and guide policies and practices that protect the rights, dignity and well-being of migrant women in the context of health services.

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Gender Justice and Food Security in Cape Town, South Africa

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Abstract: The food and nutrition challenges in Cape Town are complex and reflect historical legacies of colonialism and apartheid as well as the impact of contemporary neoliberal policy leading to extremes in socio-economic status. The right to food is enshrined in the South African constitution, yet there is an intersection between food, gender and injustice that prevails in marginalised communities in Cape Town, which is regarded to be one of the most unequal cities in the world and facing great social vulnerability. Rapid urbanisation, climate change, intensity of droughts and flooding, land speculation and shrinking quotas for small-scale fishing put pressure on the city's food system and reduce citizens access to nutritious food. A survey of 1 060 township households from 2011 showed that 80% of low-income households in Cape Town experience food insecurity. It is now acknowledged that COVID-19 exacerbated food insecurity, and that the city has high levels of poverty induced hunger and a lack of effective response from politicians. In the post-COVID period, and with the ongoing global crisis, food prices have escalated sharply, affecting those that are the most vulnerable. At the tail end of unjust food systems are women and children, and furthermore, women-headed households are in general more food insecure than male-headed. This paper contributes to an important issue in gender research, namely the intersection between gender justice and food security. The case study is carried out in a coastal community on the Cape Peninsula of the Western Cape, South Africa where a majority of the population experience food insecurity and frequent hunger. We explore how women in the community engage in activities that can contribute to improving food security, their motivation for taking action and for advocating for just and inclusive food systems. The study draws on a methodology of co-creation of knowledge, which is embedded in a critical feminist research tradition and that addresses the lived experiences of people in the community.

Keywords: Gender and Justice, Food Insecurity, Community-based Research, Critical Feminist Theory, South Africa

1. Introduction

On the African continent one out of every five people experience hunger with one key reason being the lack of access to affordable food suited to people having a healthy diet. It is estimated that more than 300 million people in Africa will suffer from chronic undernourishment at the end of the decade (FAO 2023). At the tail end of unjust food systems are women, which according to the United Nations (UN) creates a gender gap in food insecurity. Furthermore, in many environments, gender norms are constraining factors that limit women's access to resources such as land, education and access to adequate nutritional information, consequently leading to malnutrition and serious health problems, particularly in children (WFP 2024). South Africa is ranked the second most food-secure country in Africa and is, when looking at a regional level, the most food secure country in Sub-Saharan Africa (Economist Impact 2022). However, when looking at the household level, food insecurity is a pertinent issue in the country and many people go hungry (Gieske 2021), even though the right to food is enshrined in South Africa's constitution. Challenges related to food security were aggravated by the COVID-19 pandemic, that brought to the surface how food security was not only about food inflation, an export-oriented food system and the corporate-dominated agri-food sector, but revealed injustices related to continued spatial inequality, uneven power relations and intersectionality. Women-headed households were shown to, in general, be more food insecure than male based units even though women play a pivotal role in all aspects of food security (Paganini et al, 2021a; Battersby 2024). The City of Cape Town, in the recent State of the City Food System Report (2024) acknowledges that there is the need to accelerate the transformation of agri-food systems, to strengthen their resilience and to address inequalities so as to ensure that nutritious and healthy diets are affordable to all (Haysom and Pulker 2024). However, in many historically and currently disadvantaged communities with high levels of unemployment, lack of safety, violent crime, substance abuse, gangsterism and inadequate service delivery, people go hungry and suffer from malnutrition and other health issues. Access to a healthy diet is constrained and people are caught in unsustainable food systems, being dependent on big supermarkets and agri-business meaning that many cannot afford to buy nutritious food.

In present day Cape Town, the neoliberal logic represents a framework of governance that triggers inequality in the agri-food system and "a sea of injustice" (Fishers Festival 2024) in the small-scale fisheries environment where the power is channeled to big corporations (Paganini et al, 2021a). There are political and social barriers to food security that align with the concept of structural violence, meaning neglect from those in power (Ibsen,

Engel-Hills and Jernbro 2023). This concept was coined by sociologist Johan Galtung in 1969 as a tool for understanding the subtle form of violence that he understood not as intentional violence, but as 'something natural as the air around us' (Galtung 1969, p. 173) and that effectively prevents human beings from realising their full potential or the self. One precondition for reaching the full potential of an individual is to have access to healthy food on a regular basis, and it is within this context that African eco-feminist scholar Donna Andrews argues that 'women's individual and collective struggles for the right to food and nutrition are located' (Andrews et al, 2019, p. 7). In this paper we acknowledge the critical intersection between gender (in)justice and food (in)justice in a context where people are not willing to wait for the government to take action for securing people's right to food. Previous research argues that women often take the lead as food activists by addressing food security through urban farming and involvement in small-scale fisheries (Paganini et al, 2021a). Thus, our aim is to explore the role of women in building just and resilient local food systems. The question: how do women act to make change happen? is an important first step for gaining knowledges about practices for the reduction of food insecurity and for detecting important factors that facilitate or hamper the development of viable and long-term sustainable food security for all.

2. Research Design: A Case Study Approach

In this paper we choose to follow a single case study approach in a peri-urban community where land and sea area closely interconnected. This coastal community is in the category of chronic crisis (Engel-Hills and Engel 2023) and represents ongoing structural violence; it is illustrative of challenges related to gender justice and food security. A single case study represents a situational approach to places that are often ignored, and this is useful in its own right (Mbembe and Nuttall 2004). Importantly, this approach gives the researchers an opportunity to gain authentic knowledge about the lived experiences of challenges people meet in their particular community, and in our case, experiences related to activism for immediate and long-term food security solutions based on cultivating the soil and harvesting from the sea.

Historically people living in coastal villages in the South Peninsula of the Western Cape, South Africa based their diet on produce from small-scale farming and the sea. The forced removals in the period around 1968, due to the Group Areas Act, changed the traditional way of life. Farming was difficult in new communities as they were built on infertile land, however up till the late 1990s people in general had jobs, could buy food locally and engage in subsistence fishing. Socio-economic decline then started in the area, with industries closing, and moreover, with the tightening of fishing regulations (Gibb 2005) and this directly impacted on the community where we did our research. Regulations that gave way for big business and took away free access to seafood like crayfish and abalone, had a severe economic, cultural and dietary impact (Green 2020). The prolonged drought between 2015 and 2018 had an impact on food production that affected already poor households as prices escalated. There was in this period an 11,9% price increase on the basic and nutritional food basket for one family. A typical nutritious basket includes food that people in low-income households would prefer but could not afford. In 2018, 88% of people in our study area experienced moderate to severe food insecurity in terms of reducing quantities of food, skipping meals and of buying less healthy food, while 71.1% of households experienced hunger (Römmelmann 2018). In the context of neglect from the government, community members have developed tactics of constructive resistance that aim at countering food insecurity (Ibsen, Engel-Hills and Jernbro 2023). Our research reveals a strong activism among women who seek to change the norm of unhealthy diet through reestablishing access to organic vegetables and food from the sea, while also creating environmental awareness, particularly among young people.

3. Methodology and Method

For this paper we draw on a methodology that is inspired by a critical feminist research framework that seeks to explore how community-led action has the potential for driving socio-ecological transformation that is necessary for the development of just food systems (Paganini et al, 2021b). This framework resists top-to-bottom approaches and acknowledges that community members are the ones to identify solutions in collaboration with the researchers (Stengers 2021). Our approach also aligns with place-based gender research focusing on unique stories and knowledge as a basis for social transformation (Shefer, Bozalec and Romano 2023).

The study was based on a purposeful sample of four women that explored the individual experiences of being food activists in terms of being involved in organic farming and small-scale fisheries. Storytelling sessions took place with the women, two at the time, over a period of 8 weeks in October and November 2024, following the microhistory genre that first and foremost pays attention to small units of research, such as individual and

community. Following Joyner, microhistory aims to ask, “large questions in small places” (Joyner 1999 p. 1) which also means the recognition of positionality that understands research within historical and structural contexts (Andrews et al, 2019). For a deeper contextual understanding of the stories told by women in this study, we also participated in two workshops on food security in the study area, Brainstorms on the Bay 12 October and 2 November. Further, we conducted observations at the Fishers Festival of Small-Scale Fishers in Cape Town on 26 October, that gave more detailed insights into present challenges for continued livelihood and culture of fishing villages. Analysis of stories was guided by a reflexive thematic analysis as it acknowledges the subjectivity of the researcher which is regarded to be an integral part of the interpretation of individual experiences and knowledge (Braun and Clarke 2020).

4. Narratives of Cultivating the Soil and Harvesting From the Sea

The journey of the women involved in urban farming and the small-scale fishing cooperative started as constructive resistance to structural violence (Ibsen, Engel-Hills and Jernbro, 2023) and reflects their strong belief in community-led solutions. There is a dominant narrative of the will to stand up for themselves and be the change. For change to happen the women who were involved in this study took on the role of food activists; they are driven by multiple motives and experiences, but they are all passionate about the particular ways they seek to bring long-term food security to people in their community. However, being food activists and women, do not go without challenges.

4.1 “We Can’t Wait for the Government”: Building Community Through Food

Urban farming in townships and organic-inner city gardens have vital functions for food security in Cape Town and must be understood in a wider context than conflicts over land claims and agrarian reform. People involved in urban farming projects are driven by visions that people take control of and responsibility for what they eat, not leaving it to retailers (Kavonic 2024). This vision is shared by two women in our study area that have taken the lead in building up a small-scale organic farming plot at one of the school yards in the community. They are “plant sisters” who’s motivation goes deep and emerges from far back in their family history with relatives being involved in cultivation of vegetables, plants and of knowing the importance of making compost: “I have it in my blood, my roots” one of them said, and that encouraged her to seek knowledge about how to cultivate, how to plant from seeds, stage plants and make compost with little money. She gradually built her farming skills with the help of her mentor and inspirator, also a woman, who ran workshops that were focused on practical solutions. The other woman who is now the ambassador for food security in the area often says “I was born a farmer”, but it was not until some years ago that she got the opportunity to receive training when a non-Profit Organisation (NPO) in the area established an organic farm in the community, which was later taken over by a cooperative that played a vital role in food security during COVID-19. Although this initiative was not viable in the long term, the intentions of cultivating organic, nutritious and affordable produce as a means to change the norms of unhealthy diets and for creating environmental awareness, now guide the new school plot. The women highlight nutrients as an important dimension of food security.

However, both women agree that using the schoolyard for cultivation has multiple functions. Firstly, it is important to transfer knowledge to children and youth so they can learn how to grow and make compost. The children are encouraged to take organic waste from home to the compost station at the school, meaning that they have a potential for educating their parents. Making compost is crucial as the soil is not naturally fertile and it is expensive to buy from private companies. Secondly, involving them in the daily tasks of the farm also aims at keeping them out of trouble. The women care about the soil and the children, and they say: “no food security without social security” and argue that it is important not to separate social and ecological sustainability. In the garden children find solace; it is a safe space where they also gain knowledge about local ecosystems and participate in the eco-club set up by the women. The school yard in our study area plays an important role for containing the diversity of trees, birds and plants that can be used for educational purposes. This is particularly important for one woman who is also a certified pollinator and is dedicated to sharing her knowledge and creating awareness of biological diversity.

The “plant sisters” shared stories about why they are passionate about engaging in food security at the household level and how they imagine the future of their activism. Food security is about more than nutrients and calories, but also about self-worth, ritual and dignity. “The feeling of own food which happens when you grow food by your own hands” matters and makes a connection between soil and soul. In order for people in the community to improve their health, both women suggest it is necessary to teach people how to get rid of

junk food and turn to healthy diets. Ideally, they would like every household to have a garden or a small piece of land to grow organic vegetables to provide nutrition, especially vitamins, and preferably also indigenous plants used for medicinal purposes. To make an easy start they suggest growing different “veggies” in different households and then people can share and barter. For people living in flats one suggestion is that they get access to food boxes and start on a small scale with herbs and edible plants. The box model would create awareness about eating “better” and healthy food as they are rich in nutrients and don’t need much space.

When talking about ways to move forward both women agreed that there are challenges. One particular challenge at the farm is the water supply and maintenance as well as security because pumps have been stolen. The solutions are not straightforward and require a collective approach of the school leadership and the community to support the initiative of these two women for the betterment of the lives of the children directly involved and the community more broadly. Another challenge is that people need training about how to grow their own food, and also money to buy seeds and seedlings. As food activists they are willing to teach people “to produce food without much money”, and acknowledge that donations need to play an important part. The woman who is the food ambassador has built good connections over the years, and she is able to acquire some funding and resources, for example she obtains seedling donations, and a sponsored greenhouse is in the process of being built on the school premises. However, to take the project wider and to build a community network of home gardens is a vision that will take resources to implement effectively. For now, this is at the level of building awareness and taking on the challenge one household at a time.

4.2 “They set us up to Fail”: Livelihoods of Small-scale Fisherfolk

Fishing rights conflicts are rife along the coastline of the Western Cape with the main issue being the struggle to access marine resources (Paganini et al. 2021a). This is the unfortunate status even if politicians recognise the vital role of small-scale fishing:

“Across the world, small scale fishermen and women play an important role in promoting household food security and providing livelihoods in areas where there are little other means of support” ... “The success of these co-operatives depends on, amongst others, having a commercially viable basket of species” (Bizcommunity, 22 Nov 2021 quoting Forestry, Fisheries, and the Environment Minister, Barbara Creecy).

The quote is illustrative of the gap between government talk and the lived experience of people in the community who are struggling to secure their rights to sustainable small-scale fishing. The women in our study area tell a story of a long process starting in 2016 when fisherfolk started to complain about not being granted rights to fish while the Department of Forestry, Fisheries and the Environment (DFFE) allocated fishing rights to big commercial actors. After a long review of the allocation process, the Western Cape High Court set the process aside in August 2022, which meant that the procedure had to start all over again. However, in November 2023, around 62 fishing cooperatives were allowed to be set up operations (Human 2023). The fishing cooperatives were allocated rights to catch West Coast rock lobster, hake handline, seaweed, line fish, oysters and white mussels, and recently also squid. The story however, reveals that the women are not happy with how the system works in practice. They say that those in power constrain their ambitions and visions for long-term viability of using marine resources, one reason being the Marine Living Resources Amendment Act No. 5 of 2014 that will lift the ban on China fishing in currently restricted international waters. More importantly for our participants is that the threats to small-scale fisheries in South Africa, lay with the DFFE: “they keep us out of commerce”. The cooperative operates with limited resources and report this is based on a subsistence model with limited quotas that do not allow for a viable basket of species or adequate catch volume for sustainability. Further, the application process for getting fishing permits is highly bureaucratic; instructions are written in a complicated language that is difficult for most people to read and understand.

Notwithstanding structural challenges, the women keep fighting for small-scale fisheries as they want to see changes in their community when it comes to employment opportunities and hunger relief expressed as: “We have a right to life”. One of the women is very specific about her motives for being involved in the cooperative: “I hate what they do to the poor...people are hungry”. If the cooperative works properly it will generate money for payments to be made to the members, and also people in the community will be able to buy food at affordable costs. However, the women also point at internal difficulties. They say that “something is wrong” within the management of the organisation referring to internal mistrust, lack of information and corruption: “Directors keep members in the dark, they keep secrets”. They also explained that the finances are not adequately recorded. The cooperative needs to pay tax, but the accounting must be done correctly to enable this. One of them even resigned for a long period, but came back as they need to get the paperwork into the

DFFE, otherwise, the cooperative will not get allocated rights for a new period. There are “strong women” in the cooperative, she said, and they will not tolerate mismanagement. She was also specific about the role of women in this male dominated sector as they have put effort into understanding the application process: “We must educate the fishermen” about their rights and license application.

5. Concluding Remarks

The community where this research took place experiences a chronic social crisis, which is understood as being caused by neglect from those in power. In this context of structural violence food insecurity is rife, which is highlighted by previous research in the community before the Covid-19 pandemic (Römmelman 2018) and, further by our recent research for this paper that aimed at exploring how women in particular seek to build just and resilient local food systems as part of their struggle for social transformation. This approach aligns with the critical feminist approach to food security arguing that gender (in)justice and food (in)security are intertwined and that women in South Africa are leading the struggle for the right to healthy and nutritious food (Andrews et al. 2019) by engaging in small-scale urban farming and fisheries (Paganini et al, 2021a). Through our case-study design that was based on place-based gender research and storytelling, we created a framework for exploring how women act to improve food security. We got deep and authentic knowledges about women’s experiences as food activists and the challenges they meet. In different ways they have developed tactics of resistance to injustices that influence food security in their particular community. Development of different tactics must be understood in a context of structural violence as the women experience being neglected by those in power. However, they express this differently: “we can’t wait for government” and “the system set us up to fail”.

The women involved in farming have entered a traditionally male space, which in South Africa is also dominated by issues over rights to land. However, women are more and more entering the sector (Paganini et al 2021a). In our case claiming the right to land is not the focus of the women who use the school yard for urban farming. They are seeking ways of building community through food security and are very specific about not separating social and environmental sustainability. Their narrative reveals tactics of constructive resistance aimed at changing norms and practices. The language used in their storytelling reflects that they are very close to the earth, to the idea of nurturing and caring, all central aspects of an eco-feminist approach to food security (Paganini et al., 2021b). There is a strong connection between soil and soul that is fundamental for understanding their focus on growing organic food and of passing on their knowledge to community members, and to children in particular. They see themselves as educators that can improve food security and safety while at the same time bringing dignity to community members. They are food activists that “can’t wait for government” to take action.

Compared to farming, the fishing sector and the conflicts over small-scale fisheries provide a different context for exploring women’s role in food security. It is still a masculine space with gendered roles; men go to sea, women fleck the fish, pickle and sell, and in our case women also seek to educate and support the men. For women this is a rough space to enter. The narrative of the two women involved in small-scale fisheries reveals that they have a strong desire to claim their rights to the sea, which they say, are undermined by the government. The focus on the right to fish is more distinct in their narrative than food security. In order to be heard, they have developed a confrontational tactic of resistance; they don’t accept mismanagement of the cooperative; they confront cooperative members in meetings, they seek change and believe that change can come about if they fight. They use harsh language: “we must fight them in the face”. In this case “them” refers to actors in government as well as to the directors in the cooperative. However, food security issues are not absent. Confrontational tactics of resistance are driven by anger as people in the community are

Our aim was to explore the role of women in building just and resilient local food systems and we approached the research with the question; how do women act to make change happen? In this first step for gaining knowledges about practices of women in one community for the reduction of food insecurity we have uncovered some key differences between the strong but nurturing women working the land and the tough approach needed by the women tackling the challenges for small scale fisheries. While some focus on food security while others fight for food justice, the case study clearly shows that women are active in the drive for food security for all. This research has provided insights into how women act in two examples of the food chain and highlights some of the challenges these women face as activists and ambassadors. Further interrogation is needed to gain deeper insights into how women in this community can be supported to turn their enthusiasm and hard work into a long-term sustainable solution for food justice and security.

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Why Aren't Women Interested in Entrepreneurship? Exploring the Impact of Social Support and Perceived Entrepreneurship Competence

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Abstract: Previous research has demonstrated that female students exhibit lower entrepreneurial intentions compared to their male counterparts, with these intentions also developing less significantly over the course of their studies (Joensuu et al, 2013). However, the precise reasons for this disparity remain unclear. This study examines the issue from two perspectives: entrepreneurship competence and support from one's immediate social circle. The aim of the research is to investigate gender differences in entrepreneurial intentions, entrepreneurship competence, and the perception of social support. Additionally, the study explores the influence of gender, entrepreneurship competence, and social support (subjective norm) on entrepreneurial intentions. The data for this study were collected in Finland over four different years (2019, 2020, 2021, and 2023) from first-year higher education students. The dataset includes a total of 2,795 respondents, with 1,430 men and 1,339 women. The results indicate that women consistently have lower entrepreneurial intentions, entrepreneurship competence, and subjective norm scores than men in every year of data collection. Moreover, linear regression analysis reveals that gender, entrepreneurial competence, and subjective norm explain 51% of the variance in entrepreneurial intentions, with subjective norm being the most significant factor in explaining these intentions. Furthermore, the regression analysis shows that gender moderates the effect of entrepreneurship competence—this effect is stronger for men than for women. For women, subjective norm is particularly significant. The experience of support for entrepreneurship is lower among women, which negatively impacts their entrepreneurial intentions. The findings suggest that societal support for entrepreneurship still favours men, which in turn influences entrepreneurial outcomes. It is possible that families continue to raise children differently based on gender, with entrepreneurship being perceived as more masculine and therefore more suitable for men than for women.

Keywords: Entrepreneurial Intentions, Gender, Entrepreneurship Competence, Social Support

1. Introduction

Previous research has demonstrated that female students exhibit lower entrepreneurial intentions compared to their male counterparts, with these intentions also developing less significantly over the course of their studies (Joensuu et al, 2013). However, the precise reasons for this disparity remain unclear. This study examines the issue from two perspectives: entrepreneurship competence and support from one's immediate social circle. The aim is to investigate gender differences in entrepreneurial intentions, entrepreneurship competence, and the perception of social support among first-year higher education students. Additionally, the study explores the influence of gender, entrepreneurship competence, and social support on entrepreneurial intentions.

Prior studies have examined the network connections between individuals within social networks, highlighting their importance in establishing businesses (e.g., Ostgaard and Birley, 1996; Jenssen and Koenig, 2002; Klyver and Hindle, 2007). Socio-psychological theories—including social exchange theory (Emerson, 1976), social networks (Granovetter, 1985; Burt, 1992), the social capital approach (Nahapiet and Ghoshal, 1998), and network learning (Lane and Lubatkin, 1998; Knight, 2002)—indicate that an individual's immediate network (such as parents, spouse, partner, friends, and colleagues) can significantly influence the formation of entrepreneurial intentions. Oussama et al (2023) indicated that, for example, family support plays a critical role in explaining entrepreneurial intentions. It is possible that men perceive greater support from their social circle for potential entrepreneurial endeavours than women do. In this study, social support is analysed through the framework of Ajzen's (1991) Theory of Planned Behaviour, in which beliefs about support from significant others explain an individual's entrepreneurial intentions (referred to as the subjective norm).

Another factor is the individual's perception of their own entrepreneurship competence. In this study, entrepreneurship competence is examined using the EntreComp Framework developed by the European Commission, which comprises three competence areas: Ideas and Opportunities; Resources; and Into Action (Bagaluppo et al, 2016). Within this framework, entrepreneurship is defined as the ability to transform value-

generating ideas into action, and it is considered a key transversal competence essential for every citizen's personal fulfilment and development, active citizenship, social inclusion, and employment in the knowledge society (Bagicalupo et al, 2016). In this study, entrepreneurship competence is understood as the capability to create value for others and to implement ideas using the necessary resources. Consequently, the concept of entrepreneurship competence encompasses the entrepreneurial skills required for this value creation process. Prior research has shown that women score lower on entrepreneurial self-efficacy than their male counterparts (Kickul, Wilson and Marlino, 2008). Hence, this may also reflect on women's evaluation of their entrepreneurship competence as well, which in turn affects their entrepreneurial intentions.

This study addresses two research questions: 1) Are there consistent differences between women and men in their ratings regarding entrepreneurial intentions, entrepreneurship competence, and social support for entrepreneurship? and 2) What is the role of social support and entrepreneurship competence in explaining the entrepreneurial intentions of women and of men? Hence, we try to understand which factors contribute to the fact that women are not as interested in entrepreneurship as men.

2. Literature Review and Hypothesis Development

2.1 Gendered Entrepreneurship

Earlier research indicated that women-owned businesses were smaller or less profitable than those owned by men, leading scholars to conclude that women "underperform" as business owners (Hisrich and Brush, 1987; Kalleberg and Leicht, 1991; Tillmar et al 2022). The "underperformance hypothesis" attributed the disparity to a lack of entrepreneurial skills in women, leading to repeated efforts to "fix" them rather than addressing the industries in which they operated (Ahl, 2006; Marlow and Swail, 2014; Tillmar et al 2022). Consequently, research on women's entrepreneurship often compared women's businesses to those of men, with minimal attention to the gender order and its impact (Tillmar et al., 2021). Gender is a social construct that defines masculinity and femininity, along with the relationship between them, referred to as the gender order (West and Zimmerman, 1987; Butler, 2004). This gender order is shaped by the principles of hierarchization and segregation (Gherardi and Poggio, 2001). Hierarchization values what is considered male as the norm, while segregation separates male and female roles based on these gender distinctions (Tillmar et al 2022). The underperformance hypothesis has been strongly refuted in numerous studies (e.g., Durietz and Henrekson, 2000; Watson, 2002; Robb and Watson, 2012). Researchers argue that women's entrepreneurial performance is often constrained by gendered norms both within and across industries (Tillmar et al., 2022). What is commonly perceived as characteristic of entrepreneurship closely aligns with traits considered masculine (Ahl, 2004; Calas and Smircich, 2006).

However, the debate on gender and entrepreneurship continues in the literature (Tillmar et al, 2022), with some research portraying women as an untapped entrepreneurial resource (Ramadani, Hisrich and Gërguri-Rashiti, 2015) and suggesting that women are less inclined to take risks compared to men (Demartini, 2018). Some studies indicate that family support is essential for the success of women entrepreneurs' business ventures, particularly in fostering entrepreneurial behavior (e.g., Anwar & Rashid, 2012; Maziku et al., 2014). Additionally, studies indicate that a lack of family support negatively impacts self-image, self-confidence, and motivation to start or sustain a business venture (Itani et al., 2011; Jamali, 2009; Majenga & Mashenene, 2015). Overall, women entrepreneurs are still seen as a marginal presence in entrepreneurship, primarily because of the dominance of male entrepreneurs (Ramadani, Hisrich and Gërguri-Rashiti, 2015; Sowmya et al, 2010) and the prevalent perception of entrepreneurship as a predominantly masculine field (Marlow and Martinez Dy, 2018). Thus, we assert that:

H1: Women students rate their entrepreneurial intentions consistently lower than their male counterparts.

2.2 Theory of Planned Behavior and Social Support

One of the most used theories in the context of entrepreneurial intention research is the Theory of Planned Behavior (TPB) developed by Ajzen (1991). The TPB suggests that intention is the immediate antecedent of behavior. Consequently, the stronger the intention to engage in a specific behavior, the more likely is its actual implementation (Ajzen, 1991). Many researchers have confirmed the validity of the TPB as a predictor of human behavior (e.g., Chu, Chen and Sung, 2016; Yang, Choi and Lee, 2018). The TPB has three conceptually independent antecedents of intentions: attitudes, the subjective norm, and perceived behavioral control (Ajzen, 1991).

The present study concentrates on the impact of the subjective norm, which refers to social support. The subjective norm is based on beliefs concerning whether important referent individuals or groups approve or disapprove of an individual establishing a business and to what extent that approval or disapproval matters to the individual (Ajzen, 1991, p. 195). There are mixed findings relating to the impact of subjective norm on entrepreneurial intentions (see Maheshwari, Kha and Arokiasamy, 2023). For example, Zhang et al (2015) showed a positive and significant effect of social norms on entrepreneurial intentions, while Maresch et al (2016) found a negative relationship. Iakovleva, Kolvereid and Stephan (2011) showed that subjective norm had a significant effect on entrepreneurial intentions of students in developing countries. Gonzalez-Tamayo et al (2024) found that the effect of subjective norm on entrepreneurial intentions was mediated through entrepreneurial self-efficacy and parental role models. Despite the mixed findings of prior research, we base our hypothesis on Ajzen's (1991) original model as it has proven to be valid in different contexts, and suggest that:

H2a: Subjective norm (social support) positively influences entrepreneurial intentions.

Research has highlighted significant gender differences in how social support and subjective norms influence entrepreneurial intentions – for example, Tian et al (2022) showed that perceived entrepreneurial support mediates the association between proactive personality and entrepreneurial intention. Furthermore, they revealed that the positive relationship between perceived entrepreneurial support and entrepreneurial intentions is more pronounced for female students, suggesting that women may rely more heavily on social support when considering entrepreneurship. Similarly, Molino et al (2018) indicated that while both men and women benefit from social support, the impact of support from family and friends on entrepreneurial intentions is stronger for women. Additionally, Chin, Mustafa and Nungsari (2024) found in their research on Malaysian students that females perceive subjective norms and entrepreneurial self-efficacy differently than males, underscoring the importance of gender-specific social contexts in shaping entrepreneurial aspirations. Based on prior findings, we suggest the following hypotheses:

H2b: Women students perceive less support from their social networks for a potential entrepreneurial career compared to men.

H2c: Social support is more important factor explaining entrepreneurial intentions of women than of men.

2.3 Entrepreneurship Competence

Entrepreneurial competencies can be described as a constellation of characteristics, encompassing personality traits, specific knowledge, and skills, which are associated with successful business development (Gustomo et al, 2017; Bird, 2019). Kakkonen (2012) characterizes entrepreneurial competences simply as the knowledge and skills needed in setting up a business. In this study we apply the EntreComp framework, which refers to the ability to transform value-generating ideas into action (Bagicalupo et al, 2016), hence not necessarily associating entrepreneurship competence with starting a business. Regarding the influence of self-perceived entrepreneurial competence on entrepreneurial intentions, most studies report positive impact (Lorz, Mueller and Volery, 2013; Daliman, Sulandari and Rosyana, 2019; Ignacio, Pilar and Enrique, 2024). Further, Joensuu-Salo, Viljamaa and Varamäki (2022) demonstrate a connection between entrepreneurship competences and start-up behavior. Based on prior studies we suggest the hypothesis:

H3a: Entrepreneurship competence positively influences entrepreneurial intentions.

Women are influenced in entrepreneurial contexts by societal norms and gendered expectations (Kirkwood, 2009; Shinnar, Giacomini and Janssen, 2012). Prior literature strongly suggests that men tend to estimate their entrepreneurial competences on a higher level than women (Langowitz and Minniti, 2007; Somiá, Pittaway and Benedict, 2024). Even established women entrepreneurs may feel the effect of stereotypes (Martíarena, 2022; Zhang et al, 2023). Based on prior studies, gender-based differences in self-perceptions of entrepreneurial competencies are likely. We suggest the hypothesis:

H3b: Women students rate their entrepreneurship competence consistently lower than their male counterparts.

3. Data and Method

The data for this study were collected in Finland over four different years (2019 (n=501), 2020 (n=872), 2021 (n=832), and 2023 (n=590) from first-year higher education students. The dataset includes a total of 2,795 respondents, with 1,430 men and 1,339 women. The mean age of the respondents is 25 years. Students represent different study fields (Table 1). 39 percent of the respondents study in the field of Technology,

Communications and Transport, 26 percent in the field of Business and Administration, 19 percent in Social services, Health and Sports, 7 percent in Natural Sources and the Environment, 5 percent in Tourism, Catering and Domestic Services, 5 percent in Culture, and 0,2 percent in the field of Natural Sciences.

Table 1: Respondents' study fields.

Study Field	N	Percent
Culture	143	5,1
Natural Sciences	6	0,2
Natural Sources and the Environment	183	6,5
Tourism, Catering and Domestic Services	142	5,1
Social services, Health and Sports	516	18,5
Technology, Communications and Transport	1082	38,7
Business and Administration	723	25,9
Total	2795	100,0

Entrepreneurial intentions were measured using three items based on Linan and Chen (2009), with good reliability (AVE 0.76, Cronbach's alpha 0.90). Entrepreneurship competence was measured using 15 items based on Joensuu-Salo et al. (2022), who developed the measurement instrument based on the EntreComp Framework, also demonstrating good reliability (AVE 0.52, Cronbach's alpha 0.94). Subjective norm was measured following Ajzen (1991) with good reliability (AVE 0.66, Cronbach's alpha 0.85).

First, the differences between women and men in entrepreneurial intentions, subjective norms, and entrepreneurship competence were tested using t-tests. Second, linear regression analysis was used to examine the effects of gender, subjective norms, and entrepreneurship competence on entrepreneurial intentions. Third, the linear regression analysis was conducted separately for women and men to determine the importance of different factors in explaining entrepreneurial intentions between genders.

4. Results

The results of the t-tests indicate that women have lower levels of entrepreneurial intentions, subjective norm, and entrepreneurship competence than men in every year of data collection. The difference is statistically significant every year regarding entrepreneurial intentions, in 2019 and 2023 regarding subjective norms, and in 2020, 2021, and 2023 regarding entrepreneurship competence.

Table 2: Entrepreneurial intentions, subjective norm and entrepreneurship competence of women and men in years 2019-2021.

Entrepreneurial Intentions			
Year	Women (mean, sd)	Men (mean, sd)	Sig. (t-test)
2019	3,16 (1,51)	3,76 (1,52)	p<0,001
2020	3,44 (1,65)	3,84 (1,53)	p<0,001
2021	3,46 (1,60)	4,02 (1,57)	p<0,001
2023	3,43 (1,82)	4,25 (1,70)	p<0,001
Subjective Norm			
Year	Women (mean, sd)	Men (mean, sd)	Sig. (t-test)
2019	3,79 (1,27)	4,03 (1,22)	p<0,05
2020	4,00 (1,27)	4,08 (1,23)	-
2021	4,06 (1,28)	4,16 (1,24)	-
2023	3,73 (1,57)	4,31 (1,45)	p<0,001
Entrepreneurship Competence			
Year	Women (mean, sd)	Men (mean, sd)	Sig. (t-test)

2019	5,01 (0,88)	5,05 (0,77)	-
2020	4,91 (0,95)	5,06 (0,88)	p<0,05
2021	4,82 (0,92)	4,98 (0,94)	p<0,05
2023	4,55 (1,35)	4,87 (1,16)	p<0,01

The results of the linear regression analysis are presented in Table 3. Results show that among first year higher education students, gender, entrepreneurial competence, and subjective norm explain 51% of the variance in entrepreneurial intentions, with subjective norm being the most significant factor in explaining these intentions. Furthermore, the regression analysis shows that there are gender differences in factors explaining entrepreneurial intentions. For women, subjective norm is particularly significant ($\beta=0,658$), entrepreneurship competence being less significant factor ($\beta=0,099$) compared to men ($\beta=0,202$). The experience of support for entrepreneurship is lower among women, which negatively impacts their entrepreneurial intentions. The model explains 49 of the variance in entrepreneurial intentions among women and 50 percent of variance in entrepreneurial intentions among men. The F statistics of the models are statistically significant ($p<0,001$).

Table 3: Results of the linear regression analysis.

	All data (n=2795)	Women (n=1339)	Men (n=1430)
Constant	B -0,835*** (0,115)	B 0.217 (0.223)	B -0,828*** (0,163)
Subjective norm	B 0,781*** (0,018) β 0,627	B 0,805*** (0,025) β 0,658	B 0,750*** (0,025) β 0,606
Entrepreneurship competence	B 0,241*** (0,024) β 0,146	B 0,158*** (0,033) β 0,099	B 0,338*** (0,034) β 0,202
Gender	B 0,364*** (0,044) β 0,111		
F statistics	952,178***	634,029***	723,595***
Adjusted R ²	0,508	0,486	0,503

Standard errors are reported in parentheses.

*, **, *** indicate significance at the 90 %, 95 %, and 99 % level, respectively.

The results give support for all our hypotheses. Women students rate their entrepreneurial intentions lower than their male counterparts (H1). Subjective norm positively influences entrepreneurial intentions (H2a) as does entrepreneurship competence (H3a). Women students perceive less support from their social networks for a potential entrepreneurial career compared to men (H2b) and rate the entrepreneurship competence lower than their male counterparts (H3b). Social support is a more important factor explaining entrepreneurial intentions of women than of men (H2c).

5. Discussion and Conclusions

This research aimed to examine gender differences in entrepreneurial intentions, competence, and social support. It also explored how social support and competence influence these intentions. Results showed that men have higher entrepreneurial intentions and competence, and perceive more social support than women. These findings are consistent with previous studies, such as Joensuu et al. (2013), which found higher entrepreneurial intentions among male students.

Furthermore, our results indicate that entrepreneurship competence and social support explain entrepreneurial intentions. Since men have higher competence and perceive more social support, their entrepreneurial intentions are also higher. Our study resonates with the findings of Shinnar, Giacomini, and Jansen (2012), which showed that women often display lower self-confidence in entrepreneurial settings compared to men, largely due to societal norms and gender expectations. In our study, women reported lower ratings of entrepreneurship competence. This suggests that their actual competence is not lower, but their self-assessment is, potentially due to lower self-esteem related to entrepreneurship. This lower self-esteem may be influenced by the masculine discourse of entrepreneurship (Ahl, 2004).

Our findings also reveal that entrepreneurship competence and perceived social support for entrepreneurship explain the entrepreneurial intentions of both men and women. Interestingly, the influence of perceived social support is even more significant for women students than for men. Our study supports the findings of Molino et al. (2018), who also showed that support from family and friends is more crucial for women than for men in explaining entrepreneurial intentions. Therefore, our study suggests that societal support for entrepreneurship still favors men, which in turn influences entrepreneurial outcomes. It is possible that families continue to raise children differently based on gender, with entrepreneurship being perceived as more masculine and thus more suitable for men than for women.

This study highlights how societal norms and gender expectations shape entrepreneurial behavior. It emphasizes the importance of social support and entrepreneurship competence, noting their different impacts on men and women. For policymakers and educators, the findings suggest targeted programs to enhance entrepreneurship skills and support, especially for women. Creating supportive networks and mentorship programs can encourage more women to pursue entrepreneurship. Additionally, the study calls for challenging societal norms that lower women's self-esteem and perceived competence. Promoting gender equality through awareness campaigns can foster a more inclusive entrepreneurial ecosystem. Further research is needed to explore and address these gender differences.

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Reframing Women Entrepreneurship: Unpacking Gender Roles, Balance, and Empowerment

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Abstract: Entrepreneurship is inherently shaped by gender, with norms and expectations influencing how women experience their roles as entrepreneurs. Traditionally, entrepreneurship has been aligned with masculine traits such as assertiveness and risk-taking, perpetuating stereotypes that often conflict with societal perceptions of femininity. This disconnect frequently gives rise to biases and structural barriers, including significant disadvantages in securing financing. Beyond financial challenges, women entrepreneurs also contend with gender discrimination and issues related to work-life balance. While there is evidence of a gradual shift toward a more inclusive entrepreneurial image, entrenched gender biases continue to shape the experiences of women in this field. Nevertheless, some scholars argue that entrepreneurship can offer women a means to navigate and counteract gender discrimination. It provides a degree of flexibility and autonomy, enabling a more favorable work-family balance. For many women, entrepreneurship not only serves as an escape from workplace biases but also creates opportunities to assert greater agency and independence in their professional lives. This study seeks to explore how gender influences women's experiences as entrepreneurs. Using a qualitative approach, interviews with 12 growth-oriented women entrepreneurs reveal complex gendered discourses that both reflect and challenge the dominant, traditionally masculine narrative of entrepreneurship. Through discourse analysis, three distinct discourses were constructed, highlighting how deeply embedded gender norms shape women's entrepreneurial journeys. These findings provide valuable insights into the unique challenges women encounter and highlight the potential of entrepreneurship as a strategic avenue for achieving work-life balance and personal agency. By examining these gendered discourses, the study contributes to a broader understanding of how entrepreneurship can evolve to be more inclusive, recognizing and addressing the distinct obstacles women face. This research thus underscores the importance of shifting away from a monolithic entrepreneurial model to a more diverse, inclusive one that respects and supports varied gendered experiences in the entrepreneurial landscape.

Keywords: Discourse, Gender, Stereotypes, Entrepreneurship

1. Introduction

Previous studies have demonstrated that the barriers to women's career advancement are not due to a lack of interest, but rather to gendered structures and practices in the work life. Masculinist career models are problematic for women, as women typically have multiple roles (Biese and Choroszewicz, 2019). Especially mothers experience discrimination in work life, as they are often seen as unreliable employees, and their childcare responsibilities are considered an obstacle in their careers (Chung and van der Horst, 2017). Some researchers frame entrepreneurship as a pathway for women to navigate and overcome gender discrimination in the workplace. Thus, entrepreneurship is seen as a last resort to balance work and family life (Burton et al, 2019; Yang et al, 2023). Biese and Choroszewicz (2019) have studied the opting out phenomenon of women from the agency perspective and they see that opting out can be a way for women to develop the agency to create alternative work solutions. Opting out doesn't necessarily mean leaving the workforce; it can represent a new way of working, such as through entrepreneurship. Entrepreneurship offers women an opportunity to achieve a better work-family balance while preserving their individual agency.

Critical research suggests that the discourse of gender equality in entrepreneurship often benefits only a select few, influencing women's aspirations and shaping their behaviours (Ahl and Marlow, 2021; Ahl, 2006; Lewis, 2014). Meanwhile, entrepreneurship literature commonly links entrepreneurial traits to traditionally masculine qualities, creating a hierarchy that portrays women as lacking in entrepreneurial potential, ambition, and essential traits (Bruni et al., 2004). This masculinized discourse casts femininity as deviating from the entrepreneurial ideal (Ahl, 2006), reinforcing a perspective that sidelines women entrepreneurs and diminishes the perceived value of their businesses (Gupta et al., 2013; Hamilton, 2014). Consequently, entrepreneurial discourse remains heavily influenced by masculine ideals (Jennings and Brush, 2013; Henry et al., 2015).

The aim of our study is to explore the ways in which gender influences women's entrepreneurial experiences. Using a qualitative approach, we interviewed 12 growth-oriented women entrepreneurs. Through discourse

analysis, we identified three key gendered discourses that highlight the complex ways in which gender shapes entrepreneurial experiences, challenging the traditionally masculine narrative of entrepreneurship.

2. Women Entrepreneurs and the Experiences of Entrepreneurship

Entrepreneurship is a gendered phenomenon (Jennings and Brush, 2013). Gender, deeply embedded in cultural and social structures, influences the way in which women entrepreneurs experience their lives as entrepreneurs. Although the image of an entrepreneur may be changing (Elliott, Mantler and Huggins, 2021), entrepreneurship has traditionally been considered a masculine domain, associated with traits such as risk-taking and assertiveness (Ahl, 2006). Thus, there is a level of mismatch between the female gender stereotype and the stereotypical image of an entrepreneur, which leads to biases and barriers in e.g. financing (Jennings and Brush, 2013; Bianco, Lombe and Bolis, 2017; Marlow and Swail, 2014; Malmström et al, 2024).

But how do women entrepreneurs themselves experience gendered entrepreneurship? Lewis (2015) shows that a woman entrepreneur's firm can become a type of identity workspace, more empowering than a traditional workplace. Entrepreneurship can be a means of contesting or challenging existing gender norms but also a space in which social gender expectations are enacted (Bianco, Lombe and Bolis, 2017), or where idealized femininity taking on multilayered requirements is performed (Heizmann and Liu, 2022). Zhu, Thornhill and Hsu (2021) find that women entrepreneurs are more likely to persist in underperforming businesses and argue that this is due to an identity connection with their business. Oliveria, Basini and Cooney (2021) show that women entrepreneurs can experience misalignment with what is expected from an entrepreneur: their own orientation may differ. Even women entrepreneurs who, on surface level, overcome gendered constraints, experience underlying tensions (Doshi, 2022). At the same time, women can actively seek to establish an entrepreneurial identity that differs from the traditional masculine view (Kubberød, Jones and Pettersen, 2021).

Work-life balance is one of the elements in which the gendered nature of entrepreneurship is apparent. While male entrepreneurs seek work-life balance by obtaining family support at home, women entrepreneurs work to create work-family synergies (Eddleston and Powell, 2012). For instance, opting out can enable women to gain agency and develop alternative work solutions that align with their responsibilities and goals (Biese and Choroszewicz, 2019). The literature suggests that the sphere of family is more important for women entrepreneurs (see e.g., Brush, de Bruin and Welter, 2009; Rashmi and Kataria, 2021). Women experience work/family role conflicts that are lessened with family support (Welsh et al, 2021), and family support is critical for women entrepreneurs' success (Welsh et al, 2023). Contrary to Biese and Choroszewicz's (2019) arguments, results by Dihn et al (2021) suggest that self-employment may in fact entrench gender inequities in work opportunities, leading to mothers fitting work even more on around family care. However, mothering can also form the basis for becoming an entrepreneur in the wider career-life context (Hudson Breen and Leung, 2020).

3. Methodology

This qualitative study employs both Appreciative Inquiry (AI) and Discourse Analysis (DA) methodologies. Originally developed by Cooperrider and Srivastva (1987), AI focuses on identifying organizational strengths and core values rather than concentrating on problem-solving (Sorensen et al., 2022). Stavros et al. (2015) describe AI as a process of uncovering the best in people and organizations, maintaining a positive outlook throughout the change journey. According to Cooperrider et al. (2003), Appreciative Inquiry (AI) unfolds in four stages: Discovery, Dream, Design, and Deliver. The Discovery stage focuses on identifying what energizes and sustains an organization by uncovering its strengths. The Dream stage involves envisioning future possibilities and imagining the desired outcomes. The Design stage centres on collaboratively shaping the path toward change, while the Deliver stage emphasizes implementing and maintaining the transformation over time.

In this study, these four stages were adapted to focus on women entrepreneurs rather than organizations, tailoring the process to explore their strengths, aspirations, and potential. A total of 12 women entrepreneurs participated in interviews guided by Appreciative Inquiry (AI) principles. Table 1 presents the women entrepreneurs. Selection criteria included the entrepreneur's age, as well as the age and location of their business. All participants were growth-oriented entrepreneurs with employees. The interviews took place in two phases during the spring of 2023, with each participant being interviewed twice, 2–4 weeks apart, for a total of 24 interviews. The first round of interviews focused on the discovery and dream stages, while the second round centered on the design and implementation stages related to innovation. All interviews were transcribed verbatim and pseudonymized to ensure confidentiality during analysis.

In the analysis, discourse analysis was employed as a methodological approach to explore how women construct their entrepreneurial identities. Discourse is a way of speaking— - how we use language in different contexts and how we give meanings to things. One advantage of discourse analysis is its ability to uncover underlying ideas and assumptions that are often taken for granted in a given context and may be challenging to expose through other methods (Phillips & Hardy, 2002). In this research, discourse is also viewed as performance; it organizes or disrupts gender identities (Ashcraft, 2004). This perspective emphasizes the process by which discourse generates or diminishes differences in gender identities. According to Ashcraft, a performance perspective reveals how discourses construct gender while positioning these differences within social codes. Discourse, then, is seen as an ongoing, productive, and interactive performance of identities. Other scholars support this view on the central role of discourse in producing gender identity (Butler, 1990; Alvesson & Billing, 1997; Gherardi, 1994).

Table 2: Entrepreneurs and their businesses.

Entrepreneur	Business
Ann	Handicraft shop
Betty	Respite care
Cora	Jewellery online store
Dina	Home help service
Erica	Human resources services
Felicia	Textile factory
Grace	Digital secretary
Holly	Optician
sabel	Health and wellness
Jane	Psychologist and rehabilitation
Katherine	Restaurant and experience services
Lucy	Funeral home

The analysis applied Willig's (2013) discourse analysis method. Initially, we took notes on the different ways women discussed their gender and entrepreneurship (Willig, 2013, p. 131). We observed three recurring patterns in how they constructed their entrepreneurial identity as women. Next, we focused on the action orientation of the texts, asking what might be achieved by framing women's entrepreneurship in this specific way within this discourse (Willig, 2013, p. 132). Finally, we analysed the subject positions provided by the discourse, examining how women positioned themselves within it.

4. Findings

We identified and interpreted three discourses within women's entrepreneurship—Problematic Gender, Complex Balance, and Empowerment through Redefinition—each providing a unique perspective on the entrepreneurship of women.

4.1 Problematic Gender Discourse

This discourse centers around the ongoing dialogue about gender roles and expectations. It explores the challenges and opportunities women entrepreneurs face in entrepreneurship traditionally dominated by men, addressing societal norms, stereotypes, and the pursuit of recognition and equality. Women in this discourse share the weight of traditional gender roles, particularly in relation to their familial responsibilities and societal perceptions.

“As a woman, the responsibilities within the family are quite different from those of a man. For example, I'm 56 years old, a wife, mother of six adult children, and grandmother of 14. I also have aging parents and a business with its own challenges. It's common to feel that, while men have responsibilities too, it seems more natural for them to be away for work for weeks at a time. This is something I've struggled with.” (Dina)

Women discuss on how being a woman entrepreneur is shaped by societal views of gender. For example, women are discussing how entrepreneurship is still often seen as a male-dominated field, with old-fashioned stereotypes lingering.

“Entrepreneurship has traditionally been seen as a man’s world, with men doing the big things in business while women stayed home, maybe selling knitted socks on the side! There’s still some of that outdated thinking tied to gender roles.” (Grace)

Some women highlight the feeling of being out of place in male-dominated spaces, expressing a sense of imposter syndrome. Women position themselves as outsiders in a male-dominated world, experiencing feelings of being out of place or having to fight to be taken seriously.

“This morning was a clear reminder of how male-dominated this world can be. I looked at the participant list yesterday and felt out of place, seeing all the 50- to 60-year-old men and just a few women. It made me question what I’m doing here and whether I know anything. It’s not the way I should think, but it was hard to shake that feeling.” (Felicia)

Meanwhile, one entrepreneur shares personal experiences of gender vulnerability, noting how male figures still comment on her decisions in a way that reinforces traditional norms. She recounts a particularly hurtful comment about her mastectomy and how it affected her son, reflecting how society often ties women’s bodies to ideas of femininity and motherhood.

“One man actually said to me, ‘Since you’ve removed both your breasts, have you thought about how that will affect your son, who will never see a woman with breasts?’ While I was doing everything I could to stay alive. This was a reminder that, even though women’s status has improved, some men still feel entitled to say such things when a woman is vulnerable.” (Holly)

The discourse also touches on issues of perceived competence and ageism, discussing how being young and female in business can lead to being underestimated. Women recall a time when their competence was questioned due to assumptions about their gender and age.

“I work in production and logistics, and when I started 10 years ago, I had to fight against the bias that a young woman can’t handle such work. I remember once meeting a 50- or 60-year-old man, and he assumed my father had hired me, not knowing I had founded the company myself.” (Cora)

“It was more about facing resistance or doubt because of my age. I don’t know if it was just my own perception, thinking that people saw me that way, or if it actually came from outside. There were definitely experiences where someone didn’t take me seriously.” (Jane)

Here women take the position of being undervalued based on their gender and age. They confront societal stereotypes that undermine their competence, leadership, and authority. In summary, this discourse sheds light on the ongoing struggles women face with gender expectations in entrepreneurship, and the balancing act between professional and personal roles.

4.2 Complex Balance Discourse

This discourse focuses on the intricate challenge of balancing entrepreneurial duties with family commitments, emphasizing the importance of achieving harmony between work and home life for overall well-being. A common theme is the tension between pursuing entrepreneurial ambitions and the responsibilities of motherhood. Women express concerns about overworking and the need to establish a healthier work-life balance to ensure they can be present for their children. Women express a deep sense of responsibility for being present in their families’ lives, which shapes how they approach their business. This often leads to internal conflict, as reflected in the following examples:

“I struggle a lot with the fact that work takes up the lion’s share of my time, and I want to do more and be a better mom or something like that... but I guess that’s the eternal issue of being a woman—no matter what you do, you’ll always run into that same issue.” (Dina)

I often reflect on my own childhood. I don’t want to work as much as my mom did. I don’t want that. I don’t want to work so much during my free time, and I don’t want to travel so much. (Felicia)

Women highlight how entrepreneurship requires passion and dedication, often sparking numerous ideas they feel compelled to pursue. However, family responsibilities sometimes impose limitations, forcing them to prioritize the most essential tasks. Time is acknowledged as the biggest challenge, but this is also seen as an opportunity to refine their focus and pursue only the most important ideas.

"Well, the challenge is that when you're an entrepreneur, you're usually pretty passionate about your work. Otherwise, you wouldn't be doing it; it requires so much effort. Then, you get ideas, and you want to execute them, but family really is, in a way, a factor—you can't ignore that, for better or worse. I think of it like this: it makes you drop the unnecessary things and focus on the essential and the really good ideas. .. But yeah, time is definitely a challenge. That's probably the biggest one." (Ann)

Women take on the position of balancing multiple roles —entrepreneur, mother, wife, and caregiver. They express a constant negotiation between their professional and personal lives. The presence of a supportive partner is viewed as crucial in managing the demands of both family and career.

"Well, originally it was kind of like, if my partner hadn't supported or encouraged me, I probably wouldn't have become an entrepreneur. And maybe... He probably didn't know back then what all this would entail! And of course, I didn't know either. But it's a big thing, if you think about it, that you have to tolerate the fact that the other person is also working from home, and sometimes there are things that just have to be taken care of, no matter what. ... Yes, his role is really significant. If that support wasn't there, or if it caused arguments or resistance, it would be (really bad). And also, over the years, he has seen me get tired, and there's been burnout, not just from work, but also from other things. He had to carry the family as well—we have several kids. If you didn't have a partner who participates in everyday life, it wouldn't work at all." (Jane)

Overall, this discourse reflects the ongoing negotiation these women face at the intersection of entrepreneurial goals and family responsibilities. Their narratives illustrate the struggle to balance personal ambitions with societal expectations, shedding light on the structural challenges women navigate as they pursue fulfillment in both their careers and family life.

So of course, these things have an impact—being an entrepreneur as a woman is different from being one as a man, but... Hmm. But it's not impossible." (Ann)

4.3 Empowerment Through Redefinition Discourse

The discourse on empowerment is particularly focused on women's empowerment in entrepreneurship. It emphasizes efforts to challenge gender norms, enhance self-esteem, and foster women's leadership and agency in both business and society. Women express a desire to challenge traditional gender roles. Women talk of wanting to become strong female leaders, despite feelings of insecurity in male-dominated spaces. They want to break stereotypes about entrepreneurship being a male domain, encouraging women to pursue larger business ventures rather than small-scale, part-time endeavors.

"I want to create a positive environment where women feel confident enough to pursue entrepreneurship on a bigger scale, rather than just as a side job. We need to encourage women to dream bigger and go after their goals." (Grace)

The importance of nurturing and expanding networks for female entrepreneurs is a recurrent theme. Women adopt an empowered position by recognizing their personal growth and confidence. They reflect on how entrepreneurship has allowed them to step out of their comfort zones, confront fears, and take on leadership roles.

"Yes, I do want to be brave, it really comes down to courage. Just being visible and having that presence has felt very scary for me, for example, I've always thought 'I could never do that, I'm not cut out for it.' But now I've started taking steps in that direction, and I realize it's something I have to work on. So yes, one day I want to be able to confidently be a strong female leader." (Felicia)

The presence of strong female role models is also discussed as a crucial factor in encouraging women to pursue entrepreneurship. Women take the position of a role model for others, particularly other aspiring female

entrepreneurs. They see their own success as paving the way for other women to follow, encouraging them to break free from traditional gender expectations.

"Well, for me, it really brings out the idea that I think it's amazing to enable the growth of female entrepreneurship, and especially those female entrepreneurship networks and such. And I think it would be great if more and more female entrepreneurs succeeded in growing a bigger business, not just employing themselves." (Grace)

"I hope I can somehow encourage more people to even consider becoming entrepreneurs and understand that women can succeed just as well... in the same way as men. I have received feedback—just last weekend, I got feedback, something like, 'It's so great to watch you succeed,' and kind of like that." (Erica)

There is a powerful message encouraging women to pursue their dreams boldly, challenging outdated stereotypes that position entrepreneurship as a male-dominated field. It emphasizes the importance of inspiring women to aim for larger entrepreneurial ambitions, rather than limiting themselves to part-time or small-scale ventures. The women also emphasize their sense of agency in shaping their lives, asserting autonomy in structuring their work in alignment with their personal values.

"I'm working a four-day work week. I started it in August when I returned to work, and I've continued with it. A lot of it depends on yourself—how you do your work, and then how the teamwork functions, and having good people around you. I see that now and in the future, even more so, as a core thing—that I want more than my mother did, to keep work at work." (Felicia)

But on the other hand, I want to show by my own example that it is possible to do the things you enjoy and move forward with your own goals, even when you have children. I've had several, so maybe I'm some sort of example of that." (Ann)

Overall, this discourse reflects a vibrant narrative of women entrepreneurship, highlighting the empowerment that comes with the importance of challenging stereotypes, and the courage to pursue dreams. This collective voice fosters a sense of hope and determination among women aspiring to succeed in business.

5. Discussion and Conclusion

This study aimed to understand how gender shapes women's entrepreneurial experiences. Our analysis identified and interpreted three key discourses related to these experiences, as outlined in Table 2. Aligning with Boddington (2023), we argue that examining the influence of gender norms across various dimensions of entrepreneurial practice reveals a more nuanced understanding of the structural factors that constrain specific practices. Similarly, diverse subject positions create varying opportunities for women entrepreneurs to act and navigate their roles.

Table 2: Discourses and descriptions.

Discourse:	Description:	Subject Positions:	Action Orientation:
Problematic gender	Addresses the external social pressures and stereotypes that women face in business.	The Outsider	Highlights tensions between personal and professional identities, particularly how women must navigate gender stereotypes and imposter syndrome.
Complex Balance	Focuses on internal struggles of balancing professional and personal roles, especially in the context of family responsibilities.	The Juggler	Emphasizes the difficulty of balancing entrepreneurial work with motherhood highlighting the emotional strain this creates. It also stresses the importance of supportive partners.
Empowerment Through Redefinition	Emphasizes the importance of challenging gender norms, dismantling stereotypes, and cultivating leadership qualities.	The Role Model	Is oriented towards overcoming internal fears and societal expectations, with a focus on growth, confidence, and breaking new ground as leaders in the business world. The discourse is about changing perceptions of what women can achieve

Discourse:	Description:	Subject Positions:	Action Orientation:
			and leading the way as role models for others.

The first discourse, *problematic gender*, focuses on how societal norms and traditional gender roles impact the experiences of women entrepreneurs. It underscores the challenges they face in balancing personal and professional identities, particularly in dealing with gender stereotypes and imposter syndrome. Women are constructed like outsiders and undervalued in their entrepreneurial careers. However, in this discourse, women do not fully enact social gender expectations (Bianco, Lombe, and Bolis, 2017); rather, they recognize and identify them. Hence, this discourse reveals a strong awareness of how entrepreneurship is still often viewed as masculine, where women entrepreneurs and their characteristics are considered less significant (Lewis, 2006; Gupta et al, 2013; Hamilton, 2014; Henry et al, 2015). This discourse brings to light the persistent gender biases in entrepreneurship, fostering a greater awareness of how societal norms and traditional gender roles continue to shape perceptions and also experiences of women.

The second discourse, *complex balance*, addresses the tension between pursuing entrepreneurial goals and managing family responsibilities. It emphasizes the challenges of balancing business endeavours with motherhood, highlighting the emotional stress that accompanies this juggling act. This discourse underscores the importance of achieving a harmonious balance between entrepreneurial success and personal well-being while fulfilling family obligations. It also points to the critical role of having supportive partners, aligning with findings from Welsh et al (2023), which indicate that family support is crucial in narrowing the gender gap in entrepreneurial success. Furthermore, this discourse sheds light on stereotypical gender roles, as women frequently navigate multiple responsibilities, including those of parents, caregivers for their own parents, and business leaders (Biese and Choroszewicz, 2019). While entrepreneurship is often viewed as a pathway to harmonizing work and family life (Burton et al, 2019), our study reveals that achieving this balance remains a significant challenge.

Yang et al. (2024) suggest that mothers are more likely to start a new business as a way to mitigate the motherhood penalty they might encounter in wage employment due to employer discrimination. However, our results indicate that entrepreneurship is not immune to the influence of stereotypes and societal norms, much like traditional employment. Despite the common perception of entrepreneurship as a realm of freedom and innovation, it remains shaped by deeply rooted cultural expectations and gendered norms that affect how entrepreneurs are perceived and how they navigate their roles in the business world.

The third discourse highlights the *empowerment* of women in entrepreneurship. It focuses on challenging gender norms, deconstructing stereotypes, and cultivating leadership skills. In this discourse women push boundaries and strive for greater business ambitions. This discourse highlights the aim of cultivating a sense of empowerment, growth, and ambition among women, motivating them to undertake larger business ventures rather than limiting themselves to small or part-time enterprises. This discourse focuses on transforming perceptions of women's capabilities and positioning them as role models for others. This challenges the prior studies that associate women with lower entrepreneurial potential and ambition (Bruni et al, 2004). This discourse also highlights that the gender gap in growth ambitions may be due to structural and entrepreneurial ecosystem-level factors, not ambition itself.

In conclusion, these three discourses collectively highlight the complex and gendered nature of women's entrepreneurial experiences. They emphasize the need for an entrepreneurial ecosystem that recognizes women's diverse paths, values their contributions, and actively addresses gender disparities. Despite the growing prominence of post-feminist perspectives (Meliou and Ozbilgin, 2024), our findings indicate that the entrepreneurial landscape is still largely influenced by predominantly masculine norms (Jennings and Brush, 2013; Henry et al., 2015). The results further reveal that women are increasingly distancing themselves from the traditional masculine narrative of entrepreneurship, actively shaping an entrepreneurial identity that departs from the conventional masculine framework (Kubberød, Jones, and Pettersen, 2021). In this context, the discourse on empowerment through redefinition suggests that the image of an entrepreneur is evolving (Elliott, Mantler, and Huggins, 2021), becoming more diverse, particularly among women entrepreneurs. While women entrepreneurs recognize and confront the challenges posed by the masculine ethos of entrepreneurship, the influence of social norms continues to shape their experiences.

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Gendered Barriers and Opportunities in Entrepreneurship and Innovation

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Abstract: Understanding the gendered barriers and opportunities to entrepreneurship and innovation is crucial to developing effective solutions and strategies to overcome existing barriers. The theory of gendered innovation and the three strategic approaches to gender equality are used to investigate gendered barriers, opportunities and good practices for gender equality in entrepreneurship and innovation in EU countries. A total of 36 semi-structured interviews were conducted and analysed in 10 European countries with experts from the quadruple helix (academia, citizens, industry and government). Our findings suggest that the main barriers are related to the cultural and social environment in which men and women are gender stereotyped which is in line with existing research on the male norm in entrepreneurship and the important role of the cultural context. Building on the theory of three strategic approaches to gender equality we suggest focusing on culture in further theoretical development, research and policy recommendations to effectively reduce barriers and promote inclusive entrepreneurship and innovation ecosystems.

Keywords: Gender in Entrepreneurship and Innovation; Strategic Approaches to Gender Equality; Gendered Barriers, Good Practices.

1. Introduction

While more women than men in the EU Member States now have tertiary education, their representation in entrepreneurship and innovation is characterised by systematic structural gender inequalities. In the EU Member States, women represented 47% of all entrepreneurs and 51% of all self-employed in the second quarter of 2024, while only 37% of entrepreneurs with employees were women (Eurostat). In science and innovation, women make up 48% of PhD graduates, but only 33% of researchers and only 25% of the self-employed among science, engineering and ICT professionals in EU Member States (European Commission 2021). Gender equality is a key European value, and gender diversity brings the necessary variety of perspectives and experiences to the small business, research and innovation ecosystems that drive the European economy. Gender inequality and the lack of gender diversity in these sectors are therefore systemic problems for the European market, society and culture that require systematic and complex solutions. Previous research has identified key challenges to gender equality in entrepreneurship and innovation in the very definition of entrepreneurship and innovation and in wider structural inequalities in the labour market. Entrepreneurship and innovation are still understood as individual activities, mostly carried out by individuals with masculine characteristics (Ahl 2006; Marlow, Martinez Dy 2018), whereas feminist research points to the need to focus on a broader context (household perspective) of entrepreneurship and to take an intersectional perspective on entrepreneurs (Romero, Valdez 2016). Furthermore, the definition of the products of entrepreneurship and innovation needs to move away from technical and economic to more social and 'real life' solutions to everyday challenges. Entrepreneurship also needs to be understood in the context of the availability of standard employment contracts, as well as the availability of work-care arrangements in the wider labour market, and attention should be paid to informal entrepreneurs and the division of work and care roles within enterprises and households involved in entrepreneurship and innovation (Marlow, Martinez Dy 2018). More and better data are needed.

With use of structural inequality, entrepreneurial agency and strategic approaches to gender equality theories and qualitative methodology of expert semi-structured interviews this paper asks what are the main barriers, opportunities and good practices for gender equality in entrepreneurship and innovation that experts identify in 10 EU countries. The main contribution of this paper is the finding that culture is the basis of gendered inequalities in entrepreneurship and demonstration that theoretically contextualised knowledge of gendered barriers and opportunities for entrepreneurship and innovation, as well as further theoretical development, is crucial to better conceptualise and propose solutions and strategies to overcome existing gendered barriers.

2. Theoretical Background

2.1 Entrepreneurial Agency, Positionality and Structural Inequality

Mainstream entrepreneurship theory ignores the social structures that shape entrepreneurial opportunities and portrays entrepreneurship as an individual activity based on agency and meritocracy. Based on this assumption, entrepreneurship is then seen as a viable means of overcoming disadvantage. However, access to resources is socially distributed, for example through family loans and inheritance (Martinez Dy, 2020). The entrepreneurship norm is dominated by well-educated, urbanised white Anglo-American or European males. Those who reflect the norm tend to have greater access to privileges such as elite education, managerial experience, personal wealth, powerful social networks and attributions of masculinity, all of which serve to enact entrepreneurial agency. Conversely, the further individuals and groups are from the norm - the less urban, white, male and wealthy - the more marginal they are (Ahl, 2006; Marlow, Martinez Dy, 2018). It is also assumed that social and financial disadvantage can be overcome through a combination of innovative opportunities and hard work, suggesting that entrepreneurship is characterised by the removal of constraints (Rindova et al. 2009). These expectations and attributions then lead to reduced access to resources and fewer opportunities, including in entrepreneurship. We therefore need to understand these widespread patterns of inequality, marginality and disadvantage as structural (Martinez Dy 2020).

Intersectionality theory has emerged as an approach to understanding the interaction of categories of inequality (Crenshaw 1993; Hancock 2016), such as race, gender, class and sexuality (Nash 2008), as opposed to separate analyses of women, ethnic minorities, etc. This approach captures the social location of an entrepreneur in a more complex way (Romero, Valdez 2016). Social location (Anthias 2013) and the context in which the entrepreneurial process is pursued give rise to the concept of social positionality (Essers, Benschop 2009; Marlow, Martinez Dy 2018). Anthias (2013) defines positionality as the space at the intersection of structure (social position/social effects) and agency (meaning and practice). Entrepreneurial agency is the result of the interaction of social structure (systems of relationships between social positions) and culture (belief and ideology systems - stereotypes, media images, etc.). Positionality emphasises these concepts and in particular access to resources as a result of the interaction of social structure and culture. Cultural context and intersectional perspectives are considered to be critically important elements of entrepreneurship research (Marlow, Martinez Dy 2018).

2.2 Theory of Gendered Innovations and Three Strategic Approaches to Gender Equality

How can gendered, intersectional and contextual inequalities be theoretically captured? Gendered Innovations is a transatlantic project developed jointly by Stanford University and the EU Commission/ GD Research. From the outset, the project, led by Londa Schiebinger (Schiebinger, Klinge eds. 2010), has been closely linked to Europe's overall ambitions as a global technology and innovation leader, and has addressed three strategic approaches taken by universities and research institutions over the past decades to create a gender-inclusive innovation and entrepreneurship strategy. The three strategic approaches identified by this project represent a shorthand for concepts, methods and strategies.

The first strategic approach, which focuses on increasing the participation of women and underrepresented groups in existing structures and on statistical underrepresentation, is called "fix the numbers". With its focus on individual-level strategies and education (Kabeer, Natalii 2013; Burkinshaw, White 2017), this approach has evolved into a "business feminism" model based on rational/economic arguments.

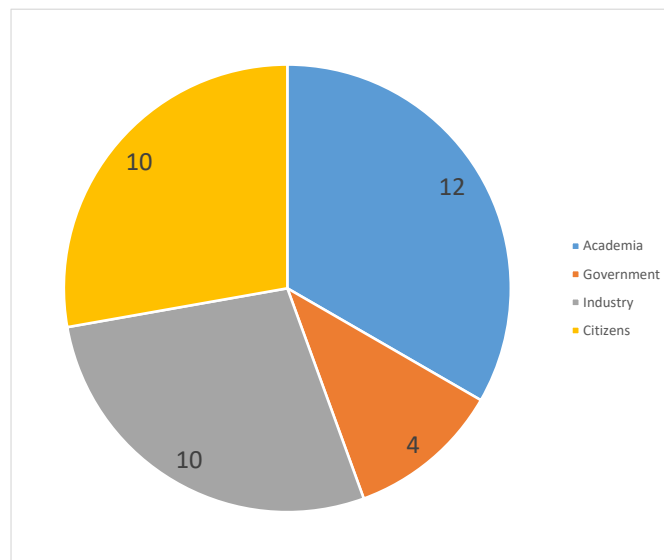
The second approach addresses structures that are unfriendly to women and families and calls for changes to institutions and services (Recalde, Vesterlund 2020). "Fix the Institutions" promotes inclusive equality in careers through structural change in organisations, through procedures such as gender quotas and gender equality plans. This approach values the social experiences of women and other groups and is linked to standpoint/societal feminism.

The third approach, which focuses on excellence in science and technology by integrating sex, gender and intersectional analysis into research, sees gender as a cultural construction. The "fix the knowledge" approach aims to promote the gender dimension in research evaluation and to improve knowledge through gender-disaggregated data and analysis and intersectional analysis.

3. Data and Methodology

Our analysis is based on 36 semi-structured interviews with experts in the area of entrepreneurship and innovation and women's support. The interviews were collected by 13 GILL¹ project partners, 1-5 interviews in each of the 10 consortium countries (Belgium, Czech Republic, Denmark, France, Germany, Greece, Italy, Romania, Spain, United Kingdom) between April and June 2023. The experts represented all four areas of the quadruple helix (see Figure 1). Informed consent was obtained from all the participants, and the interviews were anonymised. The participants were recruited with use of the snowball technique used by interviewers and the average duration of the interviews was one hour. The interviews were conducted in the national language and common analysis templates were completed for each interview in English. The semi-structured interviews were based on an interview guide developed by the authors so that it could be adapted during the interviews based on the context and area of work and interest of the interviewee. The interview guide focused on barriers, opportunities and good practices for gender equality in entrepreneurship and innovation. The analysis used the 'structural reading' approach described by Erel (2007), which focuses on analysing the impact of social structures on people and institutions. During the analysis with use of uniform analytical templates for each interview, collected good practices were coded according to the three strategic approaches to gender equality outlined above. Our findings section is divided into two analytical parts: first, barriers and opportunities, and second, good practices, followed by conclusions and further research ideas.

Figure 1: The sample of the experts interviewed by quadruple helix areas.



4. Findings

4.1 Barriers and Opportunities

4.1.1 Barriers and Risks

The most important barriers mentioned by most experts were those related to culture, values and norms, especially those related to gendered norms. Thus, the main barriers were those related to gender stereotypes and expectations, behaviour expected of women and men, values expressed in language, unconscious biases used in different situations, etc. For example, many experts spoke about prejudice, gender-insensitive language, androcentrism - where masculine characteristics are seen as the norm against which women are measured. Some experts mentioned the intersectionality of personal characteristics - gender, race or ethnicity, education, etc. - which reinforces and multiplies the disadvantages women face in the labour market, in entrepreneurship, in innovation and in society at large, including in private life.

¹ Gendered Innovation Living Labs – GILL is an EU-funded project addressing gender and diversity blindness in the Living Lab discourse and practices. Funded by the European Union (GILL, 101094812) and UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [grant number 10049511].

In particular, digital transformation experts described biases against women in male-dominated industries and the stereotype about women's lack of technical skills, such as engineering, or leadership; prejudices that can lead to discrimination in funding, hiring, partnerships and recognition. They also point to the fact that innovation developers are predominantly white men and that gender stereotypes are replicated in the development and use of digital technologies and AI. This is manifested in language, job descriptions that suit men, and a focus or narrow definition of innovation as only technical. As a result, the experts see low confidence in women entrepreneurs in ICT, under-representation of women in IT start-ups and, as a consequence, poorer access of women to finance to support their businesses and innovation.

Experts working in the field of business environment support, innovation, and support for women entrepreneurs, etc. mentioned in particular the male bias in entrepreneurship and innovation. They expressed that entrepreneurship is too focused on economic growth, financial gain, risk and competition, which are not values traditionally associated with femininity in our culture. This leads to comparisons where women's entrepreneurship, which often doesn't share these values, is perceived as inferior, less successful and less prestigious than men's. Other experts also mentioned unsystematic support for women's enterprises (e.g. start-ups) or a lack of support/promotion of women specifically in entrepreneurship and innovation. Furthermore, in relation to gender stereotypes and male bias in entrepreneurship and innovation, experts identified the problem that women (and even more so, for example, women with a migrant background) are often treated as exceptions to the rule. This happens informally, as they are often in a token position in various situations, or even formally, as various support mechanisms are designed for women only, perpetuating the stereotype that women need special support.

Another issue was the lack of gender sensitivity and willingness to address the issue of gender inequality at different levels. On the one hand, it was discussed as a lower gender sensitivity to structural causes of gender inequalities of men compared to women. On the other hand, less willingness to discuss gender equality was also noted, as some groups, such as students, expressed the feeling that the problem had already been widely discussed without significant progress.

In relation to the cultural and gendered setting of society and masculine bias, another important issue raised in the interviews was the role of socialisation in leading women to the false belief that they are incapable of learning/performing difficult tasks (e.g. being good at IT and other masculine fields). It was pointed out that from a very early age we are exposed to gender stereotypes, which are also embedded in social institutions, and we act and judge others according to them. Socialisation was often linked to the low percentage of women in typically male fields of study (IT, technology, science such as physics, mathematics, etc., the so-called STEM fields) and gender segregation, which is also reflected in the labour market in general.

Horizontal and vertical gender segregation was identified as another strong barrier, already present in the education system, but also significantly present in the labour market and in the economy. Women are disadvantaged not only in the areas in which they work and do business, but also because they are under-represented in decision-making and leadership positions (both at business and political level) and because important decisions are taken without taking into account women's life experiences. In general, gender segregation in the labour market and in business is underpinned by gender stereotypes, socialisation, women's isolation (in a highly masculinised environment) and women's lack of networks and access to men's clubs.

Some experts, specifically in the context of entrepreneurship, pointed to women's lower willingness to take risks (e.g. to consider loans). In particular, experts focusing on supporting women in male-dominated fields point to women's lower self-confidence and the fact that women often believe that they have no chance of succeeding in certain fields. In this context, experts discuss the lack of mentors and role models to show women that they can succeed in masculinised fields and that they have the knowledge and skills to do so.

Barriers related to policies to reconcile work and family life and the gender division of labour in the home were mentioned, in particular that women are expected to take on a greater share of caring responsibilities and therefore reduce their work activity; if they refuse, they are criticised for being bad mothers. It was also reflected that family and social policy frameworks, such as the conditions and support for maternity/parental/paternity leave, also affect the real life of families and can reproduce gender stereotypes. Discrimination against women with children in the labour market has also been described, particularly in access to typically male fields such as ICT.

Another important barrier is the lack of political will and commitment to promote gender equality and diversity. In particular, it was highlighted that the issue of gender equality is not perceived as a crucial issue for politicians.

Furthermore, where there are already efforts by political representatives and stakeholders to promote gender equality and diversity, change is too slow. The under-representation of women in politics was also identified as a problem.

Lack of support for women entrepreneurs and innovators, such as lack of infrastructure and support for women entering male-dominated fields and lack of inclusive programmes, as well as lack of support from their own families, were identified as important barriers by the experts interviewed. A related important barrier is the lack of access to finance, microfinance and other types of funding for women entrepreneurs and for different types of support organisations and projects. Almost all experts have experience with grant funding (often EU funding, national grant competitions, etc.) for projects and activities promoting gender equality. When they do find and successfully obtain funding for their activities, it is usually short-term funding, which makes it impossible to implement long-term activities after the end of the project and to sustain long-term support for specific gender equality issues.

The prevailing view among experts is still that the most important barriers are related to the cultural and social environment of society, where gender stereotypes prevail, and men and women are expected to perform different activities and have different levels of commitment in the family and at work/business. This also influences what actions, strategies or opportunities they see as important to strengthen gender equality and promote gender diversity.

4.1.2 Opportunities

The most frequently mentioned opportunity was the need for cultural change, for example through the use of female role models. There was also a strong call for gender awareness-raising at different levels (awareness-raising activities and campaigns, training programmes, etc.) and for different actors (workplace management, men and people working in different support and funding structures). Benefits have also been seen in promoting gender diversity at organisational level (companies, universities, etc.). Creating opportunities for under-represented groups to network, share experiences and talk openly about challenges, and increasing communication and sharing of results were called for by the experts representing citizens. These measures were seen by some experts as an opportunity for entrepreneurship and innovation, as an interviewee from the digital industry in Romania pointed out: "Having more women in this field also means that digital products will be better adapted to female markets and buyers".

Policies that directly promote the inclusion of women in innovation were another area where barriers could be removed. Policies have been proposed in different areas, such as gender quotas in political and economic decision-making. It is important to note that the level of debate on gender quotas varies between countries. While in many countries gender quotas are implemented in practice in politics and business, in Spain and the Czech Republic, for example, the debate on gender quotas still leads to tensions and discussions about compromising meritocracy. Other concrete measures mentioned were positive action, equality certificates, promotion of inclusive practices and gender mainstreaming in strategic and equality plans, etc. European gender equality policies are seen as a good starting point and a very useful tool for transforming the gender order in society and for change at national, company and local levels. For example, the requirement for all institutions applying for EU-funded projects to have a gender equality strategy has been highly valued as an impetus for change in many universities and research institutions. The inclusion of gender diversity in research teams and gender equality in the content of research as criteria for project evaluation is also an effective way of increasing the representation of women and attention to gender equality in innovation.

The experts interviewed supported emerging support systems for women entrepreneurs (e.g. mentoring programmes, networking, building women's self-esteem and an inclusive leadership model) at all stages of their entrepreneurial career, not just for start-ups. Digital skills were also identified as very important and an area where these measures would be very beneficial. Focusing on the younger generation and supporting them to start new ventures and innovations, supporting women to enter non-traditional fields of study and to start careers in STEM and ICT sectors through talent retention measures as well as the use of social media and role models were also identified by experts as valuable measures. In addition to networking and support for education and training, financial support was identified as an important development opportunity. Financial resources, such as micro-credits, targeted at women and other under-represented groups were called for by experts.

An important area of opportunity discussed was work-life balance and the need to normalise the model of women combining paid work and care, as well as men providing care.

The very definition of innovation was also discussed and challenged, again in relation to the cultural context. For a long time, innovation has been understood as more technical and taking place in the private sphere, whereas women predominate in public sector employment and innovation could also be non-technical, for example social.

4.2 Good Practices

It is possible to classify the good practices that were collected in the expert interviews into the three strategic approaches to gender equality that have been developed and used in previous research. However, it is important to recognise that all three levels of analysis are necessary and interrelated, as efforts to increase women's participation will not be successful without integrating methods of sex and gender analysis into knowledge production (Schiebinger, Klinge eds. 2010). Based on the 36 interviews collected, 41 good practices were identified and described, which can be grouped into the three strategic approaches defined above.

4.2.1 *Fix the Numbers*

There were 29 (out of 41) good practices that can be summarised in the category “Fix the numbers”. These good practices mostly focus on training and empowerment of women in terms of supporting women's self-confidence, developing specific skills, especially those that will help them to succeed in business, providing a safe space for discussion and exchange of experiences, including between junior and senior entrepreneurs, etc. These good practices also focused on the representation of women, mostly in occupations or fields where women are underrepresented.

Good practises included these activities:

- Organising events, meetings, etc. of women (entrepreneurs, academics, women in IT, etc.) either with other women with similar life experiences or with women in senior positions who can provide advice on how to develop their careers. These meetings, therefore, include female role models as a method as well. The main objective of the events and meetings is to support and share knowledge for women while raising awareness of the successes and challenges women face in the specific field.
- Communication campaigns aimed at presenting women in leadership positions as role models to encourage other women to work in masculinised fields and in leadership positions.
- Competitions and training programmes focusing on providing women with specific skills to improve and expand their businesses.
- Some good practices focused on networking - not just the meeting, but targeted networking, e.g. between businesswomen and investors. One good practice focused on networking between immigrant women and potential employers.
- Specific projects at the company level or projects realized by NGOs aimed at increasing the number of women (who are under-represented), usually in masculinised fields, such as IT.

4.2.2 *Fix the Institution*

Another group included nine good practices (out of 41) focusing on changing structures/policies aiming at breaking down structural barriers in institutions, mainly workplaces. This type of fix focuses on institutions and organisations where changes should take place to promote gender equality (Recalde, Vesterlund 2020). Since 2010, the European Commission has moved towards promoting gender equality at the institutional level in funding projects, encouraging research organisations and universities to implement multi-annual action plans to address institutional barriers, such as recruitment, promotion and retention policies, management and research evaluation standards, and work-life balance policies. In line with this development, six of the nine good practices were identified by experts in the field of higher education, as the focus of the good practices was mainly on academic institutions setting up gender equality committees and developing gender equality strategies and plans.

Good practised included these activities:

- Gender equality plans, gender equality policies and quotas for the under-represented gender. These activities aim to increase the number of women in certain positions within the institutions, such as senior management, but also to increase gender diversity and strengthen gender equality in other areas of the organisations.

- Some good practices focused on a specific group, intending to identify their needs, design, and develop policies and other activities to support their better working conditions. An example is a good practice focusing on migrant women in agriculture in Italy, which also adopts an intersectional perspective.

The aim was also to improve working conditions and to motivate companies to employ, for example, women with caring responsibilities, thus adapting working conditions to this specific group of workers (and generally increasing the number of people in a vulnerable position on the labour market).

These good practices focus not only on improving the situation of a specific group but also on institutional change at the level of private companies or universities, e.g. a good practice focused on the creation of gender commissions or associations that identify essential issues in the promotion of gender equality and diversity and propose measures to address them. Within private companies, it may be a specific HR measure aimed at a particular group of workers (e.g. carers). At the level of cities and municipalities, good practices focus on identifying the needs of different groups living in a city according to their gender, age, health status or living situation, intending to meet these needs in the further development of the city.

4.2.3 *Fix the Knowledge*

Three good practices fall into the category of 'embedding knowledge' or 'gendered innovation', which promotes excellence in science and technology by integrating sex, gender and intersectional analysis into research. Two of the three practices were identified by experts from academia and one by an expert from the government. These specific and complex projects require many human and financial resources, as well as a significant knowledge base, and are therefore better suited to government and university actors.

Good practises analysed included:

- Two good practices focused on tackling male bias and promoting gender equality in grant competitions and application assessment procedures. National Foundations for applied research in Italy and Czechia encourage gender equality by requiring that submitted applications have a gender-balanced team, evaluating the impact of the project and its results on men/women and generally introducing gender equality as a criterion in the evaluation of research projects.
- The third good practice in this category is based in the UK at Coventry University, where research has focused on improving knowledge of health inequalities, particularly in preterm birth. The project uses an intersectional analysis, collecting data from various participants at the intersection of gender, race and ethnicity.

5. Conclusions and Further Research

The aim of this paper was to identify barriers, opportunities and good practices for gender equality in entrepreneurship and innovation from the perspective of experts from different areas of the quadruple helix. The prevailing view among the experts consulted in the ten countries of the GILL consortium is that the main barriers are related to the cultural and social environment in which men and women are stereotyped and expected to perform different activities and have different levels of commitment in the family and in the workplace. This also influences what actions, strategies or opportunities they see as important to strengthen gender equality and promote gender diversity. Gender stereotypical cultural beliefs and norms, masculine bias, gender segregation, lack of funding and microfinance, lack of policies to support work-life balance and lack of political will and empirical evidence to remove these barriers are the main problems identified by the experts. These findings are in line with previous research stressing the role of the male norm in entrepreneurship and the importance of the cultural context as well as access to resources, which is the result of social structures and culture (Marlow, Martinez Dy 2018; Martinez Dy 2020). The opportunities reflected in the interviews largely correspond to these barriers and highlight the role of key actors, such as the EU, in setting standards that can be further disseminated to national, local and organisational levels.

In terms of efforts to overcome existing barriers, projects focusing on fixing the number of women under-represented in certain fields and occupations and in management positions predominate. They mostly focus on individual skills of women, approach criticized in feminist literature (Ahl 2006; Marlow, Martinez Dy 2018). However, we also identified a group of good practices that aimed to fix the institutional structures of inequality, mostly in the academic and/or public sector, but also in some companies, aiming to make working conditions more compatible with caring responsibilities and to combat male and racial bias. Only three good practices focused on fixing knowledge by introducing gender-sensitive criteria in research.

Overall, the implementation of good practices depends on the cultural context of the society, the will of key actors to address these issues, and the financial and human resources available, which determine the sustainability of the activities implemented. Overcoming the culture-based barriers is the main challenge for achieving gender equality in entrepreneurship and innovation. For this, stable and sustainable institutional structure is important to support gender equality including sufficient human capacity and funding. Further objectives as well as future research should be focused on strengthening the institutional and knowledge fixes as well as focus on culture (Bullough, et al. 2022). The research presented here is limited in particular by the small sample of experts in each EU country. Further research should focus on the diversity of cultural contexts in individual countries or regions and better inform on cultural barriers and opportunities.

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Agile Mindset, Technological vs. Non-technological Mindset, and Gender: Are They Related?

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Abstract: This study examined the impact of gender on the relationship between employees' agile and non-agile mindsets and organisational agility. It also considers the tech and non-tech focus as a potential moderator. The initial sample of 209 knowledge workers and the replication sample of 401 knowledge workers were applied to analyse the above relations using OLS regression by SPSS PROCES. The results showed that the most critical factor influencing organisational agility is the agile mindset of employees. Furthermore, the female effect is much stronger than that observed for men in the specialists' group. For the managers group, only the men's effect is significant, and this effect is substantial. Furthermore, results show that while an agile mindset supports organisational agility, a non-agile mindset jeopardises it. The negative impact of a non-agile mindset on organisational agility is confirmed for men with tech and non-tech-oriented mindsets. However, this effect is stronger for non-technological ones. This means that technology works as a kind of mind stimulus. The technological focus is the agility driver, but it does not determine an agile mindset. The direct implication of this research for organisations aiming to be agile is to hire agile-mindset staff, care about agile-minded staff, and avoid employing people with a non-agile mindset. Regarding gender, this study revealed that female IT specialists are more agile than their male counterparts. However, male managers profoundly impact organisational agility. We still do not know how female managers impact agility in the IT sector. To find out, we need to employ a purposive sample. It is because neither a random nor a convenient sample reflecting the IT employee population would work for this purpose.

Keywords: Gender, Position, Agile Mindset, Agile Organisation, Knowledge Workers, IT Sector, Technological Mindset, Non-technological Mindset

1. Introduction

In today's unpredictable and dynamic business environment, all businesses need to be increasingly agile. Implementing agile work methods helps organisations improve their smooth responsiveness to market changes (Ajgaonkar et al., 2022; Cyfert et al., 2022; Harvey and De Meuse, 2021; Kettunen et al., 2022; Kucharska et al., 2024 c-d; Pulakos et al., 2019; Stei et al., 2024; Ulrich and Yeung, 2019). For an agile organisation, both agile working methods and the agile mindset of employees matter for sustaining organisational competitiveness, growth, and development (Eilers et al., 2022; Magistretti and Trabucchi, 2024). Furthermore, Kucharska et al. (2024a-b) claimed that leaders' agile mindsets matter the most for organisational agility. Therefore, this study considers the relationship between agile and non-agile employees by the prism of gender moderated per position. The research question leading this study is how agile and non-agile mindset employees impact the organisation's agility. Does this impact differ by gender and position?

Women's leadership is currently under high research interest (Edacherian et al., 2024; Halrynjo and Teigen, 2024; Ingersoll, 2024). This is because women are often stereotyped in the labor market and are largely underrepresented in organisational leadership roles (Baker, 2014; Cook and Glass, 2014; Seo et al., 2017; Schlamp et al., 2019), especially in technology-driven sectors (Lechman and Popowska, 2020, 2022). This situation provoked the inclusion of the tech and non-tech mindset focus as a factor potentially impactful for the relation between agile and non-agile employees. However, Kucharska and Kucharski (2023) recently showed that technological and non-technological mindsets adapt equally if they operate in a consistent working environment. That would suggest that agility as an adaptability proxy is not related to a technological mindset. Furthermore, Ajgaonkar et al. (2022) and Kucharska and Karwowska (2025) see agility as a very close construct to dynamic capabilities and change adaptability, and they also expose agility as technology-unrelated. Nevertheless, at the same time, technology is often introduced as an agility driver (Jafari-Sadeghi et al., 2022; Motwani and Katatricia, 2024; Rubino et al., 2024). This altogether provokes questions about whether the agile mindset is related to the technological mindset, or it is not. It is particularly interesting because agility is often perceived as a domain of the IT sector. To sum up, we want to determine if the impact of employees' agile and technological mindsets on organisations is somehow related to employees' gender and position. We know that women's perceptions of various organisational issues often depend on their positions (Karwowska and Kucharska, 2024; Khan and Rubel, 2024; Kucharska and Kopytko, 2024). So, we aim to verify first if the agile and technological mindsets are related and, second, to determine if these mindsets are somehow related to gender or gender through the position.

2. Literature Review & Conceptual Framework

Agile mindset and agile organisation. Agile organisations constantly learn collectively and respond quickly to changes, always bent on delivering value to customers and stakeholders. According to the trait theory, the most critical factor determining the effectiveness of the leadership process is the traits of the leader (Akkaya, 2020; Akkaya and Bagińska, 2022). Therefore, the agile leadership concept refers to the adaptability skills of leaders that enable them to respond effectively to changing business circumstances and, in doing so, support their organisations in adapting smoothly. For an agile organisation, the agile mindset of employees matters to sustain their competitiveness, growth, and development, and this way determines organisation agility (Eilers et al., 2022; Kucharska et al. (2024a-b); Magistretti and Trabucchi, 2024). Therefore, this study focuses on the impact of employees' agile- and non-agile mindsets on an organisation's agility.

Agile mindset and gender. Zahoor et al. (2024) claim that gender diversity is a critical boundary condition that influences the effect of strategic agility. So, if gender diversity matters for agility, it suggests that gender perception of agility differs somehow and, this way, also somehow contributes to agility. So, the question is: how? Moreover, Akkaya and Bagińska (2024) suggested that gender matters for employees' agility and influences team effectiveness, specifically examining the impact of women agile leaders on a team. However, these authors did not compare the impact of agile women to those of agile men. Therefore, on the one hand, their study does not allow us to assume that agility and gender are somehow related; on the other hand, it provokes such a study. So, our research aims to compare the impact of a male and female agile mindset employee and a non-agile mindset employee on organisational agility (model I).

Gender and position. Some recent studies revealed that some organisational behaviors, e.g., the double bias of mistakes, are gender-related but do not directly, but indirectly through position (Karwowska and Kucharska, 2024; Khan and Rubel, 2024; Kucharska and Kopytko, 2024; Kucharska and Szeluga-Romańska, 2025). Therefore, it is possible that an agile mindset can also be indirectly related to organisational agility through the prism of the position held by the employee (model II).

Agile mindset and technology. Technology is often seen as an agility driver (Jafari-Sadeghi et al., 2022; Motwani and Katatria, 2024; Overby et al., 2006; Rubino et al., 2024). Agility is reflected in the adaptability. Kucharska and Kucharski (2023) recently exposed that technological and non-technological mindsets adapt equally if they operate in a consistent working environment (consequently, technology and non-technology dominated). This raises questions about whether the agile mindset is related to the technological mindset, which is interesting because agility is often perceived as a domain of the IT sector (model III). Furthermore, we also want to find out if the agile and technological mindsets somehow relate to gender (model IV).

Based on the above, the following theoretical models are investigated:

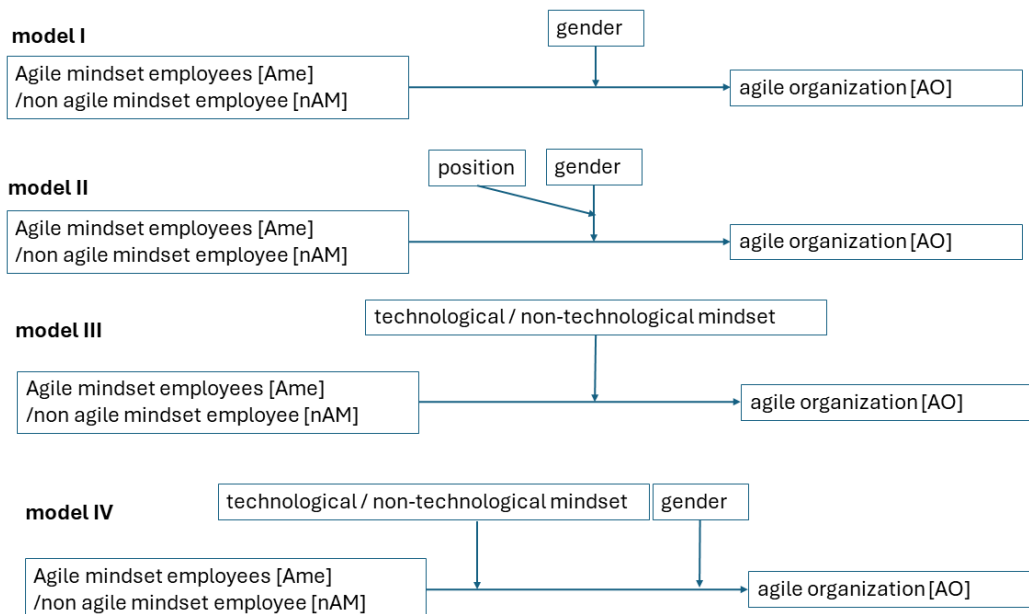


Figure 1: Theoretical model

Table 1: Scales and their sources

Scale	Statements	Reliabilities
Agile organisation [AO] (Kucharska et al., 2024b)	a. an organisation acts smoothly as a comprehensive, adaptive system b. adapts to changes quickly and comprehensively (both conditions met) c. offers stable working rules and high operational agility (both conditions met) d. an organisation constantly learns at all levels of the organisation e. business context change drives an organisational change f. an organisation demonstrates advantage-seeking orientation g. an organisation demonstrates constant development orientation h. agile mindset people are in an organisation recognised and empowered i. organisation members think and act agilely (both conditions met) j. an organisation leaders are agile	INITIAL/REPLICATION SAMPLE Cronbach alpha=.958/.967
Agile mindset employee [AMe] (Kucharska et al., 2024b)	a. adapt quickly b. usually achieve their aims c. they learn, un-learn, and re-learn smoothly d. they can work in unpredictable environments (they accept uncertainty) e. they act dynamically f. they likely accept a challenge if they see it as an opportunity g. they are passionate, enthusiastic, and engaged at work (all conditions met) h. they can follow schemes but also can act creatively beyond schemes (both conditions met) i. they are open to change j. they see change as an opportunity	INITIAL/REPLICATION SAMPLE Cronbach alpha=.947/.940
Non-Agile mindset employee [nAM] (Kucharska et al., 2024b)	a. face troubles with change adaptability b. face troubles with task accomplishment c. they are not likely to learn new working rules or methods d. they do not like uncertainty (they like routines) e. they do not like changes f. they avoid challenges g. they do not accept any time pressure h. they are working without enthusiasm or passion i. they need to control everything to feel safe and perform j. they prefer to "keep things as they are" instead of learning something new	INITIAL/REPLICATION SAMPLE Cronbach alpha=.953/.945

Table 2: Factor analysis

Cross-loadings Matrix Initial Sample			
	Factor		
	1	2	3
1a	.932		
1b	.896		
1c	.875		
1d	.837		
1e	.727		
1f	.722		
1g	.809		
1h	.821		
1i	.910		
1j	.885		
3a		.760	
3b		.710	
3c		.710	
3d		.717	
3e		.746	
3g		.738	
3h		.857	
3i		.793	
3j		.713	
4a			.763
4b			.802
4c			.821
4d			.753
4e			.819
4f			.817
4g			.868
4h			.825
4i			.833
4j			.812
ss-loadings matrix replication sample			
	Factor		
	1	2	3
1a	.875		
1b	.891		
1c	.846		
1d	.869		
1e	.807		
1f	.782		
1g	.865		
1h	.869		
1i	.935		
1j	.903		
3a		.765	
3b		.832	
3c		.724	
3d		.801	
3e		.778	
3g		.808	
3h		.703	
3i		.659	
3j		.804	
4a			.731
4b			.616
4c			.715
4d			.729
4e			.737
4f			.752
4g			.873
4h			.853
4i			.883
4j			.761

3. Methodology

Sampling method, sample size, and structure: The study targeted Polish knowledge workers, and the convenience sampling method was applied. Data collection took place in June 2024 (initial sample) and September 2024 (replication sample). The sample size is: **INITIAL SAMPLE** 209 cases, comprising 35% female and 65% male participants; 78% represented the IT sector, and 23% were “other” sectors. They hold positions: 69% specialists, 31% managers. They represent the companies characterised by the following sizes: 30% small and micro, 10% middle size, and 60% big organisations. **REPLICATION SAMPLE** 401 cases comprised 37% female, 63% male, 60% represented the IT sector, and 40% were “other” sectors. They hold positions: 43% specialists and 57% managers. They represent the companies characterised by the following sizes: 12% small and micro, 22% middle size, and 66% big organisations.

Measures & sample quality (INITIAL/REP. SAMPLE): KMO-. 930/920, total variance extracted 64%/70%; Cronbach alpha>.93. Since all constructs were measured using a 7-point Likert scale, the composite variables were created through median value. All measurement scales’ sources and their statements are given in Table 1. Table 2 shows a cross-loading analysis to verify if the constructs’ measures do not overlap.

Method of analysis: OLS regression by SPSS PROCESS ver. 26.

4. Results

The impact of non-agile mindset employees on agile organisations analysed through gender as a moderator was noted as insignificant. On the other hand, the impact of agile mindset employees on agile organisations analysed through gender as a moderator was the opposite: significant. Figure 2 below illustrates the significant result.

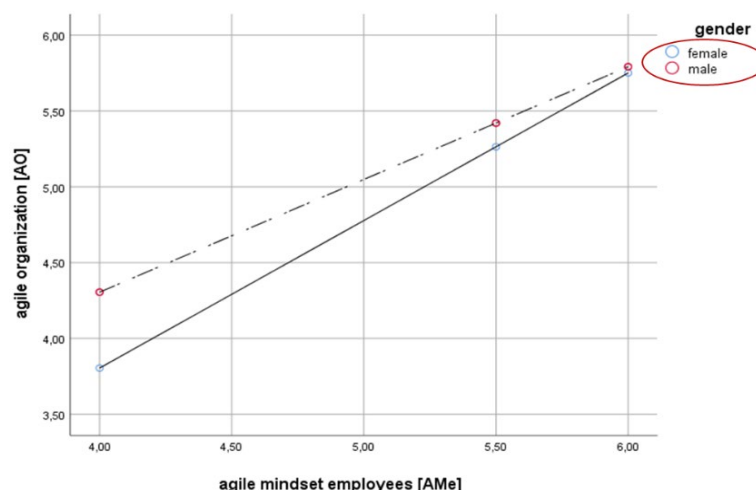


Figure 2: Agile mindset employees’ [AMe] impact on organisational agility moderated through gender (theoretical model I)

Note: The significant effect is circled

The more agile the employee's mindset, the stronger the impact on organisational agility. This relation is true for women and men. Men's starting impact on agility is more substantial than women's, but for the most agile women, their impact on organisational agility is equal to men's.

```
***** PROCESS Procedure for SPSS Version 4.2 *****
Written by Andrew F. Hayes, Ph.D. www.afhayes.com
*****
Model : 1 Y : AO X : AMe W : gender Sample Size: 209
*****
OUTCOME VARIABLE: AO
Model Summary R R-sq MSE F df1 df2 p
,7731 ,5977 ,6490 97,0481 3,0000 196,0000 ,0000
coeff se t p LLCI ULCI
constant -1,5055 ,9284 -1,6217 ,1065 -3,3363 ,3254
AMe 1,2024 ,1678 7,1666 ,0000 ,8715 1,5333
```

gender 1,4192 ,5346 2,6546 ,0086 ,3648 2,4735
 Int_1 -,2296 ,0971 -2,3650 ,0190 -,4211 -,0381
 Product terms key: Int_1 : AMe x gender (1- female; 2- male)
 Test(s) of highest order unconditional interaction(s):

R2-chng F df1 df2 p
 X*W ,0115 5,5930 1,0000 196,0000 ,0190

Conditional effects of the focal predictor at values of the moderator(s):

gender	Effect	se	t	p	LLCI	ULCI
1,0000	,9728	,0800	12,1578	,0000	,8150	1,1306
2,0000	,7432	,0592	12,5445	,0000	,6263	,8600
2,0000	,7432	,0592	12,5445	,0000	,6263	,8600

Level of confidence for all confidence intervals in output: 95,0000

To strengthen the analysis, we added the position factor as a moderator of the observed gender effect. As a result, we found a significant effect for specialists (women and men). Furthermore, the female effect is much stronger than that observed for men in the specialists' group. For the managers group, only the men's effect is significant, and this effect is strong.

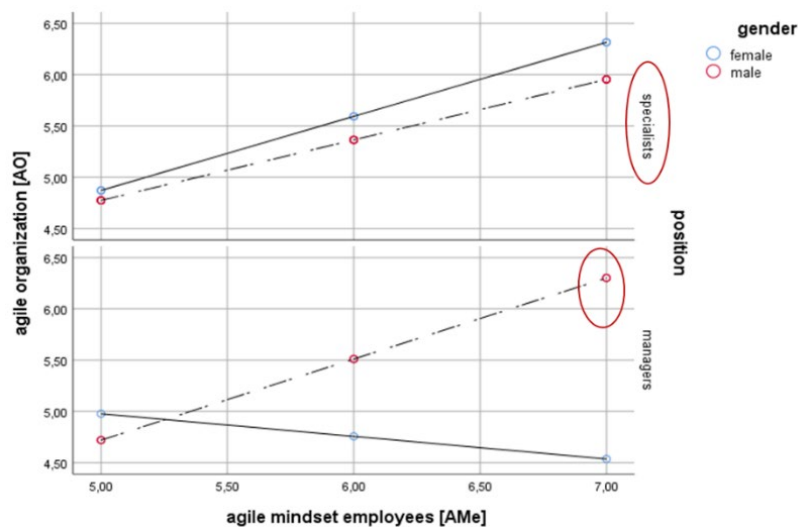


Figure 3: Agile mindset employees' [Ame] impact on organisational agility through gender and position (theoretical model II)

Note: The significant effect is circled

***** PROCESS Procedure for SPSS Version 4.2 *****

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Model : 3 Y : AM X : AMe W : gender Z : position Sample Size: 209

OUTCOME VARIABLE: AO,

Model Summary	R	R-sq	MSE	F	df1	df2	p
	,4861	,2363	1,3029	8,4862	7,0000	192,0000	,0000
coeff	se	t	p	LLCI	ULCI		
constant	-4,6529	3,5878	-1,2969	,1962	-11,7294	2,4237	
AMe	1,8978	,6037	3,1438	,0019	,7071	3,0884	
gender	3,5020	2,0121	1,7405	,0834	-,4667	7,4706	
Int_1	-,7039	,3373	-2,0869	,0382	-1,3692	-,0386	
position	5,3483	1,8602	2,8752	,0045	1,6793	9,0173	
Int_2	-1,0432	,3083	-3,3840	,0009	-1,6512	-,4351	
Int_3	-2,9386	1,0683	-2,7508	,0065	-5,0457	-,8316	
Int_4	,5718	,1786	3,2019	,0016	,2196	,9240	

Product terms key:

Int_1 : AMe x gender

Int_2 : AMe x position

Int_3 : gender x position

Int_4 : AMe x gender x position

Test(s) of highest order unconditional interaction(s):

R2-chng F df1 df2 p
X*W*Z ,0408 10,2524 1,0000 192,0000 ,0016

Focal predict: AMe (X); Mod var: gender(W) (1- female; 2- male); Mod var: position (Z) (1-specialist; 2-manager)

Conditional effects of the focal predictor at values of the moderator(s):

gender	position	Effect	se	t	p	LLCI	ULCI
1,0000	1,0000	,7225	,1757	4,1120	,0001	,3759	1,0691
1,0000	1,0000	,7225	,1757	4,1120	,0001	,3759	1,0691
1,0000	2,0000	-,2203	,2133	-1,0328	,3030	-,6409	,2004
2,0000	1,0000	,5904	,1184	4,9873	,0000	,3569	,8238
2,0000	1,0000	,5904	,1184	4,9873	,0000	,3569	,8238
2,0000	2,0000	,7911	,1845	4,2872	,0000	,4272	1,1551
2,0000	1,0000	,5904	,1184	4,9873	,0000	,3569	,8238
2,0000	1,0000	,5904	,1184	4,9873	,0000	,3569	,8238
2,0000	2,0000	,7911	,1845	4,2872	,0000	,4272	1,1551

Level of confidence for all confidence intervals in output: 95,0000

The following research stage was to verify the moderating power of the mindset (technological vs. non-technological) on the relationship in question.

Results showed first that for agile mindset employees neither technological nor non-technological mindset moderation is significant. This means that for agile mindset employees, technological or non-technological mindset does not alter their positive impact on organisational agility. However, for non-agile mindset employees, such moderation is significant, and for those with non-technological mindset, this impact is negative.

Whereas for non-agile mindset, such moderation is significant for non-technological mindset employees, and this impact is negative. Precisely, the more non-agile mindset, the more negative is its impact on organisational agility. This means that agile organisations, if possible, should avoid hiring employees with a non-agile mindset. Below, Figure 3 visualises this effect.

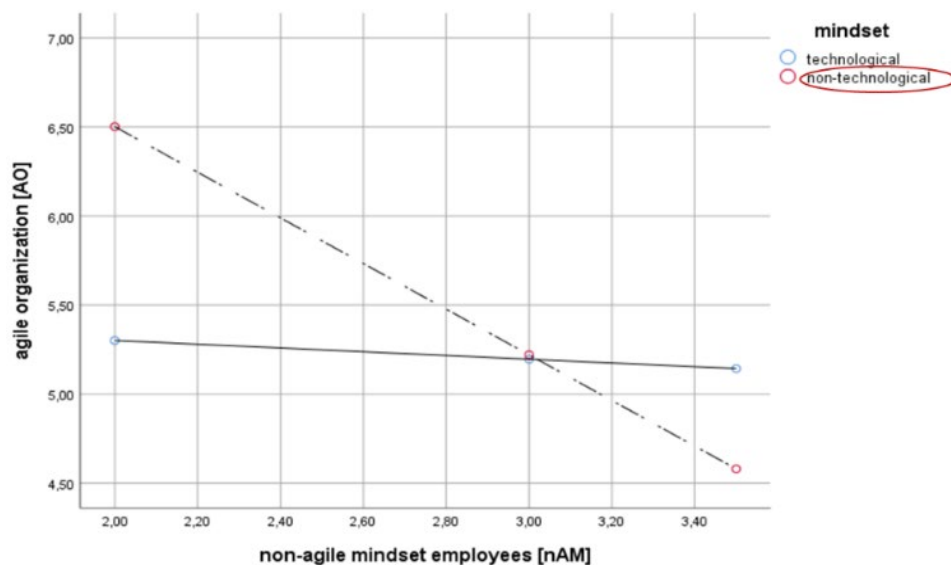


Figure 4: Non-agile mindset employees [nAM] impact on organisational agility moderated through non-tech oriented mindset (theoretical model III)

Note: The significant effect is circled

Run MATRIX procedure:

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com


```

*****
Model : 1   Y : AO   X : nAM   W : t-nt mindset   Sample Size: 209
*****
OUTCOME VARIABLE: AO
Model Summary      R    R-sq    MSE    F    df1    df2    p
                   ,2450 ,0600  1,5709  4,1709  3,0000  196,0000  ,0069
                   coeff   se    t    p    LLCI    ULCI
constant  1,9591  1,5418  1,2706  ,2054  -1,0816  4,9997
AO        1,0706  ,4482  2,3888  ,0179  ,1867  1,9545
mindset   3,5523  1,4718  2,4135  ,0167  ,6496  6,4550
Int_1    -1,1758  ,4192  -2,8052  ,0055  -2,0025  -,3492
Product terms key: Int_1 :   nAM   x   t-nt mindset
Test(s) of highest order unconditional interaction(s):
      R2-chng    F    df1    df2    p
X*W    ,0377  7,8690  1,0000  196,0000  ,0055
Focal predict: AOm   (X) Mod var: mindset (W)
Conditional effects of the focal predictor at values of the moderator(s):
t-nt mindset  Effect   se    t    p    LLCI    ULCI
1,0000      -,1052  ,0916  -1,1489  ,2520  -,2859  ,0754
2,0000     -1,2811  ,4090  -3,1319  ,0020  -2,0877  -,4744
Data for visualising the conditional effect of the focal predictor:
Paste text below into a SPSS syntax window and execute to produce plot.
***** ANALYSIS NOTES AND ERRORS *****
Level of confidence for all confidence intervals in output: 95,0000
Next, this analysis was deepened through additional moderation through gender.

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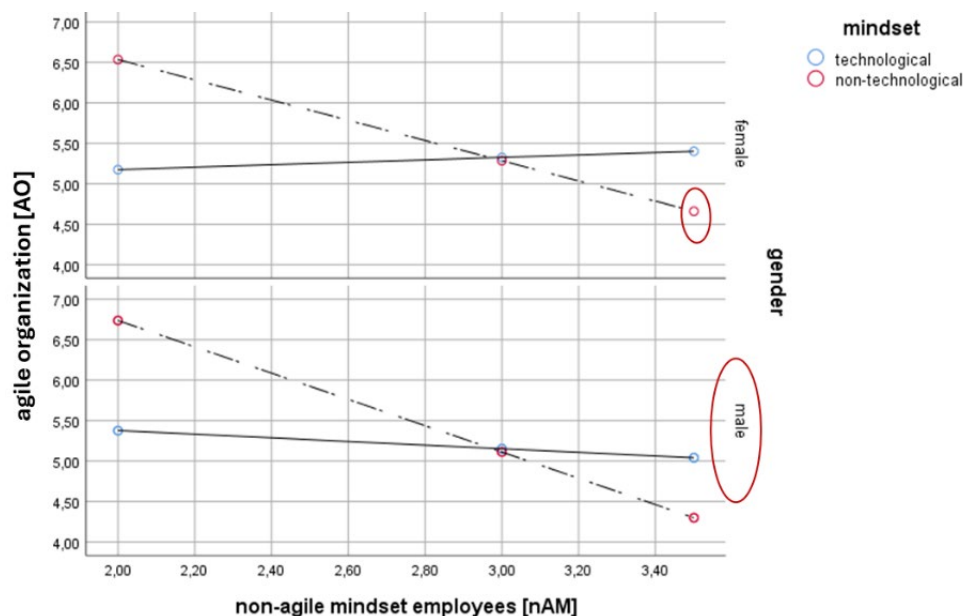


Figure 5: Non-agile mindset employees [nAM] impact on organisational agility moderated through non-tech oriented mindset moderated through gender (theoretical model IV)

Note: The significant effect is circled.

The negative effect of the non-agile mindset on organisational agility is confirmed for men with both tech and non-tech-oriented mindsets. However, it is stronger for non-technological ones. It means that technology works as a kind of mind stimulus. To sum up, technology can be seen as the agility driver of an organisation, but it is not a factor that determines the agile mindset. For the female group, the negative effect of the non-agile mindset on organisational agility is confirmed for women with a non-tech-oriented mindset. However, this effect is noted as insignificant for women with tech-oriented mindsets.

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Model : 2 Y : AO X : nAM W : mindset Z : gender Sample Size: 209

OUTCOME VARIABLE:AO Model Summary

	R	R-sq	MSE	F	df1	df2	p
	,2928	,0857	1,5437	3,6370	5,0000	194,0000	,0036

Model

	coeff	se	t	p	LLCI	ULCI
constant	-,2434	1,8045	-,1349	,8929	-3,8024	3,3156
nAM	1,9280	,5788	3,3310	,0010	,7865	3,0695
mindset	4,1628	1,4843	2,8045	,0056	1,2353	7,0902
Int_1	-1,4013	,4282	-3,2722	,0013	-2,2459	-,5567
gender	,9526	,4371	2,1794	,0305	,0905	1,8146
Int_2	-,3753	,1608	-2,3334	,0207	-,6925	-,0581

Product terms key: Int_1 : nAM x mindset; Int_2: nAM x gender

Test(s) of highest order unconditional interaction(s):

	R2-chng	F	df1	df2	p
X*W	,0505	10,7075	1,0000	194,0000	,0013
X*Z	,0257	5,4447	1,0000	194,0000	,0207
BOTH	,0630	6,6800	2,0000	194,0000	,0016

Focal predict: AO (X)

Mod var: mindset (W) (1-technological 2- npn technological)

Mod var: gender (Z) (1-female 2-male)

Conditional effects of the focal predictor at values of the moderator(s):

mindset	gender	Effect	se	t	p	LLCI	ULCI
1,0000	1,0000	,1515	,1429	1,0600	,2905	-,1304	,4333
1,0000	2,0000	-,2238	,1041	-2,1503	,0328	-,4291	-,0185
1,0000	2,0000	-,2238	,1041	-2,1503	,0328	-,4291	-,0185
2,0000	1,0000	-1,2498	,4067	-3,0733	,0024	-2,0519	-,4478
2,0000	2,0000	-1,6251	,4328	-3,7552	,0002	-2,4786	-,7716
2,0000	2,0000	-1,6251	,4328	-3,7552	,0002	-2,4786	-,7716

Level of confidence for all confidence intervals in output: 95,0000

4.1 Females Managers Group Underrepresentation Problem in the Initial Sample - Study Replication

Since all non-significant results were obtained for female sub-samples with technological mindsets or holding managerial positions (IT sector), the assumption has been made that the 209-case sample is probably too small. Therefore, a two-times bigger sample was collected with the hope that 401 cases would allow us to verify all the findings through the study replication based on the bigger sample. In fact, the replication study results confirmed the findings noted for the initial sample. Still, results obtained for female sub-samples with technological mindsets or holding managerial positions were non-significant. It leads us to conclude that the issue is not the sample size or structure but the gender-biased reality the sample reflects. In fact, both samples (initial and replication) reflect gender inequality. It is a fact that women are underrepresented in managerial positions (Hideg and Shen, 2019; Orbach, 2017), especially in IT. So, to examine the impact of agile mindset on agile organisation per gender in IT, a purposive sample is needed. It is because neither a random nor a convenient sample reflecting the IT employee population would not work for examining the impact of an agile mindset on agile organisation per gender in IT. To do so, a purposive sample is needed. The replication results based on 401 cases are presented below (Figure 5).

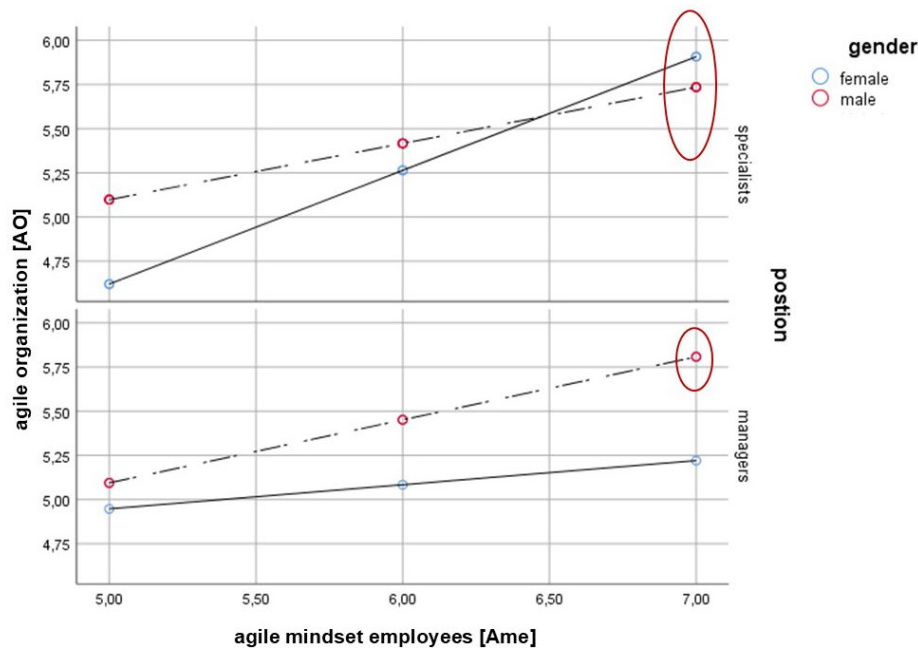


Figure 5: Agile mindset employees' [Ame] impact on organisational agility through gender and position (theoretical model II) – replication based on n=401 cases sample size.

Note: The significant effect is circled

***** PROCESS Procedure for SPSS Version 4.2 *****

Written by Andrew F. Hayes, Ph.D. www.afhayes.com

Model : 3 Y : AM X : AMe W : gender Z : position **Sample Size: 401**

OUTCOME VARIABLE: AO,

Model Summary	R	R-sq	MSE	F	df1	df2	p
	,2961	,09	1,8029	5,3862	7,0000	392,0000	,0000

	coeff	se	t	p	LLCI	ULCI
constant	-6,6200	3,5790	-1,8496	,0651	-13,6565	,4165
AMe	2,0211	,6093	3,3172	,0010	,8232	3,2189
gender	5,1610	2,0326	2,5391	,0115	1,1649	9,1572
Int_1	-,8705	,3449	-2,5241	,0120	-1,5486	-,1925
postion	5,9196	2,0208	2,9294	,0036	1,9467	9,8926
Int_2	-1,0525	,3381	-3,1133	,0020	-1,7171	-,3878
Int_3	-3,0580	1,1608	-2,6344	,0088	-5,3401	-,7758
Int_4	,5455	,1949	2,7991	,0054	,1623	,9286

Product terms key:

Int_1 : AMe x gender
 Int_2 : AMe x position
 Int_3 : gender x position
Int_4 : AMe x gender x position

Test(s) of highest order unconditional interaction(s):

R2-chng	F	df1	df2	p
X*W*Z	,0408	10,2524	1,0000	192,0000

Focal predict: AMe (X); Mod var: gender(W) (1- female; 2- male); Mod var: position (Z) (1-specialist; 2-manager)

Conditional effects of the focal predictor at values of the moderator(s):

gender	postion	Effect	se	t	p	LLCI	ULCI
1,0000	1,0000	,6435	,1552	4,1454	,0000	,3383	,9487
1,0000	1,0000	,6435	,1552	4,1454	,0000	,3383	,9487
1,0000	2,0000	,1365	,1134	1,2041	,2293	-,0864	,3594
2,0000	1,0000	,3185	,1105	2,8828	,0042	,1013	,5357

2,0000	1,0000	,3185	,1105	2,8828	,0042	,1013	,5357
2,0000	2,0000	,3569	,1017	3,5079	,0005	,1569	,5570
2,0000	1,0000	,3185	,1105	2,8828	,0042	,1013	,5357
2,0000	1,0000	,3185	,1105	2,8828	,0042	,1013	,5357
2,0000	2,0000	,3569	,1017	3,5079	,0005	,1569	,5570

Level of confidence for all confidence intervals in output: 95,0000

5. Discussion, Limitations, Implications, and Further Studies

The most critical factor influencing organisational agility is the agile mindset of employees. Furthermore, the female effect is much stronger than that observed for men in the specialists' group. For the managers' group, only the men's effect is significant, and this effect is substantial. As much as an agile mindset supports organisational agility, a non-agile mindset jeopardises it. The negative impact of the non-agile mindset on organisational agility is confirmed for men with both tech and non-tech-oriented mindsets. However, it is more vital for non-technological ones, indicating that technology works as a kind of mind stimulus. The technological focus is the agility driver, but it does not determine an agile mindset.

Regarding the female group, the negative effect of the non-agile mindset on organisational agility is confirmed for women with a non-tech-oriented mindset, and it is not significant for women with a tech-oriented mindset. Summarising the gender issue, this study showed that the impact of the female mindset on organisational agility is more potent than that of men in the specialist group. The impact of managers and leaders requires more profound analyses. This is because the effects of female managers were noted as non-significant, whereas those of male managers were reported as positive and strong. Such a result may come from the sample structure, which represents mostly technology-oriented men rather than women (IT sector). Therefore, the results of this study encourage further investigation into agility and gender issues based on the more diverse sample, especially considering this study's findings through the prism of the former studies by Zahoor et al. (2024), who stressed the meaning of gender diversity for strategic agility.

When divided into different categories (man managers/man specialists/female managers/female specialists), the initial and replication sample structure clearly exposes the fact that women managers are underrepresented. However, the issue is not with both sample structures, but with the gender-biased reality these samples reflect. It is a fact that women are underrepresented in managerial positions. So, to examine the impact of an agile mindset on agile organisations per gender in, e.g., the IT sector, a purposive sample is needed. It is because neither a random nor a convenient sample reflecting the IT employee population would work for examining the impact of an agile mindset on an agile organisation per gender. To do so, a purposive sample is needed. Apart from the sample structure, there is another limitation: this study is based on knowledge workers from only one country—Poland. Eliminating stereotypes and blurring the perception of, e.g., entrepreneurship as a typically male-dominated activity occurs at different rates in different cultures (Wasilczuk and Golik, 2025; Yoong, 2023). Mueller et al. (2013) proved in their research that these differences in perception blur in American society, while in Spain, they unfortunately do not. So, observing other countries' views to understand the agility-gender relation through the prism of different national cultures would be beneficial. Equally interesting is the view through more and less feminised/patriarchate societies' lenses.

The key practical implication comes from the positive impact of agile-mindset employees on organisational agility and the negative impact of non-agile-mindset people. The direct implication of this research is to hire and nurture agile-minded staff while avoiding candidates with a non-agile mindset. Moreover, since technology is a kind of agility stimulus, it is reasonable to use technology to enhance an organisation's agility. However, thinking that technology matters more for your organisation's agility than the agile mindsets of employees is naive.

6. Conclusion

This study revealed that female IT specialists are more agile than their male counterparts. However, male managers profoundly impact organisational agility. We still do not know how female managers impact agility in the IT sector. This research sample did not keep a gender balance, so the women managers group was too small to obtain a statistically strong test. This is exciting because the IT sector is generally male-dominated. So, it is interesting to see if banning minority women managers is impactful in IT or if they are perceived as "totems" only. So, to examine the impact of agile mindset on agile organisation per gender in IT, a purposive sample is needed. It is because neither a random nor a convenient sample reflecting the IT employee population would not work for examining the impact of an agile mindset on agile organisation per gender in IT, which is a men-

managed dominant sector. Besides, the studied relation is also interesting from the perspective of sectors other than IT. This study is the first to address the influence of gender, position, and the agile mindset on agile organisations, which is a promising direction for further studies.

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Silent Harm: Evidence-informed Training for Stakeholders Working in Interpreter-Mediated Gender-based Violence Settings

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Abstract: Discussion and disclosure of domestic, sexual and gender-based violence (DSGBV) remains taboo for many. DSGBV was spotlighted as a ‘shadow pandemic’ across the Covid-19 pandemic with significant increases in instances of abuse recorded across the period. Concurrently, lack of access to any information around DSGBV in non-dominant languages including signed languages, along with limited organised opportunities to discuss DSGBV has left many speakers/signers experiencing DSGBV in a vacuum (Napier, Clark, Leeson, & Quigley, 2024; Opsahl & Pick, 2017). There is robust consensus that migrants, refugees and members of deaf communities who experience DSGBV should have timely access to interpretation by competent and specially trained professionals in a respectful framework of practice based upon integrity, which upholds their human rights. This, in turn, facilitates equitable engagement with the legal system and relevant support services (e.g. Admire & Ramirez, 2021). The literature also reveals a need for further research on interpreter preparedness towards enhanced understanding of its impact on DSGBV disclosures. Vicarious trauma for interpreters and gaps in understanding amongst law enforcement and support agencies about what constitutes positive interpreting experiences for all parties, are among the areas most urgently requiring further research. We tackled these challenges with the multidisciplinary Justisigns 2 project team (2020-23), developing evidence-informed resources for key stakeholders who engage with deaf, refugee, and migrant women and girls who experience GBV and use a language other than that of their host community. Follow on work (Royal Society of Edinburgh/ Royal Irish Academy) facilitated roll-out with police, interpreters and other stakeholders in rural Scotland and Ireland. Significant work with deaf women across the project raised consciousness around DSGBV and led to the co-creation of glossaries of DSGBV terms in Irish Sign Language (ISL) and British Sign Language (BSL). In this paper, we present results of a survey of key stakeholders from Ireland, the UK and Spain and outline our development of specialist training. We discuss how legislative frameworks and national policies around DSGBV and equality need further co-enmeshment, and we consider how minority community women who do not speak the host language, can be better included in informing and guiding development of processes that impact them.

Keywords: Domestic, Sexual and Gender-based Violence (DSGBV), Interpreting Services, Deaf and Migrant Women, Sign Languages, Language Concordant Services.

1. Background

Domestic, sexual, and gender-based violence (DSGBV) was spotlighted as a ‘shadow pandemic’ across the Covid-19 pandemic with significant increases in instances of abuse recorded across the period. However, at the same time, lack of access to any information around DSGBV in non-dominant languages including signed languages, along with limited organised opportunities to discuss DSGBV has left many speakers/signers experiencing DSGBV in a vacuum (Flynn et al., 2024; Napier et al., 2024; Opsahl & Pick, 2017), while accessing services that are available is extremely challenging for those who do not speak the host language. For example, Flynn et al. (2024) report that only 2% of specialist domestic violence services offer a support service via text and only 2% mention accessibility on their landing page – this creates an often-insurmountable challenge, for deaf people in particular.

In an ideal world, language concordant services would be offered which align to cultural and linguistic needs. For deaf signers, for example, this would mean that services would be delivered by deaf signers in a sign language (De Meulder & Haualand, 2019). What is more likely to happen is that minority language communities who have experienced DSGBV are offered mainstream services with access via the provision of interpreters. However, even this is not always assured, despite legislative imperatives to do so (e.g. Council of Europe, 2011; European Parliament and the Council of the European Union, 2012) and see Cabeza-Pereiro et al. (2023) for detail of the Irish, Spanish and UK legislation in this regard. Additionally, ideally, interpreters would have access to formal interpreter education - in many countries, interpreters have little or no formal training to become an interpreter (Napier, Webb, & Adam, 2024).

Napier et al. (2023) report robust consensus across the empirical literature that migrants, refugees, asylum seekers and members of deaf communities who experience DSGBV should have timely access to interpretation specially-trained, competent professionals. A respectful framework of practice that upholds human rights to facilitate full and equitable engagement with the legal system and relevant support services is a foundational requirement for this.

While there is a noticeable dearth of literature reflecting the direct first-hand experiences of migrants, refugees, asylum seekers and deaf signers accessing interpreting services in circumstances relating to DSGBV, Napier et al. (2023) present a succinct overview of literature that identifies gaps in service provision by support agencies and interpreters, alongside the formulation of solutions to address these gaps. Some further questions are also raised:

Is it ideal for women to receive language concordant services (e.g. direct from deaf signers in their own sign language or spoken language)? If language concordant services are not available in their area what are best practices for support service professionals (namely police officers, social workers, healthcare professionals, etc.) and interpreters for working together? What are the training needs of support service professionals and interpreters in working with female victims of GBV? What is the impact of training, qualification and registration on the quality of interpreting provided to those who access GBV services via interpretation? (Napier et al., 2023 p.29)

2. Justisigns 2 Project

Against this backdrop, the Justisigns 2: Empowering people who experience domestic, sexual, and gender-based violence project¹, funded by the European Commission's Erasmus+ programme ran from 2020-2023. The consortium comprised the Dublin Rape Crisis Centre (Ireland), An Garda Síochána (Irish Police), the European Union of the Deaf, Trinity College Dublin (Ireland), Heriot Watt University (Scotland), the University of Vigo (Spain), and was chaired by Interesource Group Ireland Ltd. The goal of the project was to develop evidence-informed resources to support service providers responding to victims/survivors of DSGBV via spoken and/or signed language interpretation.

3. Survey

In 2021, we conducted a survey of service providers and interpreters in Spain, the UK, and Ireland. Our target population included those with experience of working in interpreter-mediated settings with victims/survivors of DSGBV (i.e. with migrants, asylum seekers and deaf women). We worked with a convenience stratified random sample. We aimed to develop an initial benchmark vis-a-vis how service providers communicate with victims of DSGBV, the training needs they identified in this regard, the training needs identified by interpreters, with the goal of leveraging learning from this in the development of materials. Two different questionnaires were developed: one for interpreters and one for support service providers.

We considered interpreters working with spoken languages and signed languages. For support service providers, we included professionals working in intercultural mediation, education, social work, police services, healthcare (e.g. counsellors, psychotherapists), those working in the justice sector and in NGOs.

Research ethics approval was secured via all partner universities (Trinity College Dublin, Heriot Watt University, University of Vigo) and via An Garda Síochána's (the Irish Police Force) Research Ethics Committee. The survey ran from May to July 2021 in Ireland and the UK. In Spain, the survey ran for six months (May to end October 2021). We note that this was across the Covid-19 pandemic, and responses were low, perhaps a function of survey fatigue across the period. The response levels are outlined in Table 1.

Table 1: Responses by countries and groups

¹ <https://justisigns2.com>

Country	Target Group	Total
Ireland	Service Providers	85
	Interpreters	11
Spain	Service Providers	173
	Interpreters	57
UK	Service Providers	13
	Interpreters	45

Survey findings were complemented by qualitative data from interviews with deaf survivors, police officers and social workers, and a roundtable with interpreters and deaf Independent Domestic Violence Advisors in the UK (Napier et al., 2024; Napier et al., 2023).

3.1 Support Service Provider Responses

In the UK and Spain, many service providers reported more than 20 years' experience. The Irish response was different, which we attribute to the robust response from members of An Garda Síochána. The majority of Gardaí who engaged in this study report working in Divisional Protective Service Units (DPSUs) under the Garda National Protective Services Bureau (GNPSB). The GNPSB was established in 2015. An additional six DPSUs were established in Mayo, Roscommon/Longford, Kildare, Laois/Offaly and Wexford in 2020. This helps understand why Irish respondents (who are mostly Gardaí) report having less than 6 years' experience. Additionally, Gardaí require a minimum number of years' experience prior to applying to work in a specialised area on top of their probation (two years). Those working in DSGBV must first apply to work in a specialised unit and then complete an interview process. At the other end of the experience spectrum, we note that the retirement age for An Garda Síochána members is 60 years. If they joined the force after 2004, they can choose to retire as early as 55. Thus, the window of potential years of experience must be viewed through the lens of the career pathway for Gardaí, a point of differentiation for other respondents.

When it comes to the training concerns highlighted by service providers, we see the need for bespoke training, tools to support interviewing victims of DSGBV (bearing in mind so many respondents are police officers); awareness of supports available to victims/survivors; cultural/diversity considerations – understanding cultural barriers experienced by women seeking information around DSGBV; working with minority groups, especially where language barriers exist. They also wanted to know more about legislation and policing protocols and to learn to better engage with victims/survivors (e.g. witness interviewing techniques, esp. children/vulnerable people; how to talk to a victim).

We asked service providers which languages they most commonly encountered (other than their national language/s) when engaging with victims/survivors of DSGBV. We also note here where respondents had or had not worked with a sign language interpreter (SLI) to date (Table 2).

We asked what happens if an interpreter is not present in terms of resolving communication issues through other means like: gestures/ pointing; through drawing/ writing; getting help from a colleague who understands the language of the client; getting someone who can communicate with the client: asking the victim to bring someone who can help; or using a multilingual software for spoken languages (e.g. Google Translate).

Table 2: Range of languages presenting in DSGBV settings

Country	Most Commonly Occurring Languages	%
Ireland	Polish	69%
	Romanian	55%
	Lithuanian	54%
	Portuguese	50%
	ISL	11%
	68% of Irish respondents had never worked with a SLI	

Country	Most Commonly Occurring Languages	%
Spain	Arabic	79%
	Romanian	69%
	Portuguese	57%
	French	47%
	LSE	27%
	46% of Spanish respondents had never worked with a SLI	
UK	Polish	72%
	BSL	51%
	Urdu	43%
	other	50%
	25% of UK respondents had never worked with a SLI	

Twenty-nine percent of Irish respondents said they ‘almost always’ get someone who can communicate with the client (29%) - this option was used ‘occasionally’ by 51% of respondents. Fifty-eight percent of Irish respondents report that they occasionally ask the victim to bring someone who can help. Worryingly, 22% say that they always or almost always ask the victim to bring someone who can help. Irish respondents also note that they occasionally use gestures/pointing (51%) or seek help from a colleague who understands the language of the client (51%). Nineteen of the Irish service providers report that they have never used an interpreter in a DSGBV related case. This suggests that there is significant work to be done around raising awareness of international and national legislation around the provision of interpreters, and the obligations that follow from this.

56% of UK respondents said they occasionally used gestures/pointing; 44% said that they occasionally used drawing/writing; 50% sought help from colleagues who understood the language being used; and 71% used a multilingual translation software.

The Spanish response indicated no clearly preferred option, but we found respondents say that they communicate through gestures/pointing (almost always 32%), through drawing/writing (occasionally 33%), getting help from a colleague who understands the language of the client (almost always 35%), getting someone who can communicate with the client (almost always 36%), asking the client to bring someone who can help (almost always 28%), using a multilingual software for spoken languages (never 28%, but also almost always in 24% of cases).

A majority of service providers reported being very satisfied or satisfied with the interpreters they had worked with to date (UK 86%; Ireland 75%; Spain 68%). However, when it comes to how one requests an interpreter, there was a gap between knowledge of the process to follow and the consistent implementation of same (Table 3).

Table 3: Requesting and agreeing role of interpreters

Country	We Have a Process for Requesting Interpreters	How Consistently This is Applied	Agreeing Role of Interpreter
Ireland	93%	65%	40%
Spain	72%	20%	19%
UK	83%	20%	50%

We asked service providers what they felt interpreters needed to know in order to work in DSGBV settings. They highlighted language and communication skills, training in DSGBV and awareness of legal issues in this space, specific terminology, emotional management, intercultural communication, cultural context of the client, nature of abuse (including psychological aspects of DSGBV), ethical codes, understanding of trauma, awareness of the

General Data Protection Regulation and of DSGVO related services and support, along with understanding of the time associated with specific procedures such as taking a statement in a complex case.

3.2 Interpreter Responses

As per Table 1, the number of interpreter respondents was quite low: 11 in Ireland, 45 in the UK, and 57 in Spain. It is difficult to confirm what the potential sample population may have been as interpreting is not a regulated profession, and we note that while registers of SLI exist – a voluntary register in the UK (NRCPD) and a statutory one in Ireland (RISLI), this is not the case in Spain. While the UK has a Register of (spoken) Public Sector Interpreters, Ireland does not. The Spanish Ministry of Foreign Affairs, European Union and Cooperation lists all accredited spoken language translators and interpreters in Spain.

The interpreting profession is predominantly female (Bontempo, Napier, Hayes, & Brashear, 2014; Sheridan, Lynch, & Leeson, 2024) and this is reflected in the high percentage of female interpreter respondents here. Levels of experience, formal training, and continued professional training around DSGVO varied considerably.

In Ireland, 78% of interpreter respondents were female. 5 self-identified as sign language interpreters. 67% were aged 46-55 years and they report 6-28 years' experience. All had completed higher education: 50% had a bachelor level qualification and 50% a postgraduate qualification. All had received specific training in interpreting. Eight report English as their first language. 39% said they had completed some specific training in DSGVO, ranging between 6-200 hours.

For British interpreter respondents, 84% were female. 57% were aged 36-55 years. 76% had completed higher education to bachelor or postgraduate level. The majority reported English as their first language (27), with others including BSL, Ukrainian, Arabic, Polish and Turkish. The majority were BSL/English interpreters. 33% said they had completed some specific training in DSGVO, ranging between 6-200 hours, with the majority estimating between 6-30 hours.

Spanish interpreter respondents were also predominantly female (82%) with 39% reporting they were aged 36-45 years. 53% hold postgraduate qualifications. 79% say they have specific training in interpreting. L1 – Spanish (36), - other L1s: Galician, Catalan, Basque, Arabic, Russian, Romanian, French, German. No LSE as L1 in respondent group. Specific training in DSGVO: 32%. While the average reported training in DSGVO is more than 200 training hours, the distribution is uneven, with 6 cases reporting 15-30 hours, 12 reporting 40-100, 9 between 110-300 hours and three recording over 1000 hours of specialist training.

Overall, the range of training needs identified by Interpreters mapped closely to that of service providers. They highlighted training needs around DSGVO generally and the legislation governing same. They report wanting more information on cultural, linguistic, and social elements of the work, as well as information about domestic abuse (e.g. domestic abuse does not always entail physical violence; victim/survivor behaviours and experiences; information about new concepts in public discourse such as coercive control). Interpreters say they want to understand procedures for engaging with victims/survivors of DSGVO (e.g. what to expect at a police station from the perspective of an interpreter; process of taking a victim statement; working with a deaf interpreter/hearing interpreter team; protocols for clarifying or interrupting in police or counselling settings).

Another area for attention is that of managing emotion in DSGVO contexts, which, for all parties in an interpreted interaction is important for many reasons. Additionally, we note that interpreters may be from, or heavily engaged with the community that the victim/survivor comes from (Dublin Rape Crisis Centre, 2024). The emotive context, the potential for vicarious trauma, coupled with the potential legal weight of the work in this domain are factors that contribute to the small numbers of interpreters willing to do this work in the first instance.

3.3 Embedding Findings in Training

Support service providers and interpreters report that they do not have much experience of working together in DSGVO contexts and lack familiarity with how to best work together. We identified some contradictions across respondent groups e.g., support service providers say they mostly check interpreter credentials, but interpreters tell us that they are rarely asked to confirm their credentials. As another example, while support service providers think they are briefing interpreters, interpreters do not feel that they are briefed. Our survey revealed that support service providers and interpreters have received minimal training on how best to work together in DSGVO contexts, and any training received has mostly been provided through professional development workshops. We noted a juxtaposition between priorities for support service providers and interpreters and where there are mismatches concerning the ranking of language skills, people skills, and level of specialist

information needed; with both groups considering interpersonal skills to be very important. This provided impetus for including checklists for stakeholders in our training manual.

Both groups confirmed the need for specialist skills and competencies to work with women in DSGBV contexts and the requirement for specialised training. Although support service providers and interpreters are expected to undertake general professional development, as the work with individuals who have experienced DSGBV is such a specialised and sensitive area, both groups commented on the need to be trained on how to deal with emotional boundaries, managing emotional responses, empathy, and specific terminology, the nature of DSGBV, and legislative processes. We offered masterclasses across 2021-4, drawing on consortium expertise. Additionally, the training manual and interpreter handbook offers specific guidance on self-care when working with DSGBV.

Our results indicated the need to localise many elements in training. For example, support service providers in Ireland referred to their desire for more information on the General Data Protection Regulation (European Union, 2016). This impacts on understanding of ethical guidelines and unanticipated consequences of other things in the system, e.g., citing GDPR as a reason for not giving information to interpreters. In this way, we note that guidance needs to be provided to service providers that not only is it appropriate to give this information to interpreters for preparation purposes but that it is actually best practice to do so to protect human rights. Likewise, we note in Spain, police must inform a suspect of all evidence they have against them before going to court. This is a fairly recently new directive, which is problematic when the victim is endangered as police do not want to hand over all information, including to interpreters, creating a tension between protecting victim rights (by ensuring that interpreters understand what has happened so they can interpret as effectively as possible) and protecting suspect rights. We have included language and country specific content in our manual to support the issue of localisation, but note that much more work is needed yet in this regard.

Our survey responses suggest that existing training is repetitive, focussing primarily on terminology and legislation. While these topics were noted by interpreters as important, we suggest that more in-depth training across a range of issues that are particularly pertinent to support service providers and interpreters working together, e.g. cultural and emotional issues that require a broader lens, and go beyond general explanations of DSGBV.

British deaf women who were interviewed also raised the issue of cultural awareness, understanding of DSGBV related issues and the need for training for support service providers and interpreters. Deaf women also raised their own need for clear communication, information in their own language(s), and specific on-going support, as well as recognition of the needs of women from diverse minority ethnic backgrounds. Deaf women highlighted concerns around confidentiality, noting that deaf communities are small and highly networked. As such, rather than assuming that deaf women would automatically prefer deaf-specific, language concordant (e.g., BSL/ISL/SSL) services, there may be times when they would prefer to access mainstream services via interpretation. However, some deaf women felt better able to express themselves when receiving support from a deaf-specific service. This highlights two things: the need to fund deaf-specific services and the need to train more interpreters for work in GBV settings in order to provide deaf women with the choice of which service to approach. This same principle applies to the provision of support services for women who are migrants, asylum seekers or refugees as they may also experience similar issues concerning small, networked communities and feelings of safety. We built on this information by creating a short documentary, "Silent Harm", highlighting key concerns and offering guidance on best practice approaches.

A final point to note here is that often a deaf interpreter (DI) is called on to work in contexts of DSGBV, working with deaf migrants, refugees and asylum seekers across two sign languages (e.g. Ukrainian Sign Language and Irish Sign Language), or working with a deaf person who may have had limited exposure to a sign language and where language mediation can best be effected via a deaf interpreter working alongside a hearing interpreter. Considering and planning for contexts where multiple interpreters are required to support access is essential (Cabeza-Pereiro et al., 2023).

4. The Justisigns 2 Training Suite

As a result of our survey and review of the literature as outlined above, we worked to create a series of trauma-informed materials for service providers and interpreters, all provided on an open-access basis at <https://justisigns2.com/outputs>. These include:

- An evidence-based trauma informed training manual for service providers and interpreters who work with deaf, refugee, and migrant women and girls who have experienced gender-based violence
- A handbook for interpreters who are working in situations of DSGBV
- Localised guidance for police officers in Ireland, Spain and the UK when communicating with deaf people who have experienced DSGBV
- A glossary of terms in British Sign Language and Irish Sign Language to support the lexical and conceptual gaps identified in the literature and by interpreters.
- A documentary, “Silent Harm” that recounts the experiences of deaf survivors of DSGBV in different scenarios, all based on true stories.
- A GBV toolkit for spoken and sign language interpreters who work in triadic interactions between victims and support professionals such as police, counsellors and legal professionals.

5. Conclusions and Some Recommendations

While we have made great strides in raising awareness of the need to consider language concordant services for those engaging with DSGBV services and beyond, and regarding interpreter-mediated DSGBV related encounters, much work remains. Here, offer some recommendations on the back of our Justisigns 2 work aimed at supporting the translation of our findings to policy, practice and pedagogy. We also indicate further research needs.

5.1 Policy

Submissions to government, public service and charity consultations concerning legislation or strategies related to DSGBV against women who are migrants, asylum seekers, refugees or deaf signers are required to articulate the need for specific services tailored to meet the needs of linguistic and cultural minorities, particularly deaf women, given a particular dearth of direct service provision.

Multilingual factsheets for police officers, social workers, healthcare professionals, and other DSGBV support service providers and interpreters are needed, containing guidance on working with women who are migrants, asylum seekers, refugees or deaf signers.

5.2 Practice

Multilingual resources for deaf and linguistic minority communities providing information in a range of languages about DSGBV, e.g., glossaries of GBV terms in different languages, website information, information videos, all of which could also be used as resources by interpreters.

5.3 Pedagogy

Our training handbook includes a range of information about working with women who are migrants, asylum seekers, refugees or deaf signers. We note the need for delivery of educational workshops for deaf and linguistic minority communities in their own languages about how to recognise and report DSGBV and, more broadly, around women’s rights.

Masterclasses offer a mechanism for increasing shared understanding of best practice approaches to working in DSGBV related interpreter mediated settings, bringing together support service providers, interpreters and women from linguistic minority communities, with combined and tailored breakout sessions for each group, an approach we have successfully applied.

We strongly recommend the training of Independent Domestic Violence Advisors (in the UK) or equivalent DSGBV support workers in other countries, who are deaf or themselves migrants, asylum seekers, refugees or deaf signers in order to be able to provide language concordant support.

More DIs are also needed to work with deaf women in DSGBV contexts.

5.4 Further Research

There is a dearth of research on the experiences of women who are migrants, asylum seekers, refugees or deaf signers in reporting incidences of DSGBV and accessing DSGBV support services either directly or through

interpreters. While our work has contributed new knowledge, significant gaps remain. We see a clear need for more direct co-designed participatory research with migrants, refugees, asylum seekers and deaf signers who are survivors of DSGBV with a focus on their lived experiences of interpreting in DSGBV contexts. Further research on interpreter preparedness towards enhanced understanding of its impact on disclosures by victims and survivors of DSGBV is required. The issue of vicarious trauma for interpreters and gaps in understanding on the parts of law enforcement and support agencies about what constitutes positive interpreting experiences for all parties, are among the areas most urgently requiring further research.

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Assessing Support for Gender Equality Certification in Italian Lombard Companies

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Abstract: This study examines the firm's factors influencing the likelihood of participating in the Lombardy Region's call for support for gender equality certification. The sample under study consists of 12,694 micro, small, and medium-sized firms in Lombardy, of which 575 firms participated in the Lombardy region's call for tenders to support gender equality certification. The research analyses the impact of the presence of women on boards of directors and in executive positions, firm age, profitability, and financial constraints. The results show that firms with a higher percentage of women on boards of directors and in executive roles, listed, and with high revenues are more likely to seek certification support. In contrast, firm profitability, liquidity, and age do not appear to influence the decision to participate significantly. These findings offer important implications for both management and policy: firms interested in gender equality certification could benefit from the access to the support, while more targeted regional policies could also encourage the participation of less profitable and younger firms.

Keywords: Gender Equality Certification; SMEs; UNI PdR 125/2022; Public Incentives

1. Introduction

Promoting gender equality has become a central goal for governments, firms, and civil societies worldwide. Globally, women face persistent challenges in accessing the job market, securing leadership roles, and initiating enterprises (Kronfol *et al.*, 2019). According to Kronfol *et al.* (2019), women make up only 40 percent of the global workforce and have a low representation in leadership roles across all commercial sectors. 62 percent of women in OECD nations hold employment, compared to nearly 80 percent of men (Kronfol *et al.*, 2019).

Policy instruments serve as a conduit between decision-making and execution, as well as among the stakeholders engaged in both processes (Tandé, A., 2017). Following the creation of an instrument, field agents utilize it and provide reports on the progress of its implementation (Tandé, A., 2017). If dissatisfied with the outcomes, policymakers may amend certain elements of the instrument or substitute it with a new one (Tandé, A., 2017). It is important to note that elaboration and implementation activities frequently occur simultaneously and in parallel (Tandé, A., 2017). They also develop according to specific logics and temporalities, which may result in disjunction (Jann and Wegrich, 2007). Contrary to the perceptions or assertions of political decision-makers, policy instruments are not readily and quickly accessible to them. Instruments possess distinct logics that can result in unforeseen consequences. Governments can promote gender equality through a range of interventions targeted at the private sector, which can be divided into three main categories: fiscal and financial incentives, regulatory instruments, and information and facilitation activities (Kronfol *et al.*, 2019).

In Italy, gender equality certification represents a formalised effort to address gender inequalities in the workplace by adopting standards that promote fairness and inclusiveness. The Technical Table on gender equality certification has established the UNI PdR 125/2022 guidelines in Italy to support this initiative. These guidelines offer a framework divided into six assessment areas: corporate culture and strategy, governance, human resources processes, opportunities for growth and inclusion, gender pay equity, and protection of parenthood and work-life balance. The guidelines serve as a 'benchmark practice,' helping firms to assess and improve gender equality, often with financial incentives linked to compliance. Even though UNI PdR 125/2022 isn't required, more and more Italian firms are voluntarily following these guidelines. These actions are intended to boost their business and reputation.

Lombardy Region has implemented an economic support program to encourage gender equality certification in micro, small, and medium-sized firms (SMEs) with at least one operational site in the Lombardy region. The European Social Fund Plus (ESF+ PR 2021-2027) funds this initiative, which aims to guide firms in adopting the UNI PdR 125/2022 certification, focusing on crucial areas like equal growth opportunities, wage equity, parental protection, and work-life balance. The purpose of this regional call is to incentivize firms to apply for UNI PdR 125/2022, thereby indirectly reducing the gender gap in firms and recognizing the value of a fair and inclusive working environment for society and business competitiveness.

Given the value of this type of support, it is crucial to understand which characteristics make firms more likely to apply for these funds. Understanding the distinctive features of the firms that participate in the Lombardy Region's call can help to improve policies to promote gender equality and better target future incentives.

This study analyses a sample of 12,694 micro, small, and medium-sized enterprises (SMEs) in Lombardy, of which 575 participated in the regional call for support for gender equality certification. The analysis explores how the presence of women on boards and in executive positions, stock market listing, profitability, revenues, and liquidity affect the application. In this way, the study aims to identify the firm factors that influence participation in the call, providing an overview of the characteristics that determine adherence to gender equity initiatives.

This study provides an in-depth understanding of the characteristics of firms seeking support for gender equality certification. Knowing the firm characteristics that favor participation in these calls helps managers make informed decisions to participate in support for gender equality certification.

From a policy point of view, understanding which firm's characteristics are most associated with the demand for support for gender certification can help the Lombardy Region and other bodies to develop targeted policies that incentivise even those firms that are less inclined or have limited resources to undertake this path.

2. Gender Equality Certification and Incentives for Firms: the Case of Lombardy

2.1 Gender Equality Certification

In order to define technical standards to monitor and achieve gender equality, a Technical Table on gender equality certification was established on 1 October 2021 with the participation of representatives of the Department for Family Policies, the Ministry of Economy and Finance, the Ministry of Economic Development, the Ministry of Labour and Social Policies and the National Equality Advisor. The work of this roundtable led to the adoption of UNI PdR 125/2022 *'Guidelines on the management system for gender equality, which provides for the adoption of specific Kpi related to gender equality policies in firms'* (Department for Equal Opportunities).

The UNI PdR 125/2022 is the reference practice, non-binding, introduced in 2022 by the Italian National Unification Body (UNI) in order to provide guidelines and recommendations in six assessment areas for the different variables that distinguish an inclusive and gender-equal firm: 1. culture and strategy; 2. governance; 3. human resources processes; 4. opportunities for growth and inclusion of women in the firm; 5. pay equity by gender; and 6. parental protection and work-life balance. Its main goals are to adopt KPIs and technical standards and promote firm transparency, both in the present and in the future.

Being a Reference Practice, it is a tool that, in a pre-normative dimension, introduces technical prescriptions or sectorial application models of specific standards. The UNI/PdR, as indicated in the UNI Statute, art. 35, represent 'pre-normative documents' that precede subsequent national standardisation activities, responding to specific market needs, which can then be consolidated as 'state of the art' through subsequent standardisation activities (UNI, 2022)¹. Despite its non-binding character, many firms decide voluntarily to adopt the practice. In fact, the gender equality certification provides for contribution exemptions and bonuses that can act as an incentive for firms that have voluntarily embarked on the certification path. In fact, the provisions of Law No. 162 of 5 November 2021 exempt firms with the gender equality certification from paying a percentage of the total social security contributions by the employer. Moreover, firms that, on 31 December of the year preceding the reference year, have the gender equality certification are granted a bonus score for the evaluation of project proposals by national and regional European fund authorities to grant State aid to co-finance the investments incurred (Article 5, paragraph 3 of Law No. 162 of 5 November 2021).

Urgent measures for the implementation of the National Recovery and Resilience Plan (Decree-Law No. 36 of 30 April 2022) introduced further forms of incentives linked to participation in tenders. Specifically, Article 34 of the Decree-Law No. 36 of 30 April 2022 amended the Public Contracts Code, allowing contracting authorities to

¹ According to the procedure laid down for Reference Practices, the transition from its 'pre-normative' dimension to its actual validity as a binding technical standard requires careful verification under Art. 8 of the Regulation.

indicate in their notices a higher score associated with the possession of gender equality certification, and to reduce the guarantee in contracts for services and supplies by 30% for firms with the same certification.

This approach allows firms to demonstrate compliance and good practice concerning gender equality, potentially improving their reputation and accessing financial benefits.

2.2 The Lombardy Support for Gender Equality Certification

The analysis focuses on Lombardy and its provinces. Lombardy, aware of its position of importance in economic terms on a national level, has distinguished itself in its commitment to achieving gender equality. This desire has manifested through various initiatives covering the most diverse fields of sustainability, acting as a leader for the remaining Italian regions. For this research project, the decision to give a regional contribution of 10 million euros from the Regional Program co-financed by the European Social Fund Plus for the years 2021–2027 (ESF+ PR 2021–2027) is of particular interest. Lombardy companies will use this money to obtain the gender equality certification. This action aims to accompany and incentivise firms to adopt adequate policies to reduce the gender gap in all the most critical areas (e.g., growth opportunities in the firm, equal pay for equal work, gender equality management policies, maternity protection) (Regione Lombardia).

3. The Allocation processAccording

Heckman and Smith (2004) assert that analyzing the involvement process in a public intervention is essential for three primary reasons. Initially, it enables us to discern the origins of disparity in the allocation of finances. By looking at the things that make firms choose which incentives to seek, we might find barriers to access that we didn't expect (Blanes, Busom 2004). Secondly, data regarding the overall participation process enables us to establish a counterfactual judgment accurately. The allocation analysis can provide significant insights into the program's operation when examining the self-selection behavior of firms in contrast to agency selection (Caprara *et al.*, 2010).

We can categorize the procedure for availing a public incentive into five distinct phases, each involving several stakeholders. The sequential processes are as follows: eligibility, knowledge, request, acceptance, and provision (Heckman and Smith, 2004; Bannò *et al.*, 2010). The process involves three entities: policymakers, corporations, and public authorities. Policymakers define the eligibility conditions (first step), and firms, informed of the incentive's existence (second phase), decide whether to seek public help (third phase). The initial three rounds comprise the self-selection phase for firms. The responsible governmental agencies select the incentive recipients and, in the case of cash benefits, determine the precise distribution amount in the fourth and fifth phases.

The complete procedure for distributing an incentive consists of two primary steps. The first pertains to firms, whereas the second delineates agencies' operations.

Understanding the part that each person plays in putting an incentive into action and giving it is important for evaluating and improving policy instruments (Mudambi, 1999; Schilder, 2000). When looking at how firms self-select versus how agencies choose, allocation analysis can give important information about how the program works (Caprara *et al.*, 2010).

This study aims to identify which firm characteristics increase the likelihood of applying for the regional support for gender equality certification, providing an in-depth analysis of the factors that make firms more inclined to participate in this initiative and benefit from the related incentives.

4. Model and Data

In **Table 1**, we can see the data used for the studies.

Table 1: data used for the studies.

Variable	Definition	Source
Dependent variables		
Support for gender equality certification	Dummy variable taking the value 1 if a firm participates to the support for gender equality certification and 0 otherwise	Regione Lombardia
Independent variables		
Women on board	Percentage of women on board	Orbis
Women executives	Percentage of women executives	Orbis
Listed	Dummy variable taking the value 1 if a firm is listed and 0 otherwise	Orbis
ROA	A measure of a firm's profitability relative to total assets. It is calculated by dividing the net income by the total assets of the firm.	Orbis
ROE	Indicator of the firm's return on equity. It is calculated by dividing the net income by the total assets of the firm.	Orbis
Revenue	Total revenue generated by the firm through its main activities of selling goods or services.	Orbis
Liquidity index	Measure of the firm's ability to meet its short-term obligations. This is calculated as the ratio of current assets to current liabilities.	Orbis
Age	Age of the firm, calculated in years since its foundation	Orbis
Number of employee	Amount of staff employed by the firm	Orbis
Control variable		
Milan	Dummy variable taking the value 1 if a firm has headquarter in Milan and 0 otherwise	Orbis
Industry	Categorical variables covering industries: agriculture, mineral extraction, manufacturing, water supply, construction, trade, transport, accommodation and catering, finance and insurance, real estate, administration, public administration, health, arts and entertainment	Orbis

The independent variables used in the model could influence the likelihood of a firm participating in the Lombardy Region's call for support for gender equality certification as follows.

A high percentage of women on the board of directors could reflect a stronger commitment to gender equality, making the firm more likely to participate in the call. Similarly, a higher percentage of women in management roles could indicate a corporate culture that values gender diversity, increasing the likelihood of participation. Listing on the stock exchange might push firms to enhance their reputation and transparency, including gender equality efforts, thus incentivising them to participate in the call.

Regarding profitability, firms with a high ROA (Return on Assets) might be less motivated to participate if they perceive that compliance costs outweigh the benefits. Similarly, a high ROE (Return on Equity) might make the firm focus more on shareholder value than on gender initiatives, reducing the likelihood of participation. Firms with higher revenues might focus on growth and profitability rather than on social initiatives, reducing the interest in the announcement.

A high liquidity index might indicate a conservative financial strategy focused on short-term obligations, which might reduce the willingness to invest resources in participating in the call. Old firms with established practices might be less inclined to participate in new initiatives, such as the call for certification support. Finally, firms with a larger number of employees might have more formalised human resource practices and be more aware of gender equality issues, making them more inclined to participate in the call.

We use the following model to test these claims:

Model *Support for gender equality certification* = *f*(*Women on board*; *Women executive*; *Listed*; *ROA*; *ROE*; *Revenue*; *Liquidity index*; *Age*; *Number of employees*; *Control variables*)

The sample consists of 12,694 micro, small, and medium-sized firms in Lombardy, of which 575 firms participated in the Lombardy region's call for tenders to support gender equality certification.

According to the Istat data (2023) for the last two years (2022–2023), there are still clear differences between the employment rates of men and women and between provinces in Lombardy, even though the overall employment rate in Lombardy is higher than the national rate (68.2% for the 15–64 age group compared to 60.1% at the national level in 2022 and 69.3% compared to 61.5% at the national level in 2023). In particular, the male employment rate for 2022 was 75.8% compared to 60.4% for women. In 2023, Istat recorded a variance of 76.4% for male employment and 61.9% for female employment.

Analysing the data at a provincial level, one also finds deviations between apparently similar territories: for the year 2022, the province of Milan has, in fact, recorded the Lombard record for female employment, reaching 64.3% at the expense of the neighbouring province of Brescia, which saw a female employment rate of 54.2% (Istat, 2023). The same dynamic was repeated in the following year, with the provinces of Monza and Brianza recording a rate of 66.8%, while the province of Brescia remained at the bottom of the list with a rate of 56.2% (Istat, 2023). There is, therefore, a clear need to assess the employment situation and the effectiveness of the instruments put in place by the region.

5. Results

Table 2 reports the results of the regression analyses.

Table 2: results of the regression analyses.

	Support for Gender Equality Certification	Standard error
Women on board	0.02***	(0.003)
Woman executive	0.007***	(0.002)
Listed	1.824***	(0.652)
ROA	-0.009	(0.008)
ROE	0	(0.001)
Revenue	0**	(0)
Liquidity index	-0.013	(0.042)
Age	-0.002	(0.004)
Number of employee	0.002**	(0.001)
Milan	-0.592***	(0.158)
Agriculture	2.422***	(0.755)
Mining	1.168	(0.928)
Manufacturing	2.45***	(0.749)
Water Supply	1.321	(1.242)
Construction	1.858**	(0.743)
Trade	2.342**	(1.055)
Transport	0.66	(1.237)
Accommodation and Catering	1.07	(1.015)
Finance and Insurance	2.58***	(0.775)

	Support for Gender Equality Certification	Standard error
Real Estate	0.559	(0.73)
Administration	1.738	(1.256)
Public Administration	2.771***	(0.732)
Health	0.547	(0.741)
Arts and Entertainment	0.737	(0.845)
Constant	-4.984***	(0.738)
Pseudo r-squared		0.161
Chi-square		350.758
Akaike crit. (AIC)		1879.226

*** $p < .01$, ** $p < .05$, * $p < .1$

The independent variables used in the model seem to influence the likelihood of a firm participating in the call for support for gender equality certification in various ways. *Women on board* of directors (0.02, $p < 0.01$) shows a positive and significant effect, suggesting that firms with a higher presence of women on the board are more committed to gender equality initiatives and, therefore, more likely to apply for certification. Similarly, *Women executive* (0.007, $p < 0.01$) also has a positive and significant effect, suggesting that firms with more female executives are more likely to apply for certification.

Listed (1.824, $p < 0.01$) exerts a positive and highly significant effect, suggesting that listed firms are more inclined to apply for certification, perhaps to improve their public image. As for *ROA*, the negative coefficient (-0.009) is not statistically significant, suggesting that profitability as measured by ROA does not clearly influence the decision to seek certification. Similarly, *ROE* shows no significant effect on the likelihood of applying for certification, indicating that it is not a determining factor. Conversely, *Revenue* shows a positive and significant effect (0, $p < 0.05$). *Liquidity index*, while showing a negative coefficient, is not significant, indicating that liquidity does not play a significant role in the decision to participate. *Age* also shows a negative but not significant effect, suggesting that older firms are not necessarily more or less likely to apply for certification. Finally, *Number of employees* (0.002, $p < 0.05$) shows a positive and significant effect, indicating that larger firms are more likely to participate, probably due to more formalised HR practices and greater awareness of gender issues.

6. Conclusion

We cannot undervalue the importance of gender equality certification, as it serves as a fundamental tool for promoting inclusion and equality within firms. This study focuses on the Lombardy context, analysing the firm characteristics influencing the likelihood of applying for gender equality certification support.

The results suggest that firms with a higher presence of women on boards and in executive positions, as well as those listed on the stock exchange and with higher revenues, are more likely to apply for certification. In contrast, profitability, liquidity, and age of the firm do not seem to have a significant impact on the likelihood of participation.

The managerial implications of this study are relevant for firms wishing to improve their public image. Promoting more women in leadership roles could incentivise participation in certification initiatives, enhancing the firm's reputation and strengthening its competitive position. Listed firms, in particular, could benefit more from such policies, as the expectations of investors and the general public regarding sustainability practices are increasingly stringent. Investing in gender equality not only improves the corporate image but can also have a positive impact on the working environment, increasing employee satisfaction and reducing turnover.

At the policy level, the Lombardy Region could think about adding more incentives to get younger or less profitable businesses to participate in certification. It would be easier for everyone to join these programs. Particular attention could be paid to supporting small and medium-sized enterprises, which may face greater difficulties in implementing gender equality policies due to limited resources. Targeted policies, such as financial

contributions, specialised consultancy, or training, could facilitate access to certification for these realities, thereby contributing to a more widespread and systemic change.

This study has some limitations. The analysis is limited to Lombardy, where the call for funding was promoted, which may reduce the generalisability of the results to other regions or national contexts. Business and regulatory dynamics may vary significantly between regions, making it challenging to apply the results directly to other contexts.

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Co-creative and Co-participatory Methods to Promote Equality, Diversity and Inclusion: A Case Study in the Open Labs of the Italian Institute of Technology

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Abstract: This paper explores the application of co-creative and co-participatory methods in research performing organisations (RPOs), focusing on a case study at the Italian Institute of Technology (IIT) during its Open Labs initiative under the EU-funded NEXUS project of the Horizon Europe Framework Programme. The main objective is to assess the effectiveness of these methods in fostering an inclusive and collaborative research environment, particularly in approaching themes such as gender equality, diversity and inclusion in the workplace. We present an in-depth analysis of the process, highlighting the challenges encountered and the strategies used to overcome them. Through this case study, we assess both the short-term benefits of using co-creative methods — such as improved collaboration, knowledge sharing and increased awareness of different perspectives — and the ongoing challenges, that persist, including navigating institutional inertia and other barriers in an approach focussed on gender equality, diversity and inclusion lens. The paper outlines how these methods have been tailored to the specific context of IIT's Open Labs and offers insights into the adaptability of co-participatory approaches in different RPO environments when addressing pervasive and cross-cutting issues such as gender, equality, diversity and inclusion. This analysis will be of relevance to those working to implement gender-sensitive and inclusive policies and practises in research organisations. The findings suggest that co-creative and co-participatory methods offer a viable framework for addressing 'inclusion gaps' in research spaces, although their long-term effectiveness requires further research. Ultimately, this work contributes to the growing discourse on inclusion in research settings and provides both theoretical and practical insights into the benefits and limitations of participatory methods.

Keywords: Co-creative Methods; Participatory Methods; Research Performing Organisations; Horizon Europe Framework Programme; Gender Equality Plan (GEP); Equality, Diversity and Inclusion.

1. Introduction and Background

This paper analyses a case study and offers practical insights into fostering inclusivity and collaboration within research organisations using co-creative and participatory methods while addressing equality, diversity and inclusion in the daily life of an institution devoted to STEM research. By addressing institutional barriers and tailoring strategies to specific contexts, the present contribution provides valuable knowledge for those seeking to implement gender-sensitive, inclusive policies in research, in line with the conference's focus on innovation. The analysed case study examines specific open labs conducted at IIT in 2024. It is intended to serve as an example of how the open lab method, when applied to topics such as gender, equality, diversity and inclusion (EDI), can bring to light important discussion points. These findings can then serve as a catalyst for further actions and initiatives and promote greater acceptance and integration of EDI into institutional practise. This paper is of particular interest as it deals with issues that are not normally the subject of research within the organisation concerned. Indeed, the IIT was established as a research institute primarily dedicated to scientific disciplines that are often categorised as "hard sciences". In this context, the work was more challenging than for universities or research institutions that inherently include sociological or social science and humanities fields in their remit. In fact, the authors believe that everything described below can be reused in the form of knowledge exchange, especially by research institutions that have a similar structure to the IIT, as well as by academic institutions and other fields of study. The study can benefit all those who wish to investigate similar or related topics in their organisations, as well as the scientific community, by serving as a case study with specific features, but also offering the potential to reuse its results.

The experiences reported here are the result of specific tasks within an EU-funded project entitled *Twinning Research and Innovation Institutions to Design and Implement Inclusive GEPs*, or NEXUS for short, G.A. N. 101094949. It is an ongoing project with a duration of two years, starting in September 2023. This is a CSA (Coordination and Support Action) project, which does not focus on specific research activities but rather aims at the dissemination and promotion of specific topics. In the case of NEXUS, the project seeks to make participating institutions more sensitive to the themes of inclusion, diversity, and gender equality. It is a very extensive action, with intensive activities and a very dense programme, coordinated by the Technological

University of Dublin in Ireland and involving a total of 10 partners from universities and research centres in Italy, France, Serbia, Turkey, Hungary, Poland, Bulgaria, and Cyprus.

The overall objective of the NEXUS project is to promote institutional change through the design and implementation of innovative inclusive measures that lead to the further development of Gender Equality Plans (GEP) in order to support the further development of the partners' GEP in an intersectional and intersectoral direction. This will be achieved through mutual learning processes within a twinning programme and capacity building to go beyond the minimum requirements for GEPs defined in the Horizon Europe eligibility criteria and to ensure the sustainability of results, as illustrated in the figure below.

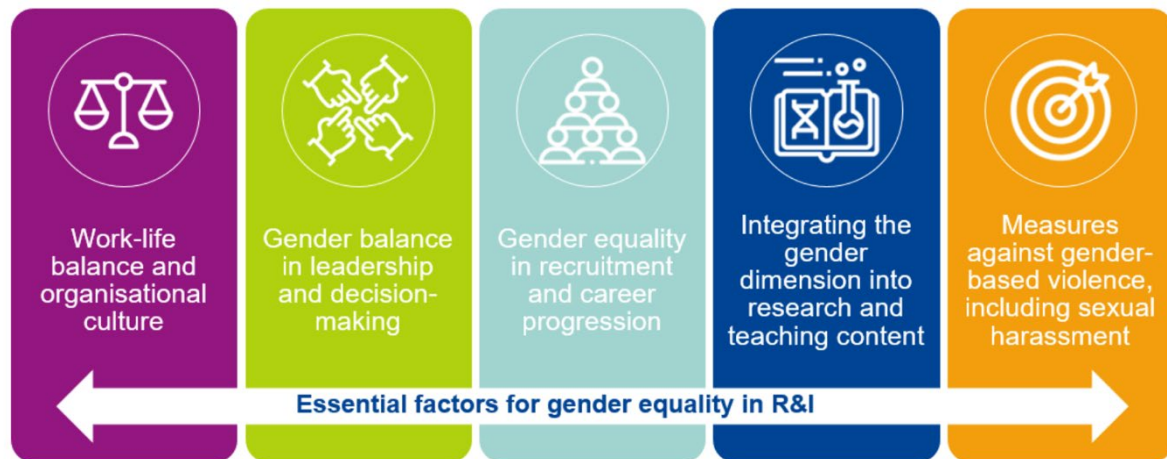


Figure 1: EC's mandatory GEP requirements¹

NEXUS also promotes geographical inclusion and integration thanks to a highly context-sensitive approach in the pilot actions in the 10 organisation and 9 participating countries covering the western, central, southern and south-eastern regions. NEXUS interventions aim to improve the research excellence of participating organisations and to bring about institutional and cultural change that is context-sensitive, realistic and sustainable.

The Istituto Italiano di Tecnologia (Italian Institute of Technology, IIT) participates as a partner and takes on certain tasks. In fact, IIT has recently added a new Equality, Diversity and Inclusion Department to its organisation, with the specific aim of promoting the application of the GEP as well as inclusion and diversity in the workplace to provide a better environment for researchers and staff from more than 70 different countries. With an average age of 36 years, the IIT is open to any measure that improves inclusion, equality and diversity and thus enhances research performance and well-being.

The idea of adopting an open lab method stems from the conviction that institutional and lasting change should come from those who live and work in the institution (Zamenopoulos and Alexiou, 2018). Recent studies show how the approach of co-creation of knowledge and scientific progress can also be fruitful for those institutions that were not used to such participatory action research (Cornish et al., 2023) and helps overcome institutional resistance to change and to close the gaps (Lombardo, Naldini, Poggio, 2024).

2. NEXUS Open Labs as a Concrete Means of Co-creation of Durable Changes

One of the specific objectives of the NEXUS project is “to co-design and implement innovative inclusive pilot actions using a multi-stakeholder participatory approach of solution co-creation leading to the refinement of GEPs across the 5 recommended thematic areas”. This is done by “initiating a participative multi-stakeholder process of solution co-design through co-creation workshops (Open Labs)”, followed by a joint design and

¹ https://research-and-innovation.ec.europa.eu/strategy/strategy-research-and-innovation/democracy-and-rights/gender-equality-research-and-innovation_en. Last accessed 4/12/2024.

implementation of innovative inclusive actions that address the challenges and embed the solutions that emerged during the Open Labs. This action would help to assess and improve or mitigate the impact of the individual GEP actions in the respective organisation, in this case at IIT.

Figure 2 below, taken from the project concept, illustrates the working method and the expected impact of the Open Labs on the refinement and reorientation of the GEP.

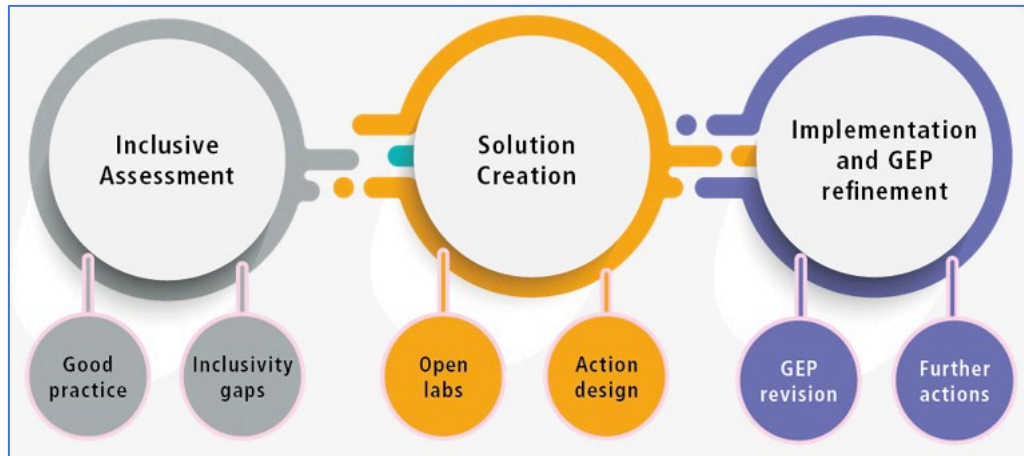


Figure 2: The NEXUS Process

The IIT Open Labs were co-creation workshops that brought together a wide range of IIT staff and stakeholders from the different R&I ecosystems with the aim of providing creative input and ideas for the development of concrete actions, based on the multiple participation of different stakeholders working inside and outside the organisation who meet to share, learn and progress together (Gomez Zermeño and Aleman de la Garza, 2021). Design and collective thinking have proven to be excellent drivers for achieving the project's goal, creating a scenario that is changing the way research and academic institutions relate to their environment (CIVIS, 2022).

The Open Labs took place on two afternoons in March and April 2024 and were attended by a total of 31 people with different backgrounds and positions. According to the methodology, the Open Lab participants included a mix of internal IIT stakeholders and external stakeholders. The external stakeholders were identified from the Italian research and innovation ecosystem and selected based on their expertise and previous experience with inclusion-related topics. The external stakeholders that participated in the IIT Open Lab were a research funding organisation, represented by two people, and a research organisation, represented by one person. Another external stakeholder had been contacted and originally agreed to participate, but did not attend the meeting. The IIT participants were selected from the staff of the Research Organisation, Technology Transfer, Communications, Legal and Human Resources departments. The invitation to participate was sent to internal employees by e-mail and to external stakeholders in personal preliminary talks. Their participation was voluntary.

The following table illustrates the composition of the group of participants in the first Open Lab in March 2024.

Table 1: Participants to the first Open Lab

Role/Job Position	Number
Research Organization	1
Directorate IIT	
Human resources	4
Directorate IIT	
Technology Transfer Directorate IIT	3
Research Unit IIT	1
Researcher IIT	1
Communication Directorate IIT	1
Representatives of external RPOs/RFOs	3

The first Open Lab held in March 2024 was gender-balanced: 11 women, 3 men.

The following table illustrates the composition of the second Open Lab, which took place in April 2024, with the additional information about the earlier participation in the first Lab.

Table 2: Participants to the second Open Lab

Role/Job position	Number	Participating also in the first workshop (yes/no)
Research Unit	1	yes
Human resources officer	3	yes
Technology Transfer Office	1	yes
Legal Office	1	no
Researcher	1	no
Research Organization Office	1	yes
Representatives of external RPOs/RFOs	3	yes

This Open Lab was gender-balanced as follows: 9 female, 2 male.

Originally, we had compiled all the invitees in an *Excel* file and ensured a balanced gender ratio when compiling the list. The invitees then signed up and at the time of the event we were confident that we had ensured a balanced ratio. However, on the day of the event, some male colleagues were not present.

The participants who opted for the initiatives were motivated and very open to the content of the labs: they reserved an entire afternoon for them (each lasted about three hours) and were very active. Based on a common methodology with the entire NEXUS consortium, in which the trainers were trained, the aim was to better identify and conceptualise the concrete transformative actions needed to bridge the inclusion gaps. Feedback from participants emphasised the value of these sessions not only for developing concrete and practical solutions, but also for opening communication channels between departments and fostering a stronger sense of collective ownership of inclusion goals.

During the first Open Lab, participants were asked to identify and discuss the main factors of discrimination and inequality within their organisation. Ethnicity and religion were identified as the most important, as they have the greatest impact in the daily work environment. In this context, external stakeholders reported on their experiences with silent spaces, i.e. special spaces for prayer or moments of meditation, which are internationally recognised as good practise.

Furthermore, much of the discussion focused on a common challenge: the difficulty of inclusive data collection, i.e. how can we narrow the gap in inclusive data by ensuring that data is disaggregated and organised for intersectional analysis? How can we overcome national and institutional barriers related to data collection? There was some discussion about how to collect this data. In particular, the use of an anonymous online questionnaire was suggested to capture the needs of employees, with a focus on improving the work experience rather than sharing personal data.

Between the first and second Open Lab, the GEP team at IIT conducted an internal analysis aimed at identifying two promising actions based on the discussed gaps to be developed together with the participants of the second Open Lab. This analysis was conducted based on criteria focussing on the potential impact of each measure within the institute and the feasibility of implementation, taking into account the available resources and the project's timeline. The measures selected were two innovative initiatives: data collection and workplace harassment.

In the second Open Lab, the working method was different. The original group was split into two smaller, focused working groups that allowed for a deeper, more focused discussion on critical topics such as harassment and

inclusive data practises, maximising the expertise available in each group. External stakeholders chose to participate in the harassment subgroup because they had professional experience of this issue and because their organisation had been involved in developing activities in this area.

In order to facilitate the work of each group, the facilitators used a methodology based on the logical framework model, a management tool used to structure the key elements of an intervention/action and identify the causal relationships between them. This model provides a basis for planning, implementing, monitoring and evaluating an intervention. Based on the logical framework, a co-design tool was developed to effectively guide the discussions between the different stakeholders and ensure a productive and focussed exchange of ideas.

The form is titled "Action's title:" and contains eight rows, each with a label in a blue box on the left and a light blue input field on the right. The labels are: Impact, Outcomes, Audience, Time-frame, Activities, Outputs, Inputs, and Inclusive dimensions.

Action's title:	
Impact	
Outcomes	
Audience	
Time-frame	
Activities	
Outputs	
Inputs	
Inclusive dimensions	

Figure 3: Tool used for co-designing actions during Open Labs

The two groups then presented what had emerged in their group and together we decided to revise the logical framework, in particular the type of target group, the time frame and the inputs.

Secondly, the group that had worked on the data collection presented the logical framework and commented on the more complex aspects of this activity such as the target group and the detailed step-by-step actions. It was then decided to involve a larger number of departments within the IIT, with activities ranging from creating a new data collection process to training those who will work on it.

The working groups responded very positively and dynamically to the joint activities carried out during the workshop. It became apparent that the overarching goal of an organisation should be to foster an organisational culture where diversity and inclusion are part of the daily activities and well-being of the team. For example, one of the two working groups came up with the idea of developing a training course for almost 30 project managers. The other working group emphasised the need for new data collection and inclusion in relation to non-binary people. In fact, it emerged that gender, equality and inclusion need to be addressed through two central themes:

- (a) Contrasting gender-based violence in relation to anti-harassment practises and cultures;
- (b) Gender mainstreaming thanks to the integration of non-binary subjects in the data collection processes of the IIT.

3. Conclusions and Lesson Learnt

The results of the labs offered new insights and solutions that go far beyond the so-called fundamental attribution error (Ross, 1977) to include the often underestimated situational and environmental factors (Berry, Frederickson, 2015) in the investigation and to correctly identify them with the participation of key stakeholders. They also helped to implement concrete and actionable measures to achieve GEP in a research organisation such as IIT, making an important contribution to mitigating and overcoming the barriers and overcoming the resistance to change typical of large organisations (Bencivenga, Leone, Siri, 2021).

As a result of the NEXUS Open Labs, it became crystal clear how EDI and a concrete day-by-day GEP implementation should become an organisational value embedded in all processes, which is particularly glaring in any organisation whose resources are primarily its people (Christensen, 2023). Although the authors are fully aware that EDI concepts are constantly evolving and therefore require continuous monitoring and adaptation within complex organisations such as research institutions, it remains fundamental to recognise that the integration of EDI values into institutional life is essential today. The NEXUS project serves as a critical support tool for promoting day-to-day positive actions that can help to undermine conservative tensions and institutional resistance.

The main objectives and measures identified in the NEXUS projects have helped to make the measures contained in the GEP and already approved by the IIT management more comprehensive. Indeed, the aim of the NEXUS project is to understand how the problem can be solved and how to respond to the associated societal needs (Bernstein et al., 2022) in a collaborative way.

In addition, the results of the lab highlighted the following aspects requiring action: 1) developing a specific workflow for the non-binary gender variable that can be used cross-functionally to collect data that meets European and international standards, e.g. in relation to requirements for EU funds and tenders; and 2) developing training for specific target groups within the organisation that focuses on harassment in the workplace and uses an intersectional framework that takes into account multiple causes and types of discrimination.

A major obstacle we encountered in this approach was the challenge of addressing institutional inertia and resistance to change (Mergaert and Lombardo, 2014). Despite efforts to involve a diverse group of stakeholders, existing organisational structures and entrenched practises often slowed down the implementation of the jointly developed measures (Murgia, Poggio, 2014). In addition, there was a risk that certain demographic groups, particularly male colleagues, engaged only to a limited extent, highlighting ongoing gender dynamics and the difficulty of achieving broad participation. Although participation was open to all interested individuals in the organisation, it was mainly women who took part in the initiative. This is by no means surprising but encourages the organisers to reflect on how they can involve a wider range of male staff to move beyond the biologisation of the social aspects, which is still crossed with the socialisation of the biological aspects (Bordieu, 1998). Thus, although participation in the workshops showed a higher involvement of women, confirming that gender roles are still repeated today, we can also draw another lesson. That is, women are among those most interested, inclined and active in driving institutional change and pushing for a work environment that is less discriminatory and more inclusive. This is not just about the pay gap (Goldin, 2014, 2021), but also about protecting all forms of diversity and different needs.

Ultimately, this work demonstrates the transformative potential of co-participatory methods for research organisations and suggests that, with sustained engagement, such methods can bring about lasting cultural change towards a more inclusive research environment.

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Gender and Performance in Computer Science Curriculum Courses

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Abstract: Despite numerous initiatives and research efforts dedicated to increasing female representation in computer science, the overall percentage of women in this field continues to remain low. Over time, research has shown the existence of negative stereotypes and "myths" regarding the cognitive abilities and academic skills of women in computer science, which discourage them from pursuing careers in the field. The aim of the research is to examine these stereotypes by exploring gender differences in student performance across undergraduate courses within a Computer Science (CS) curriculum at the University of Tartu. The final grades of six compulsory courses of the CS curriculum were analysed, two courses of which are mathematical, "Calculus" and "Discrete Mathematics"; two involve programming, "Object-Oriented Programming" and "Algorithms and Data Structures"; and two courses teach basic knowledge of the CS field, "Databases" and "Operating Systems". To get a better overview, the period of five years (2018-2023) was selected, and three different types of analyses were performed: general (covering all the courses), module-based and course-based analysis. Mann-Whitney U-test was used to compare grades. The results showed that the academic performance of women and men in CS is very similar. Only very few statistically significant differences were found between the genders. Many of the statistically significant differences favoured women (in courses like Calculus, Object-Oriented Programming, and Databases), except in one course: Operating Systems. Based on the results, it can be argued that women perform equally well or, in some instances, even better than men in CS studies. The analysis confirms that supporting women's participation in computer science is warranted, as there are no significant gender differences in cognitive abilities and academic skills in CS.

Keywords: Gender, Computer Science, Performance, Higher Education, Performance Gender Gap.

1. Introduction

Despite various research works and initiatives, women are still underrepresented in every field of natural sciences, including computer science (OECD, 2022). 70%-80% of students studying at the bachelor's level in computer science (CS) are men (Womentech, 2023). This means that most of the feedback on subjects and the curricula comes from men. This is indicative of the gender data gap, that is a situation in which most globally collected information, from economic to medical data, is primarily derived from men or designed based on male characteristics (World Economic Forum, 2020). Without collecting and categorizing data by gender, it becomes impossible to determine whether the same approach can yield varying outcomes for each gender. In such a situation, the conditions favouring women's learning may not be noticed, and therefore, it is worthwhile to study the performance of female and male students separately. Due to the gender gap, there are many gender stereotypes and "myths" in computer science (Master, Meltzoff, & Cheryan, 2021). One of the stereotypes is that women are less competent in CS than men. The present study tries to explore such stereotypical understandings of the CS field with the aim of investigating gender differences in performance across compulsory courses in CS at the University of Tartu over multiple years. In total, six different compulsory courses in the curriculum are studied: Calculus, Discrete Mathematics, Object-Oriented Programming, Algorithms and Data Structures, Databases and Operating Systems. The main research question is: What are the gender differences in the final grades of the six courses selected for the CS curriculum at the University of Tartu during the years 2018-2023?

The paper is divided into four main parts: literature review, methodology, results, and discussion. The literature review gives an overview of previous studies that deal with female learning results in computer science. The methodology explains the sample, the data to be handled, and the analysis methods. The results section provides the results of the data analysis. The discussion section presents possible explanations for the results of the analysis and answers to the research question.

2. Literature Review

Today, there are still gender disparities in the participation of women at university and in the labour market in the field of computer science and information technology (IT). It even appears that the participation of women in studying CS decreased between the years 1971 and 2011 (Sax et al., 2017). Some initiatives aim to encourage women's involvement in IT, provide training and support their successful participation in tech: UnicornSquad (<https://unicornsquad.ee>), Women Who Code (<https://womenwhocode.com>), Women in Tech ([232](https://women-</p></div><div data-bbox=)

in-tech.org), TechWomen (<https://techwomen.org>), etc. However, women's participation in IT still faces persistent challenges. In the 2019 survey of the Programme for International Student Assessment (PISA), it was found that boys are more confident than girls in their chosen science field (Mostafa, 2019). This is also confirmed in the study by Falkner et al. (2015), where women majoring in CS concurred that they are confident in their mathematics and logic abilities but often have doubts within the discipline, which can be due to the stereotype of today's society that women are stronger in jobs related to communication and men in technical jobs. Low self-esteem in professional skills can cause the so-called impostor syndrome - the feeling that the acquired knowledge is insufficient (Mak, Kleitman, & Abbott, 2019). Such a feeling strongly erodes the sense of belonging and motivation. The impostor syndrome in the CS field has been noted by different studies (Abbate et al., 2023; Falkner et al., 2015), where female CS students stated that they constantly felt the need to prove their competence to feel at an equal level with male students.

It has been found that women's lower self-belief and confidence in computer science knowledge and skills develop already in secondary school (Mahajan & Thirumalai, 2022). According to the PISA 2019 results, a difference between the academic results of girls and boys in school education becomes noticeable by age 15 - boys get higher results in science subjects and girls in language-related subjects (Mostafa, 2019). A girl and a boy at the same education level can choose their higher education path based on this point of comparison. Consequently, more boys choose the field of natural sciences in higher education, and more girls choose the field of sociology; a similar trend can be observed later, when they enter the labour market (Mostafa, 2019). However, no gender differences in programming performance were found among secondary school students (Lau & Yuen, 2009). The proportion of females taking CS courses at the high school level has remained the same and even slightly decreased (Mahajan & Thirumalai, 2022). Less exposure to the field before university and lower confidence in their skills are the main reasons why fewer females choose CS later (Babes-Vroman et al., 2017; Master et al., 2017).

There are contradictory results about gender differences in academic performance in computer science. Some studies have found that there are no significant differences in the academic results of women and men in CS at the higher education level (Berdousis & Kordaki, 2019; Duran, Haaranen, & Hellas, 2020; YeckehZaare & Resnick, 2019). In an analysis of the learning outcomes of an introductory programming course, it was found that there are no gender differences in the final exam scores, but women studied more hours and more thoroughly than men on average (YeckehZaare & Resnick, 2019). Men's earlier exposure to professional knowledge is cited as one possible reason. In an analysis of gender differences in code, it was found that there are differences in the structure but not in the quality of the code (Brooke, 2024). There are also no significant gender differences in the learning outcomes in local programming courses; however, men perform slightly better in MOOCs (Duran, Haaranen, & Hellas, 2020). Conversely, it was observed that men initially performed better in programming at the beginning of the course, but the final pass rate for women was significantly higher than for men (Quille, Culligan, & Bergin, 2017). Similarly, female students obtained higher final exam scores in an introductory CS course (YeckehZaare et al., 2021). In addition, women significantly outperformed men in one programming comprehension question following the tutorial, indicating that women may possess a stronger aptitude for computer programming (Du & Wimmer, 2019).

In courses related to algorithms and data structures, gender does not significantly impact student performance, as differences between the two genders have rarely been statistically significant, and in cases where differences did emerge, women consistently outperformed men academically (Dagklis et al., 2024). In mathematical courses, it has been found that female students do as well as male students (Bridgeman & Wendler, 1991), that women do better than men (Strum & Moroh, 1995), or vice versa (Berdousis & Kordaki, 2019; Else-Quest, Hyde, & Linn, 2010). No significant gender differences have been found in discrete mathematics (Vilner & Zur, 2006). Not many gender-level differences have been found in other professional courses that are not strongly related to programming or mathematics (Berdousis & Kordaki, 2019). Although the academic results of women and men in different courses are at the same level, it has been found that there is a performance gap as more men than women graduate with bachelor's first-class degrees (70% or higher academic performance) in computer science (Wagner, 2016).

As there are contradictory results from previous research about gender performance in computer science, it is essential to analyse in-depth gender differences in student performance across undergraduate courses within a CS curriculum, examining different courses separately, combining them by topic and considering a longer time period to explore general trends.

3. Data and Methodology

For the analysis, six different courses were selected from the compulsory courses of the computer science curriculum at the University of Tartu (hereafter: UT). The UT CS curriculum consists of four mandatory modules: basic mathematics module, IT basic module, programming direction module, and IT speciality module. In order to cover as much of the compulsory curriculum as possible, courses were chosen from each of the four modules. However, the IT basic module and the IT speciality module were combined for further analysis. All the chosen courses are worth six credits, where each credit is equivalent to 26 hours of study. The courses to be analysed are the following:

- Mathematics module: Calculus, Discrete Mathematics
- IT module: Databases (IT basic module), Operating Systems (IT speciality module)
- Programming direction module: Object-Oriented Programming, Algorithms and Data Structures

A quantitative study was conducted to address the research question. The sample of the study consists of UT students (see Table 1) and the data are the final grades of these students in six compulsory courses during 5 academic years (2018/19-2022/23). There were 2463 students, with 860 (34.9%) females and 1603 (65.1%) males, reflecting a similar gender imbalance observed in previous studies (Berdousis & Kordaki, 2019; Womentech, 2023).

Table 1: Number of students in each analyzed course and academic year and gender distribution

	Calculus		Disc. Math.		Databases		Op. Systems		OOP		Algorithms	
	♀ %	♂ %	♀ %	♂ %	♀ %	♂ %	♀ %	♂ %	♀ %	♂ %	♀ %	♂ %
2018/ 2019	379		171		231		155		295		159	
	36	64	29	71	30	70	18	82	27	73	22	78
2019/ 2020	402		194		218		184		268		181	
	41	59	24	76	28	72	18	82	27	73	21	79
2020/ 2021	326		159		212		228		259		231	
	36	64	36	64	30	70	21	79	31	69	25	75
2021/ 2022	367		131		233		167		226		169	
	35	65	25	75	37	63	25	75	33	67	28	72
2022/ 2023	414		260		344		214		324		205	
	29	71	30	70	33	67	28	72	31	69	27	73

The data contains all exam results obtained by the same individual in the chosen period (8822 grades in total). In data processing, only the most recent exam performance in each course was retained for everyone (7306 grades in total). The learning result for each course is indicated on the scale 'A'-'F', where 'A' corresponds to an excellent pass and 'F' signifies a failure to pass the course. In addition, there is a separate result 'not present', which means that the student was admitted to the exam but did not appear, or the student did not participate in the study during the entire semester. In addition to the scale of letter grades 'A'-'F', a numerical scale was used in the analysis. The conversion scheme was as follows: 'A': 5, 'B': 4, 'C': 3, 'D': 2, 'E': 1, 'F': 0, 'not present': 0.

The Python Pandas library was used for the data analysis. The analysis is divided into three parts: general analysis where the results of all courses are analyzed simultaneously, analysis based on modules where similar courses have been analyzed together, and analysis of individual courses. In all three analyses, the statistical indicators of the final grades (arithmetic mean, median, standard deviation) were found. The distribution of final grades was checked using the Shapiro-Wilk test. Since the distribution of final scores departed significantly from normality in all analyses, the non-parametric Mann-Whitney U-test was used to determine whether there are statistically significant differences between gender final grades. The significance level limit was set at 0.05.

4. Results

Generally, there are no major differences in the final grades of female and male students when all the explored courses are viewed together in the considered period (see Table 2). Average results are similar for women and

men, and no statistically significant difference between the combined academic results for women and men could be found in any of the studied years. The arithmetic means of final grades in the mathematics module (Calculus and Discrete Mathematics) show similar results for women and men, with a slight downward trend over the observed period (see Table 2). A statistically significant difference appears only in 2020/21, with women scoring higher than men. In the IT module (courses Databases and Operating Systems), women and men also perform similarly, with a statistical difference only in 2018/19, when women score higher. In the programming module (Object-Oriented Programming and Algorithms and Data Structures), performance is comparable between genders, except in 2019/20, where women achieved a higher average score (see Table 2).

Table 2: Results of all courses together and by modules by gender and year

		All Courses		Math. Module		IT Module		Prog. Module	
		♀	♂	♀	♂	♀	♂	♀	♂
2018/ 2019	Mean (SD)	2.86 (1.72)	2.66 (1.70)	2.52 (1.76)	2.27 (1.68)	3.45 (1.61)	3.00 (1.72)	2.89 (1.62)	2.79 (1.64)
	U (p)	183922.5 (0.053)		31096.5 (0.124)		11891.0 (0.022)		18770.5 (0.610)	
2019/ 2020	Mean (SD)	2.89 (1.81)	2.92 (1.76)	2.24 (1.73)	2.43 (1.74)	3.54 (1.64)	3.28 (1.67)	3.58 (1.67)	3.16 (1.73)
	U (p)	215986.5 (0.794)		43251.0 (0.183)		12994.0 (0.150)		16080.5 (0.020)	
2020/ 2021	Mean (SD)	2.84 (1.73)	2.73 (1.82)	2.25 (1.60)	1.93 (1.70)	3.13 (1.81)	3.09 (1.76)	3.36 (1.60)	3.09 (1.75)
	U (p)	203016.5 (0.347)		23753.0 (0.023)		17939.5 (0.706)		22312.0 (0.199)	
2021/ 2022	Mean (SD)	2.73 (1.67)	2.57 (1.76)	1.65 (1.32)	1.71 (1.57)	3.57 (1.29)	3.22 (1.59)	3.26 (1.69)	2.98 (1.73)
	U (p)	172396.0 (0.151)		26681.0 (0.715)		15565.5 (0.080)		15052.5 (0.137)	
2022/ 2023	Mean (SD)	2.51 (1.81)	2.45 (1.88)	1.53 (1.53)	1.43 (1.60)	3.02 (1.57)	3.03 (1.69)	3.21 (1.83)	3.14 (1.82)
	U (p)	320130.5 (0.527)		44897.5 (0.259)		34020.0 (0.723)		28433.5 (0.672)	

Table 3: Results for each course by gender and year

		Calculus		Disc. Math.		Databases		Op. Systems		OOP		Algorithms	
		♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂
2018/ 2019	M (SD)	2.56 (1.73)	2.11 (1.72)	2.43 (1.86)	2.58 (1.55)	3.64 (1.57)	3.50 (1.60)	3.00 (1.63)	2.37 (1.66)	3.03 (1.74)	3.12 (1.67)	2.57 (1.29)	2.23 (1.43)
	U (p)	14086.0 (0.015)		3199.5 (0.465)		5289.5 (0.504)		1398.0 (0.073)		8771.5 (0.707)		1868.0 (0.200)	
2019/ 2020	M (SD)	2.06 (1.72)	2.26 (1.73)	2.87 (1.61)	2.70 (1.73)	3.75 (1.65)	3.57 (1.71)	3.15 (1.57)	2.98 (1.58)	4.14 (1.41)	3.71 (1.62)	2.50 (1.62)	2.41 (1.60)
	U (p)	20901.5 (0.231)		3234.5 (0.605)		4423.0 (0.422)		2340.0 (0.579)		6004.5 (0.034)		2643.5 (0.796)	
2020/ 2021	M (SD)	2.47 (1.60)	2.05 (1.69)	1.83 (1.53)	1.69 (1.71)	3.70 (1.69)	3.20 (1.82)	2.41 (1.71)	3.01 (1.71)	3.70 (1.56)	3.46 (1.65)	2.89 (1.55)	2.71 (1.79)
	U (p)	10355.0 (0.023)		2689.5 (0.381)		3865.0 (0.036)		5266.5 (0.029)		6514.0 (0.265)		4688.0 (0.530)	
2021/ 2022	M (SD)	1.68 (1.40)	1.66 (1.55)	1.55 (1.00)	1.82 (1.63)	3.80 (0.97)	3.51 (1.42)	3.10 (1.69)	2.88 (1.72)	3.84 (1.38)	3.68 (1.53)	2.36 (1.76)	2.11 (1.58)
	U (p)	14831.5 (0.583)		1635.0 (0.923)		5852.5 (0.325)		2445.0 (0.499)		5385.0 (0.588)		2674.0 (0.489)	
2022/ 2023	M (SD)	1.72 (1.59)	1.54 (1.72)	1.23 (1.39)	1.25 (1.39)	3.34 (1.50)	3.03 (1.64)	2.39 (1.53)	3.02 (1.76)	4.02 (1.36)	3.83 (1.48)	1.73 (1.65)	2.11 (1.79)
	U (p)	16184.0 (0.149)		7201.5 (0.923)		11728.5 (0.089)		5608.5 (0.009)		10505.0 (0.303)		4606.5 (0.192)	

In the course Calculus, women and men perform at similar levels, with a slight downward trend in final grades over five years (see Table 3). Statistically significant differences appear only in 2018/19 and 2020/21, with women scoring higher in both years. In Discrete Mathematics, a similar downward trend in average scores is seen for both genders, with no statistically significant differences between them throughout the period. In the Databases course, there is no noticeable upward or downward trend in final grades for either gender, with a statistically significant difference in only 2020/21 when females scored higher. In Operating Systems, women's grades show a slight downward trend, while men's grades trend upward. Statistically significant differences appear in 2020/21 and 2022/23, with males scoring higher in both years. In Object-Oriented Programming, a slight upward trend appears in final grades for both genders, with a statistically significant difference in 2019/20 when females scored higher. In the course Algorithms and Data Structures, no clear trend or significant difference between genders is observed over the five-year period (see Table 3).

5. Discussion

The aim of this research was to detect possible differences in the results of the six compulsory courses of the Computer Science curriculum at the University of Tartu based on gender during the years 2018-2023. The analysis did reveal statistically significant differences between the genders, but they were only a few in number, so it can be said in general terms that the performance of females and males in the studied CS courses is at the same level, and there are no major differences in study results. Based on the general analysis of all courses together, there is no statistically significant difference between the final grades of female and male students in any considered academic year. The results of this analysis coincide with the results of previous studies, where it has been found that there are no significant differences in the learning outcomes of women and men in computer science (YeckehZaare & Resnick, 2019).

In the analysis of the modules, a statistical difference between genders was found in each module in one academic year out of five - 2020/21 in the mathematics module, 2018/19 in the IT module, and 2019/20 in the programming module. Female students had better results than males in all relevant modules in the mentioned academic years. In the academic years 2019/20 and 2020/21, the difference could have been caused by the change in the study forms due to the coronavirus pandemic - perhaps independent/online study was more suitable or easier for female students. This theory, however, is not supported by a previous study, which found that online learning did not have a strong impact on exam results compared to face-to-face learning (Rataj & Wójcik, 2022). Since a difference was found in each module in only one of the five observed years, in the bigger picture, there are no major differences between the genders in the final grades in the modules, either. In addition, since the years of detected differences were different for each module, it can be assumed that the difference between the genders in these years was random or related to natural differences in the learning abilities of the particular cohorts.

The analysis of the individual courses showed that the observed six courses can be divided into three groups. First, there are two courses where no statistical difference was found between the final grades of women and men in any of the studied years. These courses are Discrete Mathematics and Algorithms and Data Structures. Research conducted at other universities has also found no significant differences between the genders' results in the algorithmics (Dagklis et al., 2024) and the discrete mathematics courses (Vilner & Zur, 2006). These two courses deal with similar topics to some extent, which may also explain why the results are similar. A possible explanation for why there are no differences between the study results of men and women in these courses may be that these two courses both rely to some extent on previously completed courses, i.e. both courses have a prerequisite course. Other courses also have prerequisites, but the prerequisites of these particular courses include content that the student will most likely encounter for the first time at university. This means that in these courses, both genders have solid knowledge of the prerequisite courses they have recently passed, with a lesser role played by the knowledge acquired before university or females' lesser exposure to computer science before university that has been observed in previous studies (Babes-Vroman et al., 2017; Master et al., 2017).

Secondly, in two courses, a statistical difference was found between the final grades of the genders in one of the five academic years - 2019/20 in Object-Oriented Programming and 2020/21 in Databases. In both courses, women's results were better than men's in the mentioned academic years. Although differences were found, one year out of five still shows that, in general, there are no major differences between the academic results of females and males in these courses. It is possible that the difference in the given years was a matter of chance. There is also a possibility that the difference is due to changes in the study organization resulting from the coronavirus pandemic in 2019/20 and 2020/21. In the two aforementioned courses, most of the points are distributed among several different study forms. Since it has previously been found that female students

distribute more study load over a longer period of time (YeckehZaare et al., 2021) and students who do this tend to get better results (Lau & Yuen, 2009), this could potentially explain why significantly better results were found for females in these two courses.

Thirdly, in two courses, a statistically significant difference was found between the final grades in two of the five academic years - 2018/19 and 2020/21 in Calculus and 2020/21 and 2022/23 in Operating Systems. In the course Calculus, females had better results in both the aforementioned academic years; in Operating Systems, on the contrary, males had better results in both academic years. In Calculus, the reasons for the gender differences are likely to be the same as in the maths module. Operating Systems is the only course where males had statistically significantly better results than females. As mentioned in an earlier study, the results of females in this course may be lower because of lesser interest or motivation of female students in the given technical field (Falkner et al., 2015). Although there were more differences in these courses, even two out of five years do not amount to a major difference between the final grades of the genders.

6. Conclusions

This article aimed to explore gender differences in performance across compulsory courses within the Computer Science curriculum at the University of Tartu. The analysis covered the final results of six courses from 2018/19 to 2022/23. Data analysis was conducted in three parts: general (all courses combined), module-based (grouping similar courses), and course-based analysis. The findings indicate that female and male performance in the evaluated CS courses is largely comparable, with only a few significant differences observed. Nearly all statistically significant differences in the final grades found in the analysis were in favour of women; only in one course - Operating Systems - did male students have better results.

The conducted study can be helpful to lecturers and program managers of the CS curricula who want to increase the participation of females in the CS field or to better support both female and male students in the courses and programs. The results of the research revealed that there are no major differences in the results of genders in CS, and based on this, it can be said that women's participation in CS should not be hindered by the stereotypical notion that men do better in computer science than women.

These findings can be applied in several ways to encourage greater female participation in computer science. Educators and program managers could use this data to design inclusive teaching strategies and foster a supportive learning environment that challenges gender stereotypes. Outreach programs could highlight these results to dispel myths about gendered performance differences, encouraging more women to enrol in CS programs. Educators, employers, and policymakers should be informed about these results to raise awareness about unconscious biases and their potential impacts on women's participation in CS. This research can also be used to argue against discriminatory hiring practices in academia and industry, advocating for policies that ensure equal opportunities for men and women. Finally, institutions can develop news or articles showcasing the achievements of women in CS and leverage social media platforms to disseminate bite-sized insights from the research to reach a broader audience and break stereotypes. By demonstrating that gender does not predict academic performance in computer science, these findings can be crucial in building more inclusive academic cultures and inspiring a diverse generation of future technologists.

The results are reliable because data from several different courses and a longer time period than one academic year were used. If only one academic year was selected, the results would show statistically significant differences somewhere, but looking at a longer period, we can see a more general trend, indicating that these differences can be random, not occurring with certainty every year. However, in the current analysis, the selected courses cover only 37.5% of the compulsory part of the curriculum (out of four mandatory modules). Because of this, the results of this analysis do not show a well-rounded picture of gender differences in learning outcomes in CS. For an even more complete picture, all compulsory courses should be included in future studies. Although a period of five years is enough to notice slight differences, a longer period could be investigated in further studies for a more comprehensive picture. To better understand gender differences in CS study results, further studies could also include the CS curricula of other universities.

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Learning in a Database Course: The Same Regardless of Gender?

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Abstract: Despite male and female students' equal performance in computer science courses that are gender-balanced in their design, gender differences can still appear in satisfaction, engagement and in academic help-seeking. Therefore, this paper aims to detect gender differences in behavioural engagement, academic help-seeking, satisfaction and attitudes in an introductory database course. The course is one of the introductory courses at the Institute of Computer Science of the University of Tartu, providing an overview of the theory of relational databases and SQL query language. A total of 239 students of 336 who participated in this course in 2024 filled in the questionnaire. The questionnaire consisted of three main parts: satisfaction and attitudes, behavioural engagement with the course, and getting academic help. Among these respondents, 104 were female, 131 were male, and four students did not want to specify their gender. The Mann-Whitney U-test and the chi-square test were used with SPSS. The results indicate no statistically significant gender differences in satisfaction with the course and the attitudes toward databases. However, differences were observed in behavioural engagement with the course and in the use of academic help. As the differences emerged in these two areas, the results of the study might be helpful for course designers to provide different tools, which correspond to both male and female students' needs.

Keywords: Gender Differences, Satisfaction, Engagement, Academic Help-Seeking

1. Introduction

The underrepresentation of females in Computer Science (SC) courses and the lower motivation and interest in computer science are widely reported (Du & Wimmer, 2019; Viera & Couto, 2020). However, there are some studies (e.g. Ilias & Kordaki, 2006; Zahedi et al., 2021) whose results indicate that there are no differences in performance between male and female students in CS, including database courses (e.g. Berdousis & Kordaki, 2019; Luik, 2024). Since learning success is closely connected to course satisfaction (Thien & Jamil, 2020), which in turn influences engagement (Bayrak et al., 2020), and research (Kessels & Steinmayr, 2013; Wirtz et al., 2018) has shown that academic success is also related to help-seeking, it would be important to find out whether courses with no gender differences in learning outcomes exhibit gender differences in satisfaction, behavioural engagement and help-seeking.

1.1 Satisfaction

For overall satisfaction, the results are not conclusive. In an earlier study, female students reported higher global satisfaction (González-Gómez et al., 2012), but no gender differences have been found in more recent studies (Bayrak et al., 2020). However, there are several aspects that can affect overall satisfaction with the course and these aspects might be different for females and males. For example, it has been found that good teaching, including constructive feedback, is the strongest predictor of overall satisfaction for female students, but there was no significant effect of good teaching on male students' overall satisfaction (Thien & Jamil, 2020). Females' satisfaction was influenced by solving practical cases but, contrary to female students, male students were influenced more by presentation and organisation of the content (González-Gómez et al., 2012).

Typically, a course consists of different learning activities, which are assessed, and some of these activities might be more suitable for females and some for males, ensuring that the course as a whole is gender balanced (Luik, 2024). Therefore, it is important to study satisfaction with the different course aspects and tools. Comparisons of different course aspects have indicated that women are more appreciative of the content of the course, self-evaluation possibilities, teaching guides with precise schedule, contact sessions (González-Gómez et al., 2012), attractiveness of the material, help options (Genç & Tınmaz, 2016) and logical structure (Genç & Tınmaz, 2016; González-Gómez et al., 2012). There were no gender differences in satisfaction with the pace of the course (González-Gómez et al., 2012).

1.2 Behavioural Engagement

Satisfaction with the course elements influences engagement. In courses, learners engage with different learning tools, materials, and activities provided by course instructors. Engagement is a multidimensional construct that includes behavioural, emotional, cognitive, and social engagement (e.g. Deng et al., 2020; Fredricks et al., 2004). However, based on the meta-analysis conducted by Bond (2020), most studies define

engagement from a behavioural perspective. One reason might be that behavioural engagement is considered to be most important for academic success (Fredricks et al., 2004).

In a gender comparison, research shows that females report higher engagement than males, especially in behavioural engagement (e.g. Bru et al., 2021; Lietaert et al., 2015). Female students read more learning materials (YeckehZaare & Resnick, 2019), participate more in practicals (Luik, 2024) and distribute their studying over more days (YeckehZaare et al., 2022). In addition, female students attend more course activities (Nja et al., 2019; Wang et al., 2023). One of the explanations for this gender difference might be the course activities might be more suitable for females (Geist & King, 2008). The other might be that, especially in computer science, females feel they have fewer skills and compensate by studying more (YeckehZaare et al., 2022) or they might not believe they can complete their homework tasks without attending practicals (Luik, 2024).

1.3 Academic Help-Seeking

Besides engagement, academic help-seeking is related to academic success (Kessels & Steinmayr, 2013; Wirtz et al., 2018). Help-seeking can be categorised as adaptive (asking for clues or explanations), expedient (obtaining answers without concern for understanding), or avoidance of help altogether (Oh et al., 2024). While academic help-seeking can often be understood as asking teachers or peers for help, it can also entail the use of any other resource, including non-human resources like online course tools and the Internet (Hao et al., 2016; Wirtz et al., 2018). Artificial intelligence (AI), including ChatGPT, is also a possibility when it comes to asking for academic help (Adams et al., 2024). Efforts to provide students with adaptive help include development of different tools, such as troubleshooters that guide students to the answer with the help of cues and examples (Lepp et al., 2018). Such online tools are good, because students are often afraid to look incompetent in front of others (Yang & Taylor, 2013).

Studies about gender differences in academic help-seeking show contradictory results. Kessels and Steinmayr (2013) report that male students seek academic help less than females, but other studies (e.g. Hao et al., 2016; Oh et al., 2024) have revealed no direct influence of gender on asking for help. Help-seeking might be related to self-efficacy, which might be why female students report more help-seeking (Yang & Taylor, 2013). Self-efficacy might be an important factor in seeking academic help in CS, as studies (e.g. Berdousis & Kordaki, 2019; Kori & Luik, 2020; Viera & Couto, 2020) indicate that self-efficacy of female students is lower than that of males. In CS courses, females often lack a sense of belonging (Berdousis & Kordaki, 2019), and their asking an instructor for help depends on perceived supportiveness of the instructor (Oh et al., 2024).

1.4 Purpose of the Study

As no statistically significant differences in achievement were observed (Author, 2024), this study provides a unique opportunity to investigate whether behavioural engagement, academic help-seeking, and satisfaction with the course are different or the same between males and females, or whether their pathways to equal performance are different and they find satisfaction in different tools. Therefore, this study aims to detect gender differences in behavioural engagement, academic help-seeking, satisfaction and attitudes in an introductory database course. According to the aim, three research questions were posed:

1. What are the gender differences in satisfaction with the course and attitudes toward databases?
2. What are the differences in behavioural engagement between male and female students?
3. What are the differences between male and female students' academic help-seeking resources and attitudes toward using troubleshooters?

2. Method

2.1 Context of the Study

The Database course in the University of Tartu is one of the introductory computer science courses, mainly designed for first-year bachelor's students majoring in computer science or mathematics and statistics. However, this course is also compulsory in several other curricula (data science, software engineering, environmental science, etc). Over 300 students take this course each year, and the completion rate is approximately 85%. The course lasted 16 weeks and was worth 6 ECTS credits (1 ECTS equals 26 hours of work), which includes 5-8 hours of independent work per week. In the course, relational database theory and the Structure Query Language (SQL) are primarily introduced. Different activities are needed to complete the course:

three quizzes based on video lectures, active participation in practicals, SQL tasks and completion of a team project (Author, 2024). The course ends with an exam, which consists of two parts: an SQL code exam and a database theory exam. The tools and materials used in this course are video lectures equipped with self-assessment tests, reading materials with self-assessment tests supporting practicals, troubleshooters for giving hints and examples of certain aspects of solving the SQL tasks, and automated assessment system for submitting SQL tasks. All the systems were integrated with the Moodle Learning Management System (LMS). Weekly letters were sent to the participants each Monday morning, informing them of what was coming this week and giving some statistics for the previous week. The course was designed to be gender-balanced, as is also evident from the fact that no statistically significant differences were found in the theory quizzes, SQL tasks, teamwork, first part of the exam, the second part of the exam or the final grade in 2023 (Luik, 2024) and in 2024 (no difference in all mentioned activities with Mann-Whitney U-test $p > .05$).

2.2 Sample

336 students (28.0% of them females) studied in this course in spring 2024. At the end of the course, on the 14th week, a link to the questionnaire with the information sheet was sent to the students. The students were informed that feedback on the course would be collected, and the responses would be anonymous and used only in a generalised form. Completing the questionnaire was unrelated to course grade or completion, and participants had the right to request the deletion of their data. The research was coordinated with the Research Ethics Committee of the University of Tartu (Approval 385/T-22). 239 students (71.1% of the students in the course) filled in the questionnaire. Among the respondents, 104 (43.5%) were female, 131 (54.8%) were male, and four students did not want to specify their gender. As this paper is aimed at detecting gender differences, these four students were omitted from the subsequent data analysis.

2.3 Data Collection and Analysis

The questionnaire consisted of three main parts. The first part measured satisfaction with the course based on 12 items with a 5-point Likert scale (1 - strongly unsatisfied, ... 5 - strongly satisfied), and Cronbach's alpha of this part was .793. In addition, the students were asked to rate on a 5-point Likert scale (1 - strongly disagree ... 5 - strongly agree) five statements measuring attitudes toward databases, and Cronbach's alpha of this part was 0.755.

Behavioural engagement was measured using data from Moodle, which was anonymised after labelling it with the participant's gender. This data was used for all participants in the course. The indicators used to measure behavioural engagement included the number of students who participated in practicals, submitted quizzes, submitted SQL tasks, and submitted the team project. As the use of certain materials and activities in the course (e.g. self-assessment test, troubleshooters) could not be recorded in this manner, five additional items with a 5-point Likert scale (1 - I never used it ... 5 - I used it in all weeks) were included in the second part of the questionnaire to measure behavioural engagement. As the reliability statistic, Cronbach's alpha calculated for this part of the questionnaire was 0.767. In addition, the respondents were asked to report the approximate number of hours they spent on independent learning in this course during the week.

The third part of the questionnaire measured academic help-seeking. The students were asked an open-ended question about which resources they received academic help from. In addition, there was a yes/no question: did they use artificial intelligence (AI) during the course for learning? More specifically, help from troubleshooters as an option of academic help-seeking (Lepp et al., 2018) was measured, as this tool was offered by the course instructors among the possibilities to get online help. The part of the questionnaire about getting support from troubleshooters started with a question on whether the learner used troubleshooters or not, and when. If they had used it, attitudes toward using them were measured on a 5-point Likert scale (1 - strongly disagree ... 5 - strongly agree). This part comprised 12 statements, and Cronbach's alpha was 0.878.

Gender was the only item of background data that the respondents were asked to report. To increase validity, the questionnaire was piloted in 2023 with the participants in this course. Last year, 81 students filled out this questionnaire, added comments and marked ambiguous wordings in the questionnaire.

The data was analysed using the program IBM SPSS Statistics 29.0.2.0. As the variables were on a Likert scale, a non-parametric Mann-Whitney U-test was used to compare ratings of males and females, and the chi-square test was used to compare the distribution between male and female students. The Fisher Exact test or the Fisher-Freeman-Halton Exact Test was used if one of the cells in the table had less than five observations.

3. Results

3.1 Gender Differences in Satisfaction and Attitudes

This part focus on the first research question, which was about the gender differences in satisfaction with the course and attitudes toward databases. Comparing students' satisfaction with the course and its materials, there were mostly no statistically significant gender differences (see Table 1). Male students rated higher feedback, which they received from automated assessment systems on SQL tasks, than females.

Table 1: Comparison of male and female students' ratings on the course and its materials

	Males M (SD)	Females M (SD)	U	p
Pace of the course	4.4 (0.86)	4.2 (0.92)	6084.0	0.148
Content of the course	4.3 (0.75)	4.4 (0.76)	6739.0	0.877
Moodle LMS	4.3 (0.97)	4.2 (0.82)	6409.0	0.396
Interestingness of the course	4.2 (0.75)	4.3 (0.70)	6133.5	0.153
Usefulness of the course	4.4 (0.67)	4.6 (0.64)	5980.0	0.069
Feasibility of the course	4.2 (0.91)	4.3 (0.82)	6524.0	0.549
Video lectures	3.8 (1.12)	4.1 (0.84)	5519.0	0.119
Reading materials	4.2 (0.77)	4.3 (0.84)	6255.0	0.555
Practicals	4.2 (0.95)	4.1 (0.91)	6610.5	0.756
Feedback from automated assessments to SQL tasks	4.3 (0.68)	3.8 (1.05)	4025.0	<0.001
Weekly letters	4.4 (0.83)	4.5 (0.80)	5942.0	0.495
Team project	3.9 (1.00)	3.8 (0.92)	6339.0	0.404

On the one hand, this finding supports the conclusion by Bayrak et al. (2020) that among the new generation there are no gender differences in satisfaction with a course. On the other hand, the ratings did not indicate that the course might be more feasible, useful or interesting for males as has been reported previously regarding the computer science courses (Du & Wimmer, 2019; Viera & Couto, 2020). In addition, whereas González-Gómez et al. (2012) reported that females rate higher contact sessions, no gender differences were found in the ratings on practicals as the only contact sessions in our study. The only statistically significant difference observed was in satisfaction with the feedback from automated assessments on SQL tasks, where males reported higher satisfaction than females. Thien and Jamil (2020) suggest that constructive feedback from teachers is a strong predictor of overall satisfaction, particularly for female students. This finding indicates a need for further investigation. Although the SQL automated assessment environment provides immediate corrective feedback, it is possible that the human factor in feedback is more crucial for females than the feedback content alone.

There were no statistically significant differences in attitudes toward databases (Table 2). Both males and females reported equal interest in databases, their ability, suitability for working with databases, and intention to work with databases in the future.

Table 2: Comparison of male and female students' attitudes towards databases

After the course...	Males M (SD)	Females M (SD)	U	P
... I am more interested in databases.	3.7 (0.95)	3.8 (0.96)	5868.5	0.486
... I feel that I am good with databases.	3.8 (0.85)	3.8 (0.83)	6160.0	0.950
... I feel that working with databases suits me.	3.3 (0.98)	3.4 (1.05)	5790.0	0.388

After the course...	Males M (SD)	Females M (SD)	U	P
... I know what it means to work with databases.	4.1 (0.92)	4.0 (0.97)	5854.0	0.462
... I would choose to work with databases in the future.	2.7 (0.99)	2.7 (1.14)	5962.0	0.625

This result is also in contradiction with previous studies (Du & Wimmer, 2019; Viera & Couto, 2020). While negative stereotypes and lack of role models are considered among the reasons why women do not choose CS fields (e.g. Berdousis & Kordaki, 2019; Viera & Couto, 2020), all the lectures in this course were presented by a female lecturer who talked about her previous work with databases. This may have served as a demonstration that working with databases is also suitable for women.

3.2 Gender Differences in Behavioural Engagement

The gender differences in behavioural engagement were studied as the second research question. Based on the data from Moodle LMS, there was no statistically significant gender difference in the attendance at practicals (with Mann-Whitney U-test $U=10208.5$, $p=0.535$). On average, male students attended 8.5 (SD=2.65) and female students attended 8.8 (SD=2.34) out of 12 practicals. Similarly, there were no statistically significant differences between male and female students in submitting SQL tasks (averages respectively 4.8 (SD=1.72) and 4.9 (SD=1.73), with Mann-Whitney U-Test $U=110470.0$, $p=0.294$) nor in the number of quiz solutions (averages respectively 2.7 (SD=0.81) and 2.8 (SD=0.72) with Mann-Whitney U-Test $U=11637.5$, $p=0.636$). There was also no gender difference in team project submissions (with chi-square=0.608, Monte Carlo Exact test $p=0.296$), as 93.4% of the males and 95.7% of the females submitted their team project. These results do not align with previous studies suggesting that females are more active in course activities (e.g., Luik, 2024; Nja et al., 2019; Wang et al., 2023). Geist and King (2008) proposed that women may participate more in course activities because the nature of these activities is better suited to them than to men. However, in our study, there were no statistically significant differences in the ratings of course activities between genders. This could indicate that, since the activities were designed to suit both genders, no differences in participation were found.

However, comparison of the students' questionnaire responses revealed that solving self-assessment tests in reading materials was the only course activity with no statistically significant difference. In all other activities, females reported higher behavioural engagement than males (Table 3). These results support the findings of previous studies (e.g. Bru et al., 2021; Lietaert et al., 2015), which are also based on the questionnaire responses and indicate that females are more active in courses in terms of behavioural engagement. It is possible that females view more video lectures, solve more self-assessment tests in video lectures, prepare more for practicals, read more learning materials, because YeckehZaare and Resnick (2019) also found that females read more learning materials. It is worth mentioning that all those results indicate that, after the regular contact activities and compulsory assignments, females try to learn using different sources provided by course instructors. However, it is worth to point out that although females reported higher behavioural engagement in the questionnaire, no gender differences were observed in practical participation or task submission rates. It might be that females tend to rate their own behavioural engagement higher, while males rate theirs lower.

Table 3: Comparison of male and female students' ratings on behavioural engagement

	Males M (SD)	Females M (SD)	U	p
Viewing video lectures	3.5 (1.21)	3.9 (1.17)	5621.5	0.017
Solving self-assessment tests in video lectures	3.4 (1.35)	3.8 (1.40)	5668.0	0.022
Reading learning materials	3.5 (1.17)	4.0 (1.01)	4984.0	<0.001
Solving self-assessment tests in reading materials	2.7 (1.25)	3.0 (1.26)	5944.0	0.086
Preparing for practicals	2.8 (1.11)	3.2 (1.19)	5382.0	0.004

Interestingly, there was no statistically significant gender difference in time per week spent on independent work on the course (chi-square=4.451, Fisher-Freeman-Halton Exact Test $p=0.286$). Most students, males and females alike, spent 2 to 4 hours per week on independent work (Figure 1), which was the median. As males used fewer resources and activities provided by the course instructors, like video lectures, practicals, learning

materials, and self-assessment tasks, it might support the conclusion by YeckehZaare and Resnick (2019) that male and female students perform equally well in computer science courses but they use different pathways for studying.

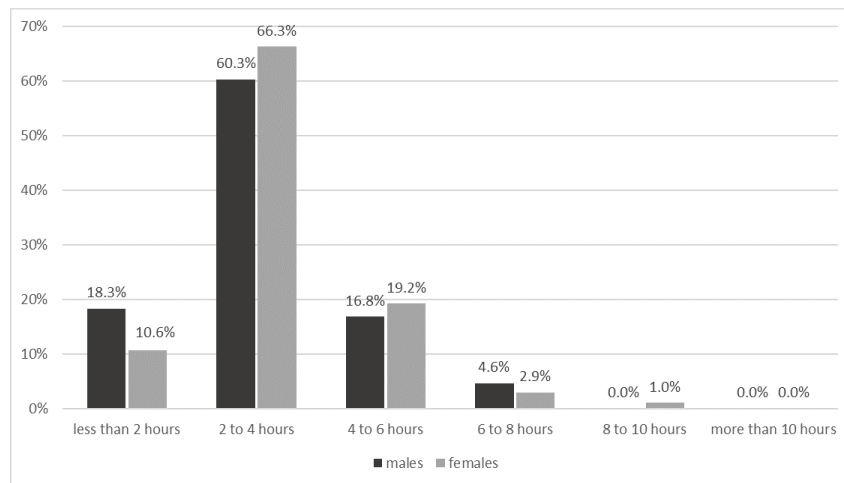


Figure 1: Assessment of course learners on their weekly use of time for independent learning in the course by gender.

3.3 Gender Differences in Academic Help-Seeking and Using Troubleshooters

The last research question investigated gender differences in using academic help-seeking resources and attitudes toward using troubleshooters. The reported data on useful resources for finding academic help revealed no statistically significant gender difference (Table 4). Only one gender difference was found: females reported receiving more help from the reading materials in the Courses environment. Comparing the students' responses about the resources from which they received useful help, females reported statistically more than males that they were helped by the reading materials, and the result on receiving academic help was on the borderline. Both learning materials and video lectures are tools provided by course instructors. In conjunction with the results of the previous research question, it might be concluded that females tend to trust the tools provided by course instructors. This result aligns with Yang and Taylor's (2013) findings that female students report less help-seeking because of their lower self-efficacy. Maybe if females' self-efficacy is lower, they do not dare to trust other materials, fearing that they may provide wrong solutions to their problems. However, there was no statistically significant gender difference in receiving useful academic help from humans (peers and course instructors) and online resources outside the course. Similarly, no gender difference in seeking help from instructors was found in the study by Hao et al. (2016).

Table 4: Receiving academic help from different resources by gender

	Males n (%)	Females n (%)	chi-square	P
Peers	24 (18.3%)	18 (17.3%)	0.041	0.840
Instructors	33 (25.2%)	29 (27.9%)	0.217	0.642
Reading materials	66 (50.4%)	73 (70.2%)	9.416	0.002
Video lectures	26 (19.8%)	31 (29.8%)	3.131	0.077
Artificial intelligence	10 (7.6%)	6 (5.8%)	0.318	0.573
Internet sources	19 (14.5%)	14 (13.5%)	0.052	0.819

Still, gender differences in seeking academic help depend on specific resources. It was found that males used more AI tools, and females used more troubleshooters. 124 males (94.7%) and 89 females (85.6%) had used AI tools at least once during the course (chi-square=5.652, $p=0.017$). 80.2% of males (105) and 90.4% of females (94) had used troubleshooters (chi-square=4.679, $p=0.031$). Again, it should be mentioned that troubleshooters were tools provided by the instructors, and they correspond exactly to the particular SQL task. When using AI,

the students needed to ask questions in order to receive help. As indicated by previous studies (e.g. Berdousis & Kordaki, 2019; Viera & Couto, 2020), males feel more confident in CS and therefore they can be more likely to try to find help from outside. This might also explain the result of the previous research question that males report using less course resources, without there being any gender difference in the study time. It may be that males spend more time asking for help from AI than relying on course materials. Another explanation could be that the course materials were produced by a female teacher and the explanations and examples in the materials may have been less pertinent for males. As Adams et al. (2024) found, several students use ChatGPT for explaining learning material, making the content more understandable and providing more examples.

As troubleshooters have been an effective tool for providing adaptive online academic help, the use of this tool was studied in more detail. There was no statistically significant difference between male and female responses on the situations in which they turned to the troubleshooter ($\chi^2=8.120$, $p=0.229$). More than one-third of students of both genders sought help when they did not find an answer to their problem in the course materials (Figure 2). However, only less than one-fifth of females opened the troubleshooter as soon as the first problem arose, and one-third of females turned to the troubleshooter after trying several times without success. In the case of males, both scenarios occurred in approximately one-fourth of the cases.

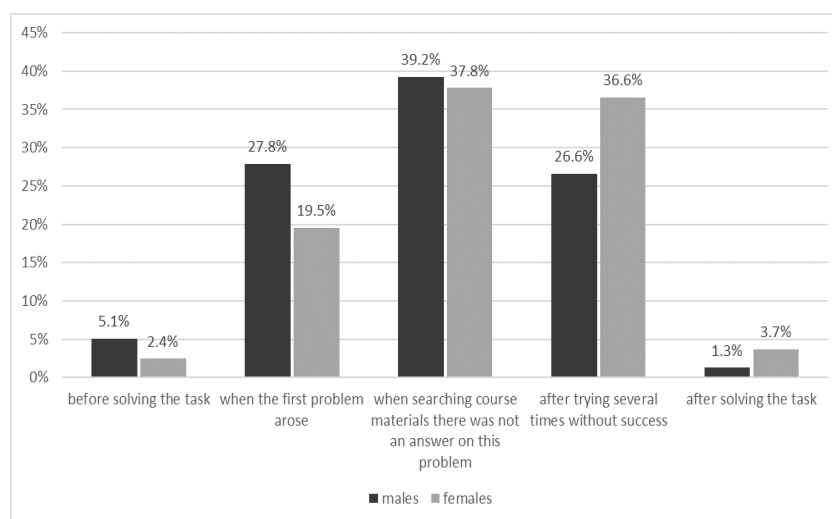


Figure 2: Males' and females' responses on the situations in which they used the troubleshooter

Comparing the attitudes towards using troubleshooters (Table 5), females gave higher ratings to the positive statements and males to the negative ones. Females were significantly more motivated to solve SQL tasks and turned less to instructors for help than males.

Table 5: Comparison of male and female students' attitudes towards using troubleshooters

	Males M (SD)	Females M (SD)	U	p
Troubleshooters were useful.	3.2 (1.00)	3.2 (1.10)	3007.0	0.408
Troubleshooters provided enough information.	2.7 (0.84)	2.7 (0.88)	3173.5	0.598
The problem solvers helped me finish solving the task if there were problem areas.	3.4 (1.29)	3.5 (1.20)	5429.5	0.478
Troubleshooters helped me solve the tasks more on my own without turning to peers for help.	3.4 (1.46)	3.7 (1.33)	5130.5	0.165
Troubleshooters increased my motivation to solve SQL tasks.	2.7 (1.45)	3.2 (1.41)	4628.5	0.012
Troubleshooters reduced stress in solving the tasks.	3.1 (1.43)	3.5 (1.34)	4896.5	0.057
Troubleshooters reduced the time spent on tasks.	3.3 (1.35)	3.3 (1.29)	5701.0	0.926
I had to ask less from instructors.	3.1 (1.45)	3.4 (1.48)	4853.5	0.045

	Males M (SD)	Females M (SD)	U	p
Troubleshooters are good because they prevent others from finding out that I had problems solving the task.	2.9 (1.40)	3.1 (1.39)	5365.5	0.396
Troubleshooters do not promote the development of my own thinking.	2.0 (1.00)	1.6 (0.73)	4383.0	0.001
Because of the troubleshooters, I did not learn as much as I would have without them.	1.9 (1.06)	1.5 (0.67)	4316.0	0.001
Troubleshooters make it harder for me to pass the first part of the exam because I am too used to them.	2.0 (1.24)	1.8 (1.05)	5329.0	0.321

The difference was on the borderline regarding the statement that troubleshooters reduce stress in solving SQL tasks. Females also agreed more strongly that troubleshooters reduced the need to ask from instructors. As previous research has found that female help-seeking is correlated with the relatability of the instructor (Oh et al., 2024) and linked with the females' lower self-efficacy (Kori & Luik, 2020; Viera & Couto, 2020), it may be that females prefer to ask help from troubleshooters instead of instructors.

On the other hand, male students rated significantly higher than females the statements that troubleshooters do not promote development of independent thinking and they did not learn as much with troubleshooters as they would have without using them. The explanation might be the fact that almost one-third of males turned to troubleshooters before solving the task or as soon as the first problem appeared without trying to solve the problem on their own with the help of study materials. This makes it difficult to learn and it indicates that males are more likely to use the expedient type of help-seeking, whereas females try to use the adaptive approach.

4. Conclusion

The aim of this study was to detect gender differences in behavioural engagement, academic help-seeking, satisfaction and attitudes in an introductory database course where no gender differences were found in achievements. The results indicate that, despite there being no significant differences in satisfaction and attitudes, female and male students do learn differently and use different tools for seeking academic help. Therefore, it is important for course designers to be aware of these differences to ensure availability of support tools for both genders. In addition, females could be encouraged to use resources outside of those offered by course instructors.

The study has some limitations. Not all participants of the course filled in the questionnaire and it is possible that the students who responded were more motivated and active in the first place; in addition, the share of respondents was higher among female students compared to the proportion of females among the course participants. The study was conducted at one university, which may also limit generalizability of the findings.

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The Impact of Gender in the Context of Performance Feedback and Business Risk

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Abstract: Performance feedback provides information about the company's achieved performance compared to the aspiration level. Undoubtedly such feedback influences the decisions that business leaders make for the future, primarily with regard to business risk. However, business risk is a very general term. Since research and development is one of the riskiest investments within a company, many studies have focused on the influence of performance feedback on this variable. Admittedly, this led to mixed results. Subsequent studies have therefore proposed moderator factors that can influence the relationship between performance above or below the aspiration level and research and development. As such, the importance of the size and age of the company and the organizational reserve in this relationship was confirmed. However, environmental factors and characteristics of the CEO have not yet been examined. This research focuses on the importance of CEO gender. More specifically, since literature shows that men are generally riskier than women, male CEOs are expected to positively influence the impact of performance below or above aspiration levels on the measure of corporate risk. As a dependent variable, however, this study does not focus on research and development, as this variable is not available in the Belgian annual accounts, but on the internal cash flow of a company, which has a positive relationship with investments in research and development. The data were obtained from public financial databases on the one hand and from a cross-sectional survey completed by 448 Flemish entrepreneurs on the other. The analyses show that there is a positive effect on the dependent variable when performance is above the aspiration level, and a negative effect when performance is below the aspiration level. However, CEO gender did not appear to have a significant influence on these relationships.

Keywords: Gender, CEO, Performance Feedback, Business Risk

1. Introduction

Performance feedback provides information about the company's achieved performance compared to the aspiration level. As such, the aspiration level is a very important reference point for evaluating a company's performance. Performance below the aspiration level can be considered negative, while performance above the aspiration level can be considered a success (Cyert & March, 1963; March & Simon, 1958).

Performance feedback helps business leaders make decisions for the future (Jordan & Audia, 2012). An important factor that performance feedback influences is business risk. It appears that companies that operate below their stated goals and are close to bankruptcy prioritize survival actions and are more reluctant to take risks (March & Shapira, 1987). On the other hand, there are several studies that indicate that companies that perform below their stated goals but are not close to bankruptcy actually focus their efforts on achieving these goals and are therefore likely to be willing to take more risks to reduce the gaps between performance and set goals (Iyer & Miller, 2008; Ref & Shapira, 2017).

One of the riskiest investments within a company is research and development (R&D). As such, R&D expenditures are influenced by a company's performance feedback (Chowdhury & Fink, 2017). The many studies on this variable are, therefore, the starting point for formulating hypotheses about the impact of performance feedback on making risky business decisions in general. Thereby it seems interesting to integrate the gender impact as a moderator variable, as this variable has never been looked at in this context before.

In the next section, our hypotheses are developed based on existing literature. After the presentation of the methodology, a discussion of the obtained results follows. We end with a section of discussion and conclusions..

2. Literature Review and Hypotheses Development

2.1 Performance Relative to the Aspiration Level and Business Risk

Research and development projects are usually characterized by a long period of time and require continuous financial support (Cuervo-Cazurra & Un, 2010). As a result, they are not immediately suitable for addressing immediate problems facing a company with deteriorating performance (Cuervo-Cazurra & Un, 2010).

The performance of a company, if it is below the set aspirations, therefore, shows a complex dynamic. Research exists that establishes a positive relationship between performance below aspiration level and research and development activities (Chen, 2008; Greve, 2003). They argue that ambitious firms engage in research and development in the wake of a temporary performance decline and ultimately achieve success in business recovery.

However, other studies argue that such cases in which companies devote themselves to research and development after a temporary decline in performance and ultimately recover successfully are rather exceptional (Gentry & Shen, 2013). If performance is disappointing, companies may lack motivation to invest in research and development. Instead, managers tend to reduce R&D expenditures as financial performance deteriorates, often driven by pressure to meet profit targets and repair balance sheets (Bushee, 1998; Gentry & Shen, 2013). This is confirmed by Rudy & Johnson (2013), who state that companies that perform below their aspiration level are more likely to take immediate actions instead of thinking about actions with an expected payoff in the long term, such as research and development.

Another possible reason why the company will reduce its research and development expenditure if performance is below the aspiration level is the concept of self-enhancement (Daehun & Shin, 2020). The company and the CEO want to keep their self-image as strong as possible and want to achieve their profit goals as quickly as possible. As a result, they may reduce their research and development expenditure if performance is below aspiration levels.

Although conflicting results exist regarding the influence of performance below aspiration level on a risky business activity such as research and development, the presence of a negative relationship is often stated (Xu et al., 2019). By analogy, the first hypothesis is:

Hypothesis 1: Performance below aspiration level has a negative impact on risky business decisions.

When performance is above aspiration levels, managers experience less pressure to address immediate problems. They are motivated to shift their focus to developing sustainable, exclusive assets (such as research and development) and ensuring the long-term viability of the company (O'Brien & David, 2014; Souder & Bromiley, 2012).

As a result, unlike lower-performing firms, market leaders have strong incentives to commit to product development and increase investment in research and development (Robinson & Chiang, 2002). As performance increases, managers grow in confidence in their market position and growth path. As a result, they develop greater motivation and are likely to be more actively involved in progressive activities to ensure further growth and expansion (Birhanu et al., 2016). Research and development is widely regarded as an essential factor for building knowledge (Cohen & Levinthal, 1990) and developing capabilities (Dutta et al., 2005). Furthermore, the positive impact of a company's research and development is best reflected in the long term, over a period of five to ten years (Franko, 1989), making it an attractive option for companies that are already excelling. From this, it can be assumed that performance above the aspiration level will have a positive impact on research and development (Robinson & Chiang, 2002).

The arguments given for the relationship with research and development expenditure are also valid for other risky expenditure. From this the second hypothesis can be formulated:

Hypothesis 2: Performance above the aspiration level has a positive impact on risky business decisions.

2.2 Influence of CEO Gender

Given the interest in the ongoing debate regarding the relationship between performance above or below aspiration level and the level of research and development, several studies have proposed moderator factors. These factors include the size of the company (Audia & Greve, 2006), the age of the company (Desai, 2008) and the organizational reserve, especially the reserve that maintains business operations in periods of economic uncertainty (Kuusela et al., 2017). However, these previous studies focus on organizational factors, but further research around other factors such as CEO characteristics is lacking (Xu et al., 2019). However, CEO characteristics are very important within this theme, as the CEO has one of the most critical functions within a company (Altarawneh et al., 2020). In what follows, CEO gender is discussed as a moderator in the relationship between performance feedback and risky business decisions.

It appears that if there is a female CEO in the company, the risk level is lower than with a male CEO. So female CEOs see a greater increase in their performance with lower levels of risk compared to men (Khan & Veioto,

2013). The reason for this can be found in the fact that women generally invest in safer and less risky assets than men (Niessen & Ruenzi, 2006).

The fact that men generally take more risks than women is also confirmed by Psychogios (2007). Women use cooperation and influence along with communication and other interpersonal skills to accomplish tasks. Characteristics of male leadership are rationality, toughness, self-interest, and dominance. Men are more aggressive in negotiating and taking risks and are more interested in self-actualization and power.

A possible explanation for the differences in risk-taking between female and male CEOs can be found in the characteristic 'overconfidence'. CEOs often have overconfidence in their own management skills, which can impact their decision-making. For example, overconfidence has been shown to have a positive impact on risk-taking in a financial context (Broihanne et al., 2014). And while both women and men show signs of overconfidence (Beyer & Bowden, 1997; Huang & Kisgen, 2013), it appears to be a characteristic of men (Invernizzi et al., 2017). This is also evident, for example, from the fact that men are more likely to start a risky business compared to women (Yardanova & Boshnakova, 2011). Research also states, for example, that women are less likely to take out loans from a bank due to lower self-confidence or less overconfidence and are less inclined to take risks (Coleman, 2000; Treichel & Scott, 2006).

So the literature seems to agree that men are generally riskier than women, and also exhibit higher levels of overconfidence. Since an organization's response to performance feedback depends heavily on how key functions within the company, such as the CEO, interpret and use information (Schumacher et al., 2020), it can be assumed that these differences in CEO risk aversion have a major impact. More specifically, we propose the following hypotheses:

Hypothesis 3: Male CEOs positively influence the negative impact of performance below aspiration level on risky business decisions.

Hypothesis 4: Male CEOs positively influence the positive impact of performance above the aspiration level on risky business decisions.

3. Methodology

3.1 Sample

To test our conceptual model, we use data from a cross-sectional survey completed by Flemish entrepreneurs in 2015. The data obtained concerns the characteristics of both the CEO and the company itself. Bel-first (being a publicly available financial database provided by Bureau van Dijk) is used to obtain additional data about the financial side of these companies. The data obtained from Bel-first covers the period from 2015 to 2018. As a result, economic crises such as the coronavirus pandemic have no influence on the research. The original dataset consists of 582 observations. After removing all cases with missing values as well as outliers, a final dataset of 448 observations was obtained.

3.2 Measurements

Dependent variable. In this study, business risk is not measured by research and development, as this data is not available in the Belgian annual accounts. However, use is made of the company's internal cash flow, which has a positive relationship with investments in research and development. A higher cash flow would result in higher research and development expenditures (Francesco & Sebasitan, 2010; Sasaki, 2016). To take the size of the company into account, the cash flows are divided by the total assets of the relevant years to obtain a relative cash flow (Xu et al., 2019).

Independent variables. The company's performance is measured by the return on assets, calculated by dividing net income by total assets (Xu et al., 2019). To measure performance above or below the aspiration level, average performance over several years is used (Umans et al., 2024). The historical aspiration level will consist of the average performance of 2015 and 2016. The performance itself will consist of the average of 2017 and 2018. In this way, the performance and the aspiration level can be compared with each other, whereby if the performance minus the aspiration level is negative, the performance is below the aspiration level. In this case, the variable 'Performance below the aspiration level' will take on absolute values. Observations with performance above the aspiration level are given the value '0' (Umans et al., 2024). If performance minus the aspiration level is positive, performance will be above the aspiration level. In this case too, the variable 'Performance above the aspiration

level' will take on absolute values. Observations with performance below the aspiration level are given the value '0'.

Moderator variable. The gender of the CEO is measured as a dichotomous variable being '0' when the family firm is led by a male CEO and '1' when the family firm is led by a female CEO (Peni, 2012).

Control variables. The analyses further include three control variables. From the literature, the size of the company (expressed as the natural logarithm of the number of employees) (Audia & Greve, 2006) and the age of the company (expressed in years) (Desai, 2008) can be identified as relevant control variables. The board of directors is the third control variable. Previous research shows that a board of directors has its own characteristics and preferences and will try to convey these to the managers. For example, the size of the board of directors might negatively influence changes in the company when performance is below the aspiration level (Desai, 2016). One continuous variable will be created for the measurement, which will take the value '0' if there is no board of directors present. If there is a board of directors, this variable takes the value of the number of members (Desai, 2016).

4. Results

4.1 Descriptive Statistics

The descriptive statistics indicate that the relative cash flow has an average of 0.092. The minimum and maximum show that there are both positive and negative cash flow companies. Also, there are 211 observations whose performance is above the aspiration level and 237 observations whose performance is below the aspiration level. Furthermore, there are clearly more male CEOs than female CEOs. In fact, only 14% of companies appear to be led by a female CEO. The average age of the companies is approximately 41 years (ranging from 13 to 90 years), and the average number of employees is 34 (ranging from 0 to 850). The average number of members on the board of directors is approximately 2 (with a maximum of 12). In 172 companies, there is no board of directors.

Table I presents the pairwise correlations. It shows a positive correlation between the relative cash flow and performance above the aspiration level, and a negative correlation between the relative cash flow and performance below the aspiration level. Based on the correlation values in Table I and the computed variance inflation factors, which are lower than the threshold of four (Miles and Shevlin, 2001), multicollinearity is not a problem in this study.

Table 1: Correlation table

	1	2	3	4	5	6
1 Relative cashflow	1					
2 Performance above the aspiration level	,399**	1				
3 Performance below the aspiration level	-,428**	-,213**	1			
4 CEO gender	,035	,079	,005	1		
5 Firm age	-,071	-,108*	-,039	-,044	1	
6 Board of directors	-,053	-,136**	-,031	-,104*	,130**	1
7 Firm size	,044	-,068	-,050	-,052	,162**	,320**

N = 448

*p < 0,1 **p < 0,05 ***p < 0,01

4.2 Regression Results

To test hypotheses 1 and 2, an ordinary least squares regression was performed. From model 1, it can be concluded that performance below the aspiration level has a negative statistically significant effect ($\beta = -0.431$, $p < .01$) on relative cash flow. From this it can be concluded that the lower a company's performance is below the aspiration level, the lower their relative cash flow will be. Model 2 shows that performance above the aspiration level does have a positive statistically significant effect ($\beta = 0.398$, $p < .01$) on the dependent variable. It can,

therefore, be concluded that the higher a company's performance is above historical aspiration levels, the higher their relative cash flow will be.

Table 2: Regression results for hypotheses 1 and 2

	Model 1	Model 2
Dependent variable = Relative cashflow		
Performance above the aspiration level		,398***
Performance below the aspiration level	-,431***	
Firm age	-,089**	-,039
Board of directors	-,074*	-,020
Firm size	,060	,084*
	R ² = ,197	R ² = ,166
	F = 27,170***	F = 22,054***

N = 448

*p < 0,1 **p < 0,05 ***p < 0,01

To test hypotheses 3 and 4, this study uses the PROCESS macro in SPSS (Hayes, 2013). The obtained moderator effects with performance below and above the aspiration level as independent variables are shown in Table III. From this it can be concluded that the gender of the CEO does not have a significant influence in any case.

Table 3: Regression results for hypotheses 3 and 4

	Model 3	Model 4
Dependent variable = Relative cashflow		
Performance above the aspiration level		,739***
Performance below the aspiration level	-,686***	
CEO gender	,002	,001
Interaction term CEO gender	,244	,048
Firm age	-,001**	,002
Board of directors	-,003	-,001
Firm size	,000	,005*
	R ² = ,194	R ² = ,168
	F = 18,291***	F = 15,260***

N = 448

*p < 0,1 **p < 0,05 ***p < 0,01

In the above analyses, a company's performance is evaluated based on its own historical performance, also called historical aspiration (Baum & Dahlin, 2007). The historical aspiration level is an internal benchmark, and internal stakeholders in particular ask questions if the company is performing worse than before. However, performance can also be evaluated against a company's social aspiration, which is its performance relative to its competitors. Social aspiration levels are used more as a measure of the company's reputation. As an additional test, we investigated whether differences or similarities can be noted when using the social aspiration levels. Therefore, the above analyses were rerun with this alternative measure (where the aspiration level consists of the average ROA of the company's sector for the same period as the performance itself) (Xu et al., 2019). The conclusions are the same.

5. Discussion and Conclusions

This study first examined the relationship between a company's performance above or below the aspiration level and making risky business decisions. Our hypotheses were formulated based on previous research with a focus on research and development. Regarding performance below the aspiration level, mixed results do exist in prior

research. On the one hand, there appears to be a positive relationship between performance below the aspiration level and research and development activities (Chen, 2008; Greve, 2003). Other studies indicate that if performance is disappointing, some companies may lack motivation to invest in research and development. As a result, companies tend to reduce R&D expenditures as financial performance deteriorates (Bushee, 1998; Gentry & Shen, 2013). By analogy with the latter view, which dominates, we assume that companies reduce their risky operating expenses when performance is below aspiration levels. There seems to be more consensus around performance above the aspiration level, and a positive impact is always assumed (O'Brien & David, 2014; Souder & Bromiley, 2012). Our research can statistically confirm both postulated relationships.

Given the important influence that the CEO has on the decisions made as a result of performance feedback, it was also hypothesized that both relationships would be strengthened if a male CEO was present. After all, there seems to be agreement in the literature that men are generally riskier than women, and also show a higher degree of overconfidence. Despite the assumed difference in CEO risk aversion, no statistically significant influence can be found for CEO gender.

It is true that there are a number of limitations in this study. Initially, we can point to the measure of business risk. Although we chose to use relative cash flow as an alternative to research and development based on previous studies, further research is needed to substantiate the positive relationship between both variables (Sasaki, 2016). A different measure of business risk is therefore recommended. The small share of female CEOs in our sample is also certainly a limitation and should be increased in future research.

The technology used also has limitations. After all, a database based on a survey instrument is inherently cross-sectional, and especially suitable for estimating the prevalence of multiple behaviors at a specific point in time (Hair et al., 2010). However, caution must be exercised in making causal connections based on these findings. Case study research would make it possible to determine why certain decisions were made (Yin, 2014). A second option is to conduct research using panel data to investigate whether differences occur at different times.

And although the Belgian context may be similar to other contexts in other countries, future research could investigate whether the same conclusions can also be found in other countries to further investigate the generalizability of the results. Another interesting avenue for future research is to examine the feedback mechanism that companies use (Audia & Greve, 2006).

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Empowering Girls in CS: The Impact of Digital Girls Outreach Camp

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Abstract: In recent years, despite the growth of initiatives aimed at improving the gender gap in STEM disciplines, the number of girls choosing academic and professional paths in fields such as computer science (CS) remains limited. To counteract this phenomenon, initiatives like the Digital Girls Summer Camp, which has been running for over ten years for girls about to make university choices, offer practical and engaging experiences designed to spark interest in technological subjects. Through activities such as programming and video game design on advanced platforms like Unreal Engine, participants acquire technical skills and confidence in their abilities, supported by female educators and mentors who serve as role models. The camp follows a gradual learning approach, starting with simple concepts and progressing to complex projects, thus stimulating the participants' interest. This study aims to analyze the effectiveness of the most recent editions of the initiative by using a qualitative and quantitative approach to evaluate how the girls change their perception of their technological abilities and interest in CS. Through the submission of pre- and post-camp questionnaires, it is possible to assess the increase in interest in STEM careers, as well as analyze the perception of the figure of the computer scientist before and after the camp experience. The work describes how participation in the camp has significantly contributed to shifting perceptions toward computer science, showcasing how hands-on experience and exposure to positive role models can transform the image of the computer scientist, inspiring participants to view it as an inclusive and dynamic profession.

Keywords: Gender Gap, ICT Education, Data Analysis, Extracurricular Activities, Game Design.

1. Introduction

The United Nations' Sustainable Development Goal 5 (SDG 5) emphasizes the urgency of achieving gender equality and empowering women and girls as part of the broader 2030 Agenda. The EU's Gender Equality Strategy 2020–2025[1] explicitly aims to close gender gaps in the labor market, promote equal participation in decision-making, and combat gender-based violence. In education, the Digital Education Action Plan (2021–2027)[2] outlines targeted measures to reduce the gender gap in ICT and STEM fields, highlighting the importance of fostering digital skills among girls and women. However, recent assessments show limited progress, raising concerns about meeting the 2030 targets [3, 4]. Among the main categories of investment to foster gender equality in Europe, education has emerged as a critical focus, particularly in reducing stereotypes and encouraging greater participation of women and girls in STEM. Significant investments in educational reforms and initiatives aim to challenge cultural factors perpetuating gender disparities, fostering confidence among girls and women in pursuing STEM careers [5].

Despite these efforts, the NESET report highlights that women remain significantly underrepresented in STEM fields, with limited progress despite numerous initiatives [6]. Women comprise only 19.1% of ICT specialists in the European Union as of 2022, despite early academic parity or superiority in STEM subjects [7]. This persistent gap highlights the need for targeted, scalable interventions that address barriers across individual, institutional, and societal levels.

Bridging this gender gap is not only a matter of equity but also a pressing economic and societal priority. Equitable participation in STEM is critical for innovation, workforce equity, and global competitiveness. Effective strategies include mentorship and experiential learning, which improve engagement and confidence.

Research highlights the importance of experiential, hands-on learning environments and mentorship programs in fostering girls' interest in STEM [7]. These approaches emphasize interactive, contextualized learning in supportive settings, explicitly linking activities to STEM career pathways [8]. However, many initiatives lack scalability and systematic evaluation, limiting their long-term impact [9].

In this context, the Digital Girls Summer Camp, launched in 2014, represents a targeted initiative aimed at addressing the gender gap in computer science (CS). The camp offers young women practical and engaging experiences in CS, designed to build confidence and challenge prevailing stereotypes [6,10,11]. In recent editions, the program adopted the STEAM approach to provide a more holistic learning experience and effectively engage participants. This study evaluates the camp's effectiveness in transforming participants'

perceptions of CS and increasing their interest in STEM careers. Through an analysis of pre- and post-camp surveys, this work contributes to the broader discourse on strategies for achieving gender equality in STEM.

The remainder of this paper is structured as follows. Section 2 provides the background and reviews related work, highlighting the existing challenges and initiatives aimed at addressing the gender gap in STEM. Section 3 describes the Digital Girls Outreach Camp, detailing its design, methodology, and implementation. Section 4 evaluates the initiative's impact, analyzing the changes in participants' perceptions and interest in STEM careers. Finally, Section 5 concludes the paper and discusses directions for future work, focusing on scalability and potential improvements to the program.

2. Background and Related Work

Addressing the underrepresentation of women in STEM has become a global priority, with education at its core. The European Commission's Digital Education Action Plan (2021–2027) [2] outlines specific strategies to address gender imbalances, particularly through mentorship programs and experiential learning opportunities. For example, Action 13 emphasizes targeted interventions to break systemic barriers and foster inclusivity [2]. Despite these efforts, progress remains slow, particularly in the ICT sector, where women represent only 19.1% of specialists in the EU as of 2022 [5]. This gap is particularly pronounced in Italy, where the percentage of women ICT specialists is only 15.7% as of 2023, compared to the EU average of 19.4%, according to the European Commission's ICT specialist in employment report¹. From 2013 to 2023, Italy - the country hosting the initiative discussed in this work - saw only a 9.03% increase in the share of women ICT specialists, significantly below the EU average of 16.17% and far behind countries like Spain and France, comparable to Italy in socioeconomic terms, which approach or exceed 20%.

While women account for 57.3% of EU tertiary graduates, only 20.8% pursue ICT-related degrees, with Italy lagging further at 12.6% [7, 12]. The issue persists in the workforce: women occupy less than 30% of STEM-related roles across the EU, with significant gaps in ICT and engineering fields [12]. These disparities stem from systemic barriers, including gender stereotypes and the lack of role models, which discourage girls despite strong early academic performance in STEM subjects.

These barriers often discourage girls from pursuing STEM careers despite their academic performance in STEM subjects, which often matches or exceeds that of boys during early schooling. While Dasgupta and Stout's analysis [13] a decade ago highlighted issues such as gender stereotypes, lack of female role models, and the societal perception of STEM as incompatible with communal goals, recent research by Merayo and Ayuso [14] indicates that these challenges persist today, demonstrating that efforts over the past ten years have yet to address these entrenched obstacles sufficiently.

An analysis [7] of 165 studies (2013–2023) on factors influencing girls' participation in STEM found that only 17 studies linked reduced female participation to personal factors like lack of interest or self-efficacy. In contrast, 100 studies identified cultural and environmental influences, such as gender stereotypes, societal expectations, and inadequate support systems, as primary barriers. This highlights the significant role of external factors in shaping opportunities and perceptions for girls in STEM. Strategies to bridge this divide emphasize hands-on, interactive activities in safe, enjoyable environments. Key recommendations include contextualizing science learning, fostering teamwork, and linking activities to STEM careers, aligning with the STEAM approach [8]. Evidence shows that participatory workshops, mentorship by female professionals, and exposure to real-world STEM applications significantly improve girls' interest and retention in these fields [12, 14].

Outreach initiatives like summer camps, coding workshops, and mentorship programs have proven effective in addressing the STEM gender gap. Research [13, 7] shows that camps emphasizing collaborative, hands-on activities in supportive environments boost interest and retention. Programs like Girls Who Code and similar European initiatives foster belonging and provide visible female role models. For instance, Dasgupta and Stout [13] argue that mentorship by women in STEM acts as a "social vaccine" against stereotypes, building resilience and increasing identification with STEM careers. Longitudinal studies reveal these initiatives have lasting effects, with participants more likely to pursue advanced STEM courses and careers [15, 16]. Camps incorporating real-world applications, such as designing robots or solving environmental problems, are particularly impactful as

¹ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=ICT_specialists_in_employment

they align with girls' motivations to address societal challenges [14, 7]. However, the sustainability of these programs often depends on institutional support and integration into formal education systems, a challenge yet to be resolved in many regions.

Tracking progress and evaluating the impact of STEM initiatives remains a challenge [10]. For example, Girls Who Code only began publishing impact reports in 2022, and in Italy, few initiatives provides publicly available impact evaluations [10]. Heybach and Pickup [17] highlight a flaw in many efforts: they often fail to challenge systemic biases, treating girls as inherently "defective" in STEM aptitude by offering "girl-friendly"² environments or superficial repackaging of STEM content. This approach undermines quality and neglects meaningful engagement with feminist critiques of science and technology, limiting potential for transformative change. To offer practical insights, the following sections detail the Digital Girls program and share findings from a comprehensive analysis of its impact.

3. The Digital Girls Outreach Camp

The persistent underrepresentation of women in ICT, particularly in Italy, underscores the urgency of initiatives like the Digital Girls program. By creating inclusive environments where participants build confidence and develop technical skills under the guidance of female mentors, such initiatives directly address barriers identified in the literature. These efforts reduce the STEM gender gap and expand equitable access to digital opportunities.

Since its inception in 2013, Digital Girls has evolved into a comprehensive program targeting the gender divide in computer science (CS). Initially designed for female students aged 16–18, it is now organized regionally as a summer outreach program. Collaborating with schools, organizations, and stakeholders, the initiative promotes diverse participation and raises awareness. It exposes students to real-world CS applications through site visits, guest speakers, and project-based learning, creating clear career pathways. Digital Girls has earned national and international recognition, featuring in the Case Study Library of the Observatory for Public Sector Innovation and the 2021 She Figures report.

The initiative provides a female-only environment to break stereotypes before university decisions. Research shows such environments foster engagement and confidence in STEM [18]. The program spans two weeks and includes 50 hours of lessons at university facilities. Participants learn to create video games using Unreal Engine, collaborating to design and develop games. This hands-on approach connects abstract concepts to tangible outcomes, engaging students effectively [19].

A promising strategy to address STEM gender disparities is the STEAM approach [20], which integrates arts into STEM to foster creativity, collaboration, and problem-solving. The Erasmus project STEAM Boosting Soft Skills (STEAM Bo.SS) has helped refine Digital Girls, offering insights to enhance its impact. The project emphasizes soft skills like teamwork, adaptability, and communication—critical for navigating today's job market. It equips educators with resources, including a MOOC and Community of Practice, to integrate STEAM principles into teaching.

Building on this foundation, Digital Girls now aligns more closely with project-based learning (PBL), a core STEAM element [20]. For example, the program transitioned from formal programming languages like Python to Unreal Engine. This change retains logical principles while removing syntax barriers using Blueprint, a visual scripting tool that makes programming accessible to diverse participants. Unreal Engine's extensive graphical library enables sophisticated results with minimal effort, fostering engagement and accomplishment. Participants focus on creative problem-solving and innovation, lowering technical entry barriers.

While Unreal Engine is renowned for video game development, it also supports short films, simulations, and other digital solutions. This versatility empowers participants to create projects aligned with personal interests and social issues, blending technical skills with artistic expression. For instance, participants have designed visual narratives addressing societal challenges.

Video games, in particular, effectively link CS concepts to real-world issues, such as environmental sustainability, social inequalities, and the promotion of inclusivity. By integrating Unreal Engine, Digital Girls inspires creativity,

² By "girl-friendly," the authors refer to superficial marketing actions, such as using colors stereotypically associated with girls

critical thinking, and confidence, helping participants explore CS career pathways. This approach builds technical skills and self-efficacy, enabling participants to envision themselves as future innovators.

Integrating STEAM principles represents a key step in Digital Girls' mission to address STEM gender disparities. Its focus on holistic, inclusive education serves as a model for other initiatives promoting gender equality in STEM.

4. Initiative Impacts

The present analysis, based on data collected during the 2022 and 2024 editions of the Digital Girls camp, utilizes a refined pre- and post-survey instrument developed over the course of a year to enhance the assessment process [10]. The camps varied in their activities; for instance, some incorporated block-based coding languages, while others employed text-based coding languages. Additionally, leadership differed across camps, with some being led by female instructors and others not. In the most recent editions, the initiative adopted a STEAM approach and employed Unreal Engine as the primary development tool.

Data collection was facilitated through online pre- and post-camp surveys administered via the LimeSurvey platform. Surveys were completed during class hours with teacher support to ensure accuracy, and participants were assured of privacy through personalized links and a rigorous anonymization process. After thorough data cleaning to remove incomplete or erroneous entries, a dataset of 194 observations was prepared for analysis.

This analysis has two primary objectives: first, to evaluate participants' overall satisfaction with the camp experience, and second, to investigate the potential impact of the summer camp on their likelihood of pursuing a career in computer science. Additionally, the study aims to examine whether specific characteristics of the camp influence key predictors of overall satisfaction and the propensity to choose a CS career.

To ensure a structured and efficient analysis process, we utilized Jupyter Notebook [21] as our primary analytical tool. Within this environment, the Pandas library [22] was employed for proficient data management and manipulation, while the Statsmodels library [23] facilitated our statistical analyses.

4.1 Formal Terminology

Table 1: Feature description

Feature Name	Type	Description
STEAM [CC]	Boolean	Whether a specific camp edition used the STEAM approach or not
Class size [CC]	Integer	Number of participants to a specific camp, ranging from 14 to 41
Block-based coding [CC]	Boolean	Whether a specific camp edition used a block-based coding language or classical text-based coding language
Main teacher female [CC]	Boolean	Whether the leading teacher of a specific camp was Female or not
Parent influence [t0]	Boolean	Whether one of the parental figures works or has a passion in a STEM field or not
Hours a week playing video games [t0]	Integer	How many hours per week the participant plays video games
Experienced coding before [t0]	Boolean	Whether experienced coding BEFORE the camp start or not
CS perception [t0]	5-Point Likert	Whether the participant has a positive perception of CS or not BEFORE the camp start
CS perception [t1]	5-Point Likert	Whether the participant has a positive perception of CS or not AFTER the camp start
CS understanding [t1]	5-Point Likert	Whether the participant has a better understanding of what CS comprises or not AFTER the camp start
CS path [t0]	Boolean	Whether the participant included a CS path in their future plans or not BEFORE the camp start
CS path [t1]	Boolean	Whether the participant included a CS path in their future plans or not AFTER the camp end

Feature Name	Type	Description
Express creativity [t1]	5-Point Likert	To which extent the participant was able to express her creativity
Made myself [t1]	5-Point Likert	Perceived knowledge mastery during project development
Had fun [t1]	5-Point Likert	Degree of enjoyment experienced during the activity
Teamwork [t1]	5-Point Likert	Evaluation on teamwork
Camp satisfaction [t1]	5-Point Likert	Camp experience overall satisfaction
Camp length [t1]	5-Point Likert	Evaluation on camp length
Camp project satisfaction [t1]	5-Point Likert	Satisfaction over project developed during the camp
Camp team belong [t1]	5-Point Likert	Team belonging perception during project development

This analysis defines specific conventions to enhance clarity and facilitate understanding of the used variables. We will use the abbreviation [t0] to denote variables associated with data collected during the Pre-Survey phase and [t1] to represent those linked to the Post-Survey phase. Additionally, we will utilize the abbreviation [CC], an abbreviation for camp characteristics, to indicate variables that relate to the unique attributes and features of the specific camp. Moreover, a concise description of each feature employed in the analysis is detailed in Table 1. The proposed feature list consists of a subset of the complete set of available variables since we included only Likert-type questions in the following analysis.

Furthermore, it is important to highlight that the specific context in which the initiative was implemented did not provide sufficient diversity in terms of race, ethnicity, or city of origin to include these dimensions in the analysis. Similarly, the variable representing the participants' school of origin was also excluded from the analysis due to its high degree of correlation with the Experienced coding before [t0] feature, resulting in an almost perfect overlap.

To rigorously evaluate the relationships between the variables and the target outcomes, we employed regression analysis as the primary method, given its suitability for quantifying associations and assessing the predictive power of multiple independent variables. To ensure the validity of the analysis, we conducted multiple iterations of the regression model, systematically refining the included variables. Variables identified as collinear through the Variance Inflation Factor (VIF) test were excluded to mitigate multicollinearity and improve model stability. Additionally, non-significant variables were iteratively removed, following statistical best practices, to optimize model performance. This approach aimed to balance explanatory power and parsimony by maximizing the adjusted R-squared value while minimizing the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC).

4.2 Camp Satisfaction Analysis

In this subsection, we aim to investigate the factors influencing participants' satisfaction with the camp experience, as measured by the Likert variable denoted as Camp overall satisfaction [t1].

Participants answered the question, *On a scale from 1 to 5, with 1 being strongly dissatisfied and 5 being very satisfied, how would you rate your overall satisfaction with the camp participation?* using a Likert scale. It is important to note that the Likert scale represents an ordered scale where the intervals between points cannot be assumed to have equal magnitudes. Consequently, the analysis is conducted using the ordered logistic regression method based on the available observations.

As stated, the analysis concentrates on a set of independent variables, each representing distinct participant responses or specific aspects of the camp that the participant encountered. Table 2 presents the results of the ordered logistic regression, where the target variable is the variable Camp satisfaction [t1].

Table 2: Ordered logit: Camp overall satisfaction.

Dep. Variable:	Camp Satisfaction [t1]	Log-Likelihood:	-190.54
Model:	OrderedModel	AIC:	417.1
Method:	Maximum Likelihood	BIC:	482.4
No. Observations: 279 Df Residuals: 261			
Df Model:	14		

	coef	std err	z	P> z	[0.025	0.975]
Main teacher is female [CC]	0.5406	0.300	1.802	0.072*	-0.047	1.129
Block-based coding [CC]	1.2158	0.308	3.951	0.000***	0.613	1.819
Hours a week playing video games [t0]	0.2004	0.134	1.495	0.135	-0.062	0.463
CS perception [t0]	-0.1542	0.147	-1.051	0.293	-0.442	0.133
Experienced coding before [t0]	-0.2872	0.297	-0.966	0.334	-0.870	0.296
CS perception [t1]	0.4086	0.172	2.378	0.017**	0.072	0.745
CS understanding [t1]	0.6362	0.188	3.385	0.001***	0.268	1.004
Express creativity [t1]	0.8851	0.203	4.353	0.000***	0.487	1.284
Made myself [t1]	0.1266	0.135	0.936	0.349	-0.138	0.392
Had fun [t1]	1.3018	0.220	5.922	0.000***	0.871	1.733
Teamwork [t1]	-0.5255	0.189	-2.785	0.005**	-0.895	-0.156
Camp length [t1]	-0.4675	0.217	-2.156	0.031**	-0.892	-0.043
Camp project satisfaction [t1]	1.5030	0.213	7.044	0.000***	1.085	1.921
Camp team belonging [t1]	0.2061	0.197	1.047	0.295	-0.180	0.592

Note: Marginality of p-values is highlighted with the notation: *p < 0.10, **p < 0.05, ***p < 0.001

The results illustrate how different variables affect the odds of progressing to higher levels of camp satisfaction for a one-unit change in the corresponding independent variable. In other words, this analysis provides insights into the magnitude and direction of each variable's influence on overall camp satisfaction.

From the outcomes presented in Table 2, several variables exhibit highly significant ($p < 0.001$), significant ($p < 0.05$), or marginally significant ($p < 0.10$) p-values, which provide evidence against the null hypothesis. The coefficients offer critical insights into the degree and direction of these influences. Notably, variables such as Had fun [t1] (coefficient: 1.3247, $p < 0.001$) and Camp project satisfaction [t1] (coefficient: 1.5062, $p < 0.001$) demonstrate strong positive associations with camp satisfaction. These findings reinforce the importance of fostering enjoyment and ensuring participants' satisfaction with camp projects to enhance the overall camp experience.

The variable Block-based coding [CC] (coefficient: 1.2277, $p < 0.001$) also stands out as a significant positive predictor, underscoring the appeal of block-based coding activities in engaging participants. Considering the diverse backgrounds of participants, including those from schools with and without computer science in their curricula, captured by the variable Experienced coding before [t0], we further analyzed the data by splitting the observations into two groups: those with prior coding experience and those without. This analysis aimed to explore whether block-based coding activities have an incremental impact on participants with prior exposure to coding.

The results reveal that the coefficient for Block-based coding [CC] is consistently positive across both groups, but the magnitude and significance differ. For participants with prior coding experience (coefficient: 1.1967, $p = 0.012$), block-based coding still provides a notable positive impact. In contrast, for those without prior coding experience (coefficient: 1.2956, $p = 0.003$), the effect is slightly stronger and highly significant. These findings suggest that block-based activities are universally beneficial, with a particularly pronounced effect on participants who are new to coding.

Additionally, the effects of other variables remained consistent, with only slight variations in their significance levels across the two groups. This robustness further underscores the reliability of the identified predictors in shaping overall camp satisfaction. In particular, Express creativity [t1] (coefficient: 0.9587, $p < 0.001$) and CS understanding [t1] (coefficient: 0.6198, $p = 0.001$) exhibit meaningful positive contributions, indicating that opportunities to express creativity and understand computer science concepts effectively elevate participants' satisfaction.

Conversely, variables such as Teamwork [t1] (coefficient: -0.5475, $p = 0.004$) and Camp length [t1] (coefficient: -0.4852, $p = 0.026$) are negatively associated with satisfaction. These findings suggest potential areas for further investigation, such as optimizing teamwork dynamics and ensuring camp duration aligns with participant preferences.

4.3 Future Choice Analysis

In continuation of our previous section's analysis, we pursued a similar approach to investigate the likelihood of students opting for a future Computer Science (CS) related study path. Given that this outcome is a binary variable, we employed a straightforward logistic regression to explore the factors influencing this decision. Logistic regression is a statistical technique used to explore the relationship between one or more predictor variables and a binary outcome variable. Specifically, we focus on understanding whether the available information could explain students' declared intention to pursue a CS-related path after high school.

The model's R-squared value of 0.527 suggests that over half of the variation in the outcome variable (CS path [t1]) can be explained by the predictor variables investigated. Key findings, summarized in Table 3, reveal that pre-existing intentions toward a CS path (CS path [t0], coefficient: 0.6329, $p < 0.001$) emerged as the most significant predictor, reinforcing the idea that prior interest plays a critical role in shaping future career aspirations. This is consistent with existing literature indicating that pre-existing interest and exposure to coding are powerful determinants of career trajectory [24].

Interestingly, satisfaction with the project completed during the camp (Camp project satisfaction [t1], coefficient: 0.0777, $p = 0.008$) also emerged as a positive predictor. This underscores the importance of hands-on, engaging activities in fostering students' interest in CS-related fields. Notably, these findings suggest that participants' sense of accomplishment in completing a project has a measurable impact on their career aspirations, aligning with pedagogical theories that emphasize experiential learning. The link between project satisfaction and future career aspirations suggests that providing opportunities for students to experience tangible successes in STEM activities can strengthen their confidence and motivation to pursue STEM careers.

Conversely, Parent influence [t0] displayed a negative coefficient (coefficient: -0.0805, $p = 0.017$), suggesting that parental influence may discourage some participants from pursuing CS aspirations. This result aligns with findings in the literature, such as the review by Msambwa et al., which highlights that environmental factors, including peer pressure and parental involvement, can have both positive and negative impacts on students' career decisions. This duality underscores the complexity of parental influence, warranting further exploration to understand its context-specific effects.

In summary, our findings emphasize the importance of pre-existing interest and hands-on project satisfaction in shaping participants' career intentions. While the camp's features and experiences play supporting roles, pre-camp predispositions remain the most critical drivers of future CS aspirations. These insights can guide the design of future interventions to maximize their impact on fostering interest in CS careers.

Table 3: OLS Regression: Likelihood of future choices including CS.

Dep. Variable:	CS Path [t1]	No. Observations:	278
Model:	OLS	Df Residuals:	260
Method:	LS	Df Model:	17
Date:	Tue, 26 Nov 2024	R-squared:	0.527
Time:	23:28:37	Adj. R-squared:	0.496
Log-Likelihood:	-75.944	F-statistic:	28.20
Covariance Type:	HC3	Prob (F-statistic):	2.53e-49

	coef	std err	z	P> z	[0.025	0.975]
Intercept	-0.7063	0.219	-3.226	0.001***	-1.135	-0.277
STEAM approach [CC]	0.0809	0.064	1.260	0.208	-0.045	0.207
Main teacher is female [CC]	0.0205	0.061	0.337	0.736	-0.099	0.140
Class size [CC]	0.0038	0.003	1.281	0.200	-0.002	0.010
Block-based coding [CC]	-0.0530	0.045	-1.172	0.241	-0.142	0.036
CS perception [t0]	0.0570	0.023	2.432	0.015**	0.011	0.103
Experienced coding before [t0]	0.0520	0.051	1.029	0.304	-0.047	0.151
CS path [t0]	0.6329	0.056	11.356	0.000***	0.524	0.742

	coef	std err	z	P> z	[0.025	0.975]
Parent influence [t0]	-0.0805	0.034	-2.395	0.017**	-0.146	-0.015
CS perception [t1]	0.0468	0.027	1.735	0.083*	-0.006	0.100
CS understanding [t1]	-0.0213	0.030	-0.709	0.478	-0.080	0.038
Creativity [t1]	-0.0045	0.030	-0.152	0.879	-0.062	0.053
Made myself [t1]	0.0300	0.021	1.460	0.144	-0.010	0.070
Had fun [t1]	-0.0064	0.031	-0.207	0.836	-0.067	0.054
Teamwork [t1]	0.0338	0.033	1.031	0.303	-0.030	0.098
Camp length [t1]	-0.0466	0.032	-1.443	0.149	-0.110	0.017
Camp project satisfaction [t1]	0.0777	0.029	2.670	0.008**	0.021	0.135
Camp team belonging [t1]	-0.0124	0.032	-0.388	0.698	-0.075	0.050

Note: Marginality of p-values is highlighted with the notation: *p < 0.10, **p < 0.05, ***p < 0.001

4.4 Impact of Camp Characteristics

Given the significant role of fun, project satisfaction, and creativity as predictors of participants' interest in pursuing a CS-related path, we investigated whether camp characteristics influenced these variables. To this end, a Multivariate Analysis of Variance (MANOVA) was conducted, with camp-specific features such as STEAM approach, block-based coding, presence of a female teacher, class size, and use of Unreal Engine as predictors. MANOVA was selected as it allows the simultaneous examination of multiple dependent variables, accounting for their intercorrelations, providing a holistic understanding of how these camp characteristics impact participants' overall experience.

The results indicate that camp characteristics significantly influence participants' perceived fun, project satisfaction, and creativity, with Wilks' lambda values for all variables achieving statistical significance ($p < 0.05$). The detailed results are presented in Table 4. These findings suggest that variations in the design and delivery of the camp activities systematically affect participants' engagement and satisfaction.

Table 4: MANOVA Results: Influence of Camp Characteristics on Fun, Project Satisfaction, and Creativity.

Predictor	Wilks' Lambda	F-Value	df	p-Value
STEAM Approach	0.864	14.209	(3, 271)	<0.001
Block-Based Coding	0.933	6.480	(3, 271)	0.0003
Female Teacher	0.964	3.412	(3, 271)	0.018
Class Size	0.948	4.919	(3, 271)	0.0024
Unreal Engine	0.925	7.375	(3, 271)	0.0001

Significant effects of camp characteristics on participants' perceptions of fun, project satisfaction, and creativity.

The inclusion of a STEAM approach ($\lambda=0.864, p<0.001$) was the most influential factor, highlighting the value of interdisciplinary contexts in enhancing participants' engagement and satisfaction. Camps that incorporated block-based coding ($\lambda=0.933, p<0.001$) were associated with higher levels of fun, project satisfaction, and creativity, indicating the accessibility and appeal of block-based tools, particularly for beginners. The presence of a female teacher ($\lambda=0.964, p=0.018$) had a significant but smaller effect, suggesting the potential for role modeling to positively influence participants' experiences.

Class size ($\lambda=0.948, p=0.0024$) was a significant factor, suggesting that larger class sizes may foster greater levels of fun, creativity, and project satisfaction in the context of these camps. This finding could indicate that larger groups provide more opportunities for peer interaction and collaborative dynamics, which are particularly relevant in project-based learning environments. Lastly, camps that utilized Unreal Engine ($\lambda=0.925, p=0.0001$) were positively associated with the dependent variables, suggesting that advanced, visually engaging tools can enhance participants' enjoyment and creative engagement.

5. Conclusions and Future Works

This study emphasizes the meaningful impact of targeted initiatives like the Digital Girls Summer Camp in tackling the gender gap in computer science (CS). Through hands-on activities, mentorship, and project-based learning, the camp creates an engaging and supportive environment that has positively shaped participants' perceptions of CS, enhanced their satisfaction with the learning experience, and influenced their future career aspirations.

The findings highlight the value of designing outreach programs that cater to the diverse backgrounds of participants. Prior coding experience emerged as a significant factor in shaping future interest in CS, yet the camp's structure effectively supported both beginners and those with prior exposure. For participants without coding experience, activities like block-based coding and the use of visually intuitive tools such as Unreal Engine offered an accessible introduction to CS concepts. Meanwhile, participants with previous coding experience responded well to more challenging, interdisciplinary activities that incorporated STEAM principles.

Key observations also pointed to the influence of specific camp characteristics. Features such as having female instructors and ensuring high levels of project satisfaction played a notable role in enhancing participants' overall experience and shaping their intentions to pursue CS-related paths. However, teamwork presented a complex picture. While fostering a sense of belonging, group projects sometimes resulted in unequal distribution of technical tasks, particularly coding, which may have limited some participants' deeper engagement. Adjusting the management of team dynamics in future iterations could address this issue and further strengthen the camp's impact.

Overall, the Digital Girls Summer Camp serves as a powerful example of how mentorship, interactive learning, and an inclusive environment can work together to inspire greater interest in CS among young women. These insights can help shape future interventions, underscoring the importance of creating tailored, supportive, and experiential learning opportunities that empower more girls to consider careers in STEM fields.

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The Most Relevant Factors in the Gender Gap in European Countries

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Abstract: Gender equality is essential for the sustainable development of all countries. It brings economic growth, improved education and health for the entire population, poverty reduction, and social and political stability as democracy is strengthened and more peaceful communities are generated. However, its study is complex and includes various dimensions. This research aims to analyze the most relevant factors of the gender gap in European countries. The methodological strategy is based on machine learning techniques applied to the Gender Equality Index, which includes the EU27 countries and was developed by EIGE. These machine-learning techniques are methods computers use to learn from data and make predictions without being explicitly programmed. This index has 31 relevant indicators that are grouped into 14 subdimensions, which are, in turn, divided into six dimensions. The relevant dimensions in the study of gender equality are I. work (5 indicators), II. Money (4 indicators), III. Knowledge (3 indicators), IV. Time (4 indicators), V. power (8 indicators), and VI. Health (7 indicators). The results show a women's gap. Three of the most relevant dimensions from this research inhibit gender equity: I. Power in its three economic, political, and social dimensions; II. Knowledge in its two dimensions of attainment, participation, and segregation, and III. Time in its dimension of social activities. Women's most significant factors for the gender gap are power, knowledge, and time.

Keywords: Women; Gender Gaps; Gender Equity; Machine Learning; Knowledge; Power; Time; Gender Index; Sustainable Development Goals.

1. Introduction

Equality between women and men is a fundamental value of the European Union and an essential aspect of social rights. The EU is committed to promoting gender equality and has made significant progress. In the early 20th century, few countries allowed women to vote, own property, or work outside the home. Today, women can freely work, run businesses, and hold political office, making important life choices for themselves. This equality marks a significant advancement, yet substantial social and economic equality gaps between women and men remain. Progress has slowed or even regressed in areas like average earnings, management representation, the gender pay gap, and political representation, highlighting the urgent need for action to achieve gender equality (European Commission, 2023).

The study, analysis, and debate on gender equality and the policies to make it a reality have revolved around the approach called gender mainstreaming with the approval by the United Nations of the Beijing Declaration and Platform for Action in 1995, as a result of the Fourth World Conference on Women (Navarro, 2021), however, gender equality is not yet practical or accurate in the European Union.

Gender mainstreaming is the reorganization, improvement, development, and evaluation of policy-making processes so that the gender equality perspective is incorporated into all policies at all levels and stages" (Council of Europe, 1998; Lombardo, 2003; Navarro, 2021).

The problem of gender equity has been analyzed from different spheres of human behavior, highlighting the emphasis on organizational theories and public policy studies. However, despite the conceptual improvement and qualitative renewal of gender mainstreaming for equality policies, its capacity to change a profoundly unequal reality has shown its limits in practice. According to Navarro (2021), the distance between political discourse and real progress in terms of gender equality is marked not only by the practical difficulties in implementing the policies and actions designed but also by the very validity that defines and drives them.

Several international gender equality indices exist, including the United Nations Development Programmer (UNDP) Gender Inequality Index, the World Economic Forum Gender Gap Index, and the European Union Gender

Equality Index (EIGE-Index). Comparing them indicates a certain unanimity on a methodological and conceptual level; however, the EIGE was chosen for this research because it provides a better explanation of its indicators.

The Index produced by the EU Institute for Gender Equality (EIGE) measures gender gaps over time. It shows that progress has been made in the last decade, but progress has been slow, and there are still significant differences between countries. While most countries score relatively well on health and education, the same cannot yet be said for employment, access to economic and financial resources, or leadership, where the most progress has been made, but the gender gap remains the most comprehensive (European Commission, 2024).

For 2023, according to EIGE, the EU's gender equality score stands at 70.2 (out of 100 points), the most significant increase (+1.6 points) since the Index began to be compiled. Improvements were mainly recorded in the area of time, which covers indicators relating to the distribution of time between economic, care, and social activities. However, it should be noted that this gender gap was reduced not because men increased their contribution to unpaid domestic and care work but because women were able, on average, to reduce theirs, including through other means, such as the use of new technologies (European Commission., 2024).

Therefore, the European Commission (2020), in its strategy for gender equality, highlights the commitment of the Beijing Declaration and Platform for Action and the universal action plan to advance equality between women and men—to shape a better world for both women and men. That is under the Sustainable Development Goal on gender equality (SDG 5) and the status of gender equality as a priority across all SDGs¹², which it implemented four strategies: No violence or stereotypes, Focus on a gender-equal economy, Equality in leadership positions in all areas of society, and integration of the gender and intersectional perspectives in the policies of all EU countries.

In addition to the above, focusing on and being sensitive to stereotypes is essential. Stereotypes about how men and women think and behave are widely shared in different countries. However, empirical studies show that gender stereotypes affect how people pay attention to, interpret, and remember information about themselves and others. These stereotypes influence culture by widening the gender equality gap (Ellemers, 2018).

Gender statistics are vital for identifying inequalities between women and men and shaping global gender policies. The European Institute for Gender Equality, which developed the Index in 2013 and has enhanced it annually, conducts this analysis. The Index addresses women's well-being and quality of life, including socialization and health.

Derived from the previous problem, the questions that guide the research are: What are the dimensions with the highest impact on reducing the gender gap in European countries? What are the critical factors to reduce the gender gap in European countries? To uncover relationships between variables, the last question is, what are the best correlations between the various aspects of The European Institute for Gender Equality (EIGE) to reduce the gender gap in European countries?

2. Theoretical Framework

According to UNICEF (2017), gender equality is the equal appreciation by society of the similarities and differences between men and women and their roles. It implies that women's and men's rights, responsibilities, and opportunities do not depend on whether they are born male or female. Gender equality is a human rights issue and is considered a precondition for, and an indicator of, people-centered sustainability. It is about the fair and equitable treatment of both sexes that requires considering the different needs of men and women, cultural barriers, and (past) discrimination of the specific group (UNICEF, 2017).

Despite recent progress, women are still at a disadvantage due to different factors: on one hand, the more significant commitment to domestic chores, that has detrimental effects on the participation of women in labor markets, as found by Samtleben & Müller (2022) in a German based study. Related to this is the time dedicated to unpaid care work, that when valuated represents around 23% of the GDP in France (Ferrant & Thim, 2019). A second factor is the limited access to well-paid jobs, as it was found by Bamieh & Ziegler (2023), who confirmed that young women in Austria are less often hired for better-paying jobs. Thirdly, gender stereotypes (Manzi, *et al.*, 2024), and, in extreme cases, being denied the right to live, which has consequences for people's well-being and economic development.

Although tools, especially composite indicators, have been developed since the 1990s to assess countries' performance regarding gender equality, a historical perspective is lacking.

The discussion of gender inequality has gained importance over the last few years, with an impetus given by the 2030 agenda and the Sustainable Development Goals (SDG), including gender equality as SDG number five. However, it is not a new issue; previous studies have addressed this topic from different perspectives, such as inequalities in higher education (Jacobs, 1996), gender inequalities derived from religious preference, regional factors, and civil freedom (Dollar & Gatti, 1999), labor force participation and pay gap (England, 2005), gender differences in financial literacy (Potrich et al., 2017), or the impact of gender in well-being (Somarriba & Zarzosa, 2019) and on life expectancy (Pinho-Gomes et al, 2022), to name a few.

In addition to the recognition of gender gaps in different dimensions, several indices have been developed aiming to capture and represent the differences between men and women in various aspects of life and from international, national, and regional perspectives. Some of the first proposals were the Gender-related Development Index (GDI) and the Gender Empowerment Measure (GEM), introduced in 1995 by the United Nations Development Programme (UNDP). Still, although they received high recognition, some critics arose regarding methodological weaknesses and focused only on education, income, and health, disregarding areas such as employment (Schmid & Elliot, 2023; Bericat, 2012). The following indices incorporated more dimensions: political, legal, health, civil liberties, and physical integrity (Bericat, 2012).

All these indices have in common the purpose of measuring the gaps existing in different dimensions between men and women, and once the key factors are determined and evaluated, determine the steps needed to reduce those gaps. The difference among these indices relies on the areas or dimensions included. In the present study, the Gender Equality Index was selected as the reference that best describes the difference between men and women.

2.1 The Gender

The European Institute for Gender Equality (EIGE) has been tracking progress on gender equality since 2013, when the first edition of the Gender Equality Index was published. The background to EIGE stems from a Study to construct the basic structure of a European gender equality index, conducted by Janneke Plantenga, Colette Fagan, Friederike Maier, and Chantal Remery (2010) at the request of EIGE (European Institute for Gender Equality, 2012).

Gender equality manifests itself in different aspects of political, economic, social, or family realities. Structuring the Gender Equality Index into dimensions and sub-dimensions helps to understand in more detail what is happening in each aspect of reality. As Bericat (2012) stated, this index aims to “measure the availability of basic resources related to social status in these spaces, incorporating into its structure three basic dimensions: work, education, and power. The EIGE is specifically designed to measure to what extent and under what conditions women are incorporated into work outside the home, formal education, and positions of power” (Bericat, 2012, p.4).

In the 2023 report of the Index results, progress has been found on the time spent in care activities, the segregation and quality of work, the participation in decision-making in an economic sphere, and attainment and participation in education. However, inequalities persist in monetary terms, time spent in social activities, health status, and access to healthcare (EIGE, 2024). A brief comparison of the six dimensions that comprise the index and research literature is presented next.

2.1.1 Health

The variables analyzed in this dimension include self-perceived health, the life expectancy in years, the expected number of healthy life years, the percentage of people who do not smoke or are involved in harmful drinking, the percentage of people doing physical activities, the population without unmet needs for medical examination, and the population without unmet needs for dental examination.

The self-perceived health is evaluated as the percentage of people assessing their own health as “very good” or “good”, and the EIGE reported that the result of this indicator was 67% of women and 72% of men. The indicator of access-to-health-services remains as the variable with the highest score in this group, above 97.3 on a 100 basis.

In this regard, Alarcón-García et al. (2024) found differences in subjective well-being between men and women because women’s well-being is more related to access to nurseries for children up to 3 years old and to centers for people with disabilities. In contrast, Pinho-Gomes et al. (2022) confirmed that gender equality is correlated with narrowing the gender gap.

2.1.2 Money

The 2023 Gender Equality Index highlights Money as the second best-ranked dimension, focusing on financial resources, poverty risk, and income distribution. Despite progress, a gender gap persists in gross monthly earnings, with women's earnings constituting nearly 70% of equivalently qualified men's salaries, particularly among the highly educated and those aged 50-64 (EIGE, 2024). A study by Amate-Fortes et al. (2020) indicates that gender inequality is a significant factor behind income inequality in Europe and that government social welfare spending can help reduce this gap. It suggests that European governments should implement measures to equalize incomes between men and women.

2.1.3 Work

The sub-dimensions related to Work are the percentage of the population considered full-time workers, the duration of working life (years), the percentage of the population employed in Education, Human Health, and Social Work, the percentage of persons who can easily take an hour or two off, and the Career Prospects Index that evaluates job quality. In the 2023 Index results, this dimension ranked number 3, but it is mentioned that there are still sectors where women occupy jobs with lower remuneration and fewer options for upskilling.

The gender gap in the labor force remains an important area of improvement. Juhásová et al. (2023) mentioned that an analysis of the evolution of GDP per capita in 21 countries of the European Union showed that the female employment rate is the most statistically significant variable on GDP. Moreover, new challenges are foreseen when implementing technology, such as robotization. In this regard, Aksoy et al. (2020) suggest that a ten percent increase in the use of robots can lead to a 1.8 percent increase in the gender pay gap, mainly because men benefit from their medium- and high-skills occupations. Additionally, there is a critical gender gap in STEM areas in the labor market.

2.1.4 Time

The time dimension evaluates the percentage of people involved in caring activities for children, grandchildren, or older adults, the percentage of the population engaged in cooking and housework, the percentage of people doing sports, cultural or leisure activities, and the percentage of working people that participate in charitable activities. This dimension ranked number 4 in the 2023 Gender Equality Index. This low score is derived from the gender inequalities in social activities and the persistent gender gap in the time devoted to house chores.

Time analysis related to gender inequality and the time devoted to paid and unpaid work are also addressed. A study elaborated by Campaña et al. (2022) found significant cross-national differences by age across European countries in the time destined to unpaid work by gender in all age groups. They consider social norms and institutional conditions among the factors determining individuals' paid and unpaid work hours.

2.1.5 Knowledge

The knowledge dimension evaluates the percentage of tertiary education graduates, the percentage of the population participating in formal or non-formal education, and the percentage of the population studying in the fields of Education, Welfare and Health, Humanities, and Art. This dimension was the second lowest value in the 2023 EIGE Index. Inequality is due to segregation by studies, that is, to the more significant presence of women in studies related to education, health, well-being, and the humanities and their corresponding absence in science, technology, engineering, and mathematics studies.

The EIGE report on the 2023 index mentions that women tend to be more engaged than men in life-long education and training. According to Iñiguez-Berrozpe *et al.* (2020), after analyzing more than five thousand European women, participation in nonformal education activities provided them with more cultural participation, greater social confidence, and better health and employability. However, participation in both formal and non-formal education decreases with age. Verdugo-Castro et al. (2022) argue that although segregation does not occur in all countries, gender segregation in tertiary studies is a widespread trend among European countries. STEM fields are a clear example of this, where 63% of the students of Mathematics in the UK were men in 2018, and 70.41% in France (Verdugo-Castro et al., 2022).

The EIGE report on the Gender Equality Index remarks on the disadvantages women can face in accessing emerging labor opportunities from the green transition—environmentally friendly—which is expected to increase the demand for STEM-educated individuals. There is still an underrepresentation of women in these fields.

2.1.6 Power

The last place in the Gender Equality Index 2023 was for the Power dimension, where the share of female ministers, members of parliament, members of regional assemblies, members of boards in large companies, members of the central bank, members of the highest decision-making of research funding organizations, members in publicly owned broadcasting companies, and members of the highest decision-making body of the national Olympic sports organizations are evaluated.

Even though there has been essential progress from 2010 to the present, this remains the lowest score, “with uneven progress towards equality in decision-making across the EU Member States” (EIGE, 2024, p.13). A more excellent representation of women in social and political life may improve health, as Reeves et al. (2022) mentioned, because women are more likely to push forward dispositions and preferences different than those proposed by men. This study confirmed that countries with higher female political representation have achieved lower infant mortality and better life expectancy.

3. Methodology

This analysis uses the Gender Equality Index database from the European Institute for Gender Equality (EIGE, 2024), first published in 2013. It includes 31 indicators to assess gender equality and monitor progress across EU27 countries. The index is based on six key dimensions: I. Work, II. Money, III. Knowledge, IV. Time, V. Power, and VI. Health and it also addresses inequalities related to violence against women (Table 1). Scores range from 0 to 100, with 0 indicating no gender equality and 100 representing full gender equality. Machine learning techniques are used for data analysis.

Table 1: EIGE dimensions

Domain	Sub-domain	N	Indicator and reference population
Work	Participation	1	Full-time equivalent employment rate (% , 15+ population)
		2	Duration of working life (years, 15+ population)
	Segregation and quality of work	3	Employed people in Education, Human Health, and Social Work activities (% , 15+ employed)
		4	Ability to take an hour or two off during working hours to take care of personal or family matters (% , 15+ workers)
		5	Career Prospects Index (points, 0-100)
Money	Financial resources	6	Mean monthly earnings (PPS, working population)
		7	Mean equivalised net income (PPS, 16+ population)
	Economic situation	8	Not-at-risk-of-poverty, ≥60% of median income (% , 16+ population)
		9	S20/S80 income quintile share (16+ population)
Knowledge	Attainment and participation	10	Graduates of tertiary education (% , 15+ population)
		11	People participating in formal or non-formal education and training (% , 15+ population)
	Segregation	12	Tertiary students in the fields of Education, Health and Welfare, Humanities and Art (tertiary students) (% , 15+ population)
Time	Care activities	13	People caring for and educating their children or grandchildren, elderly or people with disabilities, every day (% , 18+ population)
		14	People doing cooking and/or housework, every day (% , 18+ population)
	Social activities	15	Workers doing sporting, cultural or leisure activities outside of their home, at least daily or several times a week (% , 15+ workers)
		16	Workers involved in voluntary or charitable activities, at least once a month (% , 15+ workers)
Power	Political	17	Share of ministers (% W, M)
		18	Share of members of parliament (% W, M)
		19	Share of members of regional assemblies (% W, M)
	Economic	20	Share of members of boards in largest quoted companies, supervisory board or board of directors (% W, M)

Domain	Sub-domain	N	Indicator and reference population
	Social	21	Share of board members of central bank (% W, M)
		22	Share of board members of research funding organisations (% W, M)
		23	Share of board members in publicly owned broadcasting organisations (% W, M)
		24	Share of members of highest decision-making body of the national Olympic sport organizations (% W, M)
Health	Status	25	Self-perceived health, good or very good (% , 16+ population)
		26	Life expectancy in absolute value at birth (years)
		27	Healthy life years in absolute value at birth (years)
	Behaviour	28	People who don't smoke and are not involved in harmful drinking (% , 16+ population)
		29	People doing physical activities and/or consuming fruits and vegetables (% , 16+ population)
	Access	30	Population without unmet needs for medical examination (% , 16+ population)
		31	People without unmet needs for dental examination (% , 16+ population)

Source: EIGE (2024)

The countries of the EU27 analysis are Germany, Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Croatia, Denmark, Slovakia, Slovenia, and Spain. Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, and Sweden.

The analyzed dataset consists of 29 variables and 97 instances obtained from the EIGE indicators and countries reported. During the preprocessing stage, we ensured data integrity and removed any EIGE variables related to men, as our focus is specifically on women. We selected the Gender Equality Index as the target variable and ranked the features according to their correlation with it, utilizing the ReliefF scoring method. It aims to select the most relevant variables for the classification, with the EIGE as the target variable.

ReliefF is an enhancement of the original Relief algorithm, which evaluates a feature's ability to differentiate between classes in similar data instances. It assigns a feature score to each attribute, allowing for the ranking and selection of the top-performing features for feature selection tasks. ReliefF can detect conditional dependencies among attributes and offers a cohesive perspective on attribute estimation in regression and classification contexts. Moreover, the quality estimates produced by ReliefF are intuitively interpretable. The original Relief algorithm, as described by Kira and Rendell in 1992, estimates the quality of attributes based on how effectively their values distinguish between instances.

The next step was to measure the Pearson correlations among features, where Pearson's correlation coefficient is the covariance of the two variables divided by the product of their standard deviations (Ghaffarpour & Hansson,2021).

Then, the clustering ML technique was applied to group the countries according to their similarities. We used the k-means clustering algorithm to the dataset and generated a new version that includes the cluster labels as a meta-attribute. Additionally, the widget displays the silhouette scores for the clustering results across different values of k. In this context, a higher silhouette score indicates more effective clustering.

The last analysis applied was time series, a type of visualization of time series data in which the data points are arranged in a grid to show the tendency of the Gender Index over time. This analysis has reviewed available information on the EIGE from 2013 to 2023.

4. Results, Discussion, and Conclusions

The EIGE measures gender equality in each country and breaks it down into different dimensions. With a score of 88 points, health was the most equal dimension between men and women in the European Union. In contrast, power, knowledge, and time management were considered the most unequal dimensions.

Spearman's correlation assesses the strength and direction of the association between two ranked variables. It measures the monotonicity of the relationship between them. Spearman's correlation evaluates monotonic relationships. This means it can capture relationships where variables move in the same direction but not necessarily at a constant rate; the Spearman correlation coefficient ranges from -1 to 1. A value of 1 indicates a perfect positive monotonic relationship, -1 indicates a perfect negative monotonic relationship, and 0 indicates

no monotonic relationship. Binary correlations between the variables in the dataset under study are listed in Table 1.

Table 2: Spearman's correlation between variables

Feature 1	Feature 2	Correlation
Income distribution S20/80 W	Not at-risk-of-poverty (%) W	0.881
Share of members of parliament (%) W	Share of ministers (%) W	0.865
Share of members of parliament (%) W	Share of members of regional assemblies (%) W	0.839
Employed people in education, human health, and social work activities (%) W	People doing physical activities and consuming fruits and vegetables (%) W	0.815
Share of members of boards in largest quoted companies, supervisory board or board of directors (%) W	Share of members of parliament (%) W	0.814
People doing physical activities and consuming fruits and vegetables (%) W	People participating in formal or non-formal education (%) W	0.813
Career Prospects Index (points, 0–100) W	People who do not smoke and are not involved in harmful drinking (%) W	-0.561
People caring for and educating their children or grandchildren, elderly, or people with disabilities every day (%) W	People participating in formal or non-formal education (%) W	-0.609
Duration of working life (years) W	People caring for and educating their children or grandchildren, elderly, or people with disabilities every day (%) W	-0.611
Employed people in education, human health, and social work activities (%) W	People caring for and educating their children or grandchildren, elderly, or people with disabilities every day (%) W	-0.633

In this way, Figs. 1 and 2 show the most positively correlated variables, with a Spearman coefficient close to 1 (0.881). This correlation could express the importance of women's participation in decision-making and power groups in countries.

A notable negative correlation exists between "People employed in education, health, and social work" and "those who care for and educate children, the elderly, or people with disabilities daily," with a Spearman's coefficient near -1 (-0.633)(Fig. 3).

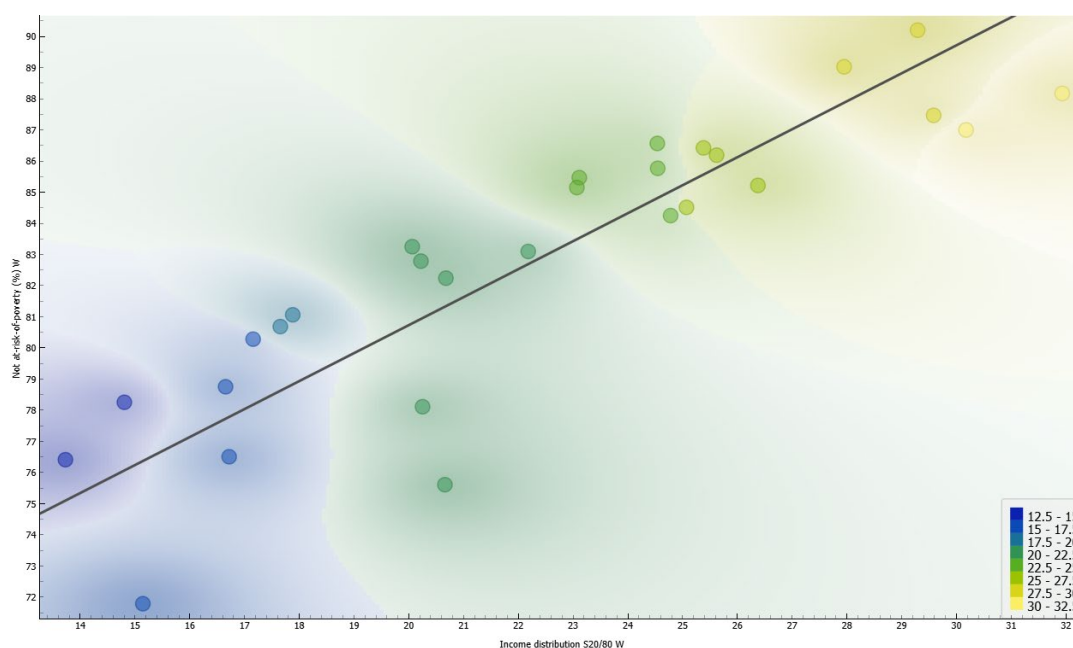


Figure 1: Spearman positive correlation between Income distribution vs Not at-risk-of-poverty (Women).

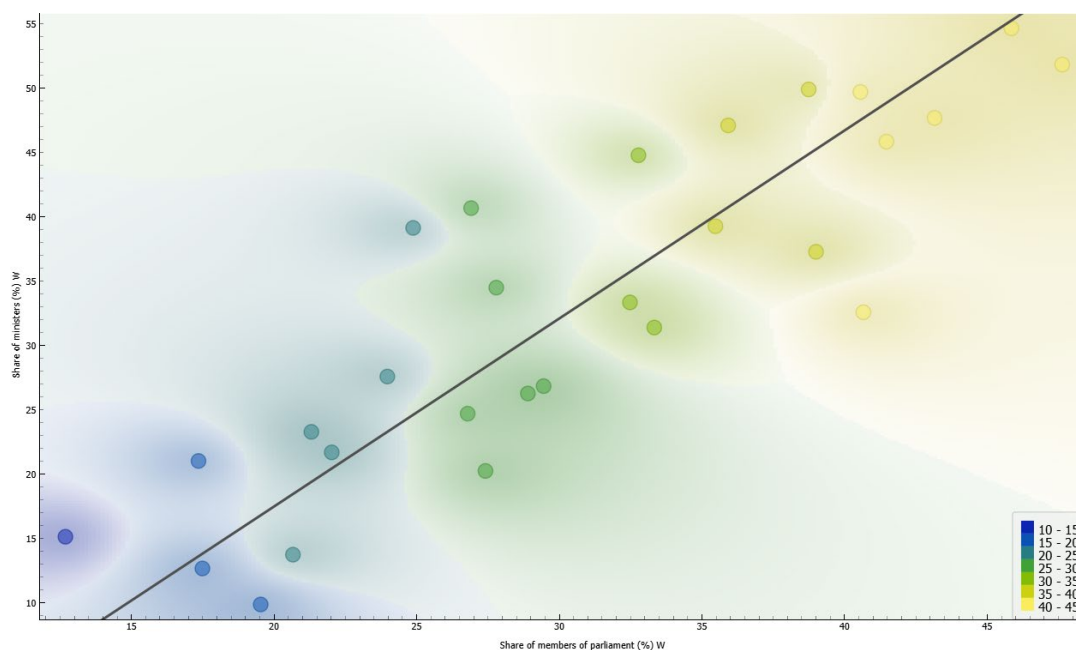


Figure 2: Spearman positive correlation for Share of members of parliament (women) vs Share of members of ministers (women).

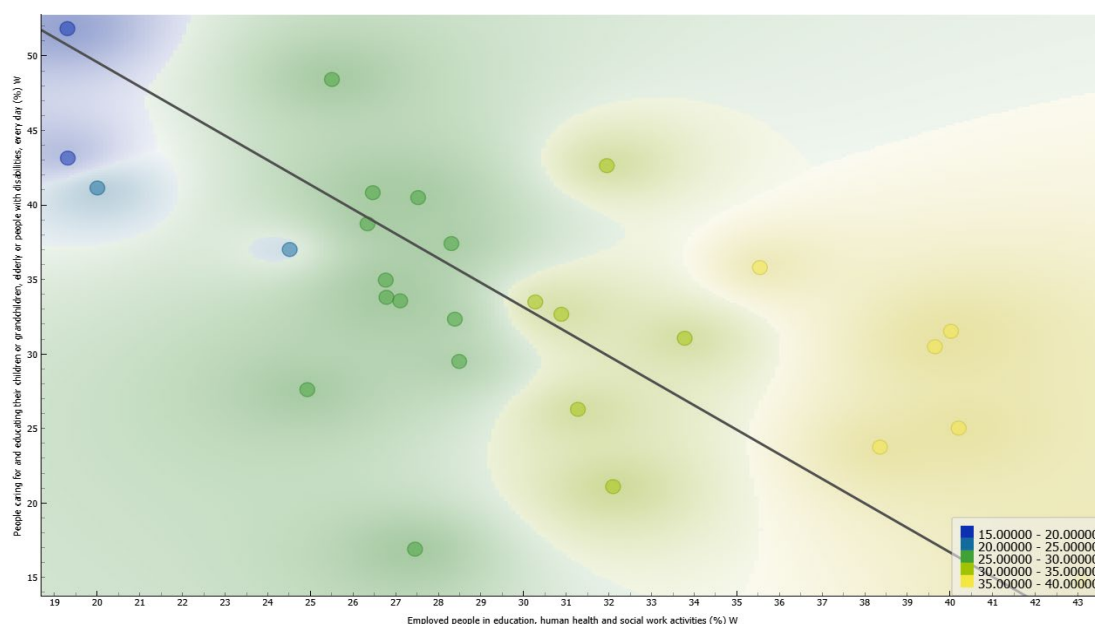


Figure 3: Spearman negative correlation for "People employed in education, human health, and social work activities" and "People who care for and educate their children or grandchildren, elderly people or people with disabilities every day."

Once the most relevant correlations were obtained, clustering techniques were applied to group countries according to their characteristics. Three clusters were found, indicating the shared attributes between countries in 2023. The similarities constructed three European countries' blocks, where Cluster 1(C1) is comprised of Bulgaria, Czechia, Estonia, Greece, Croatia, Latvia, Lithuania, Hungary, Poland, Portugal, Romania, and Slovakia; Cluster 2(C2) is comprised of European Union, Belgium, Denmark, Germany, Ireland, Spain, France, Italy, Cyprus, Malta, Netherlands, Austria, Slovenia, Finland, and Sweden; the Cluster 3 (C3) has just Luxemburg. C2 is the most favored group, constructed by the wealthiest countries in the analyzed set.

To give a perspective over the years, a Time series, considering data for 2013 to 2023, obtained the following trends for some selected variables considering their change over time (Fig 4 and 5). The variables that changed notably are Employed people in education, human health, and social work activities, Mean Equalized net

income, Share of members of boards in largest quoted companies, supervisory board or board of directors, Healthy life years at birth, and Carrier Prospects Index.

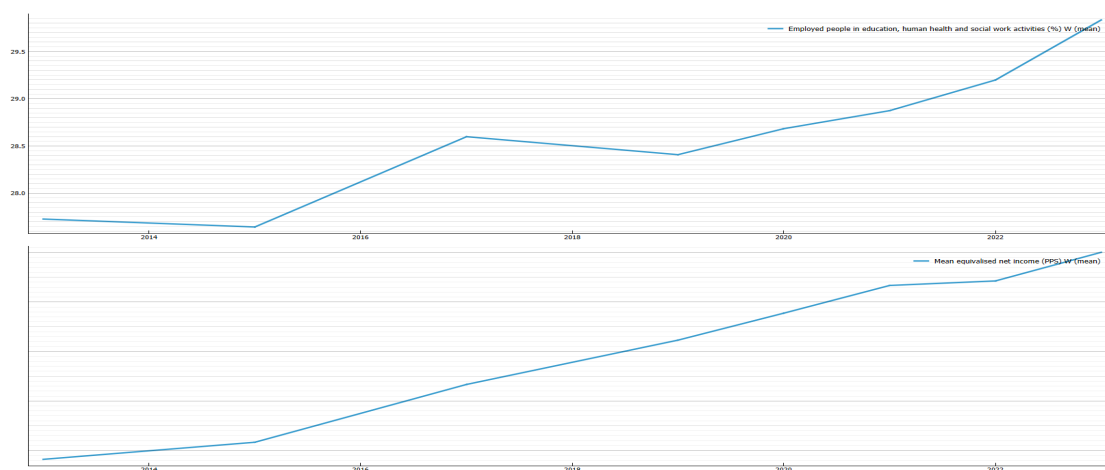


Figure 4: Tendency of the variables Employed people in education, human health, and social work activities, Mean equivalized net income from 2013 to 2023

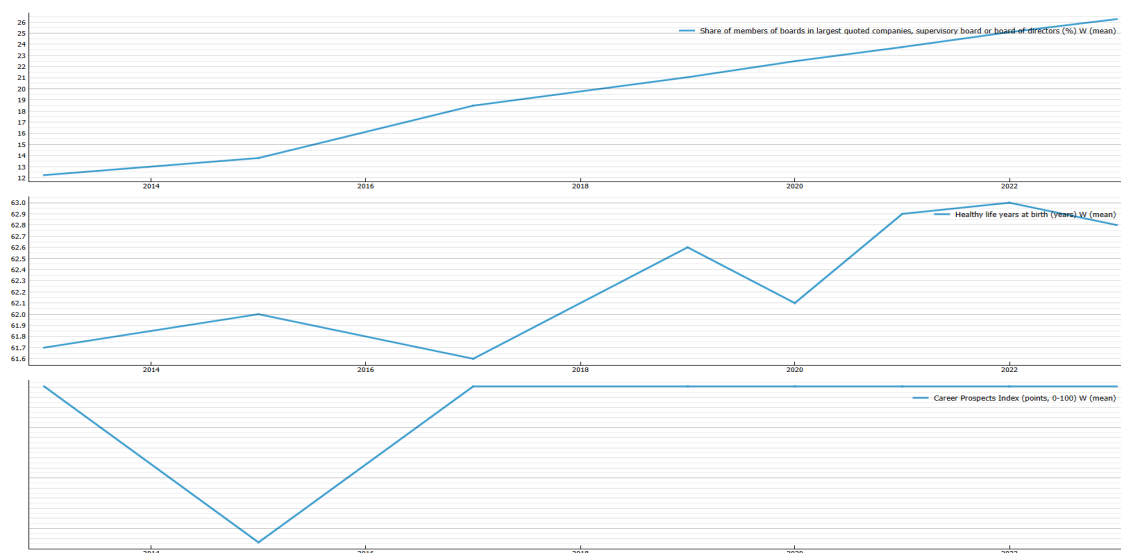


Figure 5: Tendency of the variables supervisory board or board of directors, Healthy life years at birth, and Carrier Prospects Index.

5. Conclusions

The Index measured by the European Institute for Gender Equality (EIGE) has experienced steady growth since 2013, with a notable acceleration in 2023. This progress is promising, but it is crucial to implement policies for gender equality soon. Equal opportunities for both sexes lead to improved economic growth and social well-being. Gender equality benefits everyone and is vital for societal advancement. Promoting equitable income distribution is essential to reduce poverty. Research suggests that European countries should increase the number of women in ministerial positions, particularly in education, healthcare, and social work. Additionally, encouraging women's socialization through physical activity and good nutrition is essential.

The analysis revealed strong correlations between women's participation in high-ranking positions—such as ministers, members of parliament, and company boards—and the opportunities within the power dimension of the Gender Equality Index (EIGE). Increasing women's representation in these roles can promote equality in power and benefit other social areas through policies that women typically support. Progress has been made in some countries, but there are still areas of regression, especially regarding unpaid work. Domestic workers often

face violence due to entrenched stereotypes. To address these issues, policymakers must create programs that raise awareness and work towards reducing the gender gap.

A deeper analysis of gender gaps in European countries reveals two distinct regions: Western and Eastern Europe. This division raises concerns about gender equality disparities that need further examination.

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Theoretical Framework of Measures of Resilience: A Gender-focused Critical Review

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Abstract: Assessing the resilience of rural women amidst the COVID-19 pandemic is crucial for understanding how they navigated the additional challenges brought by the crisis. This study emphasizes the importance of gender-specific and culturally sensitive measures in evaluating the resilience of Indian rural women, considering their diverse regional and cultural backgrounds. The authors propose examining rural women's resilience through the theoretical frameworks of the positive cognitive triad and psychological capital. A qualitative analysis of resilience measures sourced from Google Scholar, PubMed, and SCOPUS databases reveals the absence of a gender-specific resilience scale tailored to rural Indian women, with limited incorporation of the proposed theoretical frameworks. The findings underscore the need for systematic evaluation of community psychological needs, especially in times of crisis, to address gender disparities and effectively support vulnerable populations. Recommendations include developing a tailored resilience measure for Indian rural women to inform targeted developmental programs in similar contexts.

Keywords: Measures of Resilience, Theoretical Framework, Critical Review, Cognitive Triad, Psychological Capital

1. Introduction

Amidst the global COVID-19 pandemic, the United Nations (UN) underscored the pivotal role of rural women in fostering resilient and sustainable communities. Introduced for the International Day of Rural Women on October 15, 2020, the theme "Building Rural Women's Resilience in the Wake of COVID-19" emphasized this significance (UN Women, 2020). The pandemic exacerbated the vulnerabilities of Indian rural women (Chakraborty, 2021), magnified by entrenched gender inequalities (Taub, 2020). Constraints on mobility, increased domestic responsibilities, and essential goods shortages intensified their hardships (United Nations Women, 2020), negatively impacting mental health (Jungari, 2020; Nathiya et al., 2020). This necessitates sustained efforts to foster psycho-social attributes among rural women, including resilience, planning skills, persistence, empathy, self-regard, and kindness, to mitigate adverse experiences such as poverty, gender exclusion, and mental distress (Masten, Obradovic & Burt, 2006). The research underscores the multifaceted nature of resilience, suggesting its assessment from genetic, epigenetic, developmental, demographic, cultural, economic, and social viewpoints (Southwick et al., 2014). The childhood protective factors consistently identified for resilience in individuals include healthy attachment styles, adequate care, emotional control skills, self-awareness, the ability to visualize the future, and self-motivation to learn, grow, and adapt to their environment (Southwick et al., 2014). This highlights the significance of the psychological aspects of resilience.

This review underscores the imperative of prioritizing the psychological dimensions of resilience among women within individual contexts (Coley et al., 2021; Valsala & Devanathan, 2021). It stresses the significance of individual traits and subjective factors in managing social exclusion. Culturally sensitive and gender-specific measures, grounded in psychological frameworks, are essential to effectively assess resilience at the individual level. From an individual's perspective, resilience is about how one perceives themselves, others, and their future. Primarily, resilience depends on one's own psychological resources. Hence, a combination of the concepts of cognitive triad (Mak, Ng & Wong, 2011) and psychological capital (Luthans et al., 2007) seems valuable in offering insights and understanding of the dynamic concept of resilience. Hence, the objectives of this review are to identify gender-specific resilience measures suitable for rural women in India and recognise resilience measures underpinned by the concepts of the positive cognitive triad and psychological capital (PsyCap) as primary theoretical frameworks.

2. Resilience

Originating from the Latin verb "resitire," meaning 'to leap back,' initially referred to an object's ability to regain its shape after deformation, later finding extensive application across various disciplines (Dahlberg et al., 2015).

In this discourse, resilience is used synonymously with psychological resilience. Definitions across diverse disciplines highlight two fundamental aspects:

1. Individuals encountering adverse circumstances with substantial impacts on their lives and
2. Individuals exhibiting adaptability in response to changing situations (Masten, 2001; Schoon & Bynner, 2003).

Adverse situations or vulnerabilities within the resilience context encompass natural or man-made disasters, relationship loss trauma, chronic illness, domestic violence, and physical abuse (Masten & Narayan, 2012).

An individual's ability to adapt and recover effectively during challenging circumstances signifies resilience. A comprehensive delineation of resilience includes maintaining a stable trajectory of healthy functioning post-trauma, consciously progressing positively with insights gained from prior adverse experiences, the capacity of dynamic systems to adapt successfully to disturbances threatening their viability, and the utilization of resources to sustain well-being (Southwick et al., 2014). Psychological resilience, as defined by the American Psychological Association (2014, as cited in Wu et al., 2013), is "a process of effective adaptation in response to adversity, trauma, tragedy, threats, or significant stressors, such as family and relationship issues, serious health concerns, or financial problems."

3. Gender and Resilience

Gender roles, cultural disparities, regional variations, financial circumstances, and biological factors contribute to the exposure of men and women to diverse risks, particularly evident when women confront gender-based vulnerabilities (Bhadra, 2017). Previous research has aimed to elucidate the roles and impacts of gender and responsibilities within socio-ecological systems (Kumar & Ravi, 2020) and their influence on the perceptions of men and women regarding disasters (Sultana, 2010), as well as "post-disaster work and recovery" (Fothergill, 1996). This is particularly pertinent in the current context of COVID-19. Theories such as Feminist Political Ecology (Rocheleau et al., 1996) and Social Vulnerability perspectives elucidate how women from various socioeconomic backgrounds, households, and geographic locations perceive, experience, and manage events (Cutter, 2005). On that account, a rural and urban divide in women's resilience and differences in the manifestation of resilience among men and women are undeniably palpable.

4. Rural Women and Resilience in the Face of COVID-19

Rural women, constituting a significant segment of the global population, encounter vulnerabilities, particularly pronounced in developing nations, where they constitute 43% of the agricultural workforce (WHO, 2017). Eighty-nine percent of global agricultural employment occurs in rural regions (International Labour Organization, 2020). Facilitating rural women's access to agricultural resources holds paramount importance in alleviating hunger, poverty, and achieving the Sustainable Development Goals by 2030. In India, where 65.13% of the populace resides in rural areas, a large proportion engages in daily-wage agricultural labor. Despite their substantial contributions to family income, women encounter challenges such as illiteracy and limited land ownership (Census, 2011). A persistent patriarchal culture influences decision-making within families (Bhasin, 2007). Resilience emerges as crucial in addressing shocks like the COVID-19 pandemic, disrupting normalcy, and exacerbating global gender-based violence (Rieger, 2022). The International Day of Rural Women in 2020 underscored the importance of bolstering rural women's resilience amidst the pandemic for sustainable livelihoods and well-being.

India witnessed a surge in domestic violence during COVID-19, exacerbated by economic disruptions, income loss, and confinement (Krishnakumar & Verma, 2021). Only a fraction of victims seek assistance, hindered by limited access to mobile phones in rural areas (NFHS-4, 2017). The UN urged member nations to prioritize women's safety in pandemic responses, emphasizing emergency measures (UN, 2020). Research indicates women's adherence to health protocols during pandemics, rendering them receptive to training and interventions enhancing resilience (Galasso et al., 2020). Reflecting on the past year, the challenges faced by rural women underscore the ongoing significance of addressing gender disparities, fostering resilience, and ensuring inclusive development. The literature exploring definitions and explanations of resilience, the intersection of gender and resilience, and the resilience of rural women in the context of COVID-19 all merge towards a deeper understanding of resilience through the lens of the cognitive triad and psychological capital.

5. Theoretical Lenses - Positive Cognitive Triad and Psychological Capital

From a cognitive viewpoint, depressive disorders are marked by individuals' negative views of themselves, the world in general, and their future (Beck, 1979). A positive cognitive triad concerning the self, the world, and the future (Mak, Ng & Wong, 2011) has been considered a protective factor against depressive symptoms (Pittard et al., 2021). The positive cognitive triad of hope, worldview, and self-esteem could be perceived as potential mediators between resilience and well-being (Mehta et al., 2019). Interweaving resilience, cognitive triad and psychological well-being, Tugade and Fredrickson (2004) identified self-confidence, hope for the future and positive perception of the world, as attributes of highly resilient individuals (Thompson, 2019).

PsyCap is defined as "an individual's positive psychological state of development, characterized by high levels of the four elements of HERO - Hope, Efficacy, Resilience, and Optimism" (Luthans, et al., 2007). The PsyCap components of HERO in women are excessively influenced and bound by the cultural web. In a rural context, psychological capital based on cognitive aspects seems more crucial than financial or social capital, which largely depends on external factors (Luthans et al., 2004). Resilience may be perceived as the manifestation of emotional growth, concomitant with sustainability in a rural scenario.

Hence, the present review symbolizes resilience through two lenses:

- Positive cognitive triad (of Self, Others/World, and Future) (Mak, Ng & Wong, 2011)
- Psychological capital (Luthans et al., 2004)

Positive cognitive triad as a theoretical base considers resilience as a subjective aspect which is within the mental space that depends on a person's perception. It further explains that individuals' perceptions and thoughts are based on "their beliefs and views about themselves, their beliefs and views about the world and their beliefs and views about their future". Both positive cognitive triad and PsyCap put forward a strong argument in favour of understanding rural women's resilience based on PsyCap applied through the positive cognitive triad lens. The patriarchal background and the collectivist nature of the Indian rural community have deep influences on rural women's perception of challenges that in turn affect their internal states (Chadda & Deb, 2013).

In literature, we often find rural women's resilience being discussed in the context of community and how building their resilience contributes to the sustainable development of a community (United Nations, 2015). Hence, rural women's psychological resilience can be considered as a foundation for building resilient individuals, families, and sustainable communities in the wake of potential and unprecedented challenges like COVID-19. Research indicates resilience "as a dynamic process of adaptation that can potentially be trained" (Chmitorz et al., 2018). This upholds the idea of crafting training programs for rural women that enhance their adaptability. Development of a tailor-made intervention calls for systematic assessment of this dynamic process of resilience in women.

Table 1: Two Theoretical Lenses: Positive Cognitive Triad & Psychological Capital

Theory/Author/Year	Definition	Components	Component- definition
Positive Cognitive Triad (Mak, Ng & Wong, 2011)	"Resilient individuals may have a positive view about themselves, the world, and the future (hereafter referred to as the positive cognitive triad), which promotes their positive emotionality and life satisfaction and protects them from depression"	Self World Future	"One's views about self" "One's view about the world" "One's view about the future"
Psychological Capital (PsyCap) (Luthans et al., 2004)	"An individual's positive psychological state of development characterized by high levels of hope, efficacy, resilience, and optimism"	Hope Efficacy Resilience Optimism	"Having the will to succeed and the ability to identify, clarify and pursue the ways to succeed". "Having the confidence to take on and put in the necessary effort to succeed at challenging tasks". "Sustaining effort and bouncing back in response to problems and adversity to attain success".

Theory/Author/Year	Definition	Components	Component- definition
			"Having a positive anticipation about success, both now and in the future".

6. Resilience Measures

The groundbreaking work "Resilience and Stability of Ecological Systems" by Holling (1973) played a pivotal role in popularizing the term "resilience" and laying the foundation for studies integrating ecological and other forms of resilience. The Dispositional Resilience Scale (Bartone, 1989) evaluated three primary components of hardiness (control, communication, and challenge), serving as the cornerstone of resilience assessment. The Resilience Scale (Wagnild & Young, 1993), comprising 25 items, emerged as the initial direct measure of resilience, assessing one's capacity to endure life stressors, thrive, and interpret challenges.

Typically, psychological measures/tools/instruments are developed, evaluated, and validated in Western contexts before being adapted to different geographical settings. However, erroneous administration and translations of Western instruments can yield inconsistent research outcomes. Additionally, utilizing Western measures within the Indian population may encounter challenges related to "reliability and validity issues" (Pennock, 2016). Furthermore, it's essential to acknowledge that Eurocentric and Western perspectives may not fully align with native researchers' interpretations of Indian culture, religions, traditional practices, geographical features, and socio-economic status.

7. Significance of Assessing the Resilience of Indian Women

Assessing the resilience of Indian women holds significance due to their unique challenges and vulnerabilities stemming from gender disparities within Indian societies (Kalra et al., 2012). Understanding their resilience can pinpoint specific areas requiring support to tackle issues like gender-based violence, unequal access to education, and limited economic opportunities. Education serves as a pivotal factor influencing resilience. Evaluating the resilience of Indian women offers insights into the correlation between education (Masten & Reed, 2009) and resilience, aiding in the development of strategies to enhance educational access and foster an environment supportive of women's educational empowerment.

A nexus exists between resilience and economic independence (Gupta et al., 2015). Through evaluating the resilience of Indian women, strategies can be identified to bolster their economic resilience, fostering financial inclusion and addressing barriers hindering women's economic advancement. Psychological strengths contribute to resilience (Arora & Prakash, 2018). Evaluating the resilience of Indian women can shed light on the psychological strengths underpinning their mental well-being, facilitating the development of targeted mental health interventions and support systems. By comprehending their ability to rebound from adversity, policymakers and practitioners can devise gender-sensitive policies and interventions that promote empowerment, fostering an environment where women can actively shape their lives and communities.

8. Assessment of Resilience in Indian Women

We endeavour to identify resilience measures for Indian women rooted in the theoretical frameworks proposed by researchers, namely the cognitive triad and psychological capital. Therefore, we are examining the theoretical frameworks of the available resilience measures. Through scrutiny of the theoretical framework, we can ascertain cultural relevance and sensitivity, assess the feasibility of translation and adaptation for Indian women (with authors' permission), and evaluate whether the frameworks encompass perspectives on psychological resources and orientations towards self, others, and the future, aligning with the specific social conditions of Indian women. Thus, a critical review of existing resilience measures' theoretical frameworks offers insights into which frameworks are congruent with the resilience concept applicable to Indian women. This informs the development of targeted policies and interventions tailored to the specific needs of Indian women.

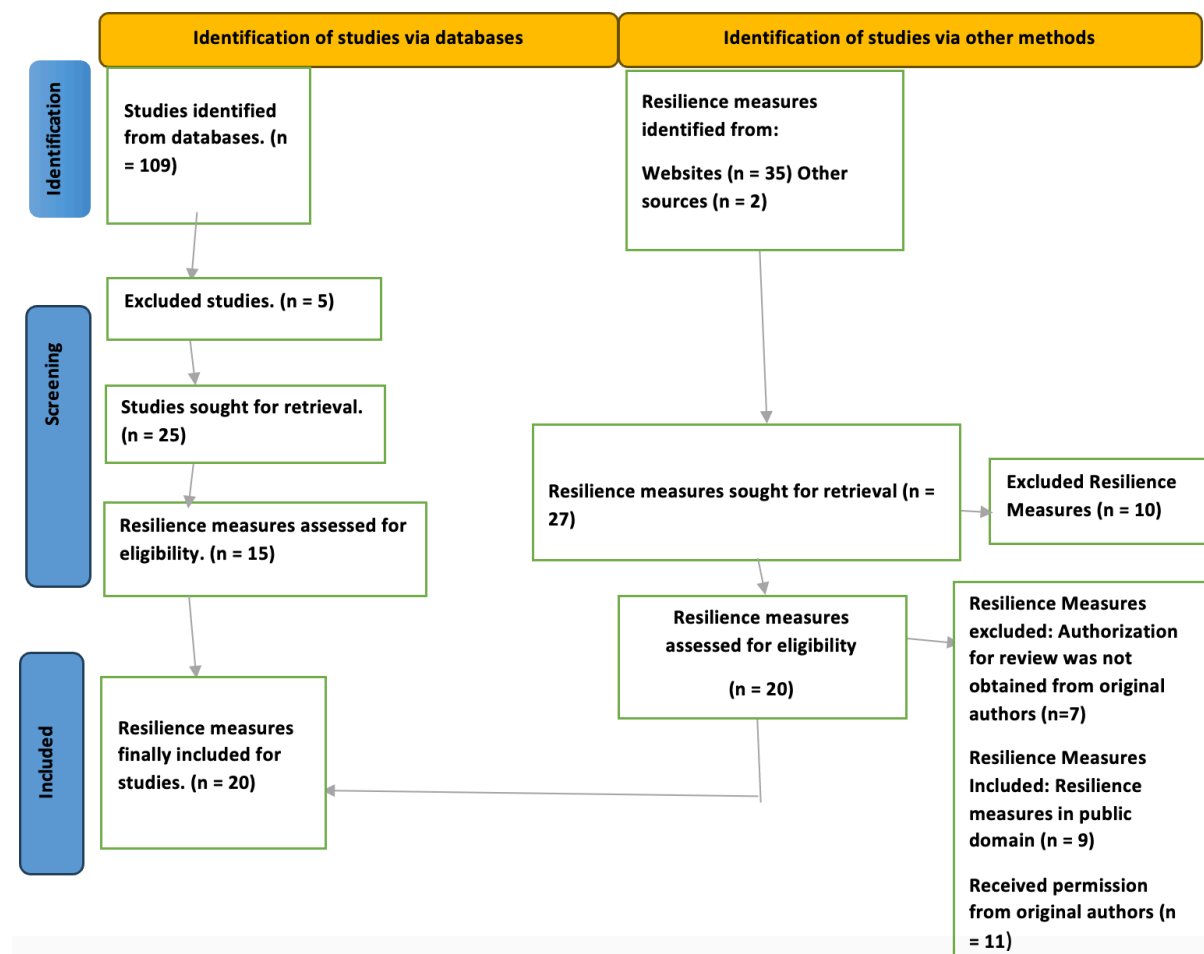
9. METHOD

9.1 Sources, Search Strategies and Selection Processes

A comprehensive literature search identified resilience measures, including systematic reviews, reliability and validity assessments, and resilience measurements, evaluations, instruments, and scales available online in English Electronic databases including Google Scholar, PubMed, and Scopus were systematically scrutinized to retrieve resilience measures. The search terms included "resilience scales," "assessment," "questionnaire," "measure," "instrument," "inventory," "schedule," "checklist," "rural women in India," "Indian rural women," "rural culture," "cultural sensitivity," "social norms," "resilience," "psychological resilience," "reliability and validity," "cognitive triad," "positive cognitive triad," and "Psychological Capital/PsyCap." The authors then reviewed citation lists of selected research papers to gather additional references. Given the relatively brief history of resilience research, efforts were made to include all published resilience measures. Eleven systematic review papers were thus retrieved from 2007 to January 2024, of which six were included in our study. Additionally, twenty research papers focusing on the development of the selected resilience measures were integrated into the study. The authors manually extracted data, organizing them into an Excel sheet with details of the studies. The thematic analysis and coding of the compiled list of resilience measures was done which was represented in an Excel sheet with comprehensive details (Fig. 2: Flow Diagram of Review Process).

An exhaustive search yielded 109 journal papers on resilience measures. Out of 11 systematic studies screened initially, only 5 were included due to restricted access. Two lists of measures were generated, totalling 27 adolescent and adult resilience measures, with 20 selected for final review after filtering and permissions.

Figure 1: PRISMA Flow Diagram of Selection Process



10. Results & Discussion

Table 2: List of Selected Resilience Measures for Review

Measure	Authors (Year)	Population	Sub-constructs	Items	C.T.	P.C.
Resilience Scale (RS) (25) & RS-14	Wagnild & Young (1993, 2010)	Adults, Cardiac Pain Patients	Personal Competence, Acceptance of Self and Life	25 / 14	Self, Future	✓
Ego Resiliency Scale (ER 89)	Block & Kremen (1996)	Young Adults	Confident Optimism, Insight, Expressiveness	14	✓	✓
Baruth Protective Factors Inventory	Baruth & Carroll (2002)	General Adults	Adaptable Personality, Fewer Stressors	16	Self, World	✓
Adolescent Resilience Scale (ARS)	Oshio et al. (2003)	Adolescents, Younger Adults	Novelty Seeking, Emotional Regulation, Positive Future Orientation	21	Self, Future	✓
Brief Resilient Coping Scale (BRCS)	Sinclair & Wallston (2004)	Adults, Rheumatoid Patients	Coping with Stress Adaptively	4	Self, Future	✓
Devereux Adult Resilience Survey	Mackrain (2007)	Adults, Teachers	Relationships, Internal Beliefs, Initiative, Self-control	23	✓	✓
Brief Resilience Scale (BRS)	Smith et al. (2008)	Adults, Chronic Pain Patients	Ability to Recover from Stress	6	Self	Resilience
Resilience in Midlife (RIM)	Ryan & Caltabiano (2009)	General Adults	Self-efficacy, Perseverance, Internal Control, Coping	25	✓	✓
Response to Stressful Experiences	Johnson et al. (2011)	Military, Veterans	Meaning Making, Active Coping, Cognitive Flexibility	22	Self, Future	✓
Child & Youth Resilience Measure	Ungar & Liebenberg (2011)	Adolescents, Adults	Individual, Relational, Community	28	✓	✓
Scale of Protective Factors (SPF)	Ponce-Garcia et al. (2015)	Professionals	Social Support, Skills, Planning, Goal Efficacy	24	✓	✓
Predictive 6-Factor Resilience (PR6)	Rossouw & Rossouw (2016, 2017)	Adults, Professionals	Vision, Composure, Tenacity, Collaboration	16 / 50	✓	✓
Essential Resilience Scale	Chen et al. (2016)	Migrants, Rural and Urban Adults	Physical, Emotional, Social Resilience	15	✓	✓
Protective Factors for Resilience	Harms et al. (2017)	Adults, Adolescents	Personal, Family, Peer Resources	20	✓	✓
Resilience Protective Factors Check	Powell et al. (2020)	Undergraduates	Individual, Family, Community	25	✓	✓
Hardy-Gill Resilience Scale	Hardy (2004, cited Resnick)	Older Adults	Response to Stressful Events	9	Nil	Nil
Psychological Resilience	Windle et al. (2008)	Older Adults	Self-esteem, Interpersonal Control, Competence	19	Self	✓
Resilience Appraisal Scale	Johnson (2010)	Clinical Population	Social Support, Emotional Regulation, Problem Solving	12	✓	✓
Multidimensional Resilience (MDRS-H)	Singh & Khullar (2022)	Adults, Older Adults	Internal Control, Acceptance, Assertiveness, Optimism, Humor	46	✓	✓
Resilience Scale	Lakshmi & Narain (2017)	Adolescents, Adults, Older Adults	Perseverance, Composure, Self-reliance, Faith	30	✓	✓

C.T.: Cognitive Triad (Self, World, Future)

P.C.: Psychological Capital (Hope, Efficacy, Resilience, Optimism)

✓: Includes all components

10.1 Gender-Specific Resilience Measures

Table 2 reveals that the only scale applicable to both rural and urban adult populations is the Essential Resilience Scale (Chen et al., 2016), which is non-gender specific. Although a vernacular version (Kannada) of the Connor-Davidson Resilience Scale (Sidheek et al., 2017) was identified during the literature search, the review process did not uncover a culturally sensitive, gender-specific scale suitable for Indian rural women.

10.2 Resilience Measures based on Positive Cognitive Triad and Psychological Capital

A rigorous thematic analysis of the domains and items of the resilience measures revealed words and phrases that reflected the positive cognitive triad and PsyCap perspectives of the participants. The following are a few exemplars selected from the finalized resilience measures.

10.3 Positive Cognitive Triad

- Self - "I tend to take a long time to get over setbacks in my life"- Brief Resilience Scale (Smith et al., 2008)
- World - "Believe in myself even when teased, looked down upon and made fun of" - Essential Resilience Scale (Chen et al., 2016)
- Future - "I actively look for ways to replace the losses I encounter in life"- Brief Resilient Coping Scale (Sinclair & Wallston, 2004).

10.4 Psychological Capital

- Hope - "I am hopeful about the future"- Devereux Adult Resilience Survey (Mackrain, 2007).
- Efficacy - "Can get through difficult times"- Resilience in Midlife (Ryan & Caltabiano, 2009).
- Optimism - "My friends/family are optimistic"- Scale of Protective Factors (Ponce-Garcia et al., 2015)
- Resilience - "I keep my cool under stressful situations"- Predictive 6-Factor Resilience Scale (Rossouw & Rossouw, 2016).

Though the resilience measures do not indicate positive cognitive triad as its theoretical framework, the deductive thematic analysis points to the presence of all three components- (Self - one's view of oneself, World - one's view about what others think about him/her, Future - one's view about one's own future). The 12 measures included all three elements of the positive cognitive triad (Table 2). Correspondingly, the authors could not find any adult resilience measures with PsyCap as the major premise. However, 17 measures have items related to the four components of PsyCap (Table 2).

The thematic analysis of the items of 12 resilience measures revealed the presence of both a positive cognitive triad and the four components of PsyCap. These measures include the Ego Resiliency Scale (Block & Kremen, 1996), Devereux Adult Resilience Survey (Mackrain, 2007), Resilience in Midlife (Ryan & Caltabiano, 2009), Child and Youth Resilience Measure (Ungar & Liebenberg et al., 2011), Scale of Protective Factors (Ponce-Garcia et al., 2015), Predictive 6-Factor Resilience Scale (Rossouw & Rossouw, 2016), PR6-50 (Rossouw et al., 2017), Essential Resilience Scale (Chen et al., 2016), Protective Factors for Resilience Scale (Harms et al., 2017), Resilience Appraisal Scale (Johnson, 2010), Multidimensional Scale of Resilience-Hindi (Singh & Khullar, 2022), and Resilience Scale (Lakshmi & Narain, 2017).

Notwithstanding the resilience measures mentioned earlier, which suggest the existence of a positive cognitive triad and the four PsyCap components, it appears that the specific items comprising these measures may not align well with the experiences of rural women. These individuals may find it challenging to relate to the items and provide meaningful responses. A review of 19 validated measures of resilience (Windle, Bennett & Noyes, 2011) indicated varying qualities in their psychometric properties. Nevertheless, the Resilience Scale for Adults (Friborg et al., 2003), Brief Resilience Scale (Smith et al., 2008) and Connor-Davidson Resilience Scale (Connor & Davidson, 2008) have been frequently used worldwide (Salisu & Hashim, 2017). The Connor-Davidson Resilience Scale has been translated into local languages for its well-regarded psychometric ratings (Gucciardi et al., 2011; Wang et al., 2010 as cited in Salisu & Hashim, 2017).

The review highlights the inclusion of two Indian resilience scales: the Multidimensional Scale of Resilience-Hindi (Singh & Khullar, 2022) and the Resilience Scale (Lakshmi & Narain, 2017). Notably, both scales incorporate elements of the positive cognitive triad and psychological capital. This finding underscores the importance of these constructs in the Indian context, suggesting that resilience in this population is closely linked to an individual's cognitive outlook and psychological resources.

11. Conclusion

Assessing the resilience of Indian rural women is crucial for understanding its dynamics and its role in fostering a sustainable community. The authors propose examining the resilience of Indian rural women through the lenses of the positive cognitive triad and psychological capital (PsyCap). However, current measures lack

alignment with these theoretical frameworks. While deductive thematic analyses of existing measures reveal elements of the positive cognitive triad and PsyCap, the diverse cultural contexts within India, variations in resilience dynamics, and gender-specific manifestations underscore the need for a culturally sensitive, gender-specific resilience measure.

11.1 Implications and Recommendations

The study recommends defining resilience from a gender-specific perspective, focusing on the psychological factors affecting rural women in India, particularly in light of the gender disparities highlighted by COVID-19. A gender-sensitive approach is essential for fostering resilient rural communities, and the increased psychological impact on vulnerable populations during the pandemic's second wave further emphasizes the need for ongoing assessment of community emotional needs after disruptive events. The review advocates for developing a standardized resilience measure tailored to rural women, based on the positive cognitive triad and PsyCap framework, which would be valuable for stakeholders in designing developmental programs. Additionally, government-sponsored initiatives and mechanisms should focus on enhancing psychological capital in rural women across villages to build a more resilient and sustainable community.

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Obstacles to Accessing Healthcare and Safety Services for Minority Women and Girls in Vietnam in Relation to Sustainable Development Goals

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Abstract: Vietnam, as a developing country, is actively striving to achieve the Millennium Development Goals (MDGs) by 2030. Despite notable progress, particularly in promoting gender equality, significant challenges remain, especially in access to healthcare and safety services for women and girls. This study is based on comprehensive survey data from a national gender equality research project conducted between 2018 and 2021, encompassing 2,894 household questionnaires across six mountainous provinces with a high population of ethnic minorities. The research findings indicate that ethnic minority women and girls in Vietnam continue to be among the most vulnerable groups, facing numerous challenges due to cultural traditions, gender biases, and socio-economic conditions prevalent in mountainous regions. Many ethnic minority women and girls remain illiterate, and some are unable to speak or understand the national language, severely restricting their access to healthcare services, particularly reproductive healthcare. Language barriers also hinder effective communication with healthcare providers, often leading to inadequate or delayed medical treatment. Traditional customs further exacerbate these issues, as many ethnic minority women are required to give birth at home, often in unsanitary conditions. In some cases, women are forced to deliver their babies in tents or huts outside their homes without any assistance from trained medical professionals. These practices pose significant risks to both maternal and infant health, contributing to higher maternal and neonatal mortality rates in these areas. Cultural and logistical barriers, along with deeply ingrained gender norms that limit women's autonomy, continue to obstruct Vietnam's progress in achieving gender equality. These findings suggest that while Vietnam is committed to implementing the MDGs, especially in promoting gender equality and improving healthcare services, substantial challenges persist for ethnic minority women and girls in remote areas, particularly regarding reproductive health and safety.

Keywords: Gender Equality, Women's Development, Ethnic Minorities, Reproductive Health, Vietnam

1. Introduction

In pursuit of the Sustainable Development Goals (SDGs), Vietnam has made significant progress and improved its global ranking in the SDGs Index, ranking 55th out of 166 countries in 2023. The national strategy for gender equality has affirmed Vietnam's achievements in gender equality and has significantly enhanced the role and status of Vietnamese women. In 2024, Vietnam ranked 72nd out of 146 countries in gender equality. The percentage of female members in the National Assembly remains one of the highest in the Asia-Pacific region (30.26%); women constitute 46.8% of the national labour force, with a female labour force participation rate of 62.4%; and 28.2% of businesses are owned by women. Gender equality and women's empowerment are among the three MDGs that Vietnam has successfully achieved in its commitment to the United Nations. Vietnam's gender equality ranking improved by 11 places in 2023 compared to 2022. In 2024, Vietnam was officially elected to the Executive Board of the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) for the 2025–2027 term. However, Vietnam's commitments to gender equality and women's development still face significant challenges in achieving the targets outlined in the MDGs, the Beijing Declaration and Platform for Action by 2030. The 2030 agenda includes 17 goals and 169 gender-specific targets addressing various aspects of gender disparities, including poverty, hunger, health, education, water and sanitation, employment, and the empowerment of women and girls (UN Women, 2015). Some critical targets, such as Goal 2—to eliminate malnutrition in children under five, adolescent girls, pregnant and lactating women, and the elderly—are unlikely to be achieved by 2030. Similarly, Goal 3 aims to ensure access to high-quality and

comprehensive healthcare services while eliminating harmful practices that threaten women's health and well-being. Cultural and socio-economic barriers prevent some women from benefiting from modern societal advancements. Nowadays, many ethnic minority women and girls, in particular, continue to face gender biases, illiteracy, low education levels, and limited access to comprehensive healthcare services. They also remain vulnerable to gender-based and domestic violence, which remains widespread and insufficiently addressed.

Despite improvements in reproductive healthcare for ethnic minority women in developed countries, contraceptive use remains low among these groups. Challenges affecting contraceptive adoption among ethnic minorities include lack of awareness, lower socio-economic status, and cultural sensitivities. Research highlights the importance of socio-economic factors in reproductive health decisions (Gijsberts & Dagevos, 2007). Studies in the United States indicate that ethnic minority women and those with lower socio-economic status are less likely to use contraceptives compared to white women and those with higher socio-economic status (Radilaite Cammock, Patricia Priest, Sarah Lovell, Peter Herbison, 2018). This trend is also evident in developing countries. A study on knowledge, attitudes, and practices regarding family planning among Taukei women in New Zealand and Fiji revealed lower contraceptive use compared to national averages in both countries. Limited integration into mainstream society led to reduced exposure to family planning information. Studies have found that cost, language, and cultural sensitivities are major barriers to reproductive healthcare access. Even in urban areas, ethnic minority women in Taukei may struggle to comprehend family planning information due to linguistic and cultural barriers, such as traditional gender roles and taboos surrounding sexuality and reproduction, which hinder their effective interaction with healthcare services in New Zealand (Radilaite Cammock et al., 2018). Onouma Thummapol et al. (2018) emphasize that addressing health inequalities for ethnic minority women requires recognizing their roles, implementing strategies to change cultural and social norms that create barriers to equal opportunities, and better integrating gender perspectives into healthcare systems. These measures will ensure more effective use of healthcare services and reduce gender-based health disparities.

Regarding gender-based violence, according to various researchers, there are 4 key factors that contribute to the likelihood of gender-based violence: (1) Economic inequality; (2) The use of physical violence as a conflict resolution method; (3) Male dominance and control in decision-making processes; and (4) Limited opportunities for women to participate in social and economic activities (Bhanot, S., & Senn, C. Y., 2007). These factors align with the relative resource theory of decision-making power and cultural perspectives that position men as dominant and women as dependent. There is extensive documentation on the experiences of ethnic minority women as victims and survivors of violence. While studies have consistently highlighted the urgent need to provide support for ethnic minority women, in reality, organizations dedicated to supporting these women often face resource constraints and are undervalued. Furthermore, statutory agencies frequently exhibit a lack of understanding of the specific needs of ethnic minority women. Research has shown that nine out of ten local governments do not have specific preparations in place for ethnic minority women who have experienced violence, and support services are predominantly concentrated in urban areas (Sharon Smee and Zohra Moosa, 2010). It is evident that gender inequalities affecting ethnic minority women persist across multiple countries and various aspects of social life. The primary causes of these inequalities stem from cultural norms, societal prejudices against women, and inadequate infrastructure and social services in ethnic minority regions.

2. Data Sources and Research Methodology

This study utilizes field survey data from the project on key issues of gender equality among ethnic minority groups in Vietnam, conducted from 2018 to 2021. The survey covered 2,894 household representatives, including both men and women, from 14 ethnic minority groups across eight provinces in Vietnam. Data collection methods included structured individual questionnaires, in-depth interviews, and community group discussions.

The research team adhered to ethical research principles during the interviews. All participants provided informed consent before taking part. Interviewers read the questions aloud, and respondents provided their answers to each question. Confidentiality and anonymity of personal information were strictly maintained. Group discussions and in-depth interviews were recorded and securely stored in accordance with ethical guidelines.

Indicators for analyzing gender inequality in the healthcare sector were derived from national surveys, including metrics such as the percentage of women accessing healthcare facilities for childbirth and prenatal check-ups, as well as health insurance coverage rates. Additionally, the research team developed specific indicators to assess adolescent pregnancy, healthcare access, and utilization of community-based healthcare services. For

gender-based and domestic violence analysis, the study established criteria to assess gender role perceptions, gender-based violence, and domestic violence prevalence. The research analysis was conducted using SPSS 20.0 software, employing statistical techniques such as frequency analysis, cross-tabulation (crosstabs), and regression models.

Table 1: Demographic Characteristics of Household Representatives Responding to the Survey

Demographic Characteristics	Male		Female		Total	
	%	N	%	N	%	N
Household Representative	48,9	1414	51,1	1480	100,0	2894
Age group						
<30	19,1	270	29,6	438	24,5	708
30-39	30,6	432	35,4	524	33,0	956
40-49	26,9	380	20,9	310	23,8	690
50+	23,5	332	14,1	208	18,7	540
Household Living Standards						
Well-off	9,6	136	5,8	86	7,7	222
Average	46,0	650	42,7	632	44,3	1282
Poor	44,4	628	51,5	762	48,0	1390
Ethnic Group						
Kinh	29,0	58	43,1	62	34,9	120
Patrilineal	50,0	100	43,1	62	47,1	162
Matrilineal	21,0	42	13,9	20	18,0	62

3. The Current State of Gender Inequality in Reproductive Healthcare and the Protection of Ethnic Minority Women and Children in Vietnam

3.1 Illness and Disease Conditions

Living in remote areas, most ethnic minorities engage in physically demanding labor related to agricultural production and the natural environment. As a result, their access to healthcare services is highly limited. The burden of disease remains a significant obstacle to human development, particularly for ethnic minority women. Health inequalities are widening across regions due to geographical, economic, and cultural factors.

Survey results from eight provinces in Vietnam indicate a relatively high incidence of illness among the population, with 60.2% of respondents reporting that they had been ill in the past 12 months. Among them, 65.9% were women, while 54.2% were men. The proportion of women who experienced illness in the past year was significantly higher than that of men.

Table 2: Illness Status of the Population in the Past 12 Months by Gender, Ethnicity, and Living Standards

		Overall (n=2894)	Male (n=1414)	Female (n=1480)
Overall		60,2	54,2	65,9***
Ethnicity		***		
Tay	(n= 150)	60,7	54,2	64,8
Nung	(n= 175)	59,4	57,6	61,4
Muong	(n=250)	58,8	47,1	73,2***

		Overall (n=2894)	Male (n=1414)	Female (n=1480)
Dao	(n= 200)	55,0	52,2	60,6
Hmong	(n=442)	35,3	36,2	34,4
Khmu	(n=155)	74,8	73,3	76,2
Thai	(n=250)	48,4	35,6	59,8***
Co Tu	(n=93)	78,5	69,4	88,6*
Ta oi	(n=124)	78,2	75,4	80,6
Xo Dang	(n=220)	75,9	61,6	87,6***
E De	(n=226)	76,5	70,4	81,3*
Cham	(n=250)	66,0	60,5	70,6*
Kho Me	(n=250)	60,8	57,7	63,3
Self-Reported Living Standards		***		
Fair	(n=222)	51,4	48,5	55,8
Average	(n=1282)	58,0	51,5	64,7***
Poor and Very Poor	(n=1390)	63,7	58,3	68,1***

Note: Statistical Significance Level: *p<0,05; **p<0,01; ***P<0,001

Source: Survey Data from the CTD 21.17 Project, 2018-2019

According to the results in Table 2, there is a clear and significant difference in the overall illness rates between men and women over the past 12 months. Among ethnic groups, women from the Muong, Thai, Co Tu, Xo Dang, and E De communities had significantly higher illness rates than men. Likewise, women in households with average and poor living standards also experienced illness at a higher rate than men.

Table 3: Disease Prevalence in the Past 12 Months Among Ethnic Minority Populations by Gender and Ethnicity

Ethnicity	Seasonal Infectious Diseases			Acute disease			Chronic illness		
	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female
	***			*			***		
Tay	67,0	71,9	64,4	8,8	6,2	10,2	29,7	21,9	33,9
Dao	60,9	54,3	72,5*	11,8	15,7	5,0	35,5	34,3	37,5
Nung	70,2	73,6	66,7	13,8	13,2	13,7	27,9	22,6	33,3
Thai	50,4	50,0	50,6	16,5	14,3	17,7	30,6	35,7	27,8
Muong	47,6	44,6	50,0	14,3	16,9	12,2	36,7	35,4	37,8
Hmong	78,8	65,8	92,2***	7,1	7,6	6,5	16,0	22,8	9,1**
Kho Mu	63,8	54,5	72,1*	10,3	10,9	9,8	27,6	34,5	21,3
Co Tu	45,2	44,1	46,2	6,8	8,8	5,1	46,6	44,1	48,7
Ta Oi	50,5	51,2	50,0	7,2	11,6	3,7	49,5	41,9	55,6
Xo Dang	54,5	54,1	54,7	9,6	9,8	9,4	33,5	36,1	32,1
E De	60,7	62,3	59,6	11,0	8,7	12,5	24,3	27,5	22,1
Cham	58,8	56,5	60,4	12,1	17,4	8,3*	30,3	21,7	36,5*
Khmer	58,6	56,2	60,2	11,2	17,2	6,8*	34,9	29,7	38,6
Overall	59,6	57,6	61,1	10,8	12,1	9,7	31,5	30,1	32,6
N	1038	442	596	188	93	95	549	231	318

Note: Statistical Significance Level: *P<0,05; **P<0,01; ***P<0,001

Source: Survey Data from the CTD 21.17 Project, 2018-2019

Based on the survey on disease patterns, women from ethnic groups residing in high mountainous areas, such as the Hmong, Dao, Lo Lo, and Khmu, exhibit particularly high rates of seasonal infectious diseases. In terms of acute illnesses, women from lowland ethnic groups, who have better access to regular medical check-ups, report higher incidence rates than men (e.g., Tay, Thai, E De). Meanwhile, chronic diseases show minimal gender differences across most ethnic groups in the surveyed sample.

“Hmong women here suffer from various illnesses; nearly everyone has a health condition, yet they do not seek medical treatment. They only visit the health station if their husbands take them—going alone is seen as shameful. Most suffer from respiratory and digestive diseases. Some also experience gynecological conditions due to a lack of water and the persistently humid, foggy environment. Children, on the other hand, face severe malnutrition. Only 50% of pregnant women attend antenatal check-ups at the health station, and even then, they typically go only once or twice. The majority of women still give birth at home. Although the health station is nearby, they avoid delivering there due to customary restrictions” (In-depth interview with the head of the Giang Chu Phin Commune Health Station, Meo Vac, Ha Giang).

“Due to the geographical characteristics and population conditions, the disease pattern is highly complex. Many illnesses are closely related to local customs, such as infectious diseases and gynecological conditions...” (Focus group discussion with district-level officials, A Luoi, Thua Thien Hue)

A gender-based comparison of acute and chronic disease prevalence in the survey sample across eight provinces reveals that chronic diseases are more prevalent among women than men. Notably, chronic illness rates are significantly higher among women from poor and very poor households. When comparing disease patterns among ethnic groups, the survey results indicate that in ethnic communities with higher socioeconomic development, people are more proactive in seeking medical care and diagnosing illnesses than those in communities with higher poverty rates. For instance, acute disease prevalence is considerably higher among the Khmer, Muong, Thai, and Cham ethnic groups compared to the Hmong, Xo Dang, and Co Tu. Conversely, ethnic groups with higher poverty rates experience significantly higher seasonal infectious disease burdens than lowland ethnic groups with better living conditions.

3.2 Maternal Care During Pregnancy and Childbirth

Antenatal care and maternal healthcare are crucial indicators for achieving the Millennium Development Goals and advancing gender equality for ethnic minority women. According to the Vietnamese government's 2014 assessment, ethnic minority groups had significantly lower access to maternal healthcare services, with only 79% of women attending at least one antenatal check-up and 32.7% receiving the recommended four check-ups in 2014. In contrast, these rates among Kinh women were 99.2% and 82.1%, respectively (UN Women, 2015).

In ethnic minority areas, women often lack adequate nutritional care and do not receive sufficient rest during childbirth, adversely affecting both maternal and child health. The coverage of antenatal care among ethnic minority women remains lower than the national average. In some ethnic groups, more than 70% of women give birth at home, including the Hmong, Lo Lo, Ha Nhi, and Phu La. Moreover, ethnic minority households tend to allocate a disproportionately higher share of their income to healthcare services compared to Kinh households, often exceeding their financial capacity (Ministry of Health, 2015).

Among ethnic minority women, the practice of not attending regular antenatal check-ups during pregnancy remains prevalent, with many relying on natural childbirth. This trend is particularly common in remote and isolated communes, where access to healthcare facilities is limited due to geographical distance from town centers. For certain ethnic groups living in these remote areas, poor transportation infrastructure and a lack of available means of travel—often requiring long-distance walking—further hinder access to antenatal care, resulting in unmanaged pregnancy and childbirth. The highest rates of women who do not receive antenatal check-ups are recorded among the Hmong (63.5%), Kháng (55.9%), Dao (41.3%), Hre (30.1%), Bru-Van Kieu (28%), and Ta Oi (11.5%) ethnic groups (National Committee for Ethnic Affairs & General Statistics Office, 2017).

There are significant disparities among ethnic minority groups regarding the proportion of women receiving antenatal care at healthcare facilities and those giving birth at home. Some ethnic groups, such as the Khmer, Cham, and Co Ho, have relatively high antenatal care coverage, reaching up to 84%. Correspondingly, home birth rates among these groups remain low, at 8.2% for the Khmer, 15.7% for the Cham, and 18.4% for the Co Ho. In contrast, among certain ethnic groups in the Central Highlands and the northern mountainous regions, the proportion of women receiving regular antenatal check-ups is below 36%, while home birth rates are alarmingly high, reaching 77.4% among the Hmong. Particularly concerning is the case of the La Hu ethnic group, where

only 9.1% of women attend antenatal check-ups, and home births account for as much as 95%. Ensuring maternal and neonatal safety remains a major challenge due to a severe shortage of trained village-level healthcare workers and a lack of essential medical equipment necessary for safe childbirth (*see table 4*).

Table 4: Percentage of Ethnic Minority Women Giving Birth and Receiving Antenatal Care at Healthcare Facilities

No.	Ethnic Group	Percentage of Ethnic Minority Women (Aged 15–49) Receiving Antenatal Care at Healthcare Facilities (%)	Percentage of Women Giving Birth at Healthcare Facilities (%)	Percentage of Women Giving Birth at Home (%)
Overall		70,9	63,6	36,3
1	Thai	65,4	42,6	57,3
2	Hmong	36,5	22,4	77,4
3	Dao	59,7	54,5	45,3
4	Gia Rai	58,1	47,2	52,3
5	Ba Na	64,5	43,3	56,5
6	Xo Dang	66,3	31,8	68,0
7	Hre	66,9	34,3	65,2
8	Mnong	75,0	50,6	49,1
9	Kho Mu	47,4	26,6	73,3
1	Co	62,4	36,0	63,5
1	La Hu	9,1	4,5	95,1
1	Ro Mam	63,8	46,4	53,6
1	Brau	75,9	55,1	44,9

Source: Vietnam National Committee for Ethnic Affairs & General Statistics Office, 2017. Survey on the socio-economic situation of 53 ethnic minorities, 2015.

One of the key indicators for assessing progress in reducing maternal mortality related to pregnancy and childbirth is the proportion of births attended by skilled healthcare personnel. The prevalence of home births without medical assistance, coupled with multiple contributing factors, has significantly impacted infant and under-five mortality rates among certain ethnic groups, including the Bru-Van Kieu, Co Tu, Ta oi, Chut, and Gie Trieng. According to a survey conducted by the Committee for Ethnic Minority Affairs, the child mortality rates among these ethnic groups are nearly twice as high as the national average, with an infant mortality rate of 14.9‰ and an under-five mortality rate of 22.44%. Challenging living conditions, the long distances to district hospitals, and cultural barriers remain significant obstacles to addressing malnutrition and disease prevalence among ethnic minority children under five. To date, little progress has been observed in improving these conditions (Committee for Ethnic Minority Affairs, General Statistics Office, 2015).

According to ethnic customs, childbirth is considered a significant life event that profoundly impacts daily life and health, requiring strict adherence to various traditional taboos and practices during pregnancy and delivery. Consequently, some ethnic minority groups prefer home births to align with their cultural traditions. Among the Hmong people, women in labor are required to give birth in a secluded room within the house, witnessed by family members, as part of a spiritual ritual acknowledging the newborn as a new member of the community. As a result, despite having access to commune health stations, most Hmong women continue to give birth at home. For the Bru-Van Kieu and Ta Oi ethnic groups in certain areas of Thua Thien Hue and Quang Tri provinces, childbirth is considered impure. Therefore, women are required to give birth in temporary shelters outside their homes to avoid contaminating their living spaces. This practice remains prevalent, as husbands build makeshift huts next to their homes when their wives go into labor. During childbirth, Bru-Van Kieu and Ta Oi women must deliver their babies unassisted, cut and dress the umbilical cord by themselves, perform personal hygiene, and take care of their newborns without external support.

3.3 Adolescent Pregnancy and Preterm Birth, low Birth Weight

Adolescent pregnancy is also linked to economic status, place of residence, and ethnicity, with higher rates among the poorest quintile and among women in the Northern Midlands and Mountainous Areas and the Central Highlands. These regions have a high concentration of ethnic minorities and an adolescent birth rate approximately three times higher than in other areas due to the prevalence of early marriage and child marriage practices (GSO, UNICEF, 2015). According to the birth registry of Sung Mang Commune Health Station, among the 77 childbirth cases of Dao women in Sung Mang Commune, Meo Vac District, in 2016, 29 women were under the age of 19 (adolescents). Among these 29 mothers, three had already given birth to their second child before turning 19. Additionally, as many as 18 girls aged 16 or 17 had given birth to their first child. Due to early marriage, pregnancy, and childbirth during adolescence, these mothers often lack basic knowledge about reproductive health and rely heavily on the advice and guidance of older women in the family. Their reproductive health and nutritional care practices are largely dependent on others, and they have limited knowledge or autonomy in making personal decisions regarding their well-being.

According to field surveys conducted in several localities, the incidence of preterm birth and low birth weight is relatively high in upland districts, particularly in those classified as extremely difficult under the Government's 30a Program.

"A Luoi District is a highland district of Thua Thien – Hue Province. In recent years, low birth weight among newborns and the miscarriage rate among mothers have been quite common in the area. Many cases of preterm birth occur when the mother is an adolescent. Notably, in recent years, the rate of preterm birth has surged, leading to a significantly high neonatal mortality rate" (Group discussion at A Luoi District Health Center).

"In my village, there is a tradition of early marriage. Girls as young as 14 or 15 have already given birth. In my community, some households have teenagers who have given birth at a very young age, having three or four children in a row. If they can't work to earn a living, their maternal grandmother takes care of babies. She gets frustrated—while other people bring home money, her own daughter just comes back pregnant. After giving birth, they have nothing to eat, not even enough rice. Some families survive only on salted food. Very few households can afford meat after childbirth. If they do, it's just for one meal right after delivery, and then it takes months before they can eat meat again" (In-depth interview, female, Xo Dang ethnic group, 42 years old, Dak Lak)

It is evident that maternal healthcare during pregnancy, childbirth, and neonatal care is significantly influenced by cultural perceptions and traditional practices of ethnic groups. Fundamental indicators such as attending at least four prenatal check-ups during pregnancy, giving birth at medical facilities, and ensuring timely and complete immunization for children depend not only on household economic conditions and government healthcare support policies but also largely on the awareness and behavioral changes in healthcare practices among ethnic minority communities, particularly among men as the heads of households.

3.4 Early Marriage

"Early marriage refers to the act of getting married when either one or both parties have not yet reached the legal marriage age as stipulated in the 2014 Law on Marriage and Family (under 20 years old for males and under 18 years old for females). Early marriage can lead to difficulties for young couples in securing a stable life for themselves and their children, as well as negatively impact maternal and child health due to early childbirth.

Early marriage is a reality in Vietnam, and ethnic minority groups have a higher early marriage rate than the Kinh majority. According to the 2015 survey on 53 ethnic minority groups, the overall early marriage rate among these groups in Vietnam was 26.6%.

The Results of the Survey on the Socio-Economic Situation of 53 Ethnic Minority Groups in Vietnam, 2015 show that some ethnic minorities have extremely high early marriage rates (above 50%). These include the O Du at 72.73% (72.73% for both males and females), the Hmong at 59.66% (66.19% for males and 53.46% for females), the Xinh Mun at 56.34% (61.25% for males and 51.35% for females), the La Ha at 52.76% (56.43% for males and 49.35% for females), as well as the Ro Mam and the Brau, both at 50%. Ethnic minority groups with early marriage rates ranging from 40% to 50% include the Lu, Co Lao, Mang, La Hu, Kho Mu, Lo Lo, Ha Nhi, Si La, Gia Rai, Phu La, Chut, Khang, and Chu Ru.

The survey results of the research project "Key Issues of Gender Equality in Ethnic Minority Areas of Vietnam (2018-2021)" indicate that a significant proportion of ethnic minority people still marry below the legal age

(under 20 for males and under 18 for females). Specifically, the proportion is 23.7% for males and 19.2% for females. Notably, the rate of underage marriage is significantly higher among patrilineal ethnic groups compared to matrilineal groups, for both men and women. A comparison of marriage periods reveals a progressive shift towards later marriages for both genders. However, the decline in the rate of underage marriage is more pronounced among men than women. The difference in underage marriage rates from the 1969-1986 period to the 2011-2019 period is approximately 15 percentage points for men but only around 6 percentage points for women.

Table 5: Percentage of Women Married at Age 17 or Younger and Men Married at Age 19 or Younger by Social Groups

Social Group	Male	N	Female	N
Overall	23,7	2872	19,2	2875
Ethnic Group	***		***	
Patrilineal	30,6	1799	23,8	1804
Matrilineal	12,2	1073	11,4	1071
Marriage Period	***			
1969-1986	33,6	289	24,0	288
1987-2000	23,6	948	19,1	946
2001-2010	24,7	916	19,0	915
2011-2019	18,7	717	17,6	723

Note: Statistical Significance Level: ***P<0,001

Source: Survey Data from the CTD T 21.17 Project, 2018-2019

Child Marriage Among Ethnic Minority Groups: the Survey on the Socio-Economic Situation of 53 Ethnic Minority Groups in Vietnam, 2015 revealed that there were still 2,991 cases of ethnic minority children under the age of 16 who had married. Among them, the number of girls was 3.4 times higher than that of boys (685 boys and 2,306 girls). A total of 42 out of 53 ethnic groups had cases of child marriage. Among these, six ethnic groups had over 100 cases, 13 ethnic groups had between 10 and 100 cases, and 23 ethnic groups had between 1 and 10 cases of child marriage. The survey data from 2018-2019 shows that, overall, approximately 2.0% of males still married at a child age. However, there has been a gradual decline from the 1969-1986 marriage period to the present. During the 2011-2019 period, only 0.7% of males married at a child age, compared to 4.4% in the 1969-1986 period.

3.5 Domestic Violence

The results show that both husbands and wives can be victims of domestic violence. However, violent acts against wives tend to be more severe, as the majority of physical violence cases involve wives as the victims.

Table 6: Husband-to-Wife and Wife-to-Husband Violence in the Past 12 Months (%)

	Violence Committed by Husband Against Wife	Violence Committed by Wife Against Husband
1. Insulting or humiliating	12,5	10,4
2. Threatening or intimidating in any way (such as glaring, yelling, destroying property, or threatening to use a weapon)	13,4	9,7
3. Slapping, hitting, punching, kicking, pushing, choking, pulling hair, or throwing objects	5,9	1,8
4. Using force to coerce sexual intercourse when the other person has refused	0,9	0,3
5. Using or taking part of the other person's income/savings without their consent	1,8	0,6
6. Preventing contact with friends	1,7	2,6

	Violence Committed by Husband Against Wife	Violence Committed by Wife Against Husband
7. Restricting contact with one's own family	0,5	0,6
8. Refusing or preventing the use of contraceptive methods	0,4	0,3

Source: Survey data from the CTD 21.17, 2018-2019 and the Ministry of Culture, Sport and Tourism of Vietnam

The dual intensity of violence affects both wives and husbands. Regarding violence committed by husbands against wives, the number of violent acts experienced ranges from a minimum of one to a maximum of seven. Specifically, 13.5% of women experienced one violent act, 5.6% experienced two acts, and 2.2% experienced three acts. The number of women who suffered four or more violent acts is very low (below 1%).

By ethnic group, psychological violence is more prevalent among matrilineal groups, while economic violence is more common among patrilineal groups. The other two types of violence show no significant differences. By province, psychological violence occurs most frequently in Dak Lak (46.0%), while physical violence is most prevalent in Hue (11.7%).

Wives who earn more than their husbands are significantly more likely to experience physical violence from their spouses compared to those whose husbands earn more or those with equal incomes. The corresponding rates are 12.1%, 5.2%, and 5.4%, respectively. Theoretically, a higher or equal income should enhance a woman's economic status, which, in turn, could reduce her risk of experiencing violence. However, the findings of this study do not support this assumption.

This phenomenon can be explained by deeply rooted traditional gender roles and family responsibilities that continue to persist. Socioeconomic changes have contributed to enhancing the wife's role in economic activities—something that was not common in the traditional family structure. However, husbands have not been able to adapt accordingly, as they remain heavily influenced by deeply ingrained patriarchal norms, including the belief in 'men as breadwinners and women as homemakers.' The expectation that men should be the primary financial providers for the family creates a sense of displacement, leading to negative reactions, including violent behavior toward their wives.

4. Remarks

Vietnam has made considerable efforts in implementing the Millennium Development Goals (MDGs) and has achieved notable progress. However, in practice, challenges remain in fully meeting these goals and fulfilling the commitments outlined in the Beijing Platform for Action on gender equality. Several key issues in Vietnam still require attention, including the following

Healthcare is always recognized as one of the key indicators of human development. Despite significant government attention and effective support policies, healthcare for ethnic minorities still faces many challenges. Maternal healthcare, home births, and child care remain particularly problematic. The percentage of ethnic minority women receiving prenatal check-ups and giving birth at medical facilities remains very low, with considerable disparities among different ethnic groups. In some communities, the shortage of skilled birth attendants is severe. Therefore, investing in healthcare support and training, including village health workers and skilled birth attendants, is crucial. Moreover, maternal and newborn care, as well as childhood immunization, are often influenced by the decisions of the male head of the household. This reality makes it difficult to achieve comprehensive healthcare coverage and meet basic maternal and child health targets in ethnic minority regions

Early marriage and consanguineous marriage still occur, although their prevalence has declined. Notably, the rate of early marriage is higher among patrilineal ethnic groups for both men and women. Domestic violence remains an issue, with violence against wives being more severe, particularly physical violence. Lower living standards are associated with higher occurrences of domestic violence. The dual burden of household chores and the need to earn income outside the home contributes to stress among women, sometimes leading to violent behavior toward their husbands. A key factor driving both husband-to-wife and wife-to-husband violence is alcohol intoxication. Reducing excessive alcohol consumption is one of the crucial measures to prevent domestic violence in ethnic minority communities.

Ethics Declaration

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript

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Hoa Dang Thi declares that she has no conflict of interest.

Mai Nguyen Thi Tuyet declares that she has no conflict of interest

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Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent: Informed consent was obtained from all individual participants included in the study.

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Embedding Inclusive Gender Equality in an Academic Institution Over Time: A Case Study

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Abstract: This case study outlines and explores how we have leveraged a gender equality charter framework (Athena Swan) to progress and sustain culture and organisational change within a university context in Ireland. Addressing and progressing gender equality (GE) in higher education institutions (HEIs) and research performing organisations has been a focus at European Commission and Union levels and manifests through a range of reports, research funding eligibility requirements and awards. At a national or European Union Member State level a range of stimulants and requirements have been instigated to further develop this agenda, and state targets have been put in place that all Irish HEIs must meet, including, for example, a target of 40% female full professors by 2024, gender balance on key decision-making committees, and obligations to report annually on our Gender Pay Gap. This case study on Trinity College Dublin, an inaugural European Commission Sustainable Gender Equality Award recipient (2023) and an Athena Swan Institutional Silver Award holder (2023), outlines the experiences, results, challenges and impacts of implementing our Gender Equality Plan (GEP) at both institutional level and across our distributed university (3 Faculties, 24 Schools, and across all professional services). It adopts a national and European policy into practice approach where the macro-level drivers are unpacked at local/university level to clarify the operationalisation approach required and implemented and the subsequent ramifications, both positive and negative. We emphasise how alignment of school-level Athena Swan work with institutional strategies is key to progress (e.g. moving from 12% female full professors in 2008 to 37% in 2024, and the election of the first female Provost and President in 2021). This is explored alongside the adoption of internal review processes to further support quality control, involving the Equality, Diversity and Inclusion (EDI) Office, Human Resources (HR) and external reviewers, as part of the charter award application process. We introduce the Trinity Athena Swan Champions Network, which serves as a critical peer learning and support source and a community of practice with multiplier effects across the university. In addition, intersectional considerations and changing legislative and funder requirements during this time have required dynamic and creative responses to addressing gender equality within the university.

Keywords: Gender Equality (GE), Academia, Culture Change, Organisational Change, Equality Charters, Gender Equality Plans (Geps).

1. Background

This case study explores the influence of European Union (EU), European Commission (EC), Irish national and other relevant policies and requirements on gender equality (GE) within an academic institution over a decade (2014-2024). A case study approach is adopted, allowing for a deeper understanding of real-life events and processes with purposeful intent. We note an acknowledged potential for subjective bias (Ndam, 2023). Our study outlines policy and funding contexts that have acted as stimulants to progressing GE and examines the impacts and challenges over time. It utilises a policy into practice lens where the macro-level policy and compliance frameworks are illustrated by activities and actions at local, or micro level, within the university context to connect both realms and showcase practical examples of policy into practice progress over time. The operationalisation of measures through the utilisation of a national/international GE charter framework are examined alongside consideration of how charter revisions in 2021 required re-orientation and expansion of the work at an institutional and national level. The utilisation of institutional and research funding eligibility through adherence to and attainment of charter related awards are reviewed, and we describe the impacts, changes and ongoing efforts in this process. Based in a highly competitive organisational environment which relies on international rankings, securing competitive research funding streams, and ensuring research impact, in addition to attracting and teaching students, we consider how we approach the goals of sustaining GE initiatives and embed them in practice. Future goals and intentions for an expanded and intersectional approach to GE are also presented. Finally, maintenance, continuous improvement, and expansion efforts must be resourced, recognised and valued. We outline how this is addressed currently and explore how this may develop, alongside other areas requiring research, financial support and attention. The limitations of this case study are articulated, including the context of the study (a university setting), potential for self-reporting bias and the resource limitations with the Irish public higher education (HE) sector.

2. Changing Policy in Ireland

The national HE policy terrain in relation to GE, with related targets and annual reporting to the state funding body, the Higher Education Authority (HEA), has shifted exponentially since 2014. The seminal HEA National Review of Gender Equality in Irish Higher Education Institutes (2016), presented a vision and rationale for intensive efforts to accelerate GE in HEIs alongside recommendations and targets. The Review (ibid.) utilised a literature review, including grey literature, and an analysis of academic staff data disaggregated by gender, pay grade, contract type and discipline. The findings pointed to stark endemic inequalities in relation to GE in the sector and recommended substantial activities and actions to rectify this. The Review strongly positioned gender action plans as a key component of work towards GE and introduced the requirement for HEIs to achieve an Athena Swan institutional award by 2019 (ibid.).

The UK Athena Swan Charter's original aim was to promote and support GE for women in academia, with an initial focus on Science, Technology, Engineering and Mathematic (STEM) areas. This subsequently expanded to all faculties and subject areas, opening up to include professional, research and support staff working in HE settings. In 2015, prior to the Review, the Athena Swan Charter had been launched in Ireland as a pilot project for three years, but now the expectation was that HEIs would adopt the Charter principles and apply for awards (Drew & Canavan, 2021). To strongly incentivise this, Irish state research funding agencies were recommended to seek Athena Swan award acquisition as a requirement for research funding grants: this was confirmed as a requirement in the subsequent National Gender Action Plan 2018-2020: Accelerating Gender Equality in Irish Higher Education Institutions (HEA, 2018). Within three years, the landscape for HEIs in relation to advancing GE had substantially shifted, GE was now firmly on the agenda of the Irish state funding agencies, the Department of Education and the HEI sector.

The HEA commissioned a second review in 2022, which notes that Athena Swan is now embedded within the Irish HEI sector and recommended continuation of this approach. It also notes the revised Charter for Ireland has a broader EDI scope, and new annual reporting requirements on related EDI work that HEIs provide to the HEA. The success of the Athena Swan Charter in Ireland was linked to the requirement to hold an Athena Swan award in order to be eligible for research funding by the key Irish state funders including the Environmental Protection Agency, Health Research Board, the Irish Research Council, and Science Foundation Ireland since early 2020 (HEA, 2022).

3. Developments and Compliance Changes

Whilst the HEI and GE landscape was changing in Ireland, additional changes were also contemporaneously in development at European Union (EU) and Commission (EC) levels. As a result, the adaptations occurring in Ireland as outlined above, aligned with similar requirements emerging in relation to EC Horizon Europe research funding. From 2022, the EC implemented a requirement to have a Gender Equality Plan (GEP) in place prior to applying for Horizon Europe funding. This approach was designed to accelerate structural change. This eligibility condition entered into force in 2022, following a 12-month period of outreach, promotion and training from the EC (EC, 2024). There are four mandatory requirements and five recommended areas that a GEP must contain - these have supported movement towards a pan-European shared understanding of a GEP and has allowed for comparability between HEIs and research performing organisations (RPOs). The four mandatory GEP components are: (1) must be a public document; (2) have dedicated resources; (3) incorporate data collection and monitoring; and (4) be supported by training and capacity-building within the institution (EC, 2022). Concern around maintaining access to the EU's key multi-annual funding programme for research and innovation valued at over €94 Billion, or, being deemed ineligible or non-competitive in research funding applications, provided additional impetus to GE work in HEIs.

The 2021 review of the Athena Swan Charter incorporated these EC requirements and as a result, achievement of an Athena Swan award and the publication of an accompanying gender action plan by research performing institutes (RPOs) serves as a proxy indication of GEP compliance and Horizon Europe eligibility. In Ireland, we could, therefore, draw on a preexisting framework, national support mechanisms including peer learning networks, advice from the Athena Swan Ireland Office as well as workshops and webinars to support GEP development and Horizon Europe GEP compliance.

In recent years the Council of the European Union's rotating Presidency holders have also addressed GE issues in the research and HE settings with a series of Declarations providing attention and future direction for EU member states. These include the Ljubljana Declaration with a focus on mainstreaming GE across research and

innovation arising from the Slovenia Presidency (2021); the Prague Call for Action addressing gender-based violence (GBV) in HE and research from the Czech Republic Presidency (2022), and the Spanish Presidency (2023) which highlighted GBV in academic and research settings through a range of conferences and events (UniSAFE, 2023).

In Ireland, legislative changes and compliance requirements include an emphasis on reporting on the Public Sector Equality and Human Rights duty to the Irish Human Rights and Equality Commission. Since 2021, workplaces are legally obliged to publish an annual gender pay gap report for the Department of Children, Equality, Disability, Integration and Youth. Annual reporting to Department of Further and Higher Education, Research, Innovation and Science (DFHERIS) on numbers of and supports for staff with disabilities continues as required by the 2005 Disability Act. A substantial new piece of legislation, the Higher Education Authority Act 2022, outlines how each HEI must have an equality statement and the policy of the institution relating to equality, will include GE in all activities of the institution (Irish Statute Book). The HEA launched their revised Principles of Good Practice in Research within Irish Higher Education Institutions in 2022, considering many of the recent changes to the Irish research landscape. The revised Principles included 'Gender Equality and Inclusiveness' for the first time, and HEIs and RPOs in Ireland are expected to adhere to these Principles to promote good practice in research conduct (HEA, 2022). Further, since late 2023, all HEIs are required to commit to anti-racism principles and develop an institutional action plan to address race and ethnic equality. These combined legal and policy changes have expanded the scope, reporting, and compliance requirements within a relatively short space of time. Additionally, EU requirements embed a focus on inclusive GE emphasising intersectional considerations, which we in Trinity aim to incorporate into our institutional EDI work through mixed methods data collection, cross-tabulation of relevant data where numbers allow to ensure confidentiality is maintained and reflecting on the differences between our Schools and Faculties where a range of intersectional considerations can give rise to specific local level actions and interventions.

Against the backdrop of these substantial changes, the Covid-19 pandemic had significant additional implications for the HEI sector. The Coimbra Group noted that several gendered impacts due to the pandemic on research. Increased caring responsibilities, disproportionality experienced by female staff, had knock on effects on publication outputs and research grant applications (2021). The closure of archives, libraries and laboratories also impacted HEI staff and had a particular impact on women and early career researchers. Many HEI or workplace responses to the pandemic did not incorporate a gender aware viewpoint (EC, 2023). However, some outcomes in work practice changes, including remote or blended working, online conferences and meetings, etc. have been positive and may support work-life balance over time, many of which have been transposed into Trinity HR policies and work practices (ibid.).

4. Charter Award Attainment and Progress to Date in Trinity

Trinity was one of the first HEIs in Ireland to attain an Athena Swan award and was an active advocate for bringing the charter and awards to Ireland in 2015, alongside the University of Limerick and University College Cork (McIlrath et al, in press). The initial Athena Swan awards process, piloted by the HEA, has since been mainstreamed. The revised 2021 Ireland Charter aimed to support HEIs at institutional and local (school, department, unit) levels in impactful and sustainable GE work and progress across the nine equality grounds enshrined in Irish legislation. Trinity continues to achieve Athena Swan awards. Today, Trinity holds an Institutional Silver award (awarded 2023). Four of our 24 Schools hold Silver awards; 15 hold Bronze awards. These awards are across all three College faculties. One professional unit, Global Engagement, secured a Bronze award in early 2024, becoming the first professional unit to achieve an Athena Swan award in Ireland.

Each Athena Swan award application is precipitated by an 18-24 month process and entails substantial data collection, analysis, consultation and preparation. Under the revised Charter, an award is granted for a five-year period and then an application can be submitted for renewal or progression to a higher tier award, all through a rigorous peer-reviewed application process. This 5-year cycle provides a realistic time frame to demonstrate progress and impact in a sustainable manner. There are three levels of Athena Swan awards; Bronze which identifies challenges revealed through a robust self-assessment and outlines activities and actions to address these challenges. A Silver award is granted, usually after two successive Bronze awards, and based on a record of ongoing sustained activity relevant to the Charter and clear evidence of impact in relation to the action plan or GEP. A Gold level award (not yet achieved in the Republic of Ireland), requires a significant record of activity and impact in relation to GE and requires a HEI to act as a leader and as a beacon to others.

Trinity was awarded an institutional Bronze award and three Bronze awards (Schools of Chemistry, Physics and Natural Sciences) in 2015. Much of the support for these applications was driven by an EC Seventh Framework Programme (FP7) research grant to the INTEGER Project, led in Trinity by Professor Eileen Drew of WiSER (Centre for Women in Science and Engineering Research). WiSER became the Trinity Centre for Gender Equality and Leadership (TCGEL) in 2017 and leveraged a second Horizon 2020 grant for the SAGE project, which also supported Athena Swan work.

The University Athena Swan Committee (UASC) is responsible for overseeing Trinity's Athena Swan objectives, alongside oversight of the implementation of our institutional action plan. The UASC meets approximately four times per academic year. Membership includes EDI Office staff, the Head of Human Resources (HR), Faculty Deans, and representation from other key decision making and compliance offices across Trinity in addition to student representation.

By 2019, Trinity had secured an institutional Bronze award and increased the number of Schools holding Bronze awards to seven, including three in the Faculty of Arts, Humanities and Social Sciences. The changes required by the 2016 HEA Gender Equality Review precipitated new Vice President of Equality, Diversity and Inclusion (VPEDI) roles in Irish HEIs. With an initial appointment to this (then part-time) role in Trinity in 2019, an EDI Office was established, subsequently Athena Swan work migrated from TCGEL to the EDI Office, thus mainstreaming the activity. Given the scope, volume and growth in work related to Athena Swan maintenance and development within Trinity, a specialist EDI Data Analyst and Athena Swan Officer was appointed in autumn 2020. In addition to a changed and expanded Athena Swan Charter in 2021, Trinity elected its first female Provost and President since the foundation of the University in 1592 by Queen Elizabeth I. The new Provost reconfigured the VPEDI role to a full-time seconded post and publicly endorsed the new Athena Swan Ireland principles in late 2021.

In 2022, Trinity was named an inaugural EU Sustainable Gender Equality Champion Award, following from a competitive process. The award was presented by then Commissioner for Innovation, Research, Culture, Education and Youth at a ceremony for Gender Equality Champions at the European Commission on 8 March 2023, International Women's Day. This recognised Trinity's demonstration of significant, sustained activity and achievement through the implementation of a GEP over time. The Minister for Further and Higher Education, Research, Innovation and Science in Ireland congratulated award winners, commenting on the inspirational achievements of the winning universities, three of four of which were Irish HEIs. Securing this award drew attention within and beyond Trinity to the enormous efforts and progress in relation to GE, much through the Athena Swan Charter and awards processes, and galvanised the EDI Office and UASC to progress and submit a successful silver level institutional Athena Swan application some months later.

5. Research and Activity to Support Award Attainment in Trinity

The self-assessment process to gather and generate data for an Athena Swan award application is substantial. For each application, data across three years regarding staff and students is required, drawn from data collected by HR and Academic Registry units. A mixed methods approach is leveraged, drawing on all-staff confidential surveys which provides feedback from staff. The survey is subject to research ethics committee approval entailing sign-off from the Trinity Data Protection Officer. It is disseminated online, promoted during a one-month period to encourage participation. Paper copies are also available for staff on request. The first Athena Swan staff survey circulated to academic staff only garnered a 12% response rate in 2015. In 2020 this survey shared with all staff and achieved a 26% response rate. The 2022 Athena Swan EDI survey secured a 33% response rate; in 2024, 36% rate was achieved. It is important to note that staff numbers grew during this period. The survey focusses on key areas including career progression, workplace culture, bullying and harassment and experiences and perceptions of the working environment. Data from the survey, once cleaned and reviewed to ensure response rates are sufficient to preserve confidentiality, can be utilised for School level Athena Swan applications and compared with overall institutional data, facilitating opportunities to flag areas requiring attention and progress made.

Additional data for the 2023 Athena Swan application came from a HR all-staff wellbeing survey which explored attitudes and experiences in relation to post Covid-19 pandemic experiences. A series of consultations in relation to race and ethnic equality with staff and students provided qualitative findings we could draw on. Other data we drew on included an examination of female research grant applications and success rates (Trinity Research Office) and a comprehensive review of art within Trinity by gender of artist and sitter for portraits dating back to the foundation of the College in 1592. Gender Pay Gap data, provided by HR was also included. External

benchmarking data from the HEA and other sources assist in contextualising Trinity data and in setting realistic targets within our action plan. Attention to enhancing and supporting staff diversity data, particularly in relation to age, ethnicity and disability to better understand how we can support career progression through an intersectional lens across the career life-course has commenced. However, progress is slow in relation to building trust in data collection systems to improve disclosure/sharing rates – a sectoral challenge. In relation to analysis of institutional survey data differential rates of disclosures of negative workplace experiences are higher when individual equality grounds are incorporated into analysis, providing an imperative for intersectional considerations to be built into both prevention and response mechanisms.

Since 2023, prior to any Athena Swan submission from Trinity, a comprehensive phased review of each application is undertaken co-ordinated by the EDI Data Analyst and Athena Swan Officer and involves EDI Office staff, Head of HR and other senior HR staff and the Associate Vice Provost for EDI. This process assists with quality control and supports alignment with the Trinity institutional GEP. This ensures a coherent and complementary approach to GE and EDI work across College and adherence to equality and employment legislation and requirements. Additionally, we draw on external expert peer reviews. At institutional level the UASC provides oversight on application content and action plan development and implementation, including selection of priority actions. EDI and HR work very closely together to develop actions to achieve HEA targets, and we collaborate on the work needed to achieve targets. Of note is the range of approaches to support increasing the number of female full professors from 12% in 2008 to 37% in 2024 (note the current benchmark for this in HEIs in Ireland is 32%). This required multi-faceted and novel approaches to advance towards the 40% HEA target for Irish HEIs.

At School/Unit level, Athena Swan work is led by Champions and overseen by a local Self-Assessment Team (SAT). In addition to the supports the EDI Office supports provided, a unique Athena Swan Champions Network exists in Trinity, established in 2019. This Network meets monthly comprising Athena Swan Champions from each School/Unit engaged in the Athena Swan process. It provides a communication channel between Schools/Units, the UASC, and EDI Office. It acts as a peer-support network for those working on and advancing GE across Trinity and embedding Athena Swan principals at local level. Importantly, the Chair of the Network is a member of the UASC ensuring regular feedback opportunities. The Network also allows for good practices and local level actions to be shared and multiplied for greater traction and progress across Trinity.

6. Recognition, Visibility and Reward for Gender Equality Work

The Athena Swan Charter requires HEI leadership to commit publicly to a number of principles including:

“Principle 1: adopting robust, transparent, and accountable processes for Athena Swan work, including..... . distributing tasks appropriately, formally recognising and rewarding work and ensuring there is not a disproportionate burden on underrepresented groups.”(Advance HE, 2021)

However, there are challenges for this aspect of the work noted particularly by the EC and Royal Irish Academy (RIA) and articulated as a sectoral issue during the first National Equality Charter Symposium hosted by Trinity (Sy et al, 2023). The EC notes that there are insufficient human and financial resources to develop and progress GEPs within organisations, with often substantial bureaucratic challenges to be overcome. Women primarily lead this important work within HEIs and RPOs which can lead to negative consequences in relation to research and academic work, something observed in Trinity, and an issue also noted by the EC (EC, 2024). A RIA report stated that the Athena Swan processes are time-consuming and much of this work is not taken into account by HEI leaders and may lead to staff providing time above and beyond their roles to ensure institutional GEP compliance (2021). The EC is planning increased monitoring and GEP compliance checks, which could include sanctions or research funding withdrawal as potential outcomes, and this could act as an incentive for greater attention to supporting and rewarding GE and EDI work.

7. In Conclusion

This case study has presented and discussed a range of influential drivers for GE, and more broadly, equality focussed work within and beyond a leading Irish university. There are potential inherent biases and limitations to this case study given the context of self-reporting inherent to the processes described above. This includes reports to external funders and award review panels as part of the Irish and EU policy approaches to GE and EDI in the HEI and RPO contexts, as outlined above.

We outlined the Irish national context, where specific stimulants and activators to prime attention to GE have been introduced. We also looked at the range of rewards and sanctions for this work and related achievements at national and EU levels. Catalysts at EU level have amplified ongoing work in Ireland and created specific European research funding eligibility requirements which have synergised with state efforts. This has led to significant advancements and progress across a relatively short time frame demonstrating the impact of connecting funding eligibility to GE activity and progress.

However, the burden of this work tends to land on women and sustaining it will require continued attention to ensure it does not re-amplify or expand existing inequalities. Intersectional GE approaches are emergent and will require capacity building and consideration (EC, 2024; Sy et al, 2023). Specific attention is required to ensure that unequal expectations around driving and implementing intersectional EDI work does not become the burden of those with intersectional life experiences – equitable distribution of, and responsibility for, undertaking the work of systemic change is required (Kangataran et al, in press; McCarthy et al, in press). Finally, GE and EDI work needs ongoing resourcing, sustained support and celebration of achievements: the work is inherently iterative. Given the fiscal constraints within the Irish publicly funded HE sector (Irish Universities Association (2024), DFHEIRS (2022)) doing this vital work within an over-stretched fiscal environment inhibits the potential for fully embedded sustained systemic change in universities. Attention to these concerns are required to ensure continued advancement, sufficient resourcing and to avoid retrograde developments.

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Succession Planning to Address the Gender Gap in Executive Positions: Insights from Iceland

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Abstract: The World Bank Report on Women, Business, and the Law 2024 highlights that the global gender gap in the workplace remains a persistent challenge, with no country yet offering women equal opportunities in the labour market. Closing this gap could potentially boost global GDP by over 20% (The World Bank, 2024). Iceland, often regarded as a global leader in gender equality, has achieved notable progress, including a historic milestone in November 2024 when women secured the majority of government ministerial positions. However, a significant gender disparity persists within Iceland's corporate leadership. Men currently hold 79% of CEO positions and occupy 75% of corporate board seats, with only four women serving as CEOs of companies listed on Nasdaq Iceland as of January 2025 (Creditinfo, 2024). Icelandic businesswomen and female board members have identified succession planning (SP) as a critical yet underutilized tool for addressing this gap. This qualitative study, based on in-depth interviews with male board members of all 23 listed companies in Iceland, explores their experiences and attitudes toward succession planning as a means to reduce gender disparities in executive positions. The study addresses the research question: What are the experiences and attitudes of male board members of listed companies toward implementing succession planning to close the gender gap in top management positions in Iceland? Findings indicate a general lack of awareness and understanding of succession planning among male board members. However, those with experience in SP acknowledge its potential to facilitate smoother leadership transitions and promote diversity when strategically implemented. A key contribution of this research is its unique focus on male perspectives within Icelandic corporate governance—providing insights into their perceived barriers and opportunities in utilizing succession planning to foster gender balance. The study also highlights the structural and cultural challenges specific to Iceland, particularly the influence of informal recruitment networks, which may unintentionally hinder formalized succession initiatives. Furthermore, the paper situates the persistent gender imbalance in business leadership within the broader context of Iceland's political advancements in gender equality. While Icelandic politics has made significant strides—exemplified by the recent ministerial milestone—corporate leadership lags behind. This discrepancy may be attributed to factors such as legal frameworks, public accountability, and political quotas, which have driven progress in politics but are largely absent in corporate governance. Additionally, the research considers sectoral variations, as the companies analyzed span industries such as finance, energy, retail, and technology, which may have differing levels of gender representation and approaches to succession planning. These findings contribute to the growing body of literature by emphasizing the importance of strategic commitment and cultural adaptation in the successful implementation of SP as a diversity tool. They also underscore the need for targeted policy interventions and corporate governance reforms to bridge the persistent gender gap in business leadership.

Keywords: Succession Planning; Executive Positions; Equal Opportunities; Board Members; Economic Participation and Decision Making

1. Introduction

During a conference on March 14, 2024, former Icelandic Prime Minister Katrín Jakobsdóttir stated, "Equality is a decision." Achieving gender equality necessitates a collective effort and deliberate actions from various stakeholders. Despite Iceland consistently ranking first in the World Economic Forum's (WEF) Global Gender Gap Index for 15 consecutive years, having closed 93.5% of its gender gap, significant challenges persist within the business sector. In terms of economic participation and decision-making, Iceland is ranked 7th globally. However, when focusing on the representation of women as legislators, senior officials, and managers, the country ranks 44th, highlighting a persistent gender disparity at the highest levels of leadership (WEF, 2024).

Research shows that women in Iceland perceive unequal opportunities in securing executive positions and believe progress is slow (Óladóttir et al., 2024a). Despite Iceland's global leadership in gender equality rankings, the representation of women in top corporate positions remains disproportionately low, with men holding the majority of CEO and board positions in private enterprises (Creditinfo, 2024). Women have expressed concerns that existing efforts are insufficient and that systemic barriers, such as traditional hiring practices and limited access to leadership development opportunities, continue to hinder their advancement (Óladóttir et al., 2019).

To address these challenges, Óladóttir et al. (2024b) have proposed three key measures. First, the introduction of gender quotas for executive boards, aimed at ensuring a more balanced representation of women and men

in leadership roles (Óladóttir et al., 2024b). Second, major investors, including pension funds, are encouraged to incorporate gender diversity criteria into their investment policies, leveraging their influence to drive corporate accountability and cultural change. Third, the implementation of succession planning policies has been highlighted as a crucial tool to systematically identify and develop female talent within organizations, creating clear pathways for career progression and fostering a more inclusive leadership pipeline (Christiansen et al., 2021; Óladóttir et al., 2024b).

These measures collectively aim to accelerate progress toward gender parity by addressing structural inequalities and embedding diversity considerations into corporate governance frameworks. Succession planning (SP) refers to a systematic approach where companies identify and develop potential future leaders to ensure smooth leadership transitions (Cappelli, 2011; Nyberg et al., 2017; Rothwell, 2010; Virick & Greer, 2012). Female board members of Icelandic companies have identified SP as an underutilized tool with the potential to promote gender balance in leadership (Christiansen et al., 2021). This study seeks to provide male board members' perspectives on succession planning and its potential to bridge the gender gap in top management.

2. Literature Review

2.1 The Importance of Succession Planning

Succession planning has been a critical strategy for leadership continuity since Henri Fayol introduced the concept in 1916 (Fayol, 1949). It involves identifying and developing potential successors to fill key positions within an organization, ensuring stability and long-term success (Rothwell, 2010; Calareso, 2013). Effective succession planning fosters talent development, reduces recruitment costs, and enhances organizational performance (Griffith et al., 2019; Mehreen & Ali, 2022).

Studies highlight that succession planning can also address gender diversity by offering women the same opportunities as men to advance into leadership roles (Fernández-Aráoz et al., 2017; Christiansen et al., 2021). When implemented strategically, it ensures gender balance across management levels and prevents biased recruitment practices (van den Brink et al., 2016).

Furthermore, research consistently shows that companies with greater gender diversity in leadership positions tend to outperform those with lower diversity levels in terms of financial performance (McKinsey & Company, 2018; Peterson Institute for International Economics, 2016). For example, McKinsey & Company (2018) found that organizations in the top quartile for executive gender diversity were 21% more likely to experience above-average profitability compared to those in the bottom quartile. Similarly, the Peterson Institute for International Economics (2016) analysed data from nearly 22,000 firms across 91 countries and found that companies with 30% female leaders could see a 6%-point increase in net profit margin. These findings suggest that investing in gender-inclusive succession planning is not only a step toward equity but also a strategic advantage for companies aiming for financial growth.

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Moreover, research has consistently shown that increasing gender diversity in leadership positions is not only a matter of social equity but also a business imperative. Companies with greater gender diversity in top management have been found to outperform their less diverse counterparts, reporting higher profitability and improved financial performance (McKinsey & Company, 2020; Credit Suisse, 2016). This is attributed to enhanced decision-making, broader market insights, and stronger innovation capabilities that diverse leadership teams bring to organizations (Hunt et al., 2018; Peterson Institute for International Economics, 2016). Therefore, integrating gender diversity considerations into succession planning is not only a step toward equality but also a strategic move that can positively impact corporate financial performance.

2.2 Gender Disparities in Leadership

Despite significant progress in gender equality globally, women continue to face considerable barriers in accessing leadership roles. Unconscious biases, which are automatic and unintentional attitudes or stereotypes that influence judgment and decision-making, often contribute to the underestimation of their competencies, leading to their underrepresentation in top executive positions (Ely et al., 2011; Mor Barak, 2015). Iceland, despite being a global leader in gender equality policies, still faces challenges in achieving gender balance in business leadership, with men holding a significant majority of executive positions.

Research indicates that male-dominated networks and informal hiring practices are major contributors to the persistent gender gap in leadership roles (Óladóttir et al., 2022). Icelandic women perceive the progress toward gender parity in executive positions as slow, citing systemic barriers such as traditional recruitment practices and limited access to leadership development opportunities (Óladóttir et al., 2024a). Female board members have pointed to the lack of structured career pathways and mentorship opportunities as key obstacles to their advancement (Óladóttir et al., 2022). Furthermore, the Icelandic corporate culture often favours informal recruitment processes, which disproportionately benefit male candidates and reinforce existing gender imbalances (Óladóttir et al., 2024b).

While gender quotas have led to increased female representation on corporate boards, their impact on executive leadership roles remains limited, emphasizing the need for additional systemic interventions (Óladóttir et al., 2024b). Stakeholders, including investors and policymakers, have called for more structured succession planning initiatives to foster a more inclusive leadership pipeline and address the gender gap in Icelandic business leadership (Óladóttir et al., 2024a). Addressing these challenges requires a multifaceted approach that combines policy reforms, corporate initiatives, and cultural change to create equal opportunities for women in leadership positions.

2.3 Succession Planning as a Tool to Address Gender Inequality

Succession planning (SP) can play a crucial role in addressing gender disparities by systematically identifying and preparing women for leadership positions. A well-structured SP process ensures that talent pipelines are diverse and inclusive, offering equal opportunities for both men and women to advance into executive roles. Studies have shown that organizations with formalized SP programs report higher gender diversity in leadership teams, improved performance, and greater resilience in times of transition (Tamunomiebi & Okwakpam, 2019). Companies such as Apple, BMW, and Unilever have demonstrated success in using SP to increase female representation in top management positions, highlighting the strategic importance of fostering an inclusive leadership pipeline (Donner et al., 2017; Reitsma, 2001; BMW Group, 2023).

Despite the proven benefits, the adoption of SP as a tool to promote gender equality remains inconsistent across industries and regions. Resistance to implementing structured succession policies often stems from misconceptions about their necessity, a lack of awareness regarding their long-term value, and concerns about disrupting traditional hierarchical structures (Arnold & Loughlin, 2019; Christiansen et al., 2021). Many board members and senior executives perceive SP as an administrative burden rather than a strategic priority, which can hinder efforts to establish fair and transparent career progression frameworks (Groves, 2007; Griffith et al., 2019).

Research has also identified cultural factors as a significant barrier to the widespread adoption of SP initiatives. In Iceland, for example, the corporate culture tends to favour informal networks and personal connections in leadership appointments, which can limit the effectiveness of formal succession planning efforts (Óladóttir et al., 2024b). These informal structures often exclude women, reinforcing existing gender imbalances in executive positions and making it more challenging for them to gain the necessary experience and visibility to ascend to top leadership roles (van den Brink et al., 2016).

Furthermore, effective SP requires a proactive approach from both management and corporate boards to identify high-potential female candidates and provide them with the necessary development opportunities, such as mentorship programs, leadership training, and exposure to strategic decision-making processes (Virick & Greer, 2012; Ely et al., 2011). Without a deliberate focus on gender diversity, succession planning efforts may inadvertently perpetuate existing biases and fail to create a truly inclusive leadership pipeline (Óladóttir et al., 2022).

This study aims to explore male board members' perspectives on the challenges and opportunities associated with implementing SP to address gender inequality in leadership positions. By understanding their experiences

and attitudes, the research seeks to identify potential strategies for overcoming resistance and fostering a culture where SP is recognized as an essential tool for achieving gender balance in executive roles. The findings are expected to contribute valuable insights into how Icelandic companies can leverage succession planning to bridge the gender gap and create a more equitable corporate landscape.

3. Methodology

3.1 Research Design

The study employed a qualitative research design to explore the experiences and attitudes of male board members of listed companies in Iceland towards succession planning. A qualitative approach was deemed appropriate as it allows for an in-depth exploration of participants' perceptions and experiences (Esterberg, 2002; Merriam & Tisdell, 2016). The study followed a grounded theory approach to develop insights based on the participants' lived experiences and perspectives (Holloway & Schwartz, 2018).

3.2 Participant Selection

Purposive sampling was used to identify and recruit participants for the study. The target population comprised male board members of all 23 listed companies on Nasdaq Iceland as of February 2023. The listed companies represented a variety of industries; industrial goods and services, real estate, telecommunication, food, beverage and tobacco, fisheries, insurance, travel and banking. Initial contact was made via email, explaining the purpose of the study and inviting participation. A total of 22 board members agreed to participate, ensuring representation from all listed companies. The participants' age ranged from 40-71 years, with an average age of 57 years. More than half of the participants were chairmen of the board. Participants held varying levels of board experience, ranging from one to 22 years, with an average tenure of 4.75 years. Due to the small size of the Icelandic market, giving additional details on individual participants is impossible without endangering their anonymity.

3.3 Data Collection

Data were collected through semi-structured, in-depth interviews conducted via Microsoft Teams. This method provided flexibility while allowing participants to express their thoughts openly (Esterberg, 2002). The interviews lasted between 26 to 82 minutes and were recorded with participants' consent. An interview guide was developed based on existing literature and included key topics such as perceptions of succession planning, barriers to implementation, and gender diversity in leadership.

Each interview followed a conversational flow, allowing for follow-up questions to explore emerging themes. Participants were assured of confidentiality, and informed consent was obtained before the interviews commenced (Holloway & Schwartz, 2018).

3.4 Data Analysis

Thematic analysis was employed to analyze the interview transcripts systematically (Strauss & Corbin, 1998). The process involved several steps, outlined in Table 1.

Table 1: A sample table

Familiarization	The researchers transcribed and reviewed all interviews to gain an initial understanding of the data.
Coding	Open coding was applied to identify recurring words, phrases, and concepts.
Theme Identification	Codes were grouped into broader themes that reflected key patterns across the data.
Reviewing Themes	Themes were refined and reviewed to ensure alignment with the research questions.
Final Analysis	The refined themes were interpreted in relation to existing literature and the study's objectives.

Throughout the analysis, constant comparison techniques were used to ensure consistency and credibility (Merriam & Tisdell, 2016). The research team engaged in discussions to resolve discrepancies and refine interpretations.

3.5 Ethical Considerations

The study adhered to ethical guidelines to ensure the privacy and rights of participants. Participants were informed about the study's objectives, data handling procedures, and their right to withdraw at any time. All data were stored securely, and identifiable information was removed to maintain anonymity. The study received ethical approval from the relevant institutional review board (Holloway & Schwartz, 2018).

3.6 Trustworthiness and Credibility

To ensure the trustworthiness of the study, several strategies were employed, including member checking, peer debriefing, and maintaining an audit trail. Member checking involved sharing key findings with participants to confirm the accuracy of interpretations. Peer debriefing sessions with research colleagues helped enhance the credibility of the analysis. Additionally, maintaining detailed records of the research process allowed for transparency and replicability (Merriam & Tisdell, 2016; Strauss & Corbin, 1998).

4. Findings

4.1 Knowledge and Awareness of Succession Planning

The findings revealed that many board members exhibited limited knowledge and understanding of succession planning. Several participants acknowledged that their companies lacked structured succession plans, and some were unaware of the concept's broader implications. One participant remarked, "I've never heard of succession planning being formally discussed in our board meetings. We tend to focus more on short-term operational issues."

Despite this, a few board members demonstrated a clear understanding of the benefits of succession planning. As one interviewee stated, "Having a structured plan ensures that we are not caught off guard when key executives leave. It provides stability and allows us to groom talent internally." Moreover, some of the participants demonstrated that they recognized the potential of leveraging succession planning to develop more gender-balanced leadership talent within the organization, "this is simply the best method, to develop and train people in your organization, of both genders of course, but with an emphasis on women."

4.2 Implementation Challenges

Participants identified several challenges in implementing succession planning within their organizations. These challenges included a lack of strategic focus, resistance to change, and concerns about favouritism. One participant noted, "Succession planning is often seen as a bureaucratic process rather than a strategic priority. Many board members are hesitant to commit resources to it."

Additionally, the findings highlighted cultural resistance within Icelandic corporate environments, where informal networks play a significant role in leadership appointments. One participant shared, "In Iceland, personal connections often outweigh formal planning. People tend to promote those they know rather than following a structured approach."

4.3 Gender Considerations in Succession Planning

A significant finding was the perception that succession planning could serve as a tool to address gender disparities in leadership. Some participants acknowledged the need to create more opportunities for women in executive roles. One interviewee remarked, "We need to be more intentional about identifying and preparing women for leadership positions. Succession planning can help us achieve that."

However, scepticism also emerged, with some participants expressing doubts about the effectiveness of formal policies in addressing gender imbalances. A participant commented, "While I support gender diversity, I believe it should happen naturally rather than through imposed quotas or plans."

4.4 Best Practices and Recommendations

Several board members who had experience with succession planning highlighted best practices that could enhance its implementation. These included regular talent reviews, mentorship programs, and clear communication about career pathways within the organization. One participant stated, "We hold quarterly

talent reviews to identify potential leaders and provide them with tailored development opportunities. This proactive approach has helped us build a strong leadership pipeline."

Another recommendation focused on the role of board members in driving the succession agenda. A participant emphasized, "The board must take ownership of succession planning and ensure it is integrated into our strategic planning process."

5. Discussion and Conclusion

The findings of this study align with existing literature on succession planning, emphasizing its critical role in ensuring organizational stability and leadership development (Cappelli, 2011; Rothwell, 2010). However, our study contributes novel insights by examining the Icelandic corporate landscape and identifying specific cultural and structural barriers to effective succession planning.

Our results confirm previous research highlighting the lack of strategic focus and resistance to formalized succession processes (Nyberg et al., 2017; Groves, 2007). Notably, the influence of informal networks and personal connections, which emerged strongly in our study, provides a unique perspective that underscores the necessity for tailored approaches that align with Icelandic cultural norms. The findings suggest that informal recruitment channels may unintentionally hinder the adoption of structured succession planning, reinforcing existing gender imbalances (Óladóttir et al., 2024b).

A key contribution of this study is the focus on gender considerations within succession planning. Prior research suggests that SP can be an effective tool for promoting gender diversity (Virick & Greer, 2012; Christiansen et al., 2021); however, our findings reveal mixed perspectives among Icelandic male board members. While some participants acknowledge the potential of SP to create pathways for women into leadership roles, others remain sceptical, perceiving it as an unnecessary intervention that might interfere with established hiring practices. This scepticism aligns with previous findings that suggest resistance to formalized diversity initiatives often stems from a preference for traditional, informal recruitment methods (Arnold & Loughlin, 2019; van den Brink et al., 2016).

Our study also confirms the findings of Óladóttir et al. (2024a), which highlighted the perception among Icelandic women that progress toward gender parity in executive roles is slow and systemic barriers persist. The current study extends this understanding by providing the perspectives of male board members, many of whom recognized the potential value of succession planning but expressed concerns regarding its feasibility and implementation challenges.

Despite these challenges, best practices identified by experienced board members in our study align with recommendations in the literature. Regular talent reviews, mentorship programs, and strategic commitment from corporate leadership are essential components of successful succession planning (Donner et al., 2017; Reitsma, 2001; Christiansen et al., 2021). These findings suggest that companies should focus on embedding succession planning into their broader strategic frameworks to maximize its potential impact on gender diversity.

The study's findings also underscore the importance of aligning succession planning initiatives with corporate governance structures and investment strategies. Encouraging major investors, such as pension funds, to incorporate gender diversity criteria into their investment policies can provide an added incentive for companies to adopt robust SP processes (Óladóttir et al., 2024b). Such measures could help address board members' concerns by demonstrating the strategic value of gender-inclusive succession planning.

Ultimately, our research highlights that while succession planning holds significant potential for reducing the gender gap in leadership, its success depends on cultural acceptance, strategic prioritization, and commitment from corporate boards. Key stakeholders—including corporate boards, CEOs, policymakers, major investors such as pension funds, and regulatory bodies—play a crucial role in driving the adoption of structured succession planning. Their engagement is essential to fostering gender-inclusive leadership pipelines and ensuring that succession planning becomes an integral part of corporate governance strategies. To drive meaningful change, future efforts should focus on increasing awareness of SP benefits, providing targeted educational initiatives for board members, and fostering a corporate culture that values diversity and inclusivity.

Future research should conduct an in-depth examination of the perspectives of these key stakeholders regarding the implementation of succession planning as a means to promote gender equality in leadership positions within the corporate sector. Additionally, comparative studies across various industries could provide a broader

understanding of the factors influencing the adoption and effectiveness of succession planning. Longitudinal studies would also offer valuable insights into the long-term impact of structured succession planning on gender diversity within Icelandic organizations.

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Gender Equality: Recent Reactions From the CJEU in the Context of the Right to Asylum – Afghan Women’s Case law and the new Taliban Regime

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Abstract: Asylum seekers present their cases in words, but within those words lie the human stories of suffering. Forced to flee, they seek a common space of protection, values, and solidarity in the European Union. To be granted an international protection they must meet legal requirements, demonstrating a causal link between their claimed reasons and the persecution they have suffered or fear suffering. In a Europe where equality is a fundamental value and part of the European soul, it is worth asking whether this gender-based discrimination could be a reason for persecution and justify the right to asylum. This study examines the Court of Justice of the European Union's (CJEU) response to pressing issue concerning Afghan women seeking refuge.

Keywords: Gender Equality; Discrimination; Court of Justice of the European Union; Refugees; Afghan Women.

1. Introduction

The European Union's common asylum policy is an integral part of the Area of Freedom, Security and Justice, which constitutes an EU objective and a shared competence between the Union and the Member States. Outlined in Article 3 of the Treaty on European Union (TEU) (European Union 2007), this policy applies to nationals of third countries seeking international protection within the EU. This field is particularly influenced by European values and fundamental rights, rooted in the principle of solidarity between Member States.

Indeed, under Article 78 of the Treaty on the Functioning of the European Union (TFEU) (European Union, 2007), the Union develops a Common Policy on Asylum and other forms of international protection, aiming to grant uniform protection status to those in need, while upholding the principle of *non-refoulement* – which ensures that no one can be returned to a State or territory where they may face death penalty, torture, or other inhumane treatment or punishment.

The Common European Asylum System (CEAS) is based on the 1951 Geneva Convention (United Nations, 1951) relating to the Status of Refugees and the 1967 New York Protocol (United Nations, 1967), which constitute the cornerstone of the international protection regime. It is worth highlighting that although the Universal Declaration of Human Rights (UDHR) (Pacheco, F., 2018) had already proclaimed the right to seek and benefit from asylum, the 1951 convention did not oblige States to grant asylum, despite enshrining the obligation not to return applicants under Article 33 (United Nations, 1951).

The CEAS took a step forward by establishing common criteria that Member States must comply with and transpose into their domestic legislation, while ensuring the individualised and thorough analysis of each request. To recognise refugee status or another form of protection for an applicant, EU secondary law - Directive (2011/95/EU) (European Parliament, 2011) - established common criteria for identifying people who are effectively in need of international protection, as well as the minimum level of protection to be granted. Similarly, common procedures for granting or withdrawing said statutes were established in another Directive (2013/32/EU) (European Parliament, 2013).

Under Article 18 of the Charter of Fundamental Rights of the European Union (CFREU) (European Union 2016), all individuals who meet the requirements set out in this Directive may acquire the fundamental right to asylum upon recognition of refugee status. If they fail to meet these requirements, they may instead benefit from subsidiary protection, an additional form of protection to asylum. Regarding the determination of the protective scope of various legal instruments that constitute the CEAS, it must be noted that the CJEU is responsible for their correct interpretation. As such it has been tasked with clarifying the meaning of certain key concepts (e.g. act of persecution, personal situation, specific social group, individual threat, serious common crime), a role has carried out in a particularly activist manner (Barata, M. S., & Alves, D. R., 2023; Pacheco, F., & Alves, D. R. 2021).

Built on the unconditional value of human dignity, the common asylum policy respects the rights and principles recognised in the CFRUE. In turn, the Charter is based on specific, non-hierarchical values (Pacheco, F., 2023;

Alves, D. R., & Pacheco, F. 2019), among which we highlight equality, which constitutes the heading of Title III in the context of this discussion. Closely linked to the idea of justice, the principle of equality is not a fluid concept but is of central importance for the realisation of human dignity. Indeed, within the framework of the rule of law, it must be assumed that we are all equal before the law and that discrimination based on various suspect criteria, particularly sex, is prohibited. To this end, the Union must ensure *de facto* equality between men and women, axiologically structured, in all activities. The core question we must now address is this: can gender, in and of itself, constitute a reason for persecution that leads to the subjective right to obtain asylum?

A superficial analysis might lead us to fear that answering this question positively would, at least in the abstract, imply that all persecuted foreign women could benefit from refugee status within European territory, a scenario that would have unsustainable repercussions. However, if we consider that these are women of Afghan nationality fleeing the new Taliban regime, such fears may be alleviated. We will, therefore, examine how the CJEU resolved this specific preliminary question presented by the Austrian Supreme Administrative Court in cases C-608/22 and C-609/22 (AH and FN v Bundesamt für Fremdenwesen und Asyl, 2024).

2. The Principle of Equality and Non-discrimination: a Very Brief Approach

The principle of equality is a corollary of human dignity that binds public authorities to its observance. Without unconditional respect for human dignity, it would not be possible to achieve the Union's objectives. Article 2 of the TEU states that equality is one of the founding values of Europe, addressing all individuals and referring, in its final segment, to equality between men and women. Thus, everyone has equal dignity and must, therefore, everyone be equal before the law. Article 20 of the Charter enshrines equality before the law (formal equality), later associated with the principle of non-discrimination, which distinguishes between permitted and prohibited criteria for differentiating between individuals (Martins, A., 2010), only allowing distinctions based on legitimate and non-arbitrary criteria (Pinto, R. L., 2013; Mestre, B., 2020; Hepple, B., 2011; De Schutter, O., 2003).

The principle of equality calls for the prohibition of arbitrariness (discrimination without a serious and legitimate reason) and also for the obligation of differentiation, to ensuring equal treatment for those in similar circumstances and unequal treatment for those in different circumstances, where failing to do so would risk undermining justice. Within the Union, the principle of non-discrimination has an autonomous aspect, that is, not dependent on the invocation of another right, meaning it even though derives from the principle of equality, and it is generally enshrined in Article 21 of the Charter. Therefore, everyone has the right not to be discriminated against or deprived of the enjoyment and exercise of any right on the basis of their membership in a particular group or category, such as sex (among other criteria specified in the article), given that such membership is beyond the individual's control (e.g. pregnancy status).

It should be noted that the application of the general principle of non-discrimination – when an unjustified breach of equality is at stake – may necessitate the adoption of normative measures of positive action (positive discrimination), without which true substantive equality will be impossible. To this end, it must be assessed whether there is a genuine need for such measures, whether they are appropriate for achieving their objective, and whether they are proportionate to the intended outcome. In short, the realisation of the fundamental right to equality requires adherence to a justified basis for differentiation (Novais, J. R., 2019).

This is an area of legislative overlap, both national and international, particularly within Europe, which brings together primary law provisions, as well as a broad range of Directives (Pacheco, 2024) and other legal instruments, alongside an extensive body of jurisprudence that has become increasingly dense in relation to the protective scope of the principle. In effect, the CJEU has demonstrated- in an original and particularly activist manner that ~~forms of~~ discrimination can be direct or overt forms, that is, those based on explicitly prohibited criteria (e.g. prohibiting serving coffee to Romani individuals), as they constitute ethically and legally reprehensible conduct.

However, discrimination may also take indirect or seemingly neutral forms, where measures produce effects equivalent to direct discrimination having a disproportionate impact on a specific group or on suspect categories (e.g. race). It should be noted here that, at the level of secondary law, harassment, instructions to discriminate, and the prohibition of retaliation are subcategories of discriminatory behaviour, the detailed analysis of which falls outside the scope of this discussion.

It should not be noted that the Charter also states, in its own Article (Article 23), the principle of equality between men and women, incorporating an obligation for public authorities not to discriminate on the basis of sex and providing for the possibility of adopting positive action measures to redress gender imbalances. This

provision is based on Article 157 of the TFEU (equal pay for the same work), the European Social Charter and the Community Charter of Fundamental Social Rights of Workers (adopted in 1989), with its influence extending to the legal orders of the Member States. To this end, gender equality is a fundamental human right and an integral part of European social policy, which includes social protection (e.g. maternity leave), aimed at promoting equality between men and women and combating discrimination based on sex, in all matters falling within the Union's competence.

3. The European Union's Responses to International Protection

Under the 1951 Geneva Convention relating to the Status of Refugees, a forcibly displaced person seeking international protection must be present in the State where they submit their request, providing proof that they fled due to a well-founded fear of persecution (Gil, A. R., 2021; Oliveira, A. S. P., 2009; Oliveira, A. S. P., 2016; Pacheco, F., 2023) for one of the following reasons: race, religion, nationality, membership of a specific social group or political opinion. Such persecution must be both severe (ACNUR, 2019) and discriminatory, meaning that instances of indiscriminate violence that affect the entire population do not fall within the legal definition of persecution. A causal link must also be demonstrated between the stated reasons and acts of persecution suffered by the applicant, or the absence of protection against such acts.

We are, therefore, dealing with a legal framework based on the concept of a well-founded fear of persecution (Gil, A. R., 2020), but only for one of the five specified reasons, thereby limiting its scope of protection, since the reasons compelling a person to flee may not fall within these categories. Nevertheless, the convention had the merit of defining what constitutes a refugee and prohibiting *non-refoulement*, recognising the human right of individuals not to be returned to a country «(...) where their life or freedom is threatened by virtue of their race, religion, nationality, membership of a certain social group or political opinions».

This development led to the Qualification Directive extending its provisions to individuals considered to be at real risk of suffering a serious offence, such as the death penalty or execution; torture or inhuman or degrading treatment or punishment; or a serious and individual threat to the life or physical integrity of a civilian, resulting from indiscriminate violence in situations of international or internal armed conflict. These individuals became eligible for subsidiary protection, provided that the exceptions outlined in Article 17 did not apply to them (e.g. commission of serious crimes) (Pacheco, F. & Baltazar, I., 2023).

The questions that guided this study were:

1. On the one hand, to clarify what the CJEU understands as an “act of persecution”, under the terms of Article 9, paragraph 1, subparagraph a) of the Directive, when the request for asylum is made by a woman who, if returned, faces the risk of suffering a “series of discriminatory measures” restricting her fundamental rights, knowing that such measures have been imposed by the Taliban in Afghanistan since 2021.
2. 2). On the other hand, to determine whether, in the individual analysis of an asylum request, the national authority, after carefully assessing the situation, can conclude that there is a “well-founded fear of persecution” solely due to the applicant's gender, without considering other individual elements that substantiate persecution, under the terms of Article 4, § 3 of the same directive.

In other words, the study seeks to determine whether asylum can be automatically granted based solely on an applicant's gender and their Afghan nationality, in which case there would be a presumption (ACNUR, 2023) of refugee status recognition for these women.

4. In the Veil of Misfortune: Serious and Systematic Discrimination of Women in Afghanistan

Article 9 of the directive, under the heading “Acts of Persecution,” provides that an act must be “sufficiently serious by its nature or persistence to constitute a severe violation of fundamental human rights (...) or constitute an accumulation of various measures, including violations of human rights, sufficiently serious (...)”. It then provides examples, specifying that such acts may include “physical or mental violence, including acts of sexual violence; legal, administrative, police and/or judicial measures, when they are discriminatory or applied in a discriminatory manner (...); disproportionate or discriminatory sanctions; acts committed specifically due to gender (...)”.

In this case, the issue concerned the assessment of two decisions denying refugee status to two Afghan women who had fled their homeland to Iran - one because her father had sold her, and the other because she wished to study - and subsequently from Iran to Austria, as they had not proven a fear of persecution if they returned to Afghanistan, under Article 2(d) of the Qualification Directive. In other words, they had not demonstrated a well-founded fear of being persecuted on account of one of the five stipulated reasons (race, religion, nationality, political opinions, or membership of a particular social group).

This denial of recognition ~~would have~~ occurred in 2021, at a time when the country had not yet fallen under the new Taliban regime, although they were granted subsidiary protection status by Austria. Dissatisfied, they appealed to the Supreme Administrative Court, arguing that they had adopted Western values as an inseparable part of their identities and that the Taliban regime itself should justify the granting of asylum based on their gender, thereby eliminating the need for an individual assessment.

Consequently, this court sought clarification from the CJEU on whether “membership of a particular social group” constituted grounds for persecution for these women and whether the accumulation of measures imposed by the Taliban— including the lack of legal instruments to protect against gender-based violence and domestic violence, forced marriages, lack of employment opportunities, limited access to healthcare, education, and sports facilities, restrictions on public movement, absence of freedom of expression, and the obligation to cover the face and body—could be considered a violation of their fundamental rights. By its nature and persistence, such should be classified as an “act of persecution” capable of affecting their non-derogable human rights, as provided in Article 15(2) of the ECHR (Charter of Fundamental Rights of the European Union, 2016), if the applicants were returned.

Furthermore, under the Directive, the States concerned must assess the credibility of each claim by considering the applicant's personal circumstances (*Meki Elgafaji and Noor Elgafaji v Staatssecretaris van Justitie Elgafaji*, 2008; *CF and DN v Bundesrepublik Deutschland*, 2021), to determine whether they could be exposed to the previously identified acts of persecution. However, in the opinion of the Advocate General (*AH and FN v Bundesamt für Fremdenwesen und Asyl*, 2024¹), as Afghan women are subject to severe and systemic discrimination, it could be argued that special protection measures might replace the need for individual assessment. This would mean that national authorities could conclude—immediately—that there was a well-founded fear of persecution for the applicants in their country of origin solely based on their gender.

At this point, it is worth highlighting that the Istanbul Convention (Council Decision (EU) 2023/1076, 2023) - — which enshrines the principle of equality between men and women and prohibits discrimination against women— recognises that “violence against women” constitutes a violation of their human rights and must be regarded as a form of discrimination, encompassing any act of gender-based violence that may cause “physical, sexual, psychological, or economic harm or suffering to women, including the threat of such acts, coercion, or arbitrary deprivation of liberty, whether in public or private life.”

The CJEU, considering the referring body's view on classifying Afghan women as “a particular social group” within the meaning of Article 10(1)(d) of Directive 2011/95 (European Parliament, 2011), ruled that there is a causal link between the “ground of persecution” and the “acts of persecution” to which Afghan women could be exposed. Thus, once again, the CJEU ruled in accordance with human dignity, demonstrating awareness of the tragic situation of Afghan women who live oppressed and marginalised in a society that denies them their most fundamental rights.

5. Conclusion

After the return of the new Taliban regime, the situation of Afghan girls and women became intolerable, rendering gender equality a mere illusion. Shrouded in misfortune, women suffer severe persecution that justifies their flight and their fear of returning to Afghanistan, where they are prevented from leading their lives with dignity.

The CJEU, in its most recent ruling (*AH e FN contra Bundesamt für Fremdenwesen und Asyl*, 2024), held that the discriminatory and restrictive measures imposed on women by the Taliban regime in Afghanistan—such as exclusion from the workforce, limitations on mobility and education, and the lack of protection against gender-based violence—constitute “acts of persecution” under Directive 2011/95. The Court found that these cumulative restrictions violate human dignity and justify granting refugee status to Afghan women without requiring a detailed individual assessment.

The decision also reaffirms that Afghan women constitute a "specific social group" eligible for international protection, aligning with the Geneva Convention, CEDAW, and the Istanbul Convention, which mandate protection against gender discrimination and violence. By adopting this interpretation, the CJEU enhances the protection of women's human rights, recognising the severity of gender-based persecution under oppressive regimes and promoting a more inclusive and context-sensitive right to asylum for women facing institutionalised violence.

While gender-based asylum claims have gained recognition, alternative migration routes remain highly restrictive. The EU Blue Card system, which aims to attract skilled workers, is inaccessible to most Afghan women due to its stringent requirements, reinforcing the necessity of a robust asylum framework.

To this end on the one hand, the accumulation of discriminatory measures that affect women must be classified as an "act of persecution" that violates their human dignity. On the other hand, considering the discriminatory measures to which they have been or may be subjected in the event of return, the requested Member State concerned is not obliged to analyse elements other than their sex and nationality. Once again, the CJEU has proven itself to be an instrument in the service of justice.

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Media Representation of Women in Science: A Storytelling Case Against Gender Stereotypes

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Abstract: Gender stereotypes affect not only the way people perceive others but also their image of themselves. Those stereotypes' effect, both external and internal, is often limiting. In today's post-digital society, the media can play a key role in representing genders equitably, curbing the harmful inertia of stereotypes. This research focuses on gender stereotypes related to the representation of women in science disseminated by the media. In the 21st century, when significant social and media revolutions have already occurred, it seems more than desirable that the media exercise their responsibility by granting women the space for intellectual, professional, and public projection that should never have been denied to them. The research aims to study and interpret *Women of Science*, a documentary series co-produced by public broadcasters in Austria, Belgium, Germany, Italy, Lithuania, and the United Kingdom, which portrays several female STEM scientists' daily, professional, and personal lives. The methodological approach is qualitative. After a literature review, a global discourse analysis is conducted. The results show that this documentary series portrays women scientists differently from traditional stereotypes in previous film productions. They are represented positively and diversely, not as an exception in the science community. The study confirms, among other conclusions, that *Women of Science* contributes to eliminating the stereotypical barriers that made women invisible in science, based on the didactic capacity of storytelling as a strategy for raising awareness and transforming beliefs shared by society. It can be considered a good practice that serves as an example for governments and organizations that seek to eliminate gender stereotypes and build a more equalitarian science in which all genders are represented. New lines of research will examine more cases of storytelling in the intricate post-digital media scenario and reflect on gender stereotypes in science from the perspective of non-binary gender representation.

Keywords: Gender Stereotypes; Women Representation; Storytelling; Post-digital era; Media; Women in STEM

1. Introduction

Gender equality remains a pending issue in the 21st century. There is still a disproportionate distribution between genders in access opportunities and recognition (Hideg and Krstic, 2021). This article addresses gender inequality in the field of science, specifically as it affects women.

Authors like Grañeras Pastrana, Moreno Sánchez, and Isidoro Calle (2022) argue that, over the years, this disparity has not diminished; instead, it appears to be solidifying. They also highlight notable differences in educational choices based on gender. One of the most remarkable is the significant underrepresentation of women in experimental sciences, technology, engineering, and mathematics (commonly referred to as STEM).

This underrepresentation is patently visible in the statistics, even in those nations where the share of STEM careers is highest, such as Germany, which stands out in the European context with 38.5% of students choosing STEM degrees (Buchholz, 2023). According to DESTATIS (2024), the German Federal Statistical Office, only about a third of those students are women, as shown by the figures for enrolment in STEM study programmes in recent years (31.82% in 2021; 32.39% in 2022; 32.61% in 2023).

Other European countries present similar figures confirming the aforementioned women's underrepresentation. According to data from the Higher Education Statistics Agency of the United Kingdom, in this country's 2022-2023 academic year, only 31% of students enrolled in STEM degrees were women (STEM Women, 2023). Likewise, in Spain, the rates of women enrolled in STEM university degrees in 2022-2023 did not reach 50% in almost any case. In Mathematics (36%), Physics (27%), Telecommunications (23%), and Computer Science (13%), those rates were especially low (Cobrerros, Galindo, and Raigada, 2024).

The lower number of women in the STEM field occurs not only among students but also among professors, as Casad et al (2021) report when addressing the problems of gender inequality in academia. Ross et al (2022, p. 135) raise the complaint level: they reflect on the documented gap between scientific production by men and women. In their study, the authors demonstrate that the reason is not so much a lower productivity rate among

women as that “women are significantly less likely to be named on any given article or patent produced by their team relative to their peers” and that “women’s scientific contributions are systematically less likely to be recognized.”

Among the different causes that may promote this inequality, the debate surrounding the influence of gender stereotypes on career choices remains relevant. The role of the media in disseminating stereotypes has traditionally been studied (Steinke, 1999, 2005; Flickler, 2008; Eizmendi-Iraola and Peña-Fernández, 2022). However, literature is still scarce in the contemporary context of post-digital society and its storytelling strategies. The reflection becomes even more critical since today the media are more encompassing, and digital channels cover all facets of life since an early age.

Governments, especially over the past decade, have implemented policies to enhance the inclusion and visibility of women in science. These efforts aim to encourage scientific interests among girls and young women, particularly in the STEM fields (Sedeño-Valdillos, 2022).

This research aims to analyse the documentary series *Women of Science* to discover how it portrays women and determine whether it is a good practice case to inspire governments and organisations when creating narratives against gender stereotypes in science.

2. Literature Review

2.1 Gender Stereotypes’ Influence on Career Choices

The United Nations Human Rights Office of the High Commissioner (OHCHR, 2024) warns about the limiting effect of gender stereotypes and describes them as a source of inequality:

A gender stereotype is a generalized view or preconception about attributes or characteristics, or the roles that are or ought to be possessed by, or performed by, women and men. A gender stereotype is harmful when it limits women’s and men’s capacity to develop their personal abilities, pursue their professional careers and/or make choices about their lives (para. 1).

Santoniccolo et al. (2023) conceive gender stereotypes as a key piece in the perverse machinery of restrictive gender representation in media. They denounce that gender stereotypes promote sexism, harassment and violence while limiting women’s professional possibilities and ambitions.

The influence of gender stereotypes on career choice is critical. After conducting a study in 66 countries, Miller, Eagly, and Linn (2015) concluded that these stereotypes are deeply rooted even in those societies where gender equality awareness is widespread, such as the Netherlands. They also confirmed that gender stereotypes limit women’s access to STEM careers, especially in university study programmes, not so much at lower educational levels.

Gender stereotypes exert their coaxing since childhood and adolescence. Master, Meltzoff, and Cheryan (2021) studied the perceptions of boys and girls ages 6 to 12 from different races. The authors confirmed that the stereotype that girls are less interested in computer science and engineering than boys was widely accepted among the participants. In a companion study, Master (2021) concludes that stereotypes can decrease girls’ motivation through two pathways. The first is the self-perception of lower ability, consolidated by comments from teachers or parents. The second pathway is the fear of losing belonging to the group because girls perceive that one identifying sign that defines them as a group is that they are better at non-STEM subjects.

Other authors approach the reflection from the Pygmalion and Galatea effects (Palomo-Domínguez and Tamošiūnaitė, 2024). The Pygmalion effect consists of improving a child’s abilities because they perceive that adults have high expectations of their capacity (Rosenthal, 1987). It can contribute to overcoming the gender gap in different life scenarios, classrooms, and career decisions (Gentrup and Rjosk, 2018). On the other hand, the Galatea effect focuses on the individual’s self-perception. If a person has a high self-perception of their abilities, this view of themselves can positively influence their performance (Bandura, 1986).

2.2 Storytelling and Audiovisual Discourse in the Post-digital Era

Storytelling is a powerful tool in educational environments due to its ability to generate understanding, promote learning, and reinforce societal values. Some authors emphasise that storytelling’s unique advantage lies in its capacity to evoke emotions in the audience. This emotional engagement enhances the story’s retention.

Consequently, storytelling is crucial in inspiring and motivating individuals to embrace the underlying values (Ferrés and Masanet, 2017).

The current media scenario, the post-digital era, is an intricate system where digitalisation is such a hegemonic phenomenon that it becomes natural and goes unnoticed. The distinction between online and offline channels, as well as digital and analogic realities, has lost its meaning, as it is not significant for the audience. The same happens with the mixture of discourses and communication formats since the process of hybridising messages is extremely high (Meyerhofer-Parra, González-Martínez, and Peracaula-Bosch, 2024). This complex media landscape is inundated with video content, which stands out due to the excellent storytelling skills of audiovisual language (Anderegg et al, 2017).

Despite the epistemological challenges presented by post-digital society, storytelling seems ready to adapt to all the media changes, just as it has been in any previous communicative era:

A narrative is essentially a structure that can be based on emotional, learning, educational, interactive, individual or social, imaginative, fictional or non-fictional, digital or non-digital, subjective or objective engagements. It gains attention by evoking feelings, memories and curiosity. This links the concept of storytelling directly to the definition of communication (Nielsen, 2017, p. 44).

2.3 Media Portrayal of Women in Science: Stereotypes in the Audiovisual Discourse

Many authors agree that women's representation in media does not help make their role in science visible. Eizmendi-Iraola and Peña-Fernández (2022, p. 12) synthesize this reflection in a forceful statement: "Science is still represented in the media as a male environment in which women represent the exception."

On the one hand, there is a matter of quantity: mainstream Anglo-American film and television rarely feature female scientists, neither as real scientists nor as fictional scientific characters (Chambers, 2022). In other words, female scientists are less visible because they barely appear in the media.

On the other hand, beyond quantity, quality is essential. It is crucial to problematise and investigate how women are represented. Here is another reason for invisibility: because female scientists are disguised under stereotypical caricatures, they are also less visible.

Jocelyn Steinke (1999, 2005) attempted to define female scientist models shown in films, although Flicker's classification is possibly the most revised in later studies. The Austrian sociologist Eva Flickler (2008) described a list of archetypes through which women scientists are portrayed in cinema: the old maid, the male woman, the naïve expert, the evil plotter, the daughter or assistant (of a male scientist), the lonely heroine, and the clever digital beauty, as female heroines of video games.

Mejón and Jiménez (2022) and Muñoz Gallego and Jiménez de las Heras (2023) reflect on the evolution of these models over time. So do Kool, Azevedo, and Avraamidou (2022), who highlight the prominence of the solitary heroine model in recent films.

Before those studies on stereotypes of female scientists in film, other authors had reflected on the clichés used to represent scientists without distinguishing their gender. LaFollette (1990) identified four types: the magician or the wizard, the expert, the creator or destroyer, and the hero. Weingart, Muhl, and Pansegrau (2003) presented a broader categorization after analysing 222 science fiction films. Nevertheless, these stereotypes focus on aspects such as the ethics or the scientist's purpose but are unrelated to gender. One could ask why female scientists, simply because they are women (not because of their status as scientists) have required a separate classification.

The underrepresentation of women in science does not only occur in fiction or entertainment discourses, as in film or television. The news media also offer a diminished and biased image of women in science. According to Eizmendi-Iraola and Peña-Fernández (2022), although there are more headlines about women in science, how women are shown reinforces stereotypes and pigeonholes them into a particular occupation. In the case of women in STEM, they are shown in care sectors, such as healthcare. In addition, the role of women in science is depicted as a rarity, as something exceptional.

Kool, Azevedo, and Avraamidou (2022) recommend a less stereotypical, more accurate, egalitarian representation of women scientists. They call for the representation of women to be positive, diverse, and intersectional. Chambers (2022, p. 483) claims that the media has the ability and responsibility to change the perception of science and scientists regardless of their gender: "A more intersectional approach to the

representation of the sciences on screen it may be possible to begin shifting the expectations of what science is, and who scientists are and what they look like.”

The representation of women in science must move away from the exceptional and become natural every day. It is not enough to present those scientists who have made history. The anonymous, capable, professional scientists, members of a scientific community facing daily challenges, must be shown. Rather than being presented as a strange or isolated phenomenon, they should be portrayed as a standard part of contemporary society. (Chambers and Thompson, 2020).

3. Methodology

The methodological approach is qualitative. After a brief literature review, the research delves into discourse analysis on an audiovisual storytelling case that portray women in science. Discourse analysis is an analytical technique that studies the formal and significant aspects of all types of texts, whether oral, written, or multimedia to understand the meaning and functions of those discourses in a specific social and cultural context. It emerges from the idea that language is not only a means of transmitting information but also a way of exercising power and building social reality (Gee, 2014). This critical and reflective nature makes discourse analysis an appropriate method for this research topic.

3.1 Case Presentation

The case chosen is *Women of Science*, a TV series on the professional journey of six female scientists in mathematics, technology, and engineering. It comprises six episodes of approximately 15 minutes each; they may be considered a film if screened together. *Women of Science* was released in 2023 by public broadcasters of Austria (ORF), Belgium (RTBF), Germany (SWR), Italy (RAI), Lithuania (LRT), and the UK (BBC), in cooperation with the European Broadcasting Union. It is available in the public broadcasters’ media libraries. Each episode presents the professional journey of a woman STEM scientist from those countries.

3.2 Analysis Instrument

The six episodes are examined individually, taking into account the categories outlined in Table 1. The work of Cambronero-Saiz, Cristófol-Rodríguez, and Segarra-Saavedra (2023) has served as a basis for creating the categories, which have been modified to better adapt to the research objectives. One of discourse analysis’s characteristics is the lack of a single technique with standardised steps applicable to all cases (Sayago, 2014). This methodological versatility allows proposing analysis instruments created *ad hoc* for each investigation.

Table 1: Categories and subcategories for episodes’ analysis

Categories	Subcategories
#1 Episode’s identification	Scientist’s name, country, science field
#2 Narrator and main character	Individual or collective, male or female, leader position or other, archetype of female scientist according to Flicker (2008)
#3 Person in their context	Race/Ethnicity, Generation, family, cultural and social context
#4 Topics	Scientific results, myths debunked, careers development, personal life
#5 Time structure	Duration, temporal order of the narrative according to Kim et al (2017)
#6 Text and style	Complex or understandable text, professional or colloquial tone, serious or humorous language, denotative text or use of rhetorical devices
#7 Content format	Video snips, pictures, charts, infographics, captions, testimonials
#8 Purpose	Information dissemination for the general public, scientific recognition, visibility of women in science, awareness against gender stereotypes

4. Results

4.1 Episodes’ Analysis

Category #1 identifies each episode according to the female scientist who stars in it, her country, and the scientific field in which she works, as can be read in the corresponding row of Table 2. The geographical context is confined to the realm of Europe. The fields of science, all in the STEM field, describe a varied spectrum:

information technology, aeronautical engineering, computer science, nuclear medicine, physical chemistry and neuroscience. Figure 1 shows a picture of the six women in the same order as the columns describe their episodes in Table 2.



Figure 1: Main characters in the episodes from Austria, Germany, United Kingdom, Belgium, Lithuania, and Italy (from left to right). Source: Planet Schule (2024).

Table 2: Episodes' analysis based on categories and subcategories

Cat.	Subcategories Description					
#1	Doris Schlaffer, Austria, IT	Tiziana Bräuer, Germany, aeronautical engineering	Anne-Marie Imafidon, UK, computer science	Sarah Baatout, Belgium, nuclear medicine	Ieva Plikusienė, Lithuania, physical chemistry	Monica Gori, Italy, neuroscience
#2	Individual, female, leader position, might lean towards the Male Woman	Individual, female, employee, might lean towards the Naïve Expert	Individual, female, leader position, might lean towards the Old Maid	Individual, female, leadership position, might lean towards the Old Maid	Individual, female, employee, might lean towards the Lonely Heroine	Individual, female, employee, might lean towards the Male Woman
#3	White, Gen Y, grew up with brothers, female partner, is a mother	White, Gen Y, All-Girl-School graduate	Black, Gen Y	White, Gen X	White, Gen Y, the only girl in A-level Physic class in school, father scientist, male partner, is a mother	White, Gen X, male partner, is a mother
#4	Scientific results, career development, personal life	Scientific results, career development, personal life	Career development	Scientific results, career development	Career development, personal life	Scientific results, career development
#5	15:00, chronicle	14:33, chronicle	14:30, chronicle	14:51, syllepsis	13:18, chronicle	15:55, syllepsis
#6	Complex, professional, serious, denotative	Simple, professional, serious, denotative	Simple, colloquial, serious, denotative	Simple, colloquial, serious, denotative	Simple, colloquial, serious, denotative, humour	Simple, colloquial, serious, denotative, emotions
#7	Video from workplace and private life	Video from workplace, pictures from private life	Video from tv shows she participated in, captions, testimonials	Video from workplace and private life, pictures from private life, testimonials, newspaper	Video from professional life, pictures and video snips from private life, testimonials	Video from workplace, pictures from private life
#8	Against gender stereotypes	Against gender stereotypes	Women in science, against gender stereotypes	Women in science, against gender stereotypes	Scientific recognition, women in science, against gender stereotypes	Against gender stereotypes

Category #2 describes the narrator and the protagonist. An autodiegetic narrator introduces all episodes, as the narrator of each one is the scientist who stars in it. The decision to give them the first-person voice allows for a more intimate connection between the characters and the audience. Viewers better access each character's subjective, individual, and complete reality. Besides, it grants the scientists greater visibility in the story, in contrast to traditional media portrayals that have rendered women invisible in science.

Three of them hold professional leadership positions (the scientists from Austria, UK, and Belgium). None of the Flicker's archetypes of female scientists could be precisely matched. Even making an effort to find those stereotypes, only timid nuances might lightly tend towards four of them: the Naïve Expert, the Male Woman, the Lonely Heroine, and the Old Maid. This suggests a decisive attempt to blur, if not break, gender stereotypes for women in science.

Category #3 presents the six women individually and in their context. The sample of female scientists represented shows some diversity, which encourages different profiles of women in the audience to feel identified and motivated by their message. The female scientist from the UK is black, while the rest are white. Two female protagonists belong to Gen X (Belgium and Italy), while the others are from Gen Y. The female scientist from Austria has a female partner with whom she has a baby; other female scientists have male partners and children (Lithuania, Italy); and family information is not provided about others. On the other hand, the context presented does not refer to any social or cultural elements specifically, so the receiver from any Western environment could engage with the message. The settings are diverse: laboratory, class-setting, and home or hobby environment, giving a positive view of their daily lives.

Category #4 focuses on the topics presented. The female scientists share strictly personal professional experiences, achievements, and personal life information. A common theme among them is acknowledging the difficulties faced in their scientific careers while encouraging the audience to embrace those challenges. Actually, five of the six experienced a significant change in their careers since STEM was not their initial choice. They share their experiences not as epic or exceptional feats. Theirs is not the story of a hero; it is simply the path taken by a person who has worked hard to reach their desired goal.

Category #5 refers to the length and time of the narrative. Regarding the duration, all the episodes are homogeneous, being close to the 15-minute format. As for the narrative structure, temporal logic predominates, mostly chronicle pattern, which shows the events in the order in which they occur. However, there are two stories where the temporal structure is syllepsis: the events presented are grouped by thematic categories, not in chronological order. Thus, the episodes of the scientists from Belgium and Italy first describe their professional careers and then their personal lives. A similar temporal treatment helps all the stories have the same degree of importance without distinguishing a main story from other secondary ones; it reinforces the choral character of the series as a whole. It is not a story about a star scientist but several stories of diverse women with diverse lifestyles who have developed diverse scientific interests.

Category #6 describes the style and tone. Simple language predominates, which is entirely understandable for the general public. Only in the Austrian episode the language is complex. In most episodes, there is a significant prevalence of colloquial language, except by those from Austria and Germany, where the language register is professional. Like the scientific style, the language aims to be clear and denotative, not rhetorical. That does not prevent some episodes from including touches of humour (Lithuania) or emotion (Italy), which makes the story engage the public and boost the later recall.

Category #7 analyses the content format. All videos combine information from their professional and personal life. Professional life is reflected in all cases through video snips in the workplace; personal life is mainly shown in the video but can also be presented (Germany, Italy) or supplemented (Belgium) through pictures. Three episodes (UK, Belgium, Lithuania) show testimonials regarding the professional results or personality, and one includes captions (UK), strengthening the message. Examples of intertextuality are also observed, such as video clips from a television programme in which the UK scientist participated and newspaper fragments in the Belgium episode. These pieces of supplementary information also facilitate viewers' understanding and enhance subsequent recall.

Category #8 addresses the purpose. All episodes warn against gender stereotypes in science. In addition, three strongly emphasise the visibility of women in science (UK, Belgium, Lithuania), and one points out the issue of scientific recognition (Lithuania).

4.2 Discussion

The analysis of *Women of Science* reveals that this case of storytelling has the explicit purpose of demolishing gender stereotypes. Its narrative strategy puts into practice the recommendations made in previous studies. Women scientists are shown without pigeonholing them into stereotypes; their representation is positive and diverse, as proposed by Kool, Azevedo, and Avraamidou (2022). The six scientists are presented in their everyday lives; the aim is not to show them as an exception but to underline their ability to work within the scientific

community. This TV series intends to put Chambers and Thompson's (2020) advice into practice: to normalize the figure of the female scientist. Besides, even though it is developed within the STEM field, the series allows a varied range of scientific areas to be shown, as recommended by Chambers (2022).

The diversity of women represented not only serves to escape the harmful effect of stereotypes. It also makes a broader audience feel identified and empowered by their self-perception and others' perception, which, as Palomo-Domínguez and Tamošiūnaitė (2024) pointed out, propellers free career choices. The series is articulated in the repetition of a similar narrative scheme throughout the six episodes, reinforced with elements of complementary information, appeals to humour and emotions, aspects that, as mentioned previously, describe the characteristics of storytelling and turn it into a powerful didactical tool for raising awareness (Ferrés and Masanet, 2017; Nielsen, 2017).

The study's main limitation is its broad scope. Analysing the representation of women in science throughout the post-digital narrative can be overwhelming. The authors determined to focus on a single audiovisual case, which will be complemented with subsequent studies in other media and formats.

5. Conclusions

Storytelling has adapted to the characteristics of the post-digital media landscape and its communication possibilities. It is intensively used in audiovisual formats that are distributed through various channels, primarily digital, and that hybridise different types of content, mixing information, educational aspects, and entertainment.

This mode of narration has a great capacity to raise awareness and educate the audience. Its habitual connection with emotions encourages the public to identify and generate sentimental ties that enhance the later recall. Therefore, it becomes a very effective way to promote awareness of gender equality in science and blur the limitations imposed by stereotypes.

The research analyses the case study *Women of Science*, a documentary series co-produced by public television broadcasters in six European countries. It constitutes a novel contribution to the literature since the concept of post-digital storytelling against gender stereotypes is still scarcely explored, and empirical analysis is highly needed to characterise the phenomenon.

On the other hand, it has a practical application. Interpreting the narrative strategies of this case provides recommendations that governments and organisations committed to eliminating gender stereotypes, particularly in science, can develop in future communication campaigns.

The main strengths of this replicable case are, among others, the use of storytelling with a didactic narrative strategy; reinforcing it with informative, entertaining and emotional elements; representing real and diverse women scientists that invite the identification of a broad audience and escape from being pigeonholed into stereotypes; showing a positive image of the women scientists, as members of the academic society; putting the emphasis on the normalisation of the figure of the scientist rather than on her exceptional role; mixing the message of her professional achievements with slices of life that make them more credible.

New research lines invite to explore not only more cases in the post-digital media scenario but also an approach to gender equality in science that considers non-binary genders.

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The Role of Relational Capital in the Innovativeness of Women-Led Startups: Case Studies From Italian Food & Beverage Sector

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Abstract: This research explores the challenges small businesses face, such as limited resources and competitive pressures, emphasizing how intellectual capital (IC) plays a key role in fostering innovation. Intellectual capital is divided into human, structural, and relational capital (RC), with RC being particularly crucial for women-led startups. Open Innovation (OI) plays a vital role in helping small businesses manage external relationships and develop new business models. The Italian government has introduced legislation to promote innovative startups, but women still remain underrepresented in sectors like agri-food, which is deeply traditional and innovation-resistant. The research focuses on women-led innovative startups, highlighting the educational and financial gaps they face compared to male-led businesses. In particular, it explores three key questions: RQ1: Can RC help fill an educational and financial gap in WIS? RQ2: What kind of relationships mainly support WIS? RQ3: How do these relationships affect their innovation process? The study uses a qualitative methodology and multiple case studies, applying the C.A.O.S model, which investigates the influence of personal, environmental, organizational, and startup motivations on entrepreneurial success. By focusing on women in the agri-food sector, the research provides new insights into the role of relational capital and formal relationships in female entrepreneurship. This study's findings highlight the importance of family ties, education, and professional networks in overcoming gender-specific challenges in the entrepreneurial ecosystem. The study fills a gap in existing research by analyzing the qualitative aspects of relational capital in women's innovative startups. It examines how women entrepreneurs leverage networks to navigate challenges and drive innovation, despite systemic barriers. The research can contribute to identify strategies to foster innovation among female entrepreneurs, contributing to economic growth and gender equality.

Keywords: Gender; Food; Innovation; Startup; Relational Capital; Intangibles

1. Introduction

The capacity of corporate leaders to navigate external turbulence has become a critical skill in the wake of events like Brexit, the COVID-19 pandemic, and recent global conflicts (Chen et al., 2022; Del Giudice et al., 2023). In a world marked by VUCA (Volatility, Uncertainty, Complexity, Ambiguity), firms must adopt dynamic strategies to foster innovation, self-organisation, and resilience (Ju, 2023; Ragazou et al., 2022). These demands have led organisations to embrace alternative approaches, such as Open Innovation (OI), a paradigm based on inter-organisational collaboration. OI supports co-creation dynamics, enabling the development of innovative solutions that benefit the organisation, its stakeholders, and society (Patel & Brahmabhatt, 2021; Saputra et al., 2022). OI has become particularly relevant for startups, which face fierce competition, shifting customer expectations, and rapid technological advancements in an unpredictable digital landscape. Digital technologies accelerate this transformation, enhancing knowledge sharing and collaboration (Bharadwaj et al., 2013; Ghezzi et al., 2015; Scuotto et al., 2021b). Intellectual Capital (IC) plays a pivotal role in this process, comprising Human Capital (HC), Structural Capital (SC), and Relational Capital (RC). HC encompasses employees' skills and expertise (Harrison & Sullivan, 2000); SC refers to organisational infrastructures, systems, and policies (Rahman et al., 2021; Bontis et al., 2018); and RC represents the networks connecting internal and external stakeholders (Paoloni & Lombardi, 2017; Song & Berger, 2019). Effectively managing relational capital is pivotal for enhancing open innovation processes, as it facilitates the exchange of knowledge, strengthens collaborations, and creates synergies across organisational boundaries. By fostering meaningful connections with stakeholders, firms can access diverse perspectives and resources that drive innovation and adaptability, particularly in dynamic and competitive markets (Modaffari et al., 2023). RC is especially crucial for women entrepreneurs, as it addresses systemic barriers they face, such as limited access to resources and support systems. These challenges are exacerbated in entrepreneurial ecosystems shaped by historical and cultural factors, often resulting in fewer opportunities for women (Modaffari et al., 2023; Paoloni et al., 2022). In Italy, the dominance of family-owned SMEs, which are traditionally male-dominated, compounds the gender gap in entrepreneurial ecosystems

(Paoloni & Lombardi, 2017; Modaffari et al., 2023). For women entrepreneurs, RC offers pathways to overcome these barriers through formal and informal networks that provide access to financial and human capital while fostering innovation. In sectors like agribusiness, where stakeholder collaboration drives innovation, RC enables women-led businesses to remain competitive and adaptive (Cillo et al., 2019; Agostini et al., 2017). RC also builds trust among stakeholders, facilitating effective collaboration and co-creation processes that enhance adaptive capacity and resilience (Scuotto et al., 2017; Modaffari et al., 2023). Research has highlighted the managerial and financial gaps in women-led businesses (Paoloni & Manzo, 2022; Cesaroni & Sentuti, 2016). This study focuses on women-led innovative startups (WIS), characterised by high innovation and adaptability. It explores three questions: (RQ1) Can RC address educational and financial gaps in WIS? (RQ2) What types of relationships support WIS? (RQ3) How do these relationships impact innovation? Using the C.A.O.S model, the study investigates personal, environmental, organisational, and motivational factors shaping entrepreneurial success, particularly in the agri-food industry. This study employs a qualitative multiple case study methodology to explore the innovation processes of female-led agri-startups, focusing on their use of Open Innovation (OI) to address systemic challenges. Two Italian startups were selected, showcasing distinct approaches to innovation in the agri-food sector, influenced by their unique backgrounds, motivations, and geographic contexts. Semi-structured interviews provided in-depth insights into their strategies, highlighting the role of relational capital in overcoming barriers and fostering collaborative solutions.

2. Literature Review

The contemporary business environment is profoundly shaped by global events and challenges that disrupt traditional operational models, necessitating adaptability and innovation from organizational leaders. Events such as Brexit, the COVID-19 pandemic, and ongoing geopolitical instability (Chen et al., 2022; Del Giudice et al., 2023) have not only caused significant disruptions to supply chains and markets but also redefined customer behavior and expectations. These challenges exacerbate the complexity and uncertainty businesses must navigate, creating a volatile environment characterized by rapid and unpredictable changes.

Ju (2023) defines this landscape as a VUCA environment, an acronym for Volatility, Uncertainty, Complexity, and Ambiguity. Volatility reflects the rapid and unpredictable nature of change; Uncertainty arises from insufficient information about future events; Complexity is driven by the interconnectedness of multifaceted systems; and Ambiguity results from unclear cause-and-effect relationships. These conditions render static management approaches inadequate, compelling organizations to adopt flexible and adaptive strategies to thrive. To succeed in such a VUCA world, organizations must prioritize self-organization and resilience as core strategies. Self-organization entails empowering teams with decentralized decision-making authority, enabling quicker responses to emerging changes. This decentralized approach allows for a more dynamic adaptation to external stimuli. In addressing the demands of a VUCA environment, businesses increasingly adopt Open Innovation (OI) paradigms. Open Innovation (OI), initially conceptualized by Chesbrough (2003), represents a novel approach to the innovation process. Unlike traditional models that rely solely on internal resources, OI advocates for a hybrid approach that integrates internal capabilities with external knowledge flows. This paradigm has gained traction across industries for its ability to enhance organizational adaptability and value creation (Cillo et al., 2019; Del Giudice et al., 2018). These mechanisms are underpinned by critical capacities such as absorptive capacity—the ability to assimilate and utilize external knowledge effectively (Del Giudice et al., 2012).

OI revolutionizes traditional innovation models by shifting the focus from internal R&D silos to collaborative processes that leverage external partnerships and shared expertise. It emphasizes creating ecosystems of interdependence, where firms, stakeholders, and even competitors co-develop solutions that would be unattainable individually and diverse parties contribute resources and expertise to develop innovative solutions (Patel & Brahmbhatt, 2021; Jabeen et al., 2023). This approach not only accelerates the pace of innovation but also generates benefits that extend beyond individual organizations. For instance, coupled knowledge flows in OI directly enhance asset specificity and innovation capacity, as they optimize the integration of internal and external knowledge flows (Zheng et al., 2022). The relevance of OI lies in its ability to address the growing complexity and dynamism of global markets. Rapid technological advancements and changing consumer preferences necessitate innovative approaches to remain competitive. OI provides organizations with access to diverse knowledge ecosystems, enabling faster innovation cycles and enhanced responsiveness to market demands (Dezi et al., 2019). One of the most transformative aspects of OI lies in its ability to democratize the innovation process, breaking down barriers that often limit participation to large, well-funded organizations. By fostering collaborative ecosystems, OI creates platforms where smaller firms, regional clusters, and underserved communities can engage actively in innovation. This inclusivity not only expands the pool of contributors but

also enriches the innovation outcomes with diverse perspectives and expertise (Jiao et al., 2022). In emerging economies, Open Innovation (OI) plays a vital role in addressing systemic gaps by enabling collaborative networks that allow smaller enterprises to access resources, knowledge, and markets that might otherwise remain inaccessible (Cuomo et al., 2024). Startups, often constrained by limited resources and heightened vulnerability to market volatility, benefit significantly from OI in navigating the dynamic and unpredictable digital landscape (Chesbrough, 2003). Unlike traditional closed innovation models, which depend solely on internal resources, OI empowers startups to access external expertise, cutting-edge technologies, and broader markets (Laursen & Salter, 2006). Through participation in collaborative ecosystems, startups can leverage the infrastructure, knowledge, and networks of larger, well-established entities. These ecosystems provide critical resources—such as advanced R&D capabilities, distribution networks, and market intelligence—that enhance startups' ability to compete with established players while adapting to evolving customer expectations and technological advancements (Jabeen et al., 2023; Cammarano et al., 2022). This collaborative framework positions startups as agile participants in innovation, enabling faster prototyping and market entry while reducing costs and risks associated with traditional innovation pathways. These ecosystems provide critical resources that might otherwise be inaccessible to resource-constrained startups, such as advanced research and development (R&D) capabilities, state-of-the-art facilities, and extensive distribution channels (Cammarano et al., 2022). By integrating with these networks, startups can scale their innovations more effectively and bring products to market with reduced lead times and costs. Integral to this innovation-driven landscape is the role of Intellectual Capital (IC), which serves as a cornerstone for fostering innovation. IC is commonly conceptualized as comprising three dimensions: Human Capital (HC), which encompasses the skills, expertise, and creativity of individuals; Structural Capital (SC), representing organizational systems, processes, and intellectual property; and Relational Capital (RC), which refers to the networks, relationships, and partnerships within and beyond the organization (Rahman et al., 2021; Bontis et al., 2018). Each dimension interacts dynamically to support the flow of knowledge and resources critical for innovation. Among these components, RC stands out as particularly pivotal in enabling collaborative innovation. RC's focus on cultivating relationships and leveraging networks allows organizations to access diverse pools of knowledge, expertise, and capabilities. It facilitates inter-organizational partnerships that are vital for addressing complex challenges and sustaining competitiveness in a rapidly evolving marketplace (Paoloni & Lombardi, 2017; Saint-Onge, 2009). Furthermore, RC is instrumental in integrating external insights with internal capabilities, ensuring that innovation processes are not confined within organizational boundaries but are enriched through global collaboration and exchange (Chaudhuri et al., 2023).

Relational Capital (RC) emerges as a fundamental driver of collaborative innovation, serving as a cornerstone for inter-organizational partnerships and knowledge sharing. Its focus on fostering relationships and leveraging networks enables organizations to harness diverse pools of expertise, resources, and capabilities. This capacity to connect with external entities allows firms to navigate complex challenges while sustaining a competitive edge in rapidly changing marketplaces (Paoloni & Lombardi, 2017; Saint-Onge, 2009). RC not only facilitates access to external knowledge but also enhances the internalization of such insights, promoting the integration of external and internal capabilities. This synergy is instrumental in creating innovation that transcends organizational boundaries. The ability of RC to establish trust among stakeholders and facilitate open communication is particularly critical, as it builds a safe environment where collaboration can thrive. In the context of SMEs and startups, this is especially important given their resource constraints and the increasing need to adopt Open Innovation (OI) strategies (Modaffari et al., 2023). The role of RC is further emphasized in the context of innovative startups, particularly in sectors like agri-food, where traditional production processes often require transformative solutions. Studies suggest that RC enables startups to develop unique relationships with stakeholders, including customers, suppliers, and institutions, which in turn provide critical support for overcoming market entry barriers and advancing innovative outcomes (Modaffari et al., 2023; Agostini et al., 2017). Moreover, RC encourages collaborative learning, wherein the interplay of diverse perspectives leads to the development of novel approaches to problem-solving (Wu et al., 2020; Paoloni et al., 2022).

Numerous studies underscore the pivotal role of Relational Capital (RC) as an essential intangible asset for women-owned businesses, offering critical pathways to overcome structural limitations often inherent in entrepreneurial ecosystems. RC comprises the networks, partnerships, and external relationships developed by entrepreneurs, which are particularly vital for women navigating gender-specific barriers to resources, knowledge, and support systems. These barriers, though varying in visibility and impact across different historical and cultural contexts, consistently limit the opportunities available to women entrepreneurs (Modaffari et al., 2023; Paoloni et al., 2022). Over the years, women's increasing participation in the labor market has spurred research into business development models specific to female entrepreneurship, highlighting their

economic and social impact (Paoloni et al., 2022a). Despite progress, women entrepreneurs face persistent challenges, including educational gaps, limited access to credit, and structural barriers, contributing to an entrepreneurial gender gap (Kuschel et al., 2020; Paoloni & Manzo, 2022). Extensive research has consistently highlighted significant managerial and financial gaps faced by women-led enterprises. These gaps not only limit their competitiveness but also impede their ability to scale and innovate effectively. The managerial gap often stems from structural and systemic barriers, including gender biases that restrict access to leadership training and professional development opportunities. This issue is further exacerbated by an educational gap, which impacts entrepreneurial intentions and the overall performance of women-led businesses (Paoloni & Manzo, 2022; Gavurova et al., 2018).

The financial gap is another critical challenge, primarily characterized by limited access to credit and investment opportunities. Women entrepreneurs often encounter greater risk aversion among financial institutions, driven by entrenched stereotypes that undermine their perceived creditworthiness. This constraint forces many women to rely on alternative financing options such as microfinance institutions, family loans, or personal savings, which may not be sufficient to sustain ambitious business ventures (Cesaroni & Sentuti, 2016; Rita et al., 2018).

In Italy, these challenges are particularly pronounced due to the structural composition of the entrepreneurial landscape. Predominantly comprised of small and medium-sized enterprises (SMEs), the Italian economy often lacks the robust financial infrastructure and strategic support systems that could help mitigate these gender-specific barriers. SMEs, especially those in traditional sectors such as agri-food, exhibit limited research and development (R&D) capabilities and innovation absorption capacity, further narrowing the growth prospects for women-led businesses (Modaffari et al., 2023; Scuotto et al., 2017).

Relational Capital (RC) has been identified as a valuable tool for bridging these gaps. RC facilitates the creation of robust networks and partnerships that provide access to knowledge, resources, and market opportunities. By leveraging RC, women entrepreneurs can strengthen their managerial competencies and financial resilience, fostering an ecosystem that supports sustainable innovation and competitiveness. Studies have shown that integrating RC into business strategies enhances trust and collaboration, enabling women-led enterprises to overcome systemic challenges and thrive in competitive markets (Paoloni & Lombardi, 2017; Wu et al., 2020).

3. Methodology

This study employs a qualitative methodology grounded in a multiple case study analysis (Paoloni et al., 2022a; Tyskbo, 2019; Modaffari et al., 2019; Yin, 2009). The case study approach is particularly effective for conducting an in-depth exploration of real-world phenomena and examining contemporary issues within their specific contexts, especially when the boundaries between the phenomenon and its environment are not clearly delineated (Eisenhardt, 1989; Scapens, 2004; Yin, 2009). These methodological characteristics align closely with the focus of this research.

As highlighted in the literature review, female-led start-ups face a notable innovation gap (Kuschel et al., 2020), a challenge that is particularly acute in specific sectors. The agri-food industry exemplifies this issue, with only 15 innovative start-ups in Italy being led by women. A qualitative approach facilitates a deeper understanding of the factors that drive female entrepreneurs toward innovation. Thus, the multiple case study method supports the observation and data collection needed to analyze the phenomenon, with subsequent interpretation carried out through comparative analysis. The selection of case studies was conducted using a database of innovative Italian start-ups from the Chamber of Commerce. The sample was refined to include businesses with substantial female leadership and further narrowed by ATECO codes to focus on the agribusiness sector. OI is particularly relevant to addressing systemic challenges in sectors like agri-food, where resource constraints, environmental sustainability, and evolving consumer preferences demand collaborative solutions (Cillo et al., 2019).

Within the specific context of female-led innovative agri-start-ups, a maximum variation sampling strategy was applied (Patton, 1990). This approach aimed to capture key differences and identify shared patterns among the selected cases. Two start-ups were chosen for their structural and strategic similarities while showcasing notable differences in other dimensions. Both companies are family businesses, each comprising three shareholders (mother, father, and daughter), and share common characteristics in cultivating and delivering their products through interdependent activities.

The first case, “Women’s Agri-Startup 1” (WAS1), focuses on microgreens production using aquaponic

techniques, blending agriculture with aquaculture. Conversely, “Women’s Agri-Startup 2” (WAS2) operates as a winery and recently diversified into fig cultivation and jam production. The two enterprises also differ in the founders’ backgrounds, motivations, and geographic locations. WAS1, situated in northern Italy (Lombardy), is led by a young entrepreneur without prior professional experience and emphasizes R&D investments. WAS2, based in central Italy (Tuscany), is managed by a more experienced entrepreneur who transitioned from a previous career and integrates a broader set of innovation strategies. These contextual differences, including climate, cultural factors, and financial resources, offer a rich comparative basis for analysis.

Data collection primarily relied on semi-structured interviews, enabling a nuanced understanding of the entrepreneurs’ experiences and strategies (Paoloni, 2021; Yin, 2009). The questionnaire framework is shown in Appendix. To collect data for this study, two interviews were conducted for each of the two startups under investigation. All interviews were carried out via Skype to ensure accessibility and convenience for the participants. For the first startup, the initial interview took place in December 2021 and lasted 2 hours and 3 minutes. A follow-up interview, aimed at verifying and refining the data previously collected, was conducted in February 2022 with a duration of 1 hour and 7 minutes. Regarding the second startup, the first interview was held in March 2022 and lasted 1 hour and 57 minutes, followed by a second interview in April 2022, which lasted 49 minutes. This approach allowed for a comprehensive understanding of each startup’s context and the opportunity to validate the findings. The coding process began with a detailed transcription of all interviews, which were then reviewed to identify recurring themes and patterns. A combination of deductive and inductive coding was employed: deductive codes were derived from the literature and the study’s conceptual framework, while inductive codes emerged from the interview data itself.

To facilitate a systematic comparison between the two cases, a cross-case analysis was performed (Yin, 2009). The coded data were organized into categories aligned with the research objectives, such as innovation strategies, resource utilization, and external collaboration. These categories allowed for the identification of shared patterns as well as key differences in the entrepreneurial approaches and contextual influences of the two startups. The comparative analysis focused on both convergent and divergent themes, providing a richer understanding of the dynamics at play in female-led innovative agri-startups.

To interpret findings, C.A.O.S. model was applied. The C.A.O.S. model, an Italian acronym for “Caratteristiche personali, Ambiente, Organizzazione, Startup”, was introduced by Paoloni (2011) to analyze the role of relational capital (RC) in SMEs. Widely utilized in contemporary business research, the model is particularly relevant for examining RC’s strategic role in female-led SMEs, highlighting its importance in fostering innovation and competitive advantage (Cosentino et al., 2020; Dal Mas & Paoloni, 2020). It focuses on the interplay between relationships and innovation, emphasizing how external relationships enhance internal management capabilities, ultimately driving organizational success.

Rooted in strategic management theories, the C.A.O.S. model aligns with perspectives like the Resource-Based View (RBV), which underscores the importance of internal resources, competencies, and relationships in achieving competitive advantage and fostering innovation (Bhattacharyya & Jha, 2015; Wernerfelt, 1984). Over time, the Relational-Based View (RBV) has extended this focus to include the role of external networks in knowledge dissemination and collaborative opportunities (Dyer & Singh, 1998; Paoloni, 2021).

The model evaluates RC through four key dimensions:

1. Entrepreneur’s Personal Characteristics (C): Factors such as the entrepreneur’s role, vision, and ability to build and utilize networks.
2. Environment (A): The socio-economic and cultural context that shapes the enterprise’s external connections.
3. Organizational and Managerial Aspects (O): The entrepreneur’s objectives, roles, and organizational responsibilities.
4. Startup Motivations (S): Temporal elements reflecting the entrepreneur’s focus during the business inception phase.

By analyzing these dimensions, the model identifies the company’s “cardinal bonds,” which are pivotal relationships that influence its growth and adaptability. These are categorized as:

- First-type bonds (S-C): Relationships activated by the entrepreneur’s goals and needs.
- Second-type bonds (S-O): Organizational ties that define roles and responsibilities.
- Third-type bonds (S-A): External connections with the surrounding environment.

Each bond is evaluated for its formality (formal/informal) and duration (temporary/permanent) to provide insights into how RC shapes business opportunities and challenges (Paoloni, 2021). The C.A.O.S. model's comprehensive approach to relational dynamics offers valuable insights into the qualitative aspects of RC, aiding businesses in leveraging networks to enhance innovation and competitive positioning

4. Findings

The entrepreneurial journeys of WAS1 and WAS2 demonstrate the pivotal role of cardinal links (S-C, S-O, S-A) in supporting and shaping women-led innovative startups. These relationships underscore the interplay between familial support, organizational dynamics, and external partnerships in overcoming financial, managerial, and structural barriers.

4.1 First Cardinal Links (S-C)

The first cardinal links (S-C) highlight the foundational role of family in entrepreneurial ventures. In WAS1, the entrepreneur's parents provided critical financial support, technical knowledge, and operational contributions, embedding themselves as key stakeholders. This dynamic formalized familial relationships into permanent and strategic assets. Similarly, WAS2 leveraged family ties, including the entrepreneur's partner and child, for financial and emotional support, which became integral to the startup's initial growth. Both cases underscore how familial relationships fill gaps in funding and managerial expertise, particularly in female entrepreneurship, where external financial access is often limited (Derera et al., 2014; Kwong et al., 2012).

4.2 Second Cardinal Links (S-O)

The second cardinal links (S-O) illustrate the flexible organizational dynamics within these startups. Both WAS1 and WAS2 rely on informal yet permanent family-based structures to manage internal operations. In WAS1, the mother contributes technical expertise in microgreen cultivation, while the father oversees technical infrastructure, ensuring operational efficiency. In WAS2, the entrepreneur's cross-functional management approach integrates administrative and practical skills, supported by family members who assist in key tasks. These flexible structures enable adaptability and innovation, underpinned by shared values and a commitment to sustainability.

The informal management style in both startups reflects a preference for leveraging internal human capital rather than hiring external personnel, a strategy supported by the entrepreneurs' high educational backgrounds. This approach reduces costs while enabling the startups to focus resources on research and development, vital for their innovative product offerings, such as WAS1's aquaponic systems and WAS2's patented fig compote.

4.3 Third Cardinal Links (S-A)

The third cardinal links (S-A) extend to external relationships that enhance innovation and market entry. WAS1 establishes formal yet temporary links with universities, trade associations, and European entities for funding and compliance, despite limited institutional support. Informal, permanent ties, such as collaborations with other microgreen producers, facilitate knowledge-sharing and innovation. In contrast, WAS2 emphasizes formal and permanent relationships, reflecting the entrepreneur's professional background. Partnerships with the University of Florence, business incubators, and trade associations bolster product development and ensure adherence to regulatory standards.

As shown in figure 1, first-type bonds reflect strong familial support, providing emotional and financial resources. Second-type bonds emphasize collaborative management, integrating family and team contributions into daily operations and decision-making. Third-type bonds extend to external partnerships with academic, industry, and public entities, enabling access to funding, expertise, and market opportunities.

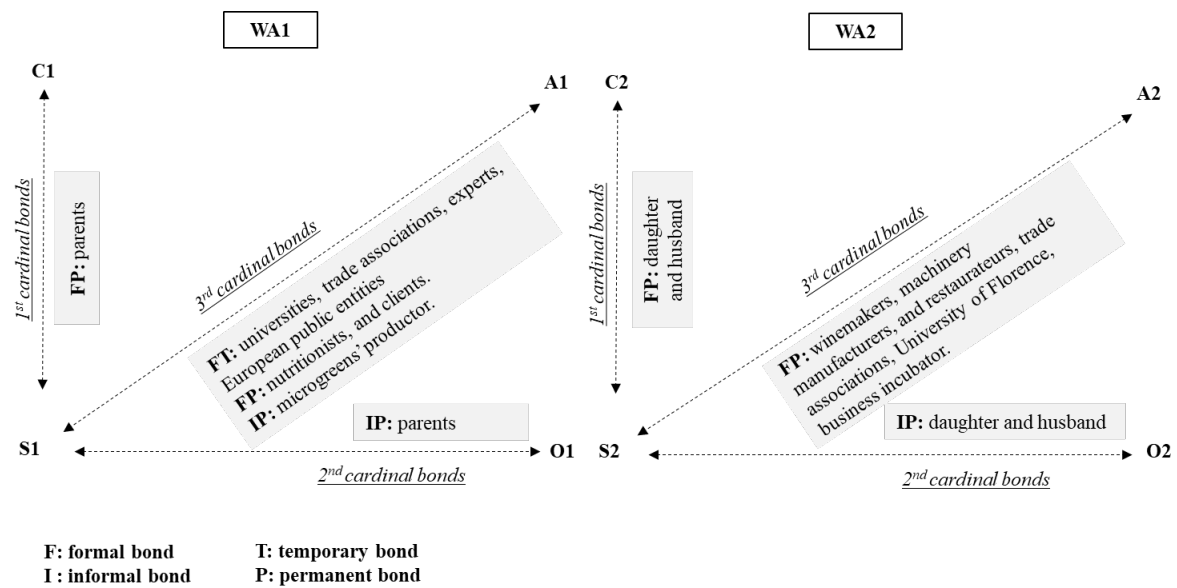


Figure 1: CAOS representation

Source: Authors

5. Discussion and Conclusion

External links in both cases highlight the importance of relational capital in addressing the gender gap in entrepreneurship. By formalizing ties with professional experts, the startups mitigate knowledge gaps and align their innovative products with market and regulatory demands. These relationships exemplify the dynamic capabilities necessary for sustained innovation and competitiveness (Cillo et al., 2019; Zhang et al., 2020).

The cardinal links across S-C, S-O, and S-A reveal a comprehensive support system crucial to the success of women-led innovative startups. Familial ties provide foundational financial and operational support, organizational flexibility fosters adaptability, and external networks enable access to knowledge and resources. These startups exemplify how relational capital and strategic networking drive innovation, resilience, and market integration, offering a model for overcoming barriers in female entrepreneurship.

In conclusion, this research demonstrates that Relational Capital (RC) plays a pivotal role in addressing the educational and financial gaps faced by women-led innovative startups (WIS), affirmatively answering RQ1. RC provides access to critical resources, including knowledge, skills, and funding, which are instrumental in overcoming structural and personal barriers in entrepreneurship. The case studies reveal that RC enriches the startups' human capital through knowledge exchange and enhances structural capital by fostering innovation and operational efficiency, mitigating the gaps in educational background and financing that disproportionately impact women entrepreneurs.

Addressing RQ2, the research identifies that WIS primarily benefit from a combination of formal and informal relationships. Formal relationships, such as collaborations with universities, trade associations, and funding entities, ensure compliance with regulatory demands and access to specialized knowledge and resources. Informal relationships, particularly within family and close networks, provide foundational support for decision-making, resource mobilization, and operational flexibility. These complementary relationships collectively create a robust framework for entrepreneurial success.

Finally, in response to RQ3, the analysis underscores that these relationships significantly enhance the innovation process in WIS. Relational capital facilitates the identification and assimilation of external innovations, accelerates the development and commercialization of novel products, and bolsters the startups' competitiveness in dynamic markets. By fostering trust, collaboration, and access to specialized expertise, RC enables female entrepreneurs to navigate complex challenges and align their ventures with evolving market demands. Consequently, relational capital emerges as both a driver and enabler of innovation, ensuring the sustainability and growth of women-led innovative startups.

The findings of this research offer significant implications for both theory and practice. Theoretically, it expands

the understanding of relational capital (RC) as a critical component of intellectual capital, particularly in addressing the unique challenges faced by women-led innovative startups (WIS). By demonstrating how RC mitigates financial and educational gaps, the study highlights its integral role in fostering resilience and innovation within traditionally male-dominated sectors like agri-food. Practically, the study underscores the need for targeted policy interventions to support women entrepreneurs, including the development of formal and informal relational networks, mentorship programs, and access to specialized knowledge and funding. Organizations, incubators, and trade associations can replicate the relational frameworks explored in this research to enhance innovation capacity and inclusivity. For women entrepreneurs, the strategic management of RC provides a pathway to overcome systemic barriers, foster collaborations, and align their ventures with evolving market needs, ensuring their competitiveness and sustainability in dynamic industries.

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Appendix

ANAGRAPHICAL DATA OF THE ENTREPRENEUR

- What is your name?
- How old are you?
- What is your marital status?
- Do you have children?
- What was your educational background and what degree do you have?
- Had you had previous entrepreneurial experience?
- What are the previous work experiences?

ANAGRAPHICAL DATA OF THE ENTERPRISE

- What is the name of the company?
- When was it founded?
- Under what legal form was it established? Why?
- What industry does the company operate in?
- In what does your characteristic activity consist?
- What is the location where the main activity is carried out?
- How many employees does the company boast?
- What are the innovative elements that characterize your enterprise?

PERSONAL CHARACTERISTICS

- Why and how did you choose to become an entrepreneur?
- What were the motivations that convinced you to acquire or start this company?
- What is your role within the enterprise?
- How are decisions made within your enterprise?
- What is the management style adopted by the entrepreneur?

ENVIRONMENT

- How did you select the location for your company? What development opportunities were seized?

- How is the environment (trade associations customers, suppliers, institutions, lenders) conceived in connection with one's enterprise and what are the exchanges with the outside world?
- How much and in what ways do you think the external environment (understood as the physical territory) affects business dynamics? What threats and opportunities does it offer?
- What relationships have supported the response to these threats and opportunities?
- Does the company belong to trade associations?
- What were the external stimuli that contributed most to the development of innovative elements?
- How and how much did the pandemic crisis impact business performance?

ORGANIZATION

- What were the internal stimuli that most contributed to the development of innovative elements?
- What do you think is the strength of the company?
- How do you try to differentiate yourself in the market?
- What is the corporate vision? How do innovative elements contribute to the pursuit of this vision?
- What is the corporate mission? How do innovative elements contribute to the pursuit of this mission?
- Where does your business idea come from?
- What kind of research was carried out? What kind of investments were made to support this project?
- Do you think the company's innovative elements are helping to limit the impact of the pandemic?

START-UP

- What, on the other hand, are your personal goals to pursue through your entrepreneurial activity?
- Where would you place, among these, the goal of profit?
- How are roles and tasks distributed in your company?
- How does the selection of employees take place in your company?
- How is business performance measured?
- How is inception capital raised?
- What are the major difficulties encountered in the start-up phase of the enterprise and implementation of the innovative elements?
- What is the role of the network of contacts in the start-up phase and implementation of the innovative elements?

INNOVATION

- 1st req: How does the company manage investment in research and development? (how resources are sourced, who is in charge of research)
- 2nd req: What is the educational background of other members of the internal organization?
- 3rd req: Does the company own a patent or license?
- Does the company use digital technologies in its production/organizational process? To what end?

The Evolution of Young Women's Career Priorities: An Educational Perspective

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Abstract: Modern society presents young women with many challenges that require them not only to have high professional competencies, but also adaptive and entrepreneurial skills. The transition from school to higher education is one of the key moments in young women's lives. It involves a revision of previous plans and aspirations. It is a time when reflection on one's career aspirations and how to achieve them takes place. The study is part of a strand of research on factors supporting and inhibiting women's careers. Its main objective is to verify to what extent young women's attitudes towards careers change in two successive stages of their education (secondary school and university). Particular attention was paid to the changes that occur in respondents' expectations of the level to which work satisfies their basic needs (such as, inter alia, job stability, good pay, good interpersonal relations or opportunities for development). Furthermore, the study examined how the self-assessment of the surveyed women evolves in areas such as life activity, motivation, openness to change and willingness to take risks. Surveys conducted among female secondary school and university students revealed significant differences in the perception of one's own capabilities and career preferences between the groups studied. At the same time, they demonstrate that young women's life priorities change with age. The results indicate that young women, as they enter adulthood and enter university, begin to focus more on their need for professional stability at the expense of their previously perceived needs for independence and challenge-seeking. As they gain academic experience, their professional expectations change, which can have far-reaching consequences for their entrepreneurship and future careers. The findings generate further areas of research that would aim to verify the factors influencing the change in attitudes. The results of the research may serve the developers of the core curriculum in secondary schools, study programmes, as well as employers interested in attracting young women into the workforce.

Keywords: Labor Market; Women's Entrepreneurship; Career Management; Women's Economic Awareness

1. Introduction

Women take on many roles throughout their lives. Foremost among these are the roles traditionally assigned to them for years, namely those of a wife, mother, and caregiver. Over the past several decades, however, there has been a continuous increase in women's professional activity as well as their involvement in the roles associated both with maintaining the family and developing their professional careers. For women, work is not solely a source of income and status (Matyjas, 2016), their motivation also includes financial independence, respect from others, relationships, and personal fulfillment (Sulik, 2010, p. 31).

Women's professional careers in Poland are hindered by numerous systemic, financial, social, and psychological barriers. These challenges influence women's perspectives on work well before they enter the job market. Young girls are often raised in the environments, where societal expectations emphasize their domestic and family responsibilities. Moreover, regulatory solutions to ease these burdens remain limited, particularly in areas such as affordable childcare, flexible and attractive workplaces, and men's involvement in domestic responsibilities (Institute for Structural Research, 2020). Approximately 64% of women report difficulties balancing work and parental responsibilities (Hays Poland, 2022). From an early age, young women are aware of these roles and the associated social expectations, which can heavily influence their career choices, often steering them towards jobs that allow for balancing work and family life in the long run (Goldin, Grant, 2014). As a result, they tend to prefer secure workplaces and avoid excessive occupational risks. This trend is particularly noticeable in roles that require a high level of commitment (Economic Policy Institute, 2016). Research also shows that the anticipated responsibilities of raising children, and the career breaks contribute to widening the wage gap between female and male workers (Chevalier, 2007). In Europe, this wage gap stands at 13% (European Commission, 2023), while in Poland, it is estimated to range from 4.5% (Polish Economic Institute, 2023) to 15.9% (Sedlak & Sedlak, 2023). Lower salary expectations among women (Fernandes et al., 2021) and a tendency to doubt their own competencies (Buser et al., 2014) further exacerbate this gap (Briel, et al., 2020). Consequently, women are less likely to aspire to managerial positions, partly due to the so-called impostor syndrome (Clance,

Imes, 1978). Some studies also suggest that women are less likely to take risks and often adopt a softer approach to competition and negotiations at work (Niederle, Vesterlund, 2007). It is also worth noting that stereotypes significantly influence women's self-esteem and the way they are perceived by others (Bordalo et al., 2019). Even during their education, young women are often encouraged to pursue "traditionally feminine" professions, such as teaching or caregiving, while being discouraged from entering high-paying fields like engineering or science (Economic Policy Institute, 2016).

As women grow up, they absorb cultural norms, stereotypes, and entrenched beliefs from their surroundings. These observed attitudes significantly shape the behavior of girls during their pre-adulthood phase (Kuźnik, 2021). Through the process of socialization, many of them adjust to societal expectations - a process that begins in childhood and continues into adulthood. However, it remains unclear how their views on their abilities and careers evolve or at what point their self-esteem and attitudes toward risk, stability, relationships, and expected salary levels begin to change.

This situation prompted the authors to conduct research to explore the hypothesis that this shift occurs during the transition from high school to university, a critical juncture between successive stages of education. The authors proposed that this is when women's attitudes shift from an idealistic perspective - seeking work that is exciting, independent, full of challenges and new opportunities, under the belief that "the world is my oyster" - to a more pragmatic one, where secure workplaces, good relationships, predictability, and safety take precedence. A review of the literature revealed that most studies on women's attitudes in the labor market focus on working women, while high school students and university students are rarely studied as separate groups in this context. Thus, the objective of this study is to examine authors believe that the findings of their research could partially address this identified research gap and provide a theoretical and methodological foundation for further studies on this phenomenon. Thus, the objective of this study is to examine whether women's attitudes change across these two critical educational stages—high school and university—and, if so, to determine the direction of this change.

2. Materials and Methods

To achieve the main objective of this paper, the authors conducted diagnostic tests among young women attending secondary schools and universities in Poland. The research employed a survey method using a self-designed questionnaire. The questionnaire consisted of demographics as well as key single-choice and multiple-choice questions. The research utilized an electronic survey form (Google Forms). Participation was voluntary and anonymous, and the research was conducted from April to June 2024. The survey was carried out on a random sample reflecting the number of women studying in secondary schools and universities in Poland during the 2023/24 school/academic year. Based on the data provided by the Polish Central Statistical Office, it was determined that in the 2023/24 school/academic year, 816,920 women were studying in secondary schools (as of September 30, 2023), and 728,464 women were enrolled at universities (as of December 31, 2023). From these populations, 500 female secondary school students and 500 female university students were randomly selected and invited to participate in the survey. The response rate among secondary school students was 87% and 435 correctly completed questionnaires were returned. Among university students, the response rate was 64.4%, resulting in 322 properly completed questionnaires that were included in the analysis. This allowed for the collected empirical data among the surveyed students to be representative, with a 95% confidence level ($1 - \alpha$) and a maximum margin of error of 4.7%. This means that the obtained results may differ by a maximum of 4.7% from the actual values for the entire population of women studying in secondary schools in Poland. In the group of female university students, a maximum margin of error of 5.46% was obtained at a 95% confidence level ($1 - \alpha$). The methods for frequency distribution of variables, such as: arithmetic mean, median, classical coefficient of variation, and basic numerical characteristics were used for the results analysis. The analysis was conducted using Statistica version 13.1 (StatSoft Poland).

3. Results

To explore the differences in career expectations and life attitudes among the surveyed women at two educational stages, their activities in selected areas were analyzed. The collected empirical data, along with statistical analysis, are presented in Table 1.

Table 1: Engagement (activity) of high school and university female students in the areas listed in the table below, where 1 means passivity (lack of engagement/lack of activity), and 5 means engagement/activity at the highest possible level.

<i>n</i> – numbers; $\bar{x}$ – arithmetic mean; M_e – median; V – classic coefficient of variation	Frequency of answers [%]				
Categories of Answers	1	2	3	4	5
Commitment to learning					
High School Students : $n = 435$; $\bar{x} = 3,3$; $M_e = 3$; $V = 32\%$	6	16	32	32	13
University Students: $n = 322$; $\bar{x} = 3,7$; $M_e = 4$; $V = 28\%$	3	11	24	39	23
Memberships in school/university organizations					
High School Students: $n = 435$; $\bar{x} = 2,6$; $M_e = 2$; $V = 50\%$	26	26	23	15	9
University Students: $n = 322$; $\bar{x} = 2,3$; $M_e = 2$; $V = 57\%$	39	24	17	12	8
Involvement in voluntary activities					
High School Students : $n = 435$; $\bar{x} = 2,5$; $M_e = 2$; $V = 53\%$	31	23	21	15	9
University Students: $n = 322$; $\bar{x} = 2,2$; $M_e = 2$; $V = 57\%$	38	24	22	7	9
Part-time or full-time job					
High School Students : $n = 435$; $\bar{x} = 3,0$; $M_e = 3$; $V = 47\%$	21	17	24	18	20
University Students: $n = 322$; $\bar{x} = 3,3$; $M_e = 3$; $V = 45\%$	19	11	22	18	30
Running a thematic channel on social media					
High School Students : $n = 435$; $\bar{x} = 2,3$; $M_e = 2$; $V = 61\%$	44	17	17	11	11
University Students: $n = 322$; $\bar{x} = 1,8$; $M_e = 1$; $V = 64\%$	59	15	14	7	4
Participation in optional internships or work placements					
High School Students : $n = 435$; $\bar{x} = 2,5$; $M_e = 2$; $V = 56\%$	35	20	18	16	11
University Students: $n = 322$; $\bar{x} = 2,3$; $M_e = 2$; $V = 56\%$	36	25	19	12	8
Extracurricular activities					
High School Students : $n = 435$; $\bar{x} = 2,8$; $M_e = 3,0$; $V = 51\%$	27	17	21	17	18
University Students: $n = 322$; $\bar{x} = 2,4$; $M_e = 2$; $V = 54\%$	33	23	22	11	11

<i>n</i> – numbers; <i>x</i> – arithmetic mean; <i>M_e</i> – median; <i>V</i> – classic coefficient of variation	Frequency of answers [%]				
Helping family or friends run a business					
High School Students : <i>n</i> = 435; <i>x</i> = 2,8; <i>M_e</i> = 3,0; <i>V</i> = 48%	21	23	21	21	13
University Students: <i>n</i> = 322; <i>x</i> = 2,8; <i>M_e</i> = 3,0; <i>V</i> = 51%	26	19	23	16	16
Taking initiative in your environment					
High School Students : <i>n</i> = 435; <i>x</i> = 3,2; <i>M_e</i> = 3,0; <i>V</i> = 37%	9	19	29	26	17
University Students: <i>n</i> = 322; <i>x</i> = 3,0; <i>M_e</i> = 3,0; <i>V</i> = 42%	15	21	28	21	16

The collected empirical data have revealed differences between the two groups in most of the activities studied. An analysis of the calculated means and medians of the responses indicates that the most significant differences between the groups were observed in the areas of running a thematic channel on social media and commitment to learning. Schoolgirls were more active than their older counterparts in running social media channels. However, it should be noted that the calculated coefficients of variation for both groups suggest significant variations in the level of engagement across all respondents in this field. In contrast, female university students demonstrated a higher level of commitment to learning, which may result from the greater academic pressure faced by older women at the higher education level. For schoolgirls, however, commitment to learning remained the most frequently undertaken activity. University students also demonstrated greater professional activity compared to schoolgirls, with employment being the second most intense form of engagement for this group. This finding suggests that employment becomes increasingly significant as students progress to higher levels of education. Additionally, when examining various activities of young women, it becomes evident that demonstrating initiative within their environment was a key aspect of their engagement. Younger women were more active in this regard than their older counterparts. For schoolgirls, this was the second most common activity, while for university students, it ranked third. The study also showed that younger women were more active in the following areas: membership in school or university organizations (e.g., student councils, academic/scientific clubs), involvement in volunteering, participation in non-mandatory internships or apprenticeships, and extracurricular educational activities. In the area of assisting close relatives or friends in running a business, the two groups of respondents demonstrated similar and moderate levels of activity.

The research also focused on women's aspirations regarding professional activity. The respondents were asked to indicate up to three (or/and write their own) expectations regarding their professional activity. The frequency of the respondents' expectations is presented in Figure 1.

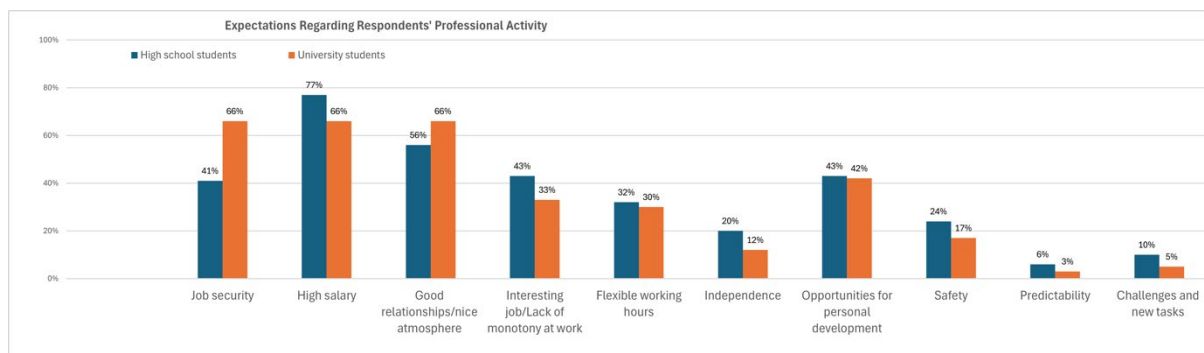


Figure 1: Expectations Regarding Respondents' Professional Activity

High earnings ranked as the top expectation among both groups, with 77% of schoolgirls and 66% of university students considering it a key factor in their future careers. It may reflect the growing financial awareness of young

women and their aspirations for material stability in adulthood. The second most important expectation was good interpersonal relationships and a positive work atmosphere, considered significant by 56% of schoolgirls and 66% of university students. Job stability was another critical factor for university students. For younger women, however, opportunities for personal growth and engaging work that breaks away from monotony were of greater significance. Nevertheless, job stability also remained a significant expectation for them. University students, in turn, prioritized opportunities for growth, engaging work, and flexible working hours as characteristics of an ideal job. The empirical data have also revealed that certain job expectations were more significant for schoolgirls than for university students. These included high earnings, engaging work (free from monotony), flexible working hours, and independence. On the other hand, university students placed greater emphasis on job stability and good interpersonal relationships, including a positive atmosphere at work. Notably, predictability was the least valued attribute among respondents, reflecting the priorities shaped by the demands of the modern labor market.

The respondents were also asked to indicate their life stance using a 5-point scale of opposing statements. The percentage frequencies of their responses are summarized in Table 2.

Table 2: Self-definition of respondents' life attitude

	Arithmetic Mean, High School Students (435), University Students (322)	
I prefer a less well-paid but stable job.	schoolgirl 4% 9% 38% 30% 18% student 11% 15% 43% 22% 9% 1 2 3 4 5 Percent 40 30 20 10	I prefer a less stable job but with high earning potential
I demonstrate a reactive attitude towards life	schoolgirl 3% 7% 32% 36% 22% student 2% 8% 31% 34% 25% 1 2 3 4 5 Percent 30 20 10	I demonstrate a proactive attitude towards life
I don't like changes	schoolgirl 8% 16% 33% 24% 20% student 9% 16% 39% 23% 13% 1 2 3 4 5 Percent 30 20 10	I like changes
I don't enjoy taking risk	schoolgirl 8% 13% 36% 26% 17% student 12% 23% 44% 16% 6% 1 2 3 4 5 Percent 40 30 20 10	I really enjoy taking risk
I am convinced that if I started a business, I would go bankrupt.	schoolgirl 7% 10% 36% 31% 15% student 5% 14% 41% 33% 8% 1 2 3 4 5 Percent 40 30 20 10	I am convinced that if I started a business, I would succeed in the market.

	Arithmetic Mean, High School Students (435), University Students (322)	
I don't adapt to the changing conditions and situations at school.	Heatmap showing percentages for 'I don't adapt to the changing conditions and situations at school.' for schoolgirls and students across 5 points. Schoolgirls: 3%, 9%, 34%, 37%, 17%. Students: 1%, 4%, 31%, 44%, 19%. Arithmetic means: 3.6 (schoolgirls), 3.7 (students).	I adapt perfectly to the changing conditions and situations at school.
When I work for a long time, I quickly lose motivation to keep going.	Heatmap showing percentages for 'When I work for a long time, I quickly lose motivation to keep going.' for schoolgirls and students across 5 points. Schoolgirls: 12%, 22%, 34%, 22%, 9%. Students: 7%, 17%, 40%, 26%, 9%. Arithmetic means: 2.9 (schoolgirls), 3.1 (students).	When I work for a long time, I easily maintain my motivation to keep going.
I am more inspired by people who run their own business than by those working in well-paid jobs (doctors, lawyers, managers).	Heatmap showing percentages for 'I am more inspired by people who run their own business than by those working in well-paid jobs (doctors, lawyers, managers).' for schoolgirls and students across 5 points. Schoolgirls: 23%, 15%, 35%, 14%, 13%. Students: 22%, 18%, 41%, 13%, 6%. Arithmetic means: 2.8 (schoolgirls), 2.6 (students).	I am more inspired by people working in well-paid jobs (doctors, lawyers, managers) than by those who run their own business.
Others consider me a passive and uncreative person.	Heatmap showing percentages for 'Others consider me a passive and uncreative person.' for schoolgirls and students across 5 points. Schoolgirls: 2%, 6%, 27%, 39%, 26%. Students: 2%, 6%, 29%, 40%, 23%. Arithmetic means: 3.8 (schoolgirls), 3.8 (students).	Others consider me a very creative/innovative person.
I have no career plans.	Heatmap showing percentages for 'I have no career plans.' for schoolgirls and students across 5 points. Schoolgirls: 9%, 14%, 32%, 29%, 16%. Students: 3%, 8%, 33%, 38%, 17%. Arithmetic means: 3.3 (schoolgirls), 3.8 (students).	I have clearly defined career plans.
Most of my decisions are impulsive.	Heatmap showing percentages for 'Most of my decisions are impulsive.' for schoolgirls and students across 5 points. Schoolgirls: 8%, 10%, 30%, 34%, 18%. Students: 2%, 6%, 25%, 42%, 25%. Arithmetic means: 3.4 (schoolgirls), 3.8 (students).	Most of my decisions are well-thought-out.
I am not determined to achieve my own goals.	Heatmap showing percentages for 'I am not determined to achieve my own goals.' for schoolgirls and students across 5 points. Schoolgirls: 1%, 4%, 26%, 36%, 33%. Students: 1%, 4%, 21%, 41%, 33%. Arithmetic means: 3.9 (schoolgirls), 4.0 (students).	I am determined to achieve my goals.

The analysis of the research data presented in Table 2 revealed notable differences between the two groups of women in terms of their attitudes. Younger participants were more likely than their older counterparts to prefer jobs with lower stability but high earning potential. They also demonstrated slightly greater acceptance of risk and openness to changes in their lives. A larger percentage of schoolgirls, compared to university students, expressed confidence that they would succeed in the market if they started their own business. In contrast, university students showed a greater ability to adapt to changing conditions and maintained higher motivation for long-term work.

Older participants were more likely to have clearly defined career plans and viewed their decisions as more thoughtful. University students were also slightly more driven to achieve their goals. Both groups identified themselves as having an active life stance, and their surroundings perceived them as creative and innovative individuals. The study also revealed minor differences in professional inspiration. For the majority of schoolgirls, individuals working in well-paid positions (e.g., doctors, lawyers, managers) were more inspiring than those running their own businesses.

4. Discussion

Several key insights emerge from the research findings. First, a comparison of the two respondent groups reveals a decline in extracurricular and community-oriented activities with age. This reduction in participation in unpaid social activities appears to be linked to changes in life circumstances. For university students, the priority often shifts toward self-sufficiency, specifically ensuring financial means for living. This focus on the economic aspects of life—such as finding and maintaining a paid position—often driven by factors like relocating (leaving the family home), which leads to higher expenses, as well as reduced family support that was more readily available earlier in life. As a result, the second group of respondents (university students) exhibits an increase in the professional activity.

On the other hand, the necessity of securing financial independence, as the research results indicate, influences how respondents perceive work. Younger respondents (schoolgirls) primarily expect their jobs to be interesting, full of challenges, and to provide them with independence. This attitude toward their future work and career—despite the relatively low level of clarity in their future plans—can be described as "bold" and "idealistic." These young women assume that they will find jobs that are satisfying, provide an adequate economic status (high earnings), and are engaging. For the second group of respondents (university students), there is a noticeable shift in the key factors influencing their perception and evaluation of work. Stability and good interpersonal relationships become priorities. Analyzing other findings specific to this group, it is also noteworthy that their level of "long-term thinking" and consideration of decisions increases. This suggests that entering the job market and experiencing its realities recalibrates their earlier expectations. On one hand, this represents a kind of "grounding" of expectations, particularly regarding their salary. On the other hand, elements critical to long-term work satisfaction, such as a sense of security, stability, reduced uncertainty and risk, and building relationships with coworkers, come to the forefront. This approach, in contrast to the one exhibited by the younger group, can be described as "pragmatic" and "realistic."

As a result, it can be concluded that transitioning from one age group to another, as well as between educational levels (from schoolgirls to university students), leads to a shift in priorities and attitudes toward work and career. This involves a change from a "bold" to a "pragmatic" mindset, and from an "idealistic" to a "realistic" approach. This is particularly significant because, until now, studies have not focused on identifying the exact moment when this shift in attitudes and expectations occurs. Most research tends to compare women in the labor market with men, emphasizing specific deficits and limitations. However, an interesting aspect is that these studies often discuss women who are already working, overlooking the expectations and attitudes they held just a few years earlier as students. This opens up opportunities for further research. It is important not only to confirm, as demonstrated by the example of Polish schoolgirls and university students, that such a change occurs but also to explore the reasons behind this shift—something that was beyond the scope of our study.

On the other hand, an essential question emerges regarding the nature of the shift in attitudes toward work and career between the two groups of women (schoolgirls and university students). If we consider that today's world and economy—including the labor market—are based on competitiveness and innovation, the decline in "boldness" among individuals entering the workforce could be viewed negatively. This shift may indicate a reduction in entrepreneurial skills, which is crucial if we aim to encourage young women to establish and develop their own businesses. If young women (such as university students) prioritize stability, security, and risk avoidance, convincing them to start their own businesses and harness their passions and potential may prove

challenging. However, it is crucial to recognize that "pragmatism" can also hold significant value. Just as innovation, the pursuit of the "new," and aggressive competitiveness fuel progress, economies also require a certain level of order—rooted in stability and predictability. Striking a balance between innovation and pragmatism could be key to fostering a dynamic yet sustainable economic environment."

5. Conclusion

The research found that, compared to high school students, university students are more likely to seek stable and predictable jobs, particularly those with lower risk. They also tend to express a preference for stability over change and draw greater inspiration from individuals in well-paid, stable positions rather than entrepreneurs running their own businesses. Based on the research findings, it is difficult to pinpoint the exact factors that cause this shift in perspective. However, if we want to foster entrepreneurial ideas among young women, it is important to identify the factors that make the risky and unpredictable world of business less attractive to them. Future research should explore whether this is influenced by opinions from close ones (such as parents encouraging them not to take risks and instead seek stability), societal stereotypes (which claim that women are not capable of running businesses) or educational institutions, which, in trying to protect young women from failure and disappointment, might portray a pessimistic view of entrepreneurship. It would also be valuable to examine the connection between students' financial standing and their career aspirations. The university years may serve as a period of 'reality checking,' during which young women, facing reduced support compared to earlier years, may choose to abandon their dreams in favor of a faster, more stable route to securing a reliable income.

Addressing these factors could provide important insights into how to better encourage and support young women in pursuing entrepreneurial ventures. It is also important to ensure that universities offer professional internships or practical courses that allow students to experience firsthand what it is like to run their own business and determine to what extent this could be their career path. Additionally, fostering closer collaboration between universities and businesses is essential, allowing active entrepreneurs to help young people distinguish between genuine risks and unrealistic fears that may hinder the pursuit of their passions and aspirations. While we do not expect all female students to aspire to run their own businesses, we aim to promote the concept of entrepreneurship as a form of proactivity, agency, and effectiveness. We believe that a society that embraces entrepreneurship with both courage and thoughtfulness not only enjoys a higher standard of living but also experiences greater emotional well-being, contributing to an overall sense of fulfillment.

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Challenges for Women Entrepreneurs in Times of Crisis and Tools for Overcoming Them¹

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Abstract: Crises like the COVID-19 pandemic have significantly impacted women entrepreneurs. Policies designed to support entrepreneurs have often followed a one-size-fits-all approach, overlooking men's and women's unique needs and unequal access to state support. Recognizing these gender disparities, our analysis centres on the perspectives of policy-makers (both during and beyond the pandemic) as well as on the experiences of those the policies aim to support. The study is based on 17 in-depth, semi-structured interviews with low-income women entrepreneurs in the Czech Republic, along with three group discussions with policy-makers during and after the pandemic. We explore the level of policy-making through the views of policy-makers and compare these with the perspectives of women entrepreneurs affected by these policies. The findings reveal notable differences in how problems and solutions for women's entrepreneurship are viewed, not just between policy-makers and those impacted but also within these groups. Our paper highlights fundamental issues in policy-making, including the neglect of structural barriers affecting women entrepreneurs, the neglect of necessity-driven entrepreneurship, and non-systematic state support.

Keywords: Entrepreneurship, Gender, Crisis, COVID-19, Policy

1. Introduction

The COVID-19 pandemic was a major social and health crisis with highly unpredictable economic and social consequences (Belas *et al.*, 2022). The pandemic had specific impacts on certain groups of people - entrepreneurs who were more affected than employees (Belitski *et al.*, 2022). Women entrepreneurs were more affected than men entrepreneurs (Birhanu, Getachew and Lashitew, 2022) due to the fact that women's businesses are smaller and younger, and therefore more vulnerable in times of crisis. In addition, women are predominantly employed in the service sector, so the impact of the pandemic was worse for them (Kalenkoski and Pablonia, 2022). As women tend to be the primary caregivers for children and relatives (Sharma, 2004), they were more affected by caring responsibilities during the pandemic than men.

There was also an unequal impact on men and women, given the nature of state support for the pandemic (Birhanu, Getachew and Lashitew, 2022). In most cases, policies were universal and did not take into account existing structural inequalities. They were also overwhelmingly designed by men, reflecting their experiences (Njiwa *et al.*, 2023). Pandemic support was found to be used differently by women and men (Elhan-Kayalar, Sawada and van der Meulen Rodgers, 2022) and less accessible for women (Torres *et al.*, 2023). As a result, the support system exacerbated structural inequalities.

Given the gendered nature of the pandemic's impact and the policies implemented during the pandemic, we are interested in how the perceptions of policy-makers differ from the perceptions of the beneficiaries of policy interventions. In this way, we can provide insights into how the needs of women entrepreneurs are perceived and how they are or are not taken into account in policy-making. Specifically, we focus on low-income women entrepreneurs in Czechia. We examine the low-income group with the view that they should be the ones most in need of state support.

2. Theory

Recent studies examining the gendered nature of entrepreneurial support policies highlight that these policies often take a neoliberal approach, focusing on individual capabilities and placing the responsibility for

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overcoming inequalities on individuals (Ahl and Marlow, 2021). The individualistic conception of the entrepreneur—often characterised by masculine attributes (Lewis, 2006)—fails to take into account the unpredictable and arbitrary factors inherent in the employment relationship between employee and employer. However, in the context of entrepreneurship, including involuntary entrepreneurship, all responsibility shifts to the individual, who is assumed to be healthy and free from obligations such as caring. In the case of women's entrepreneurship, these analyses reveal that support policies largely ignore structural issues. As a result, entrepreneurship is sometimes promoted to women as a solution when traditional employment isn't feasible, even though entrepreneurship often places them in a precarious situation out of necessity rather than choice. Academic critiques suggest that this policy approach views entrepreneurs as functional components of the economy, rather than as individuals with different (not only economic) goals (Perren and Jennings, 2005).

Analyses focusing on support for entrepreneurship point out that entrepreneurship is not always the best solution for an individual situation. The focus should be on improving the labour market situation in general, reducing inequalities, improving access to economic resources, ensuring greater inclusiveness in decision-making, and better data mapping the problems faced by women entrepreneurs (Orser, 2022). Entrepreneurship policies have faced criticism for being time-limited, small-scale, and sparse, as well as focusing on symptoms rather than root causes. They also lack a comprehensive framework for effectively supporting women entrepreneurs (Manolova *et al.*, 2017). To address these shortcomings, policies must consider the unique contextual characteristics of the environments in which women operate their businesses (OECD, 2021). In general, efforts to change women entrepreneurs without changing unequal structures are criticised for constructing women as a specific group that is less capable (Ahl and Marlow, 2021) and for failing to take into account the complexity of inequalities (their intersectional nature). However, most entrepreneurship policies focus on changes at the individual level, rather than broader cultural and normative changes. (Henry *et al.*, 2017).

While most of the literature focuses on policy content or recommendations, there's little research on the perspective of policy-makers. Building on the critique of individualistic approaches, we explore barriers and support tools for women entrepreneurs not only at the individual level but also at the institutional and societal levels (see also Muntean and Ozkazanc-Pan, 2015). Our approach considers the perspectives of policy-makers and beneficiaries to understand how each group views the impact of these levels.

Understanding the views of policy-makers is crucial, as they directly influence policy outcomes. Including their perspectives also makes it possible to understand the reasons why certain policies are adopted. Comparing policy intentions with the actual experiences of women entrepreneurs shows how well policies meet their needs.

3. Context of Czechia

Traditional gender roles are still prevalent in Czechia, with men being the main breadwinners and women being the main carers for children and other relatives, a division that is considered correct by society (see ISSP, 2012). The division of roles is also perpetuated by the high gender pay gap in Czechia (17.9%, EU average 12.7%) (Eurostat, 2021). Czechia also has one of the longest parental leave periods in Europe (3 years), which keeps women out of the labour market for a long time. However, families in most cases need two incomes, which leads to high female employment (67.1%, EU average 63.4%) (CZSO, 2022) and double burden of work and care. Women in Czechia often enter entrepreneurship due to family responsibilities, lack of labour market flexibility, part-time work and labour market discrimination. Gender inequalities also exist in entrepreneurship, with women making up only 31% of all self-employed and business owners (550,000 male and 252,000 female entrepreneurs in 2022) (CZSO, 2023). As in other countries, women-owned businesses are 'younger' than those owned by men (CRIF, 2022), and there are more of them in the service sector (CZSO, 2023). On the other hand, they are described as more stable than those run by men.

3.1 Context of Pandemic Impact and Types of Government Response

The Czech Republic was one of the European countries hardest hit by the pandemic, with high mortality rates (WHO, 2022) and a significant impact on care. Schools were closed for 38 weeks, longer than in most European countries (UNESCO, 2021), with mothers of young children most affected (Dudová and Křížková, 2023). State support helped businesses, including the 'crisis attendance allowance,' which covered 80% of wages for parents with children under 13 (later, under 10). Entrepreneurs, who are not normally entitled to care allowances, received CZK 424 (EUR 16) per day during school closures. In the first wave of the pandemic, compensation allowance was paid for the state closure of enterprises. The compensation was a lump sum (about EUR 40 per day). In addition, social security and health insurance contributions were waived for six months. These measures

did not distinguish between large and small enterprises (with different operating costs). They were appreciated by entrepreneurs for their low administrative burden.

There were also schemes for employee retention and rental support, but these were introduced too late for many businesses (often after employees had already been made redundant) and the application process and eligibility criteria were demanding. Some entrepreneurs feared that they would have to repay the subsidy. In subsequent waves of the pandemic, the compensation allowance was reintroduced with more onerous requirements, such as declaring a reduced income compared to previous periods (which was problematic for new entrepreneurs), and could no longer be combined with the crisis attendance allowance. After the reopening of schools, many children were still in quarantine, and entrepreneurs were again not eligible for the crisis attendance allowance that employees could receive (the problem of the unequal conditions between the employees and entrepreneurs, see also Dlouhá et al. (2014)).

This context highlights existing gender inequalities, the impact of the pandemic, and the Czech Republic's response measures. Our research examines how this support was perceived.

4. Research Questions

How do perceptions of the barriers faced by women entrepreneurs (not only) during the COVID-19 pandemic, and the tools to overcome them, differ between women entrepreneurs themselves and those involved in shaping policy for women entrepreneurs?

5. Methodology

Our work focuses on comparing the perspectives of women entrepreneurs and policy-makers. In our work, we wanted to capture the importance of state support in the context of women entrepreneurs' working and personal lives. In the case of the group of policy-makers, we were also interested in contrasting the perspectives of actors from different backgrounds. For both groups, we were interested in their narratives about state support, so we focused on capturing the issues in detail through the eyes of the actors, for which a qualitative approach seems more appropriate. We conducted 17 semi-structured interviews with low-income women entrepreneurs. Women faced significant challenges during the pandemic, and low-income groups tend to be neglected by research. We build on research that emphasises the non-economic and non-financial goals of entrepreneurship (Sadeghiani *et al.*, 2021) and give these entrepreneurs a voice. The interviews took place between May and June 2021, during the period of (some) pandemic restrictions. They were therefore also conducted online, with audio and video transmissions. Communication partners were recruited by an external agency. The interviews themselves and their analysis were carried out by the researchers. The sample was selected to ensure diversity in terms of age, region and business sector. The interviews focused on entrepreneurial careers, the motivation to become an entrepreneur, the main barriers faced by entrepreneurs and the tools they used. Space was given to family careers and their links to entrepreneurship. A special section was devoted to the pandemic period that was ongoing at the time of the interview and the outlook for the future.

The experiences of policy-makers were captured through focus groups (workshops). This method was chosen because we wanted to capture the perspectives of a diverse group of actors who can influence policy-making in the economy. We drew on the quadruple helix model, which suggests that it is appropriate to use interactions between four categories of actors - public authorities, private companies, academic institutions and civil society/associations - to explore the influence of gender and other power structures (Lindberg, Lindgren and Packendorff, 2014). These included policy-makers, representatives of business support organisations (NGOs), representatives of professional associations of women entrepreneurs (business) and academics working on women/gender in business. We conducted two face-to-face workshops during the pandemic (the first in 2022, with 11 women and 1 man, the second with 3 men and 13 women) and one as a post-pandemic reflection (2024, with 13 women and 3 men). A similar number of women and men were approached, with men mostly either declining to participate or sending their female colleagues in their place. The workshops focused on the challenges faced by (women) entrepreneurs (not only) during the pandemic, the tools they can use to overcome them and those that are currently lacking and would help their situation. Special attention was given to some policy measures such as attendance allowance, sick leave for entrepreneurs and others.

Interviews were transcribed verbatim and detailed notes were taken at the workshops, accompanied by field notes. The transcripts and notes were triangulated by the three researchers who attended the workshops. The

data were analysed using Atlas.ti software. We used thematic analysis (Braun and Clarke, 2006) to identify key themes and explore the relationships between them. Specifically, we applied open coding (Strauss and Corbin, 1998) to the data, focusing on our research questions. The codes generated were then grouped into subcategories (individual, institutional and structural levels), which were further combined into broader categories (barriers, tools). Throughout this process, we examined the links between the codes, subcategories, and categories to understand their relationships.

6. Analysis

The analysis focused on comparing the main barriers entrepreneurs face (not only in times of pandemics) and the tools they can and do use at three levels - individual, institutional and structural (Muntean and Ozkazanc-Pan, 2015). We divide the analytical part into two parts, first focused on the barriers for women entrepreneurs and second focused on the tools to overcome these barriers and we compare the attitudes of policy-makers and women entrepreneurs themselves.

6.1 Barriers Faced by Women Entrepreneurs

Among policy-makers, *individual barriers* were highlighted mainly by government representatives. They discussed the lack of entrepreneurial skills, not only of women but of entrepreneurs in general. It was common for them to criticise the lower performance of women entrepreneurs (compared to men) due to caring responsibilities, seeing this as an individual issue. They also saw entrepreneurs as personally responsible for their career choices and the decision to start a business. Part of the view on entrepreneurial challenges at the individual level stemmed from a broader perception of entrepreneurship. Some government experts believed that entrepreneurship should be a prestigious activity carried out by informed, profit-seeking individuals who take personal responsibility. They tended to overlook entrepreneurs who started businesses out of necessity, especially those with low profits. The precarious situation of these entrepreneurs were seen as personal problem. For example, during the pandemic, failure was often attributed to individual women, who were blamed for not adapting their businesses to the uncertain and changing conditions, which was seen as a personal failure.

Policy-makers identified a number of *institutional* challenges related to the design of support for entrepreneurs. A key issue is the lack of a systematic approach, where it is often unclear which specific problems—in particular those faced by women entrepreneurs—should be addressed. This leads to ineffective support tools, with arbitrary target groups. Experts also highlighted systemic problems, such as limited access to finance, inefficiencies in state support, cumbersome administration, and poor digitalisation. In addition, government underfunding leads to a shortage of skilled staff, leaving government institutions without the knowledge or data to effectively address the challenges faced by entrepreneurs. As a result, policies are often based on impressions, rather than on real data and evidence. This lack of understanding also means that certain types of entrepreneurs, such as those in low-income groups, are overlooked. Government policies are often criticised for lacking a comprehensive, up-to-date perspective and for creating uneven conditions between employees and entrepreneurs. During the pandemic, these problems became even more apparent, with policies often based on experts' perceptions rather than data-driven insights into the real needs of entrepreneurs. Support measures tended to be one-size-fits-all and failed to address gender and intersectional inequalities. While there were temporary efforts to address these gaps, such as allowing entrepreneurs to receive attendance allowances, these measures were not part of a broader, long-term strategy. Meanwhile, the bureaucratic burden grew, and the complexity of benefits increased as the design and conditions of support evolved during the pandemic.

Policy-makers also addressed the *structural* issues that worsen conditions for women, although these were mentioned less frequently. The main issues identified were those that push women into business involuntarily. Specifically, these were labour market challenges, such as the lack of flexible and part-time jobs, which often force women into entrepreneurship. These concerns were discussed in broad terms, without considering their implications in the context of a pandemic.

Women entrepreneurs often identified barriers at an *individual level*, such as lack of information, but did not consider them to be fundamental. They believe that there were personal ways of overcoming them. During the pandemic, they noted the lack of information and experienced confusion, but overall they felt able to cope, often with the support of their families.

At the *institutional* level, several problems were identified, with the design of policies for entrepreneurs and parents being particularly important. The bureaucratic nature of support systems was criticised, as was their

inability to address the specific challenges faced by (female) entrepreneurs. These challenges included difficulties related to parenthood, maternity and parental leave, sickness benefits, and pension entitlements. Other support programmes for entrepreneurs were not mentioned. The pandemic highlighted and exacerbated some of these issues, such as problems with sickness benefits. Some temporary solutions were introduced, such as the provision of attendance allowances, but these were only short-term solutions.

Most women entrepreneurs faced *structural barriers* that they felt they could not change. The most common of these is the challenge of balancing business and caring responsibilities, which prevents them from devoting more time to their business. This was particularly difficult for single mothers. Some women also chose entrepreneurship out of necessity because they couldn't find flexible employment opportunities. The pandemic exacerbated these barriers, as increased childcare responsibilities during this period made it harder for entrepreneurs to cope. Even those with established businesses before the pandemic began to experience these structural challenges. For example, women approaching retirement age, who had suffered business losses, struggled to find traditional employment and faced discrimination. New businesses faced more difficulties than established ones. Often this was not a major problem for the entrepreneurs because they were not dependent on the income from the business. However, it slowed down the process of starting a business.

Some entrepreneurs did not see the pandemic as an important issue because of their business motivations. For some, financial gain was not the primary focus. These entrepreneurs often had financial security, typically from their family background or a partner. For them, entrepreneurship was more about personal fulfilment or finding a balance between family commitments and work, with the economic aspect being secondary.

6.2 Tools That Women Entrepreneurs can and are Using to Overcome These Barriers

Policy-makers highlighted several tools to support women entrepreneurs, particularly those aimed at improving the *individual* level such as training to improve women's skills. Some experts believe that there is no need to focus on this level, as they see information and education as an individual responsibility. They emphasise that the current system is sufficient and that anyone who wants to find information can do so. This sense of individual responsibility is seen as a core principle of entrepreneurship. Experts also pointed out that tools such as commercial insurance and private reinsurance are important for individuals. Programmes to support successful women were also mentioned, but most of these are partial initiatives targeting specific groups rather than addressing the wider systemic issues. In the context of the pandemic, some experts see women as responsible for coping with difficult situations and seeking out available support. Some even argued against targeting support specifically at women, believing that resources should be universal.

Experts discussed various tools at the *institutional* level. Some stressed the importance of taking a holistic approach to addressing the needs of women entrepreneurs, such as ensuring their inclusion in all policy documents. Adapting existing systems to better serve entrepreneurs was also seen as crucial. For example, measures such as crisis attendance allowances exposed inequalities between entrepreneurs and employees. Some experts called for a rethinking of support programmes to target specific groups facing challenges in business, such as migrants. Some experts also stressed the importance of collecting data to better understand the barriers faced by entrepreneurs. This information would provide the basis for designing and implementing effective support measures. Only then can an intersectional approach be achieved. This issue became even more pressing during the pandemic, which raised concerns about whether institutions were effectively meeting the needs of women and entrepreneurs.

Tools at a *structural* level were rarely mentioned by the experts. Some emphasised the need to change the perception of entrepreneurs as "criminals," while others stressed the importance of changing the view that entrepreneurs are independent, self-reliant individuals who don't need support or assistance.

Women entrepreneurs, on the other hand, tended to deal with their challenges at an *individual* level, often with the support of their families and without relying on state assistance. However, the pandemic made this approach more difficult in many cases. The usual methods women relied on to solve problems either stopped working or became more difficult. In addition, the increased reliance on family support had a negative impact on family dynamics and budgets.

At the *institutional* level, women entrepreneurs did not benefit from programmes designed to support entrepreneurship. Instead, they mainly discussed measures such as sickness benefits or parental leave. However, these benefits were difficult to access because they required planning. During the pandemic, state support became essential because of the challenges of finding individual solutions. Interestingly, some did not

see crisis attendance allowances as 'help' but as a financial reward for the extra care they provided. On the other hand, some women were unable to access state support because of the start-up nature of their businesses.

Within the individual solutions, *structural* issues emerged as a context rather than being explicitly mentioned. For example, in the context of the pandemic, opportunities to adapt a business to the situation or to find conventional employment depended on caring responsibilities, age, partner support and other factors.

However, some entrepreneurs did not seek tools to improve their situation. For example, they didn't use state support because they didn't think it was necessary. They saw entrepreneurship as important in non-economic terms and believed that the situation would improve once the pandemic was over. For them, the pandemic revealed their economic dependence on their partners and the declining importance of their economic activity within the household.

7. Conclusion

The analysis of interviews with policy-makers and women entrepreneurs reveals very conflicting perspectives on the barriers to women's entrepreneurship and their solutions. A complexity of perspectives emerged, looking at the individual, institutional and structural levels of the problems. While women entrepreneurs mostly opted for individual solutions and saw structural problems as specific obstacles to their individual paths, policy-makers' understanding of the issue depended on how they viewed entrepreneurship as such. In particular, state actors emphasised that an entrepreneur is a person who runs a business of his or her own choice, is independent, and is driven by economic growth (for a critique of this approach, see Ahl and Marlow (2021)). They crowded out the existence of precarious entrepreneurs who choose entrepreneurship out of necessity. From this perspective, barriers were seen as an individual problem that did not need to be addressed systematically. According to these actors, those who cannot overcome these barriers should not be entrepreneurs. Other policy-makers (NGO and business representatives) offer different perspectives, pointing to structural inequalities that affect individual entrepreneurship and the position of entrepreneurs. State actors have also often understood entrepreneurs as certain parts of the economic system that contribute to the economic prosperity of the state (see the critique by Perren and Jennings (2005)). However, women entrepreneurs themselves often did not have economic goals, preferring for example flexibility or self-fulfilment. The policy-makers' overlooking of the systematic problems faced by women entrepreneurs is mainly due to the fact that state actors do not work sufficiently with data (see also Henry et al. (2017) and Orser (2022)).

The pandemic proves to be a particular moment when the commonality of policies is eroded and, in some cases, the shortcomings of the normal functioning of these policies become apparent. Policy-makers in these situations also recognise that problems need to be addressed systematically, not just individually. The example of the crisis attendance allowance, which highlighted the differences between the situation of entrepreneurs and employees (Dlouhá, Jurik and Křížková, 2014), showed that policy-makers recognise the need for structural support.

Although the greater impact of the pandemic on women compared to men is known internationally (Birhanu, Getachew and Lashitew, 2022), this is not much considered in the Czech context (for the importance of context, see OECD (2021)). This is generally due to the perception that entrepreneurs are responsible for their own path and destiny and that entrepreneurship out of necessity is not considered entrepreneurship. At the same time, it is typical for Czechia to emphasise care as an individual responsibility of women in particular (see statistics on care (ISSP, 2012)). Thus, inequalities related to being a woman and care responsibilities are generally seen as an individual responsibility of women. This can mean that not only does the form of state support in situations such as pandemics not take the gender dimension into account, but it is also seen as appropriate. The need for support then only arises in cases of when there is a significant economic impact or when specific needs (such as those related to care) are articulated strongly enough. However, as our data shows, women entrepreneurs are used to finding individual solutions and continue to do so even in times of crisis. Their problems may therefore remain hidden. Furthermore, support is limited to specific crisis situations and lacks a comprehensive understanding of the challenges faced by women entrepreneurs (see Manolova et al. (2017)).

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A Critique of Normative Play Constructs and Their Impact on Gender Diverse Children

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Abstract: The paper examines how play in the early years contexts continues to be informed and governed by parents and professionals through normative gender play constructs. It explores how psychologies of development read play in particular ways that can impact how children learn about gender especially when their movements and interests are corrected by adults in their lives. Play through a dominant developmental psychology approach is a mechanism for assessment where diversions of play outside normative gender play expectations can be questioned and lead to intervention. With play at the centre of practice in the field of early childhood education, it is critical to examine how normative pedagogical structures of play informs children's gender expression. This research aims to examine what happens when children's play is viewed predominantly through a traditional developmental psychology approach and how these perspectives are detrimental to young children's sense of self. The data is derived from a qualitative research study that used semi-structured focus groups with 15 early childhood educators (ECEs) who work with young children, ages 3-5 years, at licensed early childhood centres in Nova Scotia, Canada. ECEs play an important role in shaping young children's understandings of gender, therefore it is necessary to learn more from their lived experiences. The findings show that when play is structured predominantly through heteronormative forms of gender categorization it can stifle children's diverse gender expression. This research concludes by arguing that diverse forms of play that support gender fluidity for young children is crucial to liberate children from traditional gender normative play paradigms.

Keywords: Gender, Play, Normative, Early Childhood Education, Critique

1. Introduction

Early childhood education has a long history of being derived from principles of developmentally appropriate practice (DAP). The importance of play development in the early years is evident as leading scholars, like Piaget, Vygotsky, Bowlby and Erickson are emphasized as authorities on play. Traditional psychological developmental approaches to play that reproduce normative boy/girl gender expectations are potentially harmful to children who have a desire to explore gender identity roles and different play situations in more open ways. In this paper, I argue the requirement to disrupt normative gender constructs of play that limit young children to explore their gender identities in diverse ways. I draw on data from two previous studies that I conducted on gender in the early years' context within Nova Scotia, Canada to highlight how normative gender play schemas regulate the ways that children perform gender. For example, we have typologies of play, namely: exploratory play (e.g., child explores materials), symbolic play (e.g., use materials to symbolize something else; a plate is a steering wheel), dramatic play (e.g., role playing as a mother; reenact social scenarios), pretend play (e.g. playing dungeons and dragons), and locomotor play (e.g., physical movement; expectations for how girls play - art vs how boys play – rough and tumble) that early childhood educators (ECEs) prioritize to enhance child development. Play then becomes this mechanism to assess children's development and the consequence is often boys and girls can only play in particular ways. That is, a child performing outside the binary of boy/girl is subject to intervention to normalize their play. Here, I aim to present a critique of what happens when children's play viewed by adults predominantly through a traditional developmental psychology approach is detrimental to young children's sense of self. This work is important as early years settings are primary sites of normalization and where binary constructs of gender are legitimized. Moreover, families and ECES play a pivotal role in shaping young children's understandings of gender as they spend a significant amount of time with them from the ages of 12 months to 5 years (Reddington, 2023).

2. Normative Gender Expectations

Early year environments have a long history of reproducing heteropatriarchal values that send problematic messages to young people, families, and educators regarding the maintenance of gender rules and norms. Critical early childhood researchers who examine children's gender expression acknowledge this history flagging how the actions of parents and educators often unknowingly reinforce normative gender constructs (Abreu et al, 2019; Aina and Cameron, 2011; Blaise, 2005; Callahan and Lucy, 2019; Neary and Rasmussen, 2020; Reddington, 2020; Servos et al, 2016). For example, we see stereotypical gender play directed by adults routinely in public spaces. Boys are invited to engage in rumble and tumble play, yet girls are cautioned not to get their

new sparkly tops dirty. As Osgood and Robinson (2017) state, “children actively negotiate, resist, constitute, and perpetuate the cultural narratives of what is considered *appropriate* and *correct* gender performances of being male or female” (pp.40-41, emphasis added). Thus, play becomes this site in which children are expected to maintain what it means to be a boy or a girl. Children’s play is also under scrutiny and surveillance in the context of early years spaces with the expectation that young children maintain heteronormative constructs (Reddington, 2020). As Berkowitz and Ryan (2011) remark “one of the primary roles of parents is to train children to fit in appropriately with prescribed gender norms” (p. 333). This is a product of Westernization and the accepted cultural perspective that view gender within two categories of being; man and woman (West and Zimmerman, 1987). The implications of traditional Western perspectives on gender are that doing gender in early childhood often equates to constructing differences between boys and girls that reinforces an essentialist view and aims to legitimize traditional gender constructs (Gunn, 2011). Given this, there is a dire need for educators to disrupt normative play expectations regarding gender and to respect children’s freedom of expression (Hill and Bartow Jacobs, 2020). However, research shows that early year settings continue to reinforce normative gender play constructs (Blaise, 2005; Osgood and Robinson, 2017, Reddington, 2020). “Boys, for instance, typically dominate blocks centres, which are often set up to reflect the public sphere, while girls tend to dominate socio-dramatic play centres” (Priolella and Davies, 2024, p. 259). This is further complicated when early years sectors pedagogies are rooted in developmental models.

Reddington (2023) addresses the frequency in which educators turn to developmental logic when addressing gender dynamics during unstructured play. It becomes an act of boundary maintenance where adults consistently take on the role of monitoring children’s gender expression to maintain gender normativity. Kane (2012) similarly highlights this form of surveillance, calling it a “gender trap” and explaining how even the best-intentioned adults will still expect young children to fit within the parameters of a masculine boy/feminine girl binary (p.3). For instance, Kane (2006) interviewed 43 parents whose fathers went to great lengths to ensure their sons reproduced masculine ideals and would take drastic measures if their sons were engaging in feminine types of play. Alternatively, girls are often given more leeway (Reddington, 2023; Thorne, 1993). Other studies show how young children imitate homophobic and transphobic language they hear from families, and this is further complicated when parents associate diverse gender expression in the early years with future homosexuality that then elicits parents to influence their children’s gender identity (Martin, 2005; Robinson, 2013). Averett (2016) explains how parents often feel “observed, scrutinized, or held accountable for their child’s gender behaviour” (p. 199) and thus work to reinforce normative gender processes to silence the public scrutiny.

Notably, we have seen some shifts towards adults supporting gender variance. Rahilly’s (2015) study of 24 parents with transgender children highlighted how adults in their children’s lives took great measures to protect their gender diverse children in public spaces. However, Rahilly describes how the adults still felt pressured to maintain normative gender expectations describing how one parent would permit their son to wear pink socks in public, but not a dress. This addresses the potential pressure parents face to produce an “overall front of normativity” (Rahilly, 2015, p. 347). Research comparatively shows that children who have supportive parents have higher life satisfaction and self-esteem, and fewer depressive symptoms compared to children with non-supportive parents (Olson et al, 2016). There is a requirement to explore deeper the implications normative constructs of play have on young children’s gender expression. To support this inquiry, I draw on the experiences of 15 ECEs working with 3–5-year-old children in licensed early childhood centres in Halifax, Nova Scotia, Canada. The first voice perspectives of ECEs are important as they have the capacity to disrupt static normative gender play expectations for young children and attend more readily to the messy entanglements of gender in early years settings (Dyer, 2017; Reddington, 2023).

3. Critical Gender Framework

I apply a critical gender framework to disrupt traditional developmental psychology approaches and prioritize the situational ways in which children express their gender during play. Critical scholars in the field of early childhood and education have already advanced this agenda through the critique of normative gender constructs within early year spaces as mentioned earlier. Part of this critique has been to question hierarchical gender binaries and how adults play a role in reinforcing (often unknowingly) normative gender-stereotypical play expectations (Blaise, 2005; Mac Naughton, 2000; Pacini-Ketchabaw et al, 2015; Priolella and Davies, 2024; Reddington, 2020, 2023; Richardson and Langford, 2022; Robinson et al, 2017). For example, Dyer (2017) illuminates how developmentally appropriate practice (DAP) models are problematic as they stifle young children’s capacities and limits their possibilities to express their gender in more open and fluid ways. This is further complicated when play environments continue to reproduce traditional binary family-related play

values, such as: dramatic play areas dominated by girls and block areas used mostly by boys (Reddington, 2020). Prioletta and Davies (2024) identify how “architectural design of classrooms functions to regulate gender to specific specialities that reinforce its dualistic conceptualization” (p. 259). A critical gender framework can, therefore, shift the focus “from the individual child produced through developmentally appropriate practice models towards more fluid understandings of gender informed by children’s affective relations within early learning spaces” (Reddington, 2023, p. 13). It provides opportunity to examine the interpersonal processes children have with others and materials during play rather than applying universalized ways of thinking. A critique of traditional developmental approaches also offers opportunity to give greater attention to the mediated gender relations that children experience during unstructured play. It acknowledges that children’s ideas on play are expansive.

The turn to a critical gender framework is particularly pertinent as previous work shows that educators can feel stuck within the realms of developmental logic and fear the repercussions if they invite children to explore their gender more freely (Dyer, 2017; Prioletta and Davies, 2024). Thus, “critical” is understood in this research to challenge normative gender constructs of play and work towards more gender inclusive practices in early childhood education. It is important to stipulate that a critical framework is not one view or lens on gender, rather, it invites a multiplicity of critical views on how gender gets constructed in the lives of young people. Therefore, in this study, I draw on critical gender scholars in my analysis to highlight the limitations when thinking through developmentally appropriate practice approaches in relation to gender and play. By mobilizing a poststructural stance from gender scholars in the data analysis, we can begin to account for the complexity of gender in the field of early childhood education. This is needed as developmentally appropriate practice continues to dominate the early childhood sector in Canada. As Richardson and Langford (2022) state, “as college and university educators who have taught ECE students for many years, we are troubled by this dominance because it limits opportunities for students to engage with different perspectives on children’s development and experiences” (p. 409). Therefore, in this inquiry the use of a critical gender framework offers a space to question normative gender constructs of play and to think about alternative ways to support gender diverse children.

4. Nova Scotia Early Years Curriculum

Given this research was conducted in Nova Scotia, it is important to briefly outline the Nova Scotia Department of Education and Early Childhood Development’s (DEECD, 2018) early years curriculum framework in relation to its approach to gender inclusive programming. The early years curriculum framework, titled, *Nova Scotia Early Years Learning Curriculum Framework: Capable, Confident, Curious* makes a statement about “not making assumptions about a child’s gender, to see the full potential of a child and to trust the child’s choices in relation to toys, play, self-identification and expression” (DEECD, 2018, p. 31). In addition, it encourages ECEs to follow these gender inclusive principles:

- Use gender inclusive language as much as possible. Rather than addressing groups of children as “boys and girls”, use “children” and “everyone.”
- Organize children into groups rather than “boys or girls.”
- Avoid using gendered terminology to make it easier for children and families who are gender non-conforming to feel valued and included.
- Ensure all children have access to materials and encourage children to explore their full range of interests without gendered expectations (e.g., “this area is for boys”).
- Include a diverse selection of literature in the learning environment around gender identity, gender expression, and family diversity, such as families with same sex parents or guardians, single parent families, grandparents and extended family roles, and foster families.
- Educators may wish to engage children in conversations that broaden their understanding of gender, being oneself and respect for gender diversity. (DEECD, 2018, p. 50)

Given the participants in this study are guided by this early learning curriculum framework, it is helpful to see the curriculum approach on gender inclusion in advance of sharing the ECEs perspectives on gender during unstructured play.

5. Method

This paper builds on two previous qualitative research projects that I conducted that explored the lived experiences of early childhood educators (ECEs) in the province of Nova Scotia, Canada when working with

gender diverse children, ages 3-5 year. The two previous research projects explored the perspectives from ECEs when having conversations with families about gender inclusivity in the early years (Reddington, 2023). The other research project focused on building gender inclusive pedagogical approaches in the field of early childhood through discussions with ECEs in the sector (Reddington, 2020). This study is intended to expand the inquiry further beyond family perspectives and gender inclusive pedagogy to learn more about how normative gender play constructs also inform children's gender expression. The participants included 15 ECEs who are employed at licensed early childhood centres in Halifax, Nova Scotia, Canada. Five participants have over 20 years of experience, three had between 10-20 years and seven had under 5 years of experience. 13 of the 15 participants self-identified as women, one as a transman and one participant chose not to self-identify their gender. All participants had either a Level II certification (Early Childhood Diploma from a community college) or a Level III (undergraduate degree in Child and Youth Study). The early childhood centres are in modest income urban centres in Halifax, Nova Scotia, Canada. I acknowledge that the sample size is small, however, the aim was to gain in-depth understandings of ECEs experiences in relation to children's gender expression and how normative play constructs can potentially inform children's future actions. One limitation to a small sample size is that it is not generalizable to the field. However, there is value in learning about the complex, in-depth experiences that centres have when supporting young children's gender and sense of self.

In the first stage of this research, the 15 participants were invited to observe and document the interactions they had with children as it relates to gender and play for a period of eight weeks. Each participant during this eight-week observation period documented their experiences through anecdotal notes. The purpose of this observation and documentation was to account for how children explore play and the role of gender norms during play. The participants were invited to send the researcher via email in advance of the eight-week observation period a response to two questions: What comes to mind when you hear the term, "gender"? What comes to mind when you hear the term, "gender stereotype"? The purpose of these initial questions was to prompt ECEs to begin to think about gender. The responses to the first question on describing connections to the term, "gender" included: *male, female, boy, girl, man, woman, never assume a gender, wide spectrum of gender, non-binary, transgender, gay, and gender neutral*. Their responses to the second question, "What comes to mind when you hear the term, "gender stereotype?" were: *boys like trucks, boys wear black and blue, boys are rough, boys can't sit still, boys are loud, they are physical, boys do tumble play, boys are aggressive and do sporty things. Girls like dolls, like the color pink, everything sparkly, girls play house, girls like dramatic play, role play, girls are quiet and nurturing, play Barbies, and do art*. The participants identifying with developmentally appropriate forms of gender practice for boys and girls is consistent with previous literature that identifies how dominant normative gender discourses are in the context of early childhood settings (Burke and Duncan, 2014; Pacini-Ketchabaw et al, 2015; Reddington, 2020, 2023; Richardson and Langford, 2022).

In the second stage of the research, the 15 participants were invited to participate in two semi-structured focus groups. The focus groups were designed to bring the ECEs together to discuss how gender informs children's play experiences. Three small focus groups were created that were each comprised of four to six participants. Each small focus group met on two separate occasions, 2 weeks apart. Each focus group lasted approximately 60 minutes and was audio recorded. Participants during the two focus groups were invited to share their thoughts, ideas and pedagogical approaches to play and how gender informs play experiences for young children. For example, some questions were: If I were to walk into your center what types of activities would I see? Do you witness gender stereotyped play? Do you observe gender storylines in children's play? Are children free to express their gender openly? Are there any gender routines or gender rules at your center? Are children offered materials and activities that encourage gender diversity? Would you consider your centre a gender-neutral learning space? Are children offered materials and activities that reflect gender diversity?

The data was transcribed verbatim, and a thematic analysis was conducted. Transcripts were read and re-read, and individual transcripts were coded for common words, and phrases that focus on the ECEs perspectives on how gender informs children's play. An open coding of individual transcripts was completed producing a list of thematic categories and page numbers referenced for illustrative quotes. The set of initial categories were then organized into potential thematic codes. The thematic codes were reviewed and revised to ensure that each theme has enough data to support the inquiry. I turn now to share the perspectives of 15 ECEs who work in licensed early childhood centres in Halifax, Nova Scotia, Canada, and their experiences in relation to play constructs and how they inform children's gender expression. What follows are excerpts from ECEs comments after observing and documenting young children during unstructured play. Quotes from the participants are provided to illustrate their perceptions of how children perform gender during unstructured play. You will see that the ECEs drew on gender stereotypes and normative gender structures when discussing their observations.

6. Results

6.1 Theme 1: Heteronormative Play Structure Design

The first main finding from this study illuminates how the physical layout of play materials can contribute to normative gender constructs of play experiences for children. For example, the participants routinely commented on how the block area became a masculinized play space dominated by boys whereas the dramatic play area was largely occupied by girls.

In our dramatic play zone, the girls always play the role of mom, and the boys are told by the girls to play the baby or the puppy. Sometimes the boy will say they want to be a mom, but the girls take over and "Say no! You can only be a puppy or a dad".

The girls need to be the mom. The girls want to be in charge and be the ones to say, "Eat your food and go to bed." They need to be in control and the leader.

I agree there always must be one mom and one dad, like, you can't have two dads.

I've had a situation where it was a group of girls, and somebody had to be the dad. There couldn't be a mom, or a dad, or two moms or three moms. There had to be a mom and a dad. The girls are always in charge of house play. The girls are loud. I'm not going to say bossy, but they are quite demanding. There is one child in particular that will not give up.

The data shows how the girls dominate and occupy the dramatic play area. They allow the boys to enter, but assign them roles, such as the puppy or dad. The girls actively policing others demonstrates how normative constructs of gender influence play experience. The "girls take over" as described by one ECE shows how girls have predetermined ideas on house play as evidenced when assigning boys specific roles. Here, the heteronormative house play structural design of the space reinforces traditional gender roles. It brings into question the unspoken power of materials and how materials when set up as "house corners" can send messages to children to maintain traditional gender role play (Priolella and Davies, 2024). ECEs and their decisions around pedagogical design of play spaces have a critical role during this process by either establishing or challenging gender stereotypes. As Thorne (1993) explains, if young children are provided with traditional stereotypical play options, they are more likely to adopt traditional gender values and beliefs. MacNaughton (2000) similarly explains how children mediate their understandings of gender through the messages they receive from adults, including learning environments and play materials.

In our centre, I will encourage the children to explore various roles in the dramatic play area. I always find it interesting that the girls never want to play the dog or the dad. They are always insistent that the boys play the baby or puppy or dad. There couldn't be a mom, or a dad, or two moms or three moms. The children always chose the traditional structure of mom, dad, baby and puppy.

We see this too in our centre. I have said to the children, you can be anything you want to be, there can be three moms in this situation. It doesn't matter. I have even seen boys wanting to play the mom, but the girls continue to tell them it is not allowed. Even when I insert and try to remind them, they can play any role, they always go back to one mom and one dad.

Here, a play structure of traditional house still incites the girls to maintain heteronormative roles of mom and dad regardless of the prompts ECEs make to disrupt the normative constructs of gender play. The data brings forward the question of how practitioners and educators might begin to change the physical landscape of play space to normative gender constructs of play and encourage children to uproot static gender roles. By applying a critical gender framework, we can begin to mobilize more fluid ways of understanding gender and disrupt static developmental models of practice. In my discussions with the ECEs, they indicated that the boys also occupied and controlled certain play spaces, namely the block area.

It is very common for children to say blocks are only for boys. Even though we have a rule that says the blocks are for everyone, the boys insist the block area is their space.

At our centre, the boys control the block zone and will tell the girls, "boys only". I have even watched the boys make walls and barriers to the girls cannot enter.

I see this too. I have seen girls trying to get in and boys tell them they are not strong enough to play there.

The boys when dominating the block area asserted masculine qualities to maintain control of the area. The actions of the boys policing the blocks is similar to the girls policing the dramatic play area. Here, it is the cues the children receive from each other that largely determine their gendered play choices. Critical gender scholars argue the gender boundaries in play are often established by children, who then police each other's

adherence to specific gender roles (Mac Naughton, 2000; Martin, 2011; Reddington, 2020). However, we must consider how the heteronormative play structure design produces often unknowingly predetermined ideas on how children should play to adhere to boy/girl roles. In addition, we must understand how gender stereotypes can unknowingly place children in the societal binary of feminine or masculine limiting their self-expression (Chapman, 2016). This data brings forward the call for ECEs to pay close attention to their play structure design, including how gender power relations between children can influence children's gender performance. For example, we see from the data above how a predetermined block area can transmit ideas about masculinity and how a dramatic play corner incites typically feminized play experiences. It is the continuous reproduction of normative gender constructs of play within early years settings that requires significant attention so we can begin to dismantle pedagogical practices, like the "home corner". We must consider how we position materials within early year play spaces, so they do not reinforce or solidify gender stereotypical forms of play.

6.2 Theme #2: Essentialist Forms of Gender Performance

The second main finding from this research identifies how essentialist forms of gender performance that situate children in the binary of feminine or masculine can negatively impact children's identities and senses of self. For example, the ECEs commented on how the girls would often position themselves as helpless, weak, and vulnerable to appeal to the boys.

If the children engage in role playing schemas, the boys play police or fireman. The girls play the damsels in distress role and want to be saved by the boys.

This happens at our center where the girls will fall and shriek for the boys to come and rescue them.

When our children watch Paw Patrol the boys have the superpowers. They destroy and save the planet while the girls are the princesses.

Critical gender scholar, Ringrose (2013), discusses how girls will frequently hypersexualize their identities in feminine ways to appeal themselves to boys. It is through these dominant gender discourses that children learn that heterosexuality is the "normal, right and only way to be" (Blaise, 2005, p. 22). These dominant forms of gender performance draw attention to the intricacy in subjectivity and the decisions young children emergently make when negotiating their gender expression. As Meyer (2007) states, "children learn at a very early age that it is not biological sex that communicates one's gender to the rest of society; rather it is the signifiers we choose to wear that will identify us as male or female" (p. 19). This data draws attention to the importance of ECEs talking with children about gender and supporting diverse gender expression. This includes encouraging gender diverse play opportunities. The next excerpt of data illuminates how children become constructed as particular types of gendered subjects based on their physical appearance and interests in products traditional assigned as feminine or masculine.

Children think short hair means you are a "boy" and long hair means you are a "girl". The children are always questioning others about how they look. We had a girl with short hair, and the kids kept asking, "Are you a boy?" I will say to them, "it's just hair", and it doesn't mean whether you're a boy or girl.

We hear children asking one staff member if they are a boy or a girl. They want to categorize even if we say a person does not have to be a man or a woman or a boy or girl.

A boy at our center likes to wear dresses and the children will say, "He is a boy, he can't wear that". I try to tell the children that he can wear whatever he wants, but the children think it's wrong. The same with nail polish. If we have boys that want to put on nail polish the girls will tell them no, they are not allowed.

We had that wear a boy wanted to wear nail polish, but he knew his father would be upset so he chose not to. One time we did put it on him and then took it off, so he had an opportunity to wear it and feel good.

I had one boy who loved to wear nail polish, and he was proud of it. Later in the day, the boy worried about what his dad might think about his nail polish and so I removed it before he went home.

The ECEs acknowledge the ways that normative constructs of gender when children are playing enter the space and we see glimpses of the ECEs working to disrupt static compulsory performances of gender. This is evidenced when one educator says, “it’s just hair” and supporting a boy who wants to wear a dress, “he can wear whatever he wants”. Kane (2006) stated that “children themselves become active participants in the gendering process ... typically before the age of two” (p. 150). We witness this in the above data set when boys express their desire to wear nail polish. However, the weight of the fathers’ potential disapproval impacts their joy to wear nail polish. Here, we witness the ECEs actively working to challenge views on gender to create more gender inclusive opportunities, but the children live in fear of repercussions from adults in their lives if they move outside the boundaries of acceptable boy/girl constructs. It the traditional developmental psychology model of performance that infiltrates the centers and drives certain feminine and masculine expectations for the children to meet.

7. Conclusion

You will see in this research that the ECEs view gender predominantly through the gender binary and often unknowingly construct heteronormative play opportunities that then inform the ways in which children learn gender. However, this study also shows the ECEs recognizing stereotypical gender role play and, at junctures, challenging the children to explore their identities outside normative gender processes. There is a need to explore further ECEs’ perceptions of how children perform gender and to identify ways to destabilize the normative gender constructs of play. The findings of this study call for ECEs to reconfigure the rigid heteronormative landscape of masculine boy / feminine girl from which the participants in this research speak.

As Taylor and Richardson (2005) state, the “fluidity of children’s gender identity performances and their strategic negotiation of multiple and shifting identity positions [can] challenge ... the heteronormative assumptions of stable, discrete and coherent gender categories” (p. 171). Jule (2011) similarly remarks that educators should consider using “alternative and varied metaphors for gender roles when choosing books, stories, and learning activities for the classroom” (p. 33). I hope this research will ignite ECEs to increasingly consider professional development in the areas of gender inclusive play practices. To move in this direction, we need to critically reflect on our daily pedagogical practices and in this process actively dismiss dominant paradigms of identity categorization that limit the possibilities for children to explore their identities in more open ways.

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Gender Inequality in the Financial Sector in Portugal

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Abstract: To understand the extent of gender inequality in the financial sector in Portugal, this research aims to examine the motivations for entering the financial sector, the perceived benefits of working in the sector, the main constraints and the potential for career development. It also aims to investigate the extent to which these perceptions are influenced by gender. The methodology used is quantitative. Primary data was obtained through a survey specifically targeted at professionals working in the financial sector in Portugal. The data was collected between 29 July and 23 August 2024 and a total of 233 valid questionnaires were analysed to extract results. The study suggests that the financial sector is characterised by a predominance of the male gender, both in technical functions and in managerial positions. The results also show some differences in the way men and women perceive employment in the sector. When analysing the motivations for entering the profession, women value the impact that the sector can have on society, even if they consider the conditions offered at the time of entry to be inferior. The female gender values the constraints associated with working in the profession more than the male gender, while the opposite is observed regarding the perceived opportunities for career development.

Keywords: Entrepreneurship, Financial Sector, Gender Inequality, Motivations, Benefits, Constraints, Career Development.

1. Introduction

Today, women are not only part of the labour force; some are leaders of international organisations, companies and even nations (United Nations Women 2024). However, even after a century of very significant progress, economic opportunities for men and women remain unequal at the global level.

Gender asymmetries persist in certain sectors of activity and in managerial positions that have traditionally been dominated by male (Farroñán et al. 2022). Gender equality has been recognized as relevant and capable of contributing to value creation, even in areas that have historically been more masculinised (Veckalne & Tambovceva 2023). For the financial sector, the same can be observed.

The main objective of this article is to explore the possible existence of gender inequalities in the financial sector by analysing the motivations, perceived benefits, constraints and perceptions of career development between the genders.

In this sense, it is necessary to study whether or not gender inequalities exist in the financial sector, given that studies in Portugal are still scarce, especially when it comes to the specific case of the financial sector.

To this end, the remainder of the article is organised as follows. After the introduction, section two reviews the relevant literature on gender and gender equality, by analysing the main factors that contribute to gender inequality in the labour market. Section three describes the methodology used in the research and section four presents the results. Finally, the main conclusions are presented.

2. Gender and Gender Equality

2.1 Gender and the Labour Market

Gender theory involves studying the behavior of individuals who are understood as masculine and/or feminine and/or queer in any given context, community, society, or field of study (Jule, 2021).

Gender equality means that the interests, needs and priorities of both women and men are considered, resulting in the diversity of different groups of women and men. Gender equality is seen as a human rights issue and an indicator of people-centred sustainable development, reflecting equal power between men and women (EIGE 2016; Parsland 2021). On the other hand, according to the European Institute for Gender Equality (EIGE) (2016), gender inequality is understood as a legal, social and cultural situation in which sex and/or gender define different rights and levels of dignity for women and men. These differences translate not only into unequal access or rights, but also into the assumption of social and cultural roles based on stereotypes. According to the United Nations (2024), a gender stereotype can be understood as a generalised view of the characteristics or

roles that women and men have or should have. These stereotypes are negative because they limit individuals in the development of their individual capacities, in their professional careers and even in the personal choices they make.

Similarly, Damjanovic and Selvaretnam (2019) argue that gender power relations within a society are determined by various variables, ranging from social norms to legal systems and past religious traditions. They also point out that all these factors not only vary from country to country, but also evolve over time.

In the context of work, gender is a complex issue involving many factors that affect decisions made at different levels (Lee & Kray, 2020), which is reflected in the identification of some gendered differences in working conditions.

Despite the social changes that have taken place in recent years, there is still a degree of gender segregation in the labour market. Indeed, men continue to be more dominant than women in managerial positions or in the exercise of functions in certain fields of activity (Prügl & True 2014), including finance (Chhaochhariaa et al. 2022). According to this approach, gender differences, especially those related to labour market segregation, are the result of historically established social roles and social norms, according to which women are more closely associated with the development of certain functions and men with others (Harrison & Lynch, 2005).

2.2 Factors Contributing to Gender Inequality in the Labour Market

2.2.1 Gender Stereotypes

Descriptive stereotypes are understood as individuals' perceptions of the characteristics of a social group. Prescriptive stereotypes, on the other hand, describe the behavioural norms that a particular social group must adhere to avoid rejection by those around them (Gill 2003).

People often base stereotypes about personality traits and characteristics on gender and sexual orientation (Gorsuch, 2019). Men are seen as more independent and assertive, while women are seen as more altruistic and affectionate. These stereotypical traits are often associated with two characteristics: competence and friendliness (Fiske, 1998). Similarly, according to this gender stereotype, women are seen as less competent but more agreeable; and men are seen as competent but less agreeable (Heilman & Parks-Stamm 2007). These descriptive stereotypes may result in an expectation of incongruence between heterosexual female candidates and positions which are perceived as requiring male characteristics (Weichselbaumer 2003).

Lee and Kray (2020) also argue that gender stereotypes can influence managers' relationship models and the size of the work teams they lead.

2.2.2 Lack of Role Models

Gender roles are formed in childhood and continue to influence individuals' behaviour throughout adolescence and adulthood, especially when it comes to choosing academic and professional paths (Olsson & Martiny 2018).

Existing studies show that female figures who are considered successful in the same sector encourage and motivate other women to actively participate in the labour market and, consequently, to perform well in their respective fields (Olivetti et al. 2020).

According to Chhaochhariaa et al. (2022), the presence of successful women in the professional world can be seen as female role models who help to mitigate or eliminate gender stereotypes stemming from what is seen as traditional. Similarly, Schier (2020) states that the presence of female role models increases women's self-confidence and competitiveness in the labour market.

2.2.3 A Masculine Work Culture

As Coleman (2020) points out, one of the main challenges and/or barriers that women face in the context of work is the masculine culture of work. According to the author, this difficulty is even more pronounced when it comes to career progression, particularly in situations where the aim is to reach a higher position in an organisation's hierarchy. In fact, according to a study conducted by Schmitt (2021) in the engineering sector, women rarely reach the top management levels of companies, mainly due to the male-dominated work culture. To counteract this situation, the author stresses the importance of creating a more inclusive working culture.

2.2.4 *The Tallest Poppy Syndrome*

The social phenomenon known as 'Tallest Poppy Syndrome' (TPS) is based on the concept that the success of some people stands out in a positive way in relation to others, which provokes envy in others (Kirkwood & Warren 2020).

Neill et al (2024) argue that TPS is a form of prejudice and discrimination. In the field of social psychology, Tall Poppy Syndrome is a manifestation of in-group conformity within the stigma of someone who stands out as an 'outsider' or someone who is not like other people, which has a detrimental effect. The syndrome is seen as a social constraint whose practical effect is to impose ideologies, such as the gender order, in the sense that women leaders are more vulnerable to the pressures of this gender order. In other words, they face the stereotype of being the subordinate social group and therefore any behaviour that appears superior is more easily criticised (Holmes et al. 2017).

2.2.5 *Imbalance Between Personal and Professional Life*

Pace and Sciotto (2022) argue that, despite the evolution observed in recent years regarding gender roles in domestic responsibilities, the conflict between family and work life continues to be a greater problem for women than for men.

Stoilova et al. (2020) find that a higher level of qualification is associated with the likelihood that men will consider work-life balance to be important for women, compared to what is perceived by men with lower levels of qualification. Despite this evidence, the Global Entrepreneurship Monitor (GEM 2023) report highlights that there are still differences in the role women play in exercising family responsibilities, a situation which, according to the same report, leads to greater financial dependence and fewer interpersonal privileges.

2.2.6 *Lack of Self-confidence/Self-esteem*

Although female and male leaders are considered equally effective (Herbst 2020), there is a gap between male and female self-confidence. This difference in self-confidence is even cited as one of the causes of the gender gap at higher levels of the hierarchy (Efe & Hallegraef 2020). The same can be observed in the field of entrepreneurship, where the literature suggests that women tend to have lower levels of self-efficacy than men. A disparity in confidence levels, whether perceived or real, can have a negative impact on performance and career progression.

2.2.7 *Choice of the Occupation and the Career Path*

There are several elements that can influence students' academic and career choices throughout their careers. Among these elements, research by Zhang et al. (2023) suggests that role models have a significant influence on career choice, as interaction with someone already in the field and familiarity with their learning and academic and professional pathways helps to deconstruct the concept of a scientific career.

Sharma et al. (2021) identifies the existence of multiple factors that influence the choice of training field in medicine, including the surrounding family context, role models close to the student's reality, the media, and the personal and individual experiences of each student. In the field of business studies, the study by Myburgh (2005) identifies elements such as the socio-economic context, the student's perception of the benefits associated with the profession and the perceived constraints in practicing the profession as likely to influence the choice of career. The benefits valued in the occupation may be influenced by gender, as women tend to favour flexible working hours and care, not only when choosing a career but also during the professional career (McKie & Jyrkinen 2021).

3. Methodology

The aim of this research is to understand the extent to which gender inequalities exist in the financial sector in Portugal. The specific research objectives are:

- (i) To analyse the motivations for entering the financial sector and whether these motivations differ between genders;
- (ii) To understand the perceived benefits of working in the sector and whether these benefits are perceived similarly between genders;

- (iii) To understand the main constraints associated with working in the sector and whether there are gender differences in the way these constraints are perceived;
- (iv) to understand career potential in the sector and the extent to which perceived career potential differs by gender.

In view of the defined research objectives, it was decided to use a quantitative approach. To obtain primary data, a questionnaire was distributed to employees working in the financial sector in Portugal.

The questionnaire was structured according to the defined research objectives and was based on Kolmos (2013) and Myburgh (2005). The questionnaire used closed-ended questions, favouring the use of Likert-type scales, as they allow the measurement of variables considered to be subjective in nature and the collection of a large amount of data in a relatively simplified manner.

The questionnaire was distributed digitally between 29 July and 23 August 2024 and conducted to the collection of 233 valid responses. Table 1 summarises the general characteristics of the respondents.

Table 1: Sample

	Total		Female		Male		Other	
	N	%	N	%	N	%	N	%
Gender								
Female	93	39,91						
Male	139	59,66						
Other	1	0,43						
Age								
between 18 and 29	115	49,36	49	52,69	65	46,76	1	100,0
between 30 and 45	107	45,92	41	44,09	66	47,48		
between 46 and 65	11	4,72	3	3,23	8	5,76		
Educational qualifications								
Secondary education	8	3,43	2	2,15	6	4,32		
Higher Education – Degree course	83	35,62	38	40,86	45	32,37		
Higher Education - Master's Degree	138	59,23	53	56,99	84	60,43	1	100,0
Higher Education - Doctorate	4	1,72	0	0,00	4	2,88		
What gender is your line manager?								
Female	95	40,77	38	40,86	57	41,01		
Male	136	58,37	54	58,06	82	58,99		
Other	2	0,86	1	1,08	0	0,00	1	100,0

Source: Own elaboration

The results were analysed using the Statistical Package for the Social Sciences (SPSS).

To increase the comprehensibility of the results obtained, the data were reduced by principal components factor analysis, following a varimax rotation and extracting the principal components with eigenvalues greater than one. An index was then constructed for each principal component obtained, using the weighted average of each factor in the factorial solution.

4. Results

4.1 Gender Analysis in the Financial Sector

The frequency analysis (Table 1) shows that there are more male respondents than female respondents (59.66% and 39.91% respectively), with a small number of respondents of other genders (0,43%). The Chi-square test shows ($\chi^2=127.142$; $\alpha<0.001$) that there are statistically significant differences that allow to reject the hypothesis of gender equality in the financial sector in Portugal. The same is found for the gender of the respondent's hierarchical superior, who is male in the majority of cases (58,37%). Again, the Chi-square test ($\chi^2= 121.399$;

$\alpha < 0.001$) indicates that gender inequalities in managerial positions in the financial sector are statistically significant. The result obtained is consistent with the literature that recognises the existence of gender gaps in certain sectors (Chhaochharia et al., 2022).

4.2 Motivations for Entering the Financial Sector

The factorial analysis of "motives for entering the financial sector" revealed five main components, as shown in Table 2, namely "intrinsic motives", "influence of other role models", "impact of the sector on society", "working conditions" and "influence of parents".

Table 2: Principal component analysis for motivations to enter the financial sector

Variable	Component				
	1	2	3	4	5
I feel good when I am working in the financial sector	0,670				
I like to analyze financial matters	0,845				
I think finance is fun	0,753				
I find the finance sector interesting	0,865				
I like to understand how the financial sector works	0,836				
I am fascinated by finding new solutions for the sector/clients	0,537				
Finance plays an important role in solving society's problems			0,771		
The financial sector has made a major contribution to solving the world's problems			0,762		
Financial skills can be used for the welfare of society			0,735		
The financial sector employees earn more than most other professionals				0,859	
Financial sector professionals are well paid				0,878	
A degree in the financial field or similar offers me more guarantees of a job position				0,488	
My parents wouldn't approve if I chose a field of work other than finance					0,718
My parents would like me to be a financial professional					0,744
A professor related to my academic career encouraged and/or inspired me to work in the financial sector		0,591			
I was encouraged and/or inspired to work in the financial sector by other people related to my personal background		0,715			
I was encouraged and/or inspired to work in the financial sector by other people related to my career path		0,824			
I was encouraged and/or inspired to work in the financial sector by my male colleagues		0,808			
I was encouraged and/or inspired to work in the financial sector by my female colleagues		0,792			
I was encouraged and/or inspired to work in the financial sector by recruitment initiatives carried out at university		0,477			

Note: KMO Measure = 0,807; Barlett's test of sphericity: $p < 0.001$.

Source: Own elaboration.

The analysis of the index for each component shows that the first component, referring to intrinsic motives, is the one most valued by respondents (Table 3), as it has a higher average value (4,016). When analysed by gender, men seem to value this component more than women, although the difference is not statistically significant at a 5% confidence level.

The average value achieved among female respondents is higher than the average for males in the component relating to valuing the sector's impact on society ($\alpha = 0,002$), while the opposite is true in relation to the Employment conditions component, which is valued more by men than women, and in a statistically significant

way ($\alpha=0,006$). This finding may be related to the social roles and norms traditionally ascribed to different genders (Harrison & Lynch, 2005), which may condition the motivations behind the decision to work in the financial sector.

Motivations to enter the profession because of the influence of roles or other role models do not appear to be statistically significant between genders.

Table 3: Descriptive and test statistics of component related to motivations to enter the financial sector

	Average			Statistical Tests
	Total	Female	Male	
Component 1 - Intrinsic motives	4,016	3,946	4,067	t = -1,323, sig = 0.094
Component 2 - Influence of other role models	2,261	2,296	2,241	t = 0,459, sig = 0.323
Component 3 - Impact of the sector on society	3,883	4,063	3,772	t = 2,905, sig = 0.002
Component 4 - Employment conditions	3,091	2,926	3,208	t = -2,533, sig = 0.006
Component 5 - Parental influence	1,885	1,805	1,945	t = -1,496, sig = 0.068

4.3 Perceived Benefits

The perceived benefits associated with working in the financial sector were grouped into four main components (Table 4): 'career opportunities and growth', 'working environment and career stability', 'social status and income', and finally 'opportunity to travel'.

Table 4: Principal component analysis for the perceived benefits of professions in the financial sector

Variable	Component			
	1	2	3	4
Employment availability		0,565		
Employment security		0,738		
Prestige, lifestyle and social status of the profession			0,711	
Initial earnings potential			0,762	
Future high earnings potential			0,745	
Promotion prospects or opportunities	0,553			
Career flexibility and options	0,655			
Potential for personal growth and development	0,751			
Potential to travel				0,708
Opportunity to work for a large corporation	0,541			
Challenging, interesting, satisfying and exciting profession	0,756			
Opportunity to work overseas	0,279			
Possibility of assuming management positions in the organization	0,563			
Comfortable working environment		0,727		
Characteristics of colleagues		0,731		
Size and reputation of organisation	0,585			
Prospects of on-the-job additional training	0,521			
Opportunity to apply skills and abilities, e.g. leadership	0,707			

Note: KMO Measure = 0.894; Barlett's test of sphericity: $p < 0.000$.

The main advantage that respondents attribute to working in the financial sector (Table 5) is the working environment and job stability, which has a higher average value for both men and women (average of 3,768 and 3,747 respectively). This is followed by the perception of career opportunities and growth (average 3,744) and social status and income (average 3,484). The possibility of travelling through working in the financial sector is the dimension with the lowest mean value (3,270). However, the results of the t-test indicate that the differences found between the genders are not statistically significant, which means that men and women perceive the benefits of working in the sector in a similar way.

Table 5: Descriptive and test statistics of component related to perceived benefits of the financial sector professions

	Average			Statistical Tests
	Total	Female	Male	
Component 1 - Career opportunities and growth	3,633	3,630	3,654	$t = -0.274$, sig = 0.392
Component 2 - Working environment and career stability	3,744	3,768	3,747	$t = 0.245$, sig = 0.404
Component 3 - Social status and income	3,484	3,410	3,546	$t = -1.211$, sig = 0.114
Component 4 - Opportunity to travel	3,270	3,161	3,360	$t = -1.356$, sig = 0.088

4.4 Constraints Associated with Professional Practices

Factor analysis led to the extraction of two components related to the constraints associated with working in the profession, as shown in Table 6. One was related to the disadvantages of practicing the profession and the other to investing in training to enter the profession.

Table 6: Factor Component Analysis of the constraints related to the exercise of the profession

Variable	Component	
	1	2
Cost of qualifying for the job		0,783
Time required to qualify for the job		0,851
Difficulty of qualifying for the job		0,779
Limited relaxation and free time	0,547	
Low earnings in the initial employment years	0,536	
Negative image of the sector	0,605	
High risk of legal liability for professionals in the sector	0,712	
The financial sector market is saturated	0,654	
Financial institutions demand long and inflexible working hours	0,758	
A career in the financial sector is not as exciting as other careers	0,549	

KMO Measure = 0,764; Barlett's test of sphericity: $p < 0,001$.

The results obtained (Table 7) show that respondents, both female and male, consider the training required to enter the profession to be a moderate constraint (average score of 3.038 on a 5-point scale). On the other hand, the constraints associated with professional development in the sector are slightly less important (only a mean of 2,923 on a Likert scale of 1 to 5). However, women perceive working in the sector as more punitive than men (average of 3,010 and 2,850 respectively), and this difference in perceived constraints is considered statistically significant, as shown by the student's t-test ($\alpha = 0,046$). Women's perception of the difficulties of the profession may be partly explained by the reduced number of role models in the sector (Chhaochharia et al., 2022), and as argue by Schier (2020) may have an impact on their self-confidence in the labour market.

Table 7: Descriptive and test statistics of the components related to constraints related to the exercise of the profession

	Average			Statistical Tests
	Total	Female	Male	
Component 1 - Disadvantages of practicing the profession	2,923	3,010	2,850	t = 1.691, sig = 0.046
Component 2 - Investment in training for access to the profession	3,038	3,025	3,032	t = -.070, sig = 0.472

4.5 Career Development

Finally, the variables related to career development in the sector were systematised and grouped into a single component (Table 8).

Table 8: Factor Component Analysis of the career development

Variable	Component 1
Being promoted to the top of an organisation	0,755
Maximize the earnings	0,799
Working hard but having free time	0,425
Retiring at an early stage	0,646
Being successful and rewarded	0,799

KMO Measure = 0,764; Barlett's test of sphericity: $p < 0,001$.

The mean scores obtained (Table 9) show that there is a positive perception of the career opportunities offered by the sector (3,173), although this is more positive for men (mean score 3,288) than for women (mean score 3,019). Student's t-test indicates that the differences in the way men and women perceive a career in the financial sector are statistically significant ($\alpha < 0,05$). Again, the findings can be interpreted in terms of the weakness of role models (Chhaochharia et al., 2022; Schier, 2020) and also the persistence of a masculine work culture in the sector (Coleman, 2020).

Table 9: Descriptive and test statistics of the components related to the career progression

	Average			Statistical Tests
	Total	Female	Male	
Component 1 - Career progression	3,173	3,019	3,288	t = -2.805, sig = 0.003

5. Conclusions

The aim of this research was to analyse the potential existence of gender inequalities in the financial sector by examining the motivations, perceived benefits, constraints and perceptions of career progression between the genders. From the analysis carried out, it can be concluded that men and women have different perceptions of working in the financial sector, and that these differences can be identified in terms of the motivations that lead them to enter the sector, the perceived constraints of working in the sector and the expectations of career progression. When analysing the motivations for entering the financial sector, the gender-related components were found to be impact on society and working conditions. Regarding the former, women value the fact that the financial sector has an impact on society more than men when deciding to work in the sector.

On the other hand, men value their working conditions more than women. The study shows that the perceived benefits of working in the profession are similar for men and women, although women perceive working in the financial sector to be more constraining than men. The potential for career progression is perceived to be more favourable for men.

The findings contribute to a better understanding of gender inequalities in the sector, which could have important practical implications. Particularly noteworthy are the implications for human resource management

in the sector, which could adapt recruitment, selection and retention strategies to mitigate the differences observed. For policymakers, the additional knowledge produced should inform public entities to promote gender equality in the labour market, particularly in the financial sector; it can also be used in awareness-raising strategies for students throughout their education.

The main limitations of the study relate to the sample and the sampling methods used.

For the future, we suggest further research on the existence of gender equality in the financial sector, which could include a more in-depth study of the differences in the sector in terms of managerial positions and between different types of roles within the sector.

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Making Virtue out of a Necessity: Women's Entrepreneurial Motivation in Disadvantaged Areas. An Investigation Based on Generations

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Abstract: The study of entrepreneurial motivation has undergone a remarkable development in recent decades. Entrepreneurship scholars have shown a particular interest in understanding of the reasons that lead to entrepreneurial action in contexts characterised by considerable resource constraints. In relation to these contexts, many studies have drawn on push-pull theory to argue that necessity (push) or opportunity (pull) related motivations explain how entrepreneurial intention is formed. As part of the debate on entrepreneurial motivations in disadvantaged contexts and adopting a gender perspective, this paper aims to explore the motivations of women entrepreneurs leading young ventures. Their entrepreneurial action is not only subject to the vulnerabilities generally ascribed to young ventures and to the resource constraints of the territory in which they operate, but is also hampered by an additional obstacle in the form of gender roles, which involve behaviours not typically attributable to entrepreneurship. In particular, on the basis of a sample of 74 women entrepreneurs, we investigate the varying intensity of entrepreneurial motivations with reference to different groups defined on the basis of generations. For this purpose, a Multivariate Analysis of Variance (MANOVA) was carried out. The results showed that younger women entrepreneurs generally had higher values for the entrepreneurial motivations considered. Looking at individual items, significant differences were found in several cases, which can be traced to both necessity and opportunity motivations. Thus, we cannot claim that generational diversity alone implies a different intensity of necessity or opportunity motivations. Rather, we believe that younger women are generally more entrepreneurially motivated, and if well educated, they are able to proactively seek out opportunities, even if they decide to start a business out of necessity, as a way of escaping precarious work or the risk of having to emigrate from their home country.

Keywords: Women Entrepreneurs, Entrepreneurial Motivations, Young Ventures, Disadvantaged Contexts

1. Introduction

As entrepreneurship is a key driver of economic growth and social empowerment, it is of both practical and theoretical importance to understand what motivates individuals to start a new business, particularly in the context of disadvantaged areas, where entrepreneurship could unlock greater potential. There is a strong consensus on the contribution of women entrepreneurs to socio-economic development (e.g., Kirkwood, 2009; Chatterjee et al, 2022; Deng et al, 2024), but female entrepreneurship, while growing strongly worldwide, lags behind that of men in many developed and most developing countries. Fewer women than men decide to start or continue a business (Elam et al, 2019), which seems to confirm, at least in part, the stereotype 'think entrepreneur-think male' (Laguía et al, 2022; Floris and Atzori, 2023). Understanding the forces that drive women to choose entrepreneurship is therefore important for increasing their participation in entrepreneurial activity, particularly in contexts characterised by significant resource constraints, where female entrepreneurs may face additional challenges.

Several researchers find that the so-called opportunity (or pull) motivations predominate among the entrepreneurial population, both male and female (e.g., Segal et al, 2005; Barba-Sanchez and Atienza-Sahuquillo, 2018). However, many contextual conditions (i.e., supportive or restrictive factors, employment opportunities within a given country, etc.) can make the difference (Carsrud and Brännback, 2011; Acs et al, 2018). In this regard, it is commonly argued that entrepreneurship by opportunity is more common in high-income countries (Amorós et al, 2012; Minniti and Levesque, 2010) while necessity-driven entrepreneurship predominates in low-income countries and more deprived areas, due to higher unemployment, and an unsupportive entrepreneurial ecosystem (Williams and Williams, 2012; Zhao et al, 2023).

The literature has often compared women's and men's entrepreneurial initiatives, with conflicting findings on the relationship between gender and entrepreneurial motivation. Several studies suggest that men are more likely to be opportunity-driven than women (Wagner, 2005; Bergmann and Sternberg, 2007; Giacomini et al, 2007), while others (e.g. Buttner and More, 1997) find the opposite conclusion. Still other researchers (e.g., Kirkwood, 2009) suggest that women and men have relatively similar motivations for entrepreneurship, a complex mix of push and pull factors, but highlight more subtle gender differences in the incidence of

motivations, with women being relatively more influenced than men by the desire for independence and consideration for their children and men more driven by job dissatisfaction.

While the relationship between gender and entrepreneurial motivation has been studied extensively, relatively less research has been devoted to understanding the impact that age may determine in the type of entrepreneurial motivation (opportunity or necessity). Even in this case, the results have been largely inconclusive and often contradictory (cfr. section 2), suggesting that further research is needed to deepen our understanding of the issue.

Using the lens of the necessity and opportunity theory, this paper aims to explore the motivations of women entrepreneurs who start and run young ventures in disadvantaged areas, and to find out if -and to what extent- these motivations differ between women entrepreneurs of different generations. The research questions that the study aims to address are:

RQ1. What are the main motivations for women to start a new venture in disadvantaged areas?

RQ2. Do the main motivational forces of women entrepreneurs differ between generations?

2. Literature Review

Research on entrepreneurial motivation has highlighted the role of both intrinsic motivations (e.g. related to self-regulatory or affective constructs such as identity congruence and entrepreneurial passion) and extrinsic motivations, such as goals or financial rewards, as drivers of entrepreneurial behaviour (Shane et al, 2003).

While early writings by economists theorised that the primary motive for entrepreneurship is the prospect of financial gain (e.g., Cantillon, 1931; Schumpeter, 1934), subsequent studies, without denying the importance of economic incentives (e.g. Benzing et al, 2009), have at least partially overcome this view, (Murnieks et al, 2020), highlighting that a business may be started (also) as a way to achieve non-economic goals, such as gaining independence, overcoming challenges, being innovative (Amit et al, 2001) or alleviating the suffering of others, as it happens in social venturing (Miller et al, 2012).

The most widely used approach to classify entrepreneurial motivations has its roots in the push and pull theory (Harrison and Hart, 1983) and distinguishes between necessity-driven and opportunity-driven ventures (Reynolds et al 2005; Acs and Amorós 2008). The former are those that reflect a situation where there is "no better choice for work", whereas entrepreneurs who "take advantage of a business opportunity" (Reynolds et al, 2005) are driven by opportunity (or pull) factors. The latter have positive connotations (e.g., need for achievement, personal development, economic freedom, desire for autonomy and social prestige, etc.), while the former are mainly personal or external negative circumstances that push people to become entrepreneurs (e.g., unemployment, job dissatisfaction, lack of career prospects, family pressures/responsibilities, etc.) (van der Zwan et al, 2016; Martínez-Canas et al, 2023).

This typology is frequently adopted in studies that investigate entrepreneurship in disadvantaged areas, including rural areas (Figueroa-Armijos et al, 2012; Figueroa-Armijos and Johnson, 2013) or deprived urban areas (e.g., Williams and Williams, 2012, 2014) in developed countries. In these contexts, entrepreneurship is typically moved by such a strong motivation that it challenges remarkable resource constraints.

Previous studies have also frequently referred to this perspective when examining women's entrepreneurial motivation (Lingappa and Rodrigues, 2023).

Scholars have long highlighted the key role of necessity motivations in driving women (more often than men) into entrepreneurship (e.g., Langowitz et al, 2005; Chang et al, 2023). In general, it is often simply assumed that entrepreneurs from disadvantaged areas are more likely to be necessity driven and to engage in entrepreneurship as a strategy to overcome unemployment (e.g. Williams and Williams, 2012; Coffman and Sunny, 2021). For women entrepreneurs, necessity drivers are considered even more relevant, not only as a source of income, but also as a means to gain greater time flexibility to balance work and family responsibilities (e.g., McGowan et al, 2012; Thébaud, 2015).

However, while the debate on which factors predominate over others for women entrepreneurs is still alive (cfr. section 1), some scholars have also found that entrepreneurial motivation is shaped by a combination of several intertwined factors (e.g., Caliendo and Kritikos, 2010; Giacomini et al, 2011), with necessity and opportunity not necessarily mutually excluding each other (Kirkwood, 2009), but temporarily prevailing and shifting over time (e.g., Williams and Williams, 2012).

Previous research has also attempted to explore the general impact of age on the propensity to set up new businesses and, more specifically, the relationship between age and opportunity or necessity entrepreneurship. Even in this case, the results have often been contradictory. For example, Langowitz and Minniti (2007) found that age had no significant effect on the entrepreneurial propensity of both necessity and opportunity entrepreneurs. Some studies highlighted that age had a negative impact on both necessity and opportunity entrepreneurship (e.g., Figueroa-Armijos and Johnson, 2013; Sahasranamam and Sud, 2016; Li et al., 2020). Brunjes and Diez (2013, p. 264) found that age positively affects the probability of necessity and opportunity entrepreneurship, but “at a decreasing rate”. Bergmann and Sternberg (2007) found that age has an inverted U-shaped relationship with entrepreneurial propensity and opportunity-nascent start-ups, while found no significant effect of age on necessity-based start-ups, which are created largely independently of the age of the entrepreneur. Similar results were also obtained by Chang et al (2023) who found that necessity-based entrepreneurship, being related to survival and family obligations, is less likely to be affected by aging than opportunity-driven entrepreneurship, which is weakened, among older people, due to their greater desire for stability and security (Bloom et al, 2015). Consistent with these findings are the conclusions of the study conducted by Suchart (2017) in Europe and Asia, which suggests that young entrepreneurs appear to be opportunity-driven more often than their older counterparts. In the same vein, Block and Wagner (2010) and Van der Zwan et al (2016) found that necessity entrepreneurs are significantly older than opportunity entrepreneurs. Other studies have found the opposite. For example, Kautonen (2008) found that pull motivations in general tend to be stronger among younger entrepreneurs. Wagner (2005) found an inverted U-shaped relationship in the case of necessity entrepreneurship, while could not observe any effect of age for opportunity entrepreneurship. In his study, necessity entrepreneurs resulted to be significantly older than opportunity entrepreneurs. Conversely, Reynolds et al (2002) found opportunity entrepreneurs to be older than necessity entrepreneurs, and, similarly, Boudreaux et al (2019) noticed that opportunity entrepreneurship was more likely to occur with increasing age. As noted by Giacomini et al (2023), these inconsistencies may also be a consequence of the methodological approach adopted, especially where the question (e.g. "Would you say you started your business because you saw an opportunity or out of necessity?") implicitly assumes that an entrepreneur is either opportunity or necessity driven.

In any case, in the light of the abovementioned studies, it is worth asking whether necessity and opportunity women entrepreneurs in disadvantaged areas are actually homogeneous groups or whether they have more nuanced characteristics, belonging to both categories.

3. Methodology

The questionnaire included demographic variables (e.g., age, level of education, and family size) and questions about entrepreneurial motivations. With reference to motivations, we considered the necessity/opportunity typology, including items used by Williams and Williams (2012, 2014) and Dawson and Henley (2012). Considering that necessity and opportunity motives, in accordance with previous studies (e.g., Kirkwood, 2009; Dawson and Henley, 2012), can be co-present in individuals, especially in resource-constrained contexts (Eijdenberg et al, 2015; Jafari-Sadeghi, 2020), we measured these items by using a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree), to capture the intensity of each motive (To what extent did each of these reasons motivate you to create your business?)

Data collection took place during the first quarter of 2023. The questionnaire was administered to a sample of 74 women entrepreneurs, at the helm of young ventures, operating in Southern Italy (see box below). To address our research question, we carried out a multivariate analysis of variance (MANOVA), (Huberty and Olejnik, 2006), considering generations as the independent variable and entrepreneurial motivations as dependent variables. With reference to generations, starting from the variable “age”, we built two groups of women entrepreneurs, belonging to Baby Boomers and Generation X on one side (n = 28) and Generations Y and Z on the other (n = 46).

The context:

Southern Italy is the largest lagging region in the euro area, with a 'GDP per capita' (around 18,000 euros) that is around 55-58% of that in the centre-north of Italy; (33,000 euros) (Banca d'Italia, 2022). The Mezzogiorno is home to almost 20 million people (33% of Italy's population) and a third of the Italian workforce. However, it lacks in infrastructure, most public services are inadequate and unemployment rates are among the highest in Europe. Unemployment (14.0%) is more than three times higher than in the north-east (4.4%) (Istat, 2024). Those in work are partly affected by precariousness: almost four out of ten workers have a temporary job. Low wages and job insecurity are the main reasons why people leave the region (Svimez, 2024): between 2002 and 2022, more than 2.5 million people have left the South, mainly for the Centre-North (81%). Net of returns, the Mezzogiorno has lost more than 1.2 million inhabitants, including 900,000 young people, almost 300,000 of whom are university graduates. The south of Italy has in fact a strong cultural tradition: here the oldest public university in the world was founded here (the Federico II in Naples, founded in 1224) and today there are 24 other universities operating in the region.

4. Results

Before focusing on entrepreneurial motivations, we examine the demographic characteristics of the sample, (Table 1). The majority of female entrepreneurs in the sample are highly educated: more than 70%, both younger and older, have obtained at least a Master's degree and, among them, a rather high percentage holds a postgraduate degree (25% of the older entrepreneurs and 35% of the younger ones). In terms of family size, more than 80% of older female entrepreneurs belong to families with 1 to 3 members, while the younger ones mostly come from slightly larger families (2 to 4 members).

Table 1: Demographic characteristics of the sample

	Total sample n = 74		B.Bs & Gen. Xers n = 28		Gen. Yers & Gen. Zers n = 46	
Variables	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
Education						
High school graduate	9	12.17%	2	7.14%	7	15.22%
University undergraduate	11	14.86%	5	17.86%	6	13.04%
University graduate	30	40.54%	14	50.00%	16	34.78%
Post-graduate	24	32.43%	7	25.00%	17	35.44%
Family size						
1	13	17.57%	8	28.57%	5	10.87%
2	18	24.32%	7	25.00%	11	23.91%
3	21	28.38%	8	28.57%	13	28.26%
4	14	18.92%	1	3.57%	13	28.26%
5	8	10.81%	4	14.29%	4	8.70%
≥6	0	0%	0	0%	0	0%

Note: Baby Boomers (born from 1946 and 1964), Generation Xers (1965-1980), Millennials or Gen. Yers (1981-1996), Post-millennials or Gen. Zers (1997-2012).

Turning to entrepreneurial motivations, Table 2 shows that their intensity differs significantly between the generational groups of female entrepreneurs ($F = 2.427$; $p = 0.012$). The MANOVA allowed us not only to evaluate the differences between the two groups in terms of the set of variables related to entrepreneurial motivations, but also to assess which specific motivations differ significantly between the younger and older women entrepreneurs.

Table 2: Reasons for starting a business by age cohort

Variables	Total Sample		B.Bs & Gen. Xers		Gen. Yers & Gen Zers			
	n = 74 (100%)		n = 28 (37.84%)		n = 46 (62.16%%)			
	$\bar{x}_{tot}$	SD	$\bar{x}_1$	SD	$\bar{x}_2$	SD	F	Sig.
To be my own boss	5.986	1.548	6.174	1.355	5.679	1.806	1.801	0.184
To make more money	4.838	1.424	5.130	1.343	4.357	1.446	5.444	0.022*
To be independent	6.622	0.613	6.609	0.614	6.643	0.621	0.053	0.818
Freedom to adopt my own approach	6.595	0.701	6.674	0.598	6.464	0.838	1.570	0.214
To turn my hobby into a business	5.230	1.927	5.565	1.772	4.679	2.074	3.827	0.054
To challenge myself	5.351	1.691	5.565	1.559	5.000	1.866	1.969	0.165
To make my idea/innovation happen	5.446	1.482	5.630	1.254	5.143	1.779	1.908	0.172
To fill a gap in the market	4.284	1.643	4.674	1.383	3.643	1.850	7.462	0.008**
Dissatisfied with job	3.905	2.228	4.152	1.988	3.500	2.560	1.502	0.224
No better job opportunities	3.568	2.252	4.000	2.171	2.857	2.240	4.711	0.033*
Redundancy	2.203	1.972	2.304	1.836	2.036	2.202	0.320	0.573
Lack of suitable opportunities	3.378	2.182	3.848	2.065	2.607	2.183	6.017	0.017*
							2.427	0.012*

Note: Significantly different average scores * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$

Looking at the individual variables, there are four cases where significant differences can be observed between younger and older women with respect to their entrepreneurial motivations. The most pronounced difference is found for the variable "To fill a gap in the market" ($F = 7.462$; $p = 0.008$); this motivation is stronger for younger female entrepreneurs ($\bar{x}_1 = 4.674$) than for older ones ($\bar{x}_2 = 3.643$). The variable "Lack of suitable opportunities" ($F = 6.017$; $p = 0.017$) also differs significantly between the generational groups of female entrepreneurs; as in the previous case, this motivation is higher for younger women ($\bar{x}_1 = 3.848$; $\bar{x}_2 = 2.607$). Other significant differences are found for the variables "To make more money" ($F = 5.444$; $p = 0.022$) and "No better job opportunities" ($F = 4.711$; $p = 0.033$); both of which are stronger for younger women entrepreneurs, than for older ones.

5. Discussion and Conclusion

The first fact that emerges from reading Table 2 is that, for both generational groups considered, the most relevant motivations for starting a new business are those related to the desire to have more flexible employment, to maintain greater independence in the work sphere and to become one's own boss. These variables have the highest scores, indicating that women of all ages, even when they no longer have young children, feel the need to find employment that allows them greater freedom.

The difference in entrepreneurial motivation between the two groups is significant. Table 2 shows that in almost all cases younger female entrepreneurs have a stronger entrepreneurial motivation than older ones. This is consistent with what some of the literature indicates regarding the negative impact of age on both opportunity and necessity motivations (e.g., Figueroa-Armijos and Johnson, 2013; Sahasranamam and Sud, 2016; Li et al, 2020). However, only some of the specific entrepreneurial motivations that fall under the necessity/opportunity typology differ significantly by age.

This is the case for four variables, two of which are commonly attributed to necessity entrepreneurship (no better job opportunities; lack of suitable opportunities) and two to opportunity entrepreneurship (to make money; to fill a gap in the market). Our results show that younger entrepreneurs can be driven by both necessity and opportunity and this finding is partially consistent with previous studies that have argued that women in

developing countries are particularly likely to be pushed into necessity entrepreneurship (e.g., Shelton, 2006; Orhan and Scott, 2001). Younger women entrepreneurs considered in our studies are more necessity-driven than their older counterparts but, at the same time, more opportunity oriented. They highlight the lack of job opportunities while not neglecting financial motivations and a greater willingness to fill gaps in supply, to create a business that responds to consumer needs. This supports previous research suggesting that motivations for entrepreneurship are complex and intertwined (e.g., Kirkwood, 2009; Dawson and Henley, 2012; Alexandre et al, 2019; Caliendo and Kritikos, 2010; Giacomini et al, 2011; Puente et al, 2019), while confirming that emerging markets can pose additional challenges for women entrepreneurs due to difficulties of various kinds (access to finance, bureaucratic procedures, weak institutions, etc.), but can also provide fertile ground for opportunity-based female entrepreneurship (e.g., Franzke et al, 2022; Deng et al, 2024). These young, well-educated women embraced the idea of becoming entrepreneurs in order to have a job opportunity in their home region and to escape precariousness, but they approached the business with a cultural background that allowed them to explore the market with attention and curiosity, in search of gaps, to find a business that would not only provide them with income opportunities, but also offer value to the market in order to create a viable venture. In other words, they seem to have made a virtue (i.e. an opportunity) out of a necessity, thanks to a higher level of education that provided them with the cognitive skills needed to identify, assess and better exploit entrepreneurial opportunities.

This finding suggests an opportunity to further explore the role of higher education and its impact on the nature of women's entrepreneurial motivation (opportunity or necessity based) in a future study, as previous literature has also shown that human capital acquired through education is one of the strongest drivers of entrepreneurial intention and performance (see the reviews in Unger et al., 2011 and Van der Sluis et al., 2008). A future study could, for example, test whether education plays a moderating role in the relationship between generational differences and entrepreneurial motivation of women starting new businesses in disadvantaged areas.

In addition to the need to further explore the impact of education on women's entrepreneurial motivation, this study has a number of limitations, which are briefly outlined below. First, it considers women entrepreneurs operating in a specific area of a single country. This undoubtedly ensures homogeneity in terms of the institutional context, both formal and informal, that influences people's behaviour, including at the entrepreneurial frontier (Boettke & Coyne, 2009). However, this restriction of the study context limits the generalisability of the findings and highlights the need for future studies to take into account the type of 'disadvantage' associated with the context in which new enterprises are created. Disadvantaged areas are not all the same: for example, this study focused on an area that did not lack human and intellectual resources but lacked other types of resources (infrastructure, services, etc.). Future studies could carry out comparative research, taking into account samples from different countries or different areas of the same country, also characterised by different levels of development and different types of 'disadvantage'. Secondly, this study considers only one demographic variable in relation to entrepreneurial motivations. It might be interesting to include additional variables, such as marital status, number and age of children and the aforementioned educational level, to get a more complete picture of the socio-demographic elements that potentially influence entrepreneurial motivations. Third, quantitative research could be complemented by qualitative approaches. This would make it possible to go deeper into the motivations of female entrepreneurs and to highlight aspects related to demographic (and other) characteristics that escape quantitative analysis.

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Gender Gap in IT and Computer Science: Nip the Evil in the Bud

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Abstract: Science, Technology, Engineering, and Mathematics (STEM) describes a broad interdisciplinary approach to education and careers that enclose these four fields. STEM fields are highly influential in driving innovation, technological advancements, and economic growth. For decades, women have faced judgment when pursuing careers beyond their household duties. As the world continues to evolve, it is becoming increasingly evident that greater female participation is essential in addressing a better future. However, in the era of the internet and artificial intelligence, the biggest gender gap can be seen in the fields of Information Technology (IT) and Computer Science. This article aims to closely examine the representation of women in STEM areas, in general, and IT and Computer Science, in particular, while examining the underlying causes of the pronounced gender gap. It will also investigate the factors contributing to this separation to provide strategies and actions that can successfully help close the gap.

Keywords: Female Students, IT, STEM, Gender Equality, Gender Gap

1. Introduction

The need for Information Technology (IT) and Computing Science education is recognized as being of central relevance for meeting current social and economic challenges, as well as for developing a scientifically, mathematically, and technologically literate citizenry (Pereira et al., 2024). In many countries, however, there are gender differences in the participation and achievement of women in IT and Science, Technology, Engineering, and Mathematics (STEM) education and careers (World Economic Forum, 2024).

In the past, men were primarily responsible for earning income for the household, while women took care of domestic duties. As time progressed, women began to enter the workforce as well. The labour market has evolved over the years; however, certain areas have not reached gender equality. STEM fields, particularly IT and Computer Science, are significantly impacted. Many reasons may explain why women are depreciated in this area, some of which come from a long time ago. For example, the belief that women are more emotional and hysterical, that they should behave in a nurturing manner, and the assumption that they lack logic and analytic skills that only men possess (Acker, 1990; Diekman et al., 2010; Wang & Degol, 2017). Most of these assumptions are not based on scientific evidence (Meyers-Levy & Loken, 2015), representing only thoughts influenced by society, induced by sociocultural factors. Sociocultural factors are based only on social and cultural influences that can shape individuals' beliefs, values, behaviours, and even opportunities within a given society. These factors significantly influence various aspects of human life, including education, career choices, and participation in fields like STEM (Pereira et al., 2024). Regarding the underrepresentation of women in STEM, social-cultural factors can contribute to the gender gap. The world is evolving and changing in its efforts to address the gender gap. However, this progress is not enough, there is much more work to be done. Based on literature and some case studies in developing countries and in the Portuguese case of the university of Aveiro, this paper aims to identify some of the causes of the gender gap in IT and Computer Science and explore ways to decrease it.

This paper is organized as follows. After this introduction, section 2 presents the literature review of female IT students, centred on the framework of female IT and STEM students, the gender differences, the importance of understanding stereotypes in IT; and the most common issues in STEM education and gender differences in IT. Section 3 provides statistical evidence supporting these discussions. Section 4 analyses the causes and solutions for the gender differences. Finally, Section 5 summarizes the conclusions and offers strategies for implementation to close the gender gap.

2. Literature Review

The framework to support female IT and STEM students' research can be based on several models. Yates and Plagnol (2022) state the model of Cheryan et al. (2017), which is based on three elements, that combine fields unappealing for women: i) the masculine culture, ii) the lack of early exposure for women, and iii) women's lack

of belief in their ability to succeed. However, this model does not aim to offer a comprehensive overview of the experiences of women in these fields, and there are some aspects of women's experiences in STEM that are not considered in the framework. According to Ayre et al. (2023) the framework does not cover the experiences of some sexism, microaggressions, and sexual harassment that women in STEM fields report as well not refer to women's struggle to see how to best manage their careers within STEM fields (Yates & Skinner, 2021).

2.1 Women in STEM

The workforce in the United States of America (USA) is equal when considering the number of male and female people, however, when it comes to STEM positions, women hold less than 30% (Glass, et al., 2023; Martinez & Christnacht, 2021). Women only hold 12% of architectural and engineering jobs, while in the field of human resources, 78% of the positions belong to women. Table 1 shows the percentage of women with bachelor's degrees in STEM fields based on research conducted.

Table 1: Representative of Women in bachelor's degrees in STEM fields in the USA

STEM Field	Percentage of women representatives in a certain field	Percentage of women at a graduate level
Biological/Biomedical sciences	59%	54%
Mathematics and statistics	43%	29%
Physical and technological sciences	38%	34%
Engineering	19%	23%
Computer and Informatic Sciences	18%	19%

In Table 1, the most populated fields by women are biological and biomedical sciences. Wang and Degol (2017) cite some studies like Ceci and Williams (2011), Diekman et al. (2010, 2011), Freund et al (2012), Su et al (2029) and Tai et al (2006) that found reasons to explain the different percentages on STEM fields to women often choose degrees that contribute positively to society, driven by a desire to help others. Merayo and Ayuso (2023) found a correlation between girls choosing health and education fields to help others, while boys are more likely to choose fields like engineering or computer science because they prioritize financial gains. Additionally, girls tend to view themselves as less intelligent and lack the confidence they believe is necessary to pursue a STEM education.

Some analysts suggest that while many women have an interest in mathematics, they tend to pursue challenging non-STEM careers (Wang & Degol, 2017; Stoet and Geary, 2018), such as healthcare management or finance, instead of more complex STEM fields like engineering or computer science. Additionally, women generally prefer career paths that involve less risk. Fields such as engineering and computer science often require a willingness to experiment and accept failure, which can be more challenging for women according to research by Kovaleva et al. (2023) and Spieler et al. (2020). This tendency is sometimes referred to as female perfectionism, which is an expectation placed on girls from an early age by society. Stereotypes are intrusive thoughts established by society that can affect a person's beliefs and change the way they see the world or behave (Master et al, 2016; Spieler et al., 2020; Vichayapai et al, 2011). Researchers have found that society implies the stereotype that men are better at STEM subjects, however, studies have been made and this idea has been refuted. Women tend to have better grades in math and science in elementary and high school (Glass et al, 2023). Hill et al. (2010) concluded that a "smarter sex" does not exist, rather it is all a society's imposition that exists in different cognitive strengths. For instance, is true that when it comes to spatial orientation and visualization, boys tend to have better ability in it, while girls generally outperform boys in verbal skills, such as writing and reading, as well as in memory and perceptual speed. It is important to recognize that both genders exhibit strengths in different areas, but it's essential to recognize that these skills can be trained and enhanced through hard work.

The presence of stereotypes during childhood significantly contributes to the gap (Pereira, et al., 2019). One of these examples of gender stereotypes is the assumption that women are family caretakers and men are the breadwinners (Kovaleva et. al, 2023; Margolis et al., 2000). Society implies that women are meant to prioritize family goals, rather than their career success. Normally STEM jobs are seen as more hardworking and time-consuming, and having kids is also a full-time job that can decrease women's productivity. Hill et al. (2010)

illustrate that a woman is more likely to be hired and promoted if she is single and that married women are at a disadvantage to married men. Recent research suggests that individuals tend to be more productive when their schedules are packed with various tasks, as it fosters a mindset focused on optimizing time utilization.

Kovaleva et. al (2023) investigated the reasons behind the lack of women in entrepreneurship. The factors contributing to this underrepresentation are similar to those affecting women's participation in STEM fields. Their study identifies several reasons why women are not more eminent in entrepreneurship. Entrepreneurship is frequently associated with men, particularly in the tech industry, where the term 'tech-bros' has emerged to describe a specific demographic of male entrepreneurs. Women are way less represented than men in this field and research concluded that during pitches by company leaders, 67% of questions directed to men were about business development and 66% of questions directed to women were about preventing failures in the company. This shows that women are not trusted by their own company and are not seen with confidence by others. So, this lack of confidence in themselves may influence their way of living, making life choices, and also how others see them.

Christensen (2023) explored the possible causes of the misrepresentation of women in STEM, and he finds a link between societal wealth and the gendered confidence gap in computing, which is illustrated in a bivariate regression slope graph to illustrate the relationship between gender gap in self-assessed tech ability and societal affluence. The data supports the affluence paradox, suggesting that as societies become wealthier, gender inequalities in self-reported technological aptitude increase.

2.2 Gender Stereotypes

From birth, girls are typically associated with pink and boys with blue. Girls are expected to play with dolls, whereas boys with cars. Boys are often supported in participating in adventurous activities, such as climbing trees, whereas girls may be more frequently nudged toward quieter play, such as interacting with dolls like Barbies in serene environments. While society continues to evolve and people's mentalities change, this thought still exists in today's world. For example, in Germany, a study conducted on students aged 12 to 14 in a robotic program concluded that boys had more positive thoughts regarding robotics than girls. Van Wassenae et al. (2023) concluded that boys have a better attitude regarding STEM and are, in general, more confident in the technical ability of engineering and building new things. On another note, researchers highlighted the importance of providing incentives from an early age, especially for girls, to change their perceptions of their capabilities.

STEM fields have numerous requirements, particularly in math. Parents and family play a crucial role in shaping their children's perceptions by communicating their gender-biased beliefs (Dickhäuser & Meyer, 2006 Pereira et al, 2024, Spieler et al.,2020). Jacobs and Eccles (1992) showed that parents tend to think that their sons are more likely to succeed in math than their daughters. Overall, according to Voyer and Voyer (2014), society tends to look at boys with more math abilities than girls, yet it was revealed that both genders have equality in math ability. Therefore, this is not one of the reasons that can explain the gender gap in STEM, since for this field good grades are necessary to get in (and to do it). Girls have a higher probability of having high math and verbal skills unlike boys (Wang & Degol, 2017), who usually are not keen on verbal skills. This can be explained by the way they are educated, since during the kid's childhood, mothers are seen by girls to be more supportive and easier to talk to, on opposite with boys, and parents appreciate quality time with their daughters by reading or storytelling.

These findings can explain why girls have more verbal ability than boys, a really important soft skill when going to the job market and deciding their path. Since they are keen on both strands, they tend to be inclined towards non-math careers, but why?

When growing up, according to Gabay-Egozi et al. (2015), Giannakos et al. (2017), and Vichayapai et al, (2011), children, especially teenagers, need someone to look up to, role models, and there is a big lack of female STEM role models. Kids can get inspired by what they learn in school, by their toys, and by TV shows. It is important to introduce at a young age the concept that gender does not define who they can be one day in terms of job choice (Young et al., 2013).

Nowadays, are coming up with TV shows for children with more girls in power. Exemplifying, "Doc McStuffins" is a female doctor of toys. Normally the leading figures are boys, for example, Phineas and Ferb, a TV show about two siblings who are always making inventions and who have a hysterical sister always looking out for them, judging their inventions, and a girlfriend who does not participate in them.

In the history of science and technology is rare to talk about what women have done, as well the number of women in the intellectual world in the last centuries. Many significant achievements are recognized; however, it is concerning that few are from women. After research, conclusions were made that there are more female achievements than people think. For example, in 1843, Ada Lovelace became the first person in the world to write a computer program. This achievement deserves more visibility and discussion. Children who follow scientific paths learn about various notable scientists in school, yet Lovelace's contributions frequently go unmentioned. Highlighting achievements like hers is essential, as it influences how children identify role models within their fields of interest. If academic resources predominantly focus on the achievements of men, it may discourage young girls from pursuing careers in science and technology.

Merayo and Ayuso (2023) performed a questionnaire for secondary education Spanish students to understand the gender gap in the choice of STEM studies. One of the questions was role models, either close role models or famous role models. Regarding role models in their family nucleus, researchers noted that they were more familiar with males than females, as shown by their responses: father/mother, uncle/aunt, and male/female cousin. Additionally, 19.8% of male and 22% of female students reported that they did not know anyone in their surroundings who worked in these professional environments. The absence of visible female role models is a challenge, as research indicates that their presence significantly increases the possibility of students pursuing a career in one of the STEM fields (Chen et al, 2020; Pereira et al, 2024; Van Camp et al, 2019; Young et al., 2013).

On the other hand, regarding public figures, the students' answers are displayed in a word cloud in Figure 1. Both genders identified only two women: Marie Curie and Margarita Salas. However, girls tended to recognize these female scientists more frequently than boys did. Regarding role models in technology, students identified Mark Zuckerberg, Steve Jobs, Elon Musk, and Jeff Bezos. A concerning finding was that no student mentioned any female figure in this area.

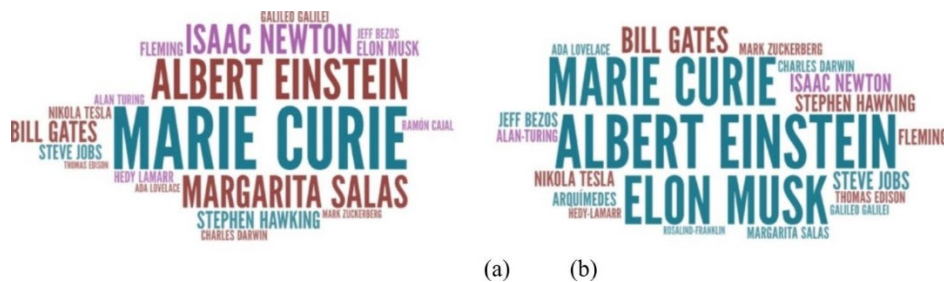


Figure 1: Famous role models that secondary students know (a) girls (b) boys.

(Source: Analysis of barriers, supports and gender gap in the choice of STEM studies in secondary education)

A 2017 study conducted by Microsoft (2017) surveyed 11.500 girls across Europe and established a strong connection between the presence of female role models and girls' interest in STEM. The findings indicate that girls who are aware of female role models display nearly double the interest in pursuing STEM disciplines compared to their peers who do not have such role models. The study also points to a significant problem, as 64% of the participants could not identify any women who stand out in STEM fields. Girls were also inquired about their family support, 81% of girls who reported receiving encouragement from their parents expressed a greater predisposition to pursue studies in STEM.

3. Statistical Evidence: Numbers in Gender Gap in STEM

According to European Statistics Eurostat (2024, 2023a), 2023b)) it is possible to see a significant gender gap regarding gender discrepancy among employed people with ICT education. Figure 2 shows the percentage distribution of men and women with the same education background in ICT who are employed throughout European countries. The disparity is significant, with most countries showing men's percentages between 80% and 90%, while women's are much shorter, often falling below 20%. Women have a higher representation in a few countries such as Denmark (DK) with 34.1%, Bulgaria (BG) with 33.4%, and Romania (RO) with 29.9%. However, countries like the Netherlands, Italy, and Switzerland have percentages as low as 12.9%, 11.2%, and 10.5%, respectively. Not all countries have data, such as Slovenia, Slovakia, Luxembourg, Latvia, and Iceland due to low reliability or not being available for publication, but even with the data provided can see the severity of the situation, where this area is overwhelmingly taken by men within the ICT sector across Europe, where the average of employed women is only 17.4%.

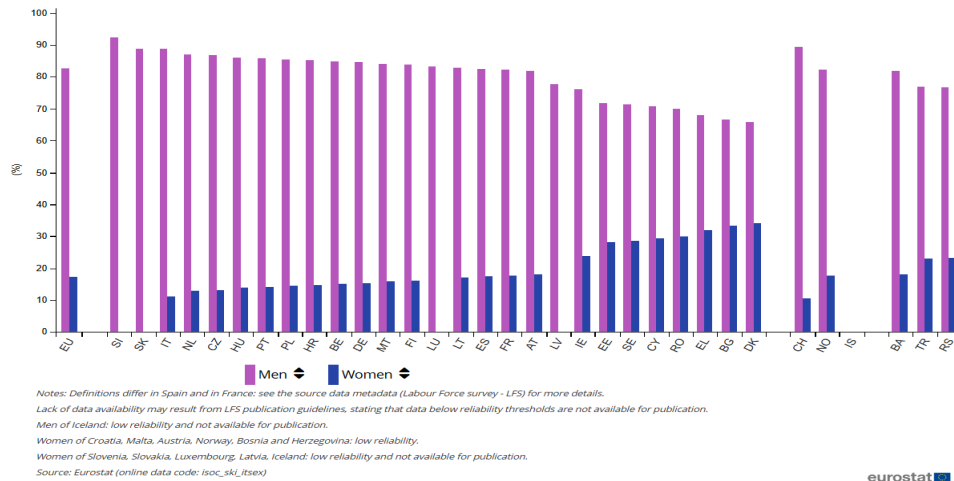


Figure 2: Share of employed people with an ICT education by sex, 2023 (Source: Eurostat Statistics, 2024)

For individuals to work in these fields, it is generally required that they obtain a degree. Figure 3 illustrates the comparison between the percentages of female and male students who enrolled in various engineering courses at the University of Aveiro in 2023. The percentage of women enrolled in the engineering degrees is very low, being the minimum percentage of women, 4.44% in Telecommunication Engineering and 37% in Aerospace Engineering. In the Computer Engineering field (ICT-related field), there is a significant gender disparity that mirrors the trends observed in Eurostat data (Figure 2). This concludes that women are underrepresented in ICT-related fields in education and the workforce, since fewer women are choosing to study these fields, it will contribute to lower employment rates.

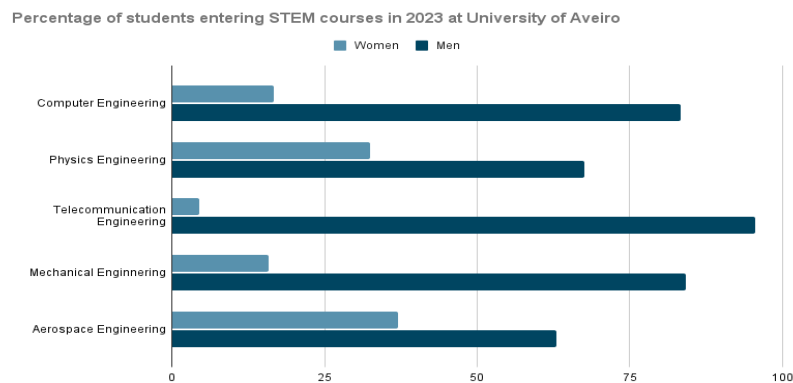


Figure 3: Percentage of students in IT, Computer Science and Engineering courses in 2023 at the University of Aveiro (Source: <https://www.dges.gov.pt/guias/indest.asp?estab=0300>)

According to the European Commission (EC, 2019), 53% of companies experienced difficulties in recruiting qualified ICT specialists, as only 1 in 3 STEM graduates are women and only 1 in 6 are ICT specialists in the European Union (EU). Also, they report that women earn 20% less than men. On the other side, the EC (2018) study declared that the estimated annual productivity loss for the European economy due to women leaving their digital jobs to become inactive is approximately 16.2 billion euros. This loss not only affects European companies but also impacts businesses as a whole, as women contribute unique perspectives in problem-solving and product development. By closing this gap, it would, therefore, not only support gender equity but also positively affect the economy and across EU businesses. So, the EU is implementing different strategies to retain women involved in STEM fields, for example, focusing on addressing gender stereotypes, promoting STEM education and skills, and also encouraging more women to become entrepreneurs.

4. Results and Discussion

4.1 Exploring the Causes

The causes for the existence of a gender gap in STEM may vary, such as sociocultural factors, cultural barriers, lack of opportunities, indifference to STEM fields, work-life balance, bias, and the lack of confidence in women

to pursue these careers. Another societal perception is the idea that women working in certain STEM fields are perceived as “inappropriate” for their gender, therefore women tend to not be interested in it since they don’t believe they will succeed, and as said before, women usually don’t like to fail.

Also, the lack of female role models for girls and women is a serious issue (Wang & Degol, 2017), as said before. When growing up it is natural to have someone to look up to and girls can withdraw their chances in STEM without one. In the early stages of life, it is important to have someone who encourages them. When talking about role models it is not only a real successful person but also an influence on media: TV shows, movies, or social media.

Another crucial factor is the environment, the fact that there are not many interesting opportunities for women makes them not have the willow of working in a male-dominated area. Sometimes, when doing research as to whether they should apply to work in a certain field or not, women see reviews such as “I always work in a man environment, so I cannot be too soft”, as a participant said in research developed by Amon (2017). The existence of stereotypes in childhood and during life, even in professional careers has a strong effect, as said before.

Happe et al. (2024) address the critical need for cultural and educational shifts within the computational field. Their research, based on a questionnaire yielding 140 valid responses, identified several motivational factors that encourage women to pursue careers in computing, obstacles, and ways of attracting women to computer science. The motivation factors included personal interests, family influence, particularly from fathers, and financial opportunities. Despite these motivators, respondents also acknowledged significant obstacles, such as a lack of support and pervasive stereotypes. The authors postulate that those who view themselves or their family as the primary motivation to pursue these fields are somehow involved in computer science. In contrast, those mainly motivated by financial or job prospects usually remain outside computer science. This analysis indicates a strong need for targeted support to assist women in overcoming the barriers they face in entering this field. Therefore, the authors appeal for an early exposure of girls to computing in an enjoyable and engaging format. Additionally, they emphasize the importance of mentorship programs and the establishment of all-female classrooms. This can enable a supportive learning environment, dismantling existing stereotypes and nurturing girls' self-confidence by getting inspired by their peers or mentors. The authors conclude the article by asserting that achieving gender parity extends beyond simply matching the number of male and female workers. They emphasize that bringing more diversity expands perspectives within teams. Women can introduce new problem-solving approaches that are different from traditional male-dominated teams. Furthermore, this highlights that many women in computing science aspire to be entrepreneurial or motivated to develop projects with a social impact.

The lack of support for these women may result in missed opportunities for valuable innovations. Some studies relate the main causes of why women are not more likely to become tech entrepreneurs relate to the STEM causes. Kovaleva et al (2023) drew a map with the main causes of them not being as well represented in STEM fields – Figure 4, categorizing them into social and personal factors and illustrating their effects and implications. Social factors, such as the lack of role models, childhood stereotypes, and the idea that women prioritize their families, play a significant role. On a more personal level, society perceives women as being less willing to take risks, an action that is very common in STEM and IT startups, where taking risks or exploring uncertain fields is frequent. Women prioritize stability over risk, making entrepreneurship seem less appealing to them.

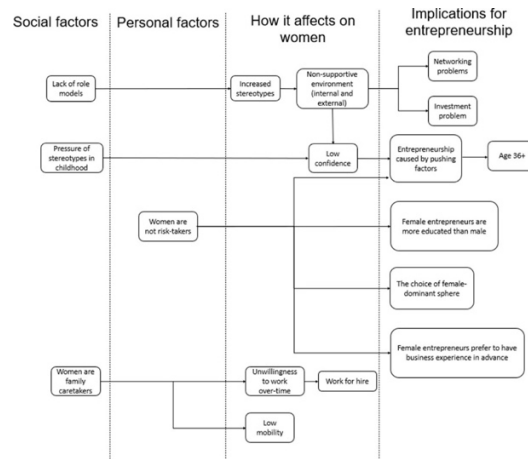


Figure 4: Main causes of women not being represented in entrepreneurship (Source: Kovaleva et al., 2023)

4.2 Identifying Areas for Improvement

Confidence matters and it's something that is built day by day in a person's life. In childhood, both school and home are the primary influences shaping a child's perspective. Children should be encouraged from birth to follow their passions and aspirations, free from traditional gender limitations. It is important to recognize that job roles should not be assigned based on gender. Is not only important what is being taught, but also the method. A study was made in middle and high schools that associated competitive and comparison environments with low levels of motivation and academic performance by students. The study case revealed that students who were stressed with academic performance by teachers, tend to avoid challenging subjects and quit more easily. On the other hand, students who were in an environment that valued effort tended to challenge themselves when, while enjoying the tasks and having higher results (Wang & Degol, 2017). Furthermore, the research results pointed those girls are leaning to pursue STEM fields if guided into hard work to address the complexities inherent in the subject (Wang & Degol, 2017). On the other side, Merayo and Ayuso (2023) defend that since girls have shown a tendency to pursue careers where they can help others if teachers in STEM subjects highlight how these fields can make a positive impact – such as using artificial intelligence to predict diseases, employing image and signal processing for diagnosis, or creating prosthetics through bioengineering – then girls may be more inclined to pursue those fields. This approach helps to demystify the stereotype of STEM being a “geek” domain.

Early exposure to computing might also attract more girls into STEM fields (Master et al, 2017; Pereira, et al. 2024) according to Happe [et al \(2024\)](#), based on previous studies, boys spend on average more time than girls with computers when they are home. Enabling early access to technology will improve girls' confidence and potentially encourage them to pursue related fields as they get older. Creating school, community center, or library programs designed for girls to introduce them to coding or robotics at an early age may develop their interest and confidence in ICT.

Another way to encourage girls to STEM is to introduce more female role models to school events, suggest doing research about them in school work, and organize network opportunities. Someone who young girls can be inspired and look up to when beginning to create paths for their future.

Nowadays, there are some opportunities to increase women in STEM. For example, initiatives like SheCodes or Girls Who Code¹ where there are coding workshops only for women, certain internships, research programs, job opportunities, or scholarships. In Portugal, the company E-Redes S.A. created in 2023 the Top Women Scholarship². It is a one-year program dedicated to women, where besides giving financial help, they also attribute one mentor for each participant, organize multiple webinars, and can visit the company's facilities. Their goal is to promote equal opportunities within the technological field to increase the number of women pursuing technology careers and to attract female graduates with a master's degree in electrical engineering and computer science.

However, some people consider these opportunities themselves to be gender discrimination. However, these initiatives aim to encourage women to join STEM fields, like IT and Computer Science, and try to balance the scale.

5. Conclusions

The world is evolving and people are slowly changing the mentality that “some kinds of jobs are for men and some for women”, but statistics don't lie and it is still an issue. This paper concludes with the information needed for more female role models in STEM fields and for society to treat boys and girls in equal ways. The underrepresentation of women is seen as a social problem; however, people need to think differently, and it can be a humanitarian issue. The fact that there are not enough women in the STEM field hinders scientific evolution, in a way they have a different perspective on the world, which can lead to new conclusions and findings.

¹<https://www.shecodes.io/> and <https://www.womenwhocode.com/> .

² <https://www.e-redes.pt/en/e-redes-top-women-scholarship>.

Based on the research developed in this paper, some strategies to close this gap can be:

- Introducing more female role models;
- More promotion on social media;
- More programmes for women and mentoring;
- Scholarships for young girls and women in STEM field;
- Change behaviour in classrooms, preferring an environment that values effort over grades, rather than a competitive classroom;
- Educating children in equal ways, letting them follow their passions.

Nevertheless, this paper is not trying to devalue men or appeal to feminists. It appreciates the existence of both genders in equal ways and wants to encourage more women to decrease the gender gap. The world needs to have more women aware of their capabilities and actively participate in STEM and ICT fields. This emphasis is not meant to overlook men but rather to foster equality for everyone and embrace the richness that diversity brings. With this article, we hope to raise societal awareness about the importance of addressing the gender gap early on, particularly through a different perspective on children's education, as they are our future.

Acknowledgments

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Navigating Law and Vulnerability: African Women, Legal Consciousness and Intimate Partner Violence in the UK

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Abstract: Feminist migratory research has highlighted the gendered dimensions of migration, drawing attention to the compounded challenges migrant women face due to both gender and exclusionism in the migration process. Drawing on research that conceptualises legal consciousness and understanding of the law as both cognitive and behavioural, this study examines the gendered relationship between UK immigration regulations and African migrant women's experiences of intimate partner violence (IPV) in the UK. Through qualitative interviews focusing on Nigerian migrant women on spouse visas, it explores survivors' informal understandings of their rights, duties, and justice in the face of violence and abuse. This paper identifies two key dynamics: first, the patriarchal inheritance of the law and its intersection with existing social contexts through its hegemonic and institutional power, shaping the women's experiences; and second, the ways survivors exercise agency and show resistance by using the law to reduce or mitigate their vulnerabilities. It is argued that the UK immigration law within this context operates simultaneously both as a tool of oppression and as a legal pathway to safety and empowerment, with the women's legal consciousness emerging at the intersection of these socio-legal structures.

Keywords: Intimate Partner Violence; Legal Consciousness; Nigerian Migrant Women; UK Immigration Law; UK Hostile Environment; Gender-based Violence.

1. Introduction

Feminist research has extensively shown how immigration exacerbates migrant women's vulnerability to intimate partner violence (IPV) as they navigate the intersecting vulnerabilities related to both their gender and precarious immigration status, especially within diasporic communities from the Global South (Menjívar and Salcido 2013). While much of this research focuses on undocumented migrants, a critical question remains: what happens when migrant women hold documented status but continue to experience compounded vulnerabilities that intensify their risk of violence and oppression?

In the UK, while immigration laws may provide pathways to new opportunities, they also embed structural inequalities that, though seemingly neutral, increase migrant women's vulnerability to gendered violence and exploitation due to the precarious nature of restricted visas. In practice, these laws often reinforce values and inequalities that legitimise othering and sanction gendered forms of marginalisation both at the micro and macro levels. Within this context, the law's hegemony, institutional power and dominance function as a form of patriarchal inheritance that interacts with pre-existing social inequalities, shaping women's experiences (Porter 2020; Henderson et al. 1991).

This paper explores the nuanced and often overlooked ways in which immigration laws affect migrant women's experiences of IPV in the UK, with a particular focus on documented Nigerian women on Spouse Visas. It examines how survivors engage with and mobilise the law through informal understandings of their rights, responsibilities and justice in the face of violence and abuse. By framing their legal consciousness as both a cognitive and behavioural process, this paper highlights how their interactions with the law go beyond simplistic notions of compliance or resistance, revealing the law's dual role in their lives as both a tool of oppression and a source of empowerment.

1.1 Theorising Law, Legality and Intimate Partner Violence among Nigerian Migrant Women in the UK

Theoretical frameworks that help to conceptualise how immigration, gender and power intersect to shape the experiences of violence and oppression among Nigerian women in the UK diaspora are necessary to avoid falling into monolithic conceptualisations of IPV experiences. To this end, a legal consciousness framework and the theory of intersectionality has been adopted as both theoretical and methodological tools to examine the gendered impact of the UK immigration law on the lived experiences of IPV within this population.

Ewick and Silbey (1998) define legal consciousness as more than a mere state of mind about laws and regulations. It involves how ordinary citizens subjectively interpret and act on the law in their daily lives (Hertogh, 2009). Previous research on legal consciousness has shown that legal consciousness can be shaped by

various factors, including the unique social location of individuals (Abrego 2008; Nielson 2000; Merry 2003). For instance, Merry (2003), in examining the legal consciousness of women who had experienced violence, explored how their experiences influenced their perception of the law and its potential as a tool for escaping abuse. Guduk and Desmet (2022) argue that legal consciousness is dynamic and shaped by structures in the social environment that impact the everyday lives of individuals. Blackstone et al. (2009) similarly argued that legal consciousness is a fluid process involving what people make of the law and how they respond to it. This paper draws from these theoretical foundations to examine Nigerian women's legal consciousness through the lens of citizenship, conceptualising it both as a tool of exclusion and as a potential source of empowerment. It explores how citizenship becomes more than attaining a geographic marker or legal status but instead reflects a deeper struggle for identity, agency, and stability for Nigerian migrant women in an environment shaped by structural and social barriers. It aims to capture their subjective experiences of the UK's immigration policy and how it influences their willingness and capacity to engage with the law to address their needs, secure a more stable legal status and escape IPV. Additionally, it draws on Guduk and Desmet's (2022) argument that, for many diasporic women, their legal consciousness may be influenced by legal pluralism, where perceptions and actions are shaped by the laws of both the host country and their country of origin. In this context, the paper analyses the combined experiences of law, legality, decisions about compliance, and how these are negotiated within the indigenous and diasporic lives of Nigerian migrant women (Silbey 2005).

Drawing on an intersectional framework, alongside the legal consciousness framework, helps provide a more nuanced and critical understanding of how overlapping inequalities shape their lived experiences (Crenshaw 1989). Examining the multiple layers of oppression faced by Nigerian migrant women in the UK is essential for several reasons. Firstly, it provides a simple and obvious pointer to the heterogeneous nature of British society itself, comprising diverse political ideologies, cultures and ethnicities. Grouping the experiences of women from varied socio-cultural backgrounds under a single category would be a reductionist approach that fails to capture the variety within women's lived experiences. Secondly, while it can be argued that there are commonalities in women's experiences of IPV based on gender, other structural inequalities can intensify or add unique dimensions to these experiences (Mirza 2017; Gill and Sharma 2007). For instance, the specificities of Nigerian migrant women's experiences of IPV in the UK are, for example, different from the experiences of women from the native population or dominant culture who are not subject to immigration controls. Race, in particular, adds another layer of oppression for these women, leading to complex experiences of discrimination, prejudice, and racism that migrant women from Western European backgrounds typically may not face (Ogbemudia 2021). Recognising these multiple systems of power, privilege, and inequality is therefore vital to understanding their unique impact on the experiences of Nigerian women in the UK. Intersectionality, therefore, explores the wider framework within which violence against women occurs and acknowledges that broader social, political, and economic contexts play crucial roles in shaping their experiences. This includes how they navigate the law to find agency within multiple conditions of vulnerability.

2. Methodology

Mirza (2017) points out that without including women's own perspectives, policy documents often overlook the distinct forms of abuse faced by women from various migrant backgrounds. To access the subjective experiences of Nigerian women's engagement with the UK immigration law while experiencing IPV, in-depth semi-structured interviews were conducted with 14 Nigerian women resident in England on spouse visas who had experienced IPV from their resident spouses or former spouses. All participants were based in London, the UK's most ethnically diverse region in England (Office for National Statistics 2021). Data collection took place virtually, rather than face to face, between June and November 2021 due to the COVID-19 pandemic. Each interview was recorded with the participants' explicit consent, and all participants signed an informed consent form before scheduling. Ethical approval was granted by the University of Essex Ethics Committee. The data was analysed using a comparative inductive approach, involving thoroughly reading the transcripts and labelling responses to uncover key themes and recurring concepts.

The impact of the COVID-19 pandemic in 2021 posed challenges, and a combination of purposive and snowball sampling to reach eligible participants was adopted. WhatsApp video, text and audio messaging proved to be an effective tool for building trust, as it provided participants with a platform they were already familiar with before the pandemic (Sabri and Gielen 2020). Participants reported feeling more at ease and less inhibited, encouraging them to share their personal experiences more openly (Tremblay et al. 2021).

Due to ethical and safety concerns, particularly during the ongoing pandemic, all participants were required to no longer be in their abusive relationships before the interviews took place. This was to avoid the risk and harm

that could result from giving an interview for research purposes while trapped in the home with their abusers. The interviews, averaging one hour each, aimed to explore how participants perceived and interacted with the law in the context of the violence and abuse they experienced and how their precarious migrant status affected them from a gendered perspective.

The following section examines how participants informally interpreted the law, using it as both a legal pathway to safety and empowerment. It also explores how they complied with the law from a position of oppression, demonstrating how they navigate multiple layers of oppression in order to thrive.

3. Findings

3.1 Crim-migration and Legal Consciousness

The criminalisation of immigration rules and the rise of anti-immigrant sentiment in the UK profoundly influence the legal consciousness of migrant women experiencing IPV. For many, this creates a climate of fear that shapes their perspective, making strict adherence to immigration laws seem safer than facing the risks of undocumented status. Findings from this study revealed that the participants feared that leaving their abusive marriage might jeopardise their documented status, potentially rendering them undocumented. They feared that not only will this block their access to essential services but could worse, lead to deportation. Faced with a limited set of options, many felt compelled to choose what they saw as the safer path: staying in the abusive relationship until they gained citizenship rather than risking the repercussions of the law. The following sections examine how these fears impacted their decisions:

I wanted to leave the marriage so badly, but I had to think about us. I mean me and my son. How would I have provided for him? My husband already said he would not look after us and that he could easily have another baby with another woman. Even with my papers, I was already feeling trapped with no money except what my husband provided for us. Imagine if I did not have my papers. No money from my husband and no money from the government to help us. My little boy is innocent in all this and did not ask for any of this drama...I cannot let him suffer like me. So, I decided to stay in the marriage, you know.... until I got my British passport. It was very important to me. (IV, 28)

The participant's awareness of the structural limitations of her visa significantly influenced her engagement with the law, leading her to prioritise maintaining her documented status despite facing violence. She placed high importance on the legality of her visa, fearing that any breach of UK immigration rules could harm both her own well-being and that of her son. This finding aligns with Abrego's (2008) study on the legal consciousness of undocumented migrant students, where it was revealed that rather than being against the law, they adhered to the law as a form of resistance so that they could claim new rights to benefits that would enable them empower themselves. This dual perspective illustrates how the law served as both a tool of oppression, limiting migrant women's options for safety, and as a potential pathway to empowerment.

The participant's account below also reflected the belief that living illegally in the UK would double her oppression and exacerbate her already vulnerable position not only within the marriage but also within the British society:

The Home Office is not playing you know...They are very strict...I see them as robots. You have your papers, tick. If you don't, you have to get out. You cannot hide because these days, it is not only immigration officers that check, but everyone can also now check your visa, even landlords. So, it will be very difficult for me if I leave without my papers... and I did not want to complicate my situation by being illegal...then it becomes two problems instead of one. The abuse and my visa. The abuse is enough. When I come out, I want to be free. So, to be a citizen was important to me. It is a better way of living in this country. (AD, 29)

Of course, I knew I was being abused, but I had to pick my battles. 'If I report this, what will come out of it?' This was the question I used to always ask myself at that time. To me, 'out there' was not attractive because of my spouse visa and the no access to the benefits thing. So, would it be better for me and my children if I delayed leaving a little bit? Just for a while until my papers changed. After the abuse, and I am free, what next? Can I manage on my own with two children? What about childcare? I had to think like this and manage the situation. It was like writing an exam and trying to figure out the right answer to the difficult questions. (EN, 34)

The women understood the privileges of citizenship on the one hand and the over-policing of those without legal status on the other hand. As documented migrants, they also understood the immigration law as a structural form of social control that trapped them in their abusive marriages but also as a tool that they could use to feel safe and guarantee their independence from their abusive husbands (Namukasa 2017). Their legal consciousness was, therefore, shaped by weighing the liminal period between their current legal status and achieving citizenship, and the condition of illegality and deportability that come with being undocumented in the UK. This suggests that the women chose to remain within restrictive legal boundaries as a strategy to mitigate the effects of the law and to find a way to thrive (Abrego 2019; Menjivar and Salcido 2002). Such strategic decisions reflect a form of legal consciousness shaped by resistance, a theme that was common across all the participants' narratives. Despite their constrained autonomy, they valued maintaining a more legitimate platform from which to then resist the violence they faced and break free from the victimisation and dependency tied to their spouse visas. Therefore, they developed a "legal consciousness of resistance," where migrant women experiencing IPV are forced to *stay with the violence* and tolerate the exclusions and vulnerabilities imposed by their precarious legal status in order to change the disadvantaged space they occupied through attaining citizenship. Citizenship, therefore, becomes a form of gendered resistance that Nigerian migrant women use to guarantee their well-being and maximise their security and sense of belonging within the UK (Abrego's 2019, p 644; Chacón 2018; Abrams 2014).

The criminalisation of migration also impacted the women's informal understanding of the UK criminal justice system. While women from the dominant culture may use the criminal justice system unreservedly to address IPV, the situation is more complicated for Nigerian migrant women:

I desperately wanted to report him to the police... but I was afraid of them. I was hoping for a miracle where one of them could see the whole thing from my point of view, not my visa but as a woman and a mother in a very difficult situation in need of their help. To be honest, I was very sure they could help me... you know arrest my husband and all that. But they also have to obey the law, right? So, it is not personal if they can't help me. Everyone has to obey the law. (TP, 42)

This highlights what Gill and Sharma (2007) described as the tension between the government's aim to address intimate violence among migrant women and its conflicting priority to be 'tough' on immigration. This tension shaped the actual or perceived structural barriers that the women in this study faced. As a result, many Nigerian migrant women may avoid accessing support mechanisms intended to aid them, fearing that revealing the abuse to the criminal justice system could ultimately harm their immigration status. Policies like the 'no recourse to public funds' (NRPF) condition on UK spouse visas, coupled with mandatory data-sharing between statutory services and immigration authorities, understandably make many survivors hesitant to report the abuse they face, leaving them feeling powerless against both the abuse and the legal system. Consequently, their legal consciousness and engagement with the criminal justice system emerges from multiple precarious socio-legal structures.

3.2 The Intersection of Gender and Legal Consciousness

The hierarchical social context that structures gender inequality at both micro and macro levels also influenced the participants' experiences. The interview findings highlighted the shortcomings of the UK's immigration law's claim to neutrality. Instead, the women's narratives revealed that the law was far from gender-neutral in their experiences of IPV and was deeply entangled with the unequal power dynamics defining their social position. In the excerpt below, the participant describes her perception of the policy and explains how she believes it enabled her husband to exert control over her:

Here, the law don't give me any power. It give all the power to my husband. The Home Office say I must depend on my husband because he bring me to the UK. They say I can leave, but how can I leave when I cannot do anything with the visa that they give me. Even to rent my own house, I cannot do so. I swear, in my heart, I believe both my husband and the law abuse me because every time I want to leave him, he laugh and tell me say I am his property and my visa is his property too. But this is true because it is not the same experience for a man who come to this country. So, just as I have to obey my husband because of our culture, I have to obey him too because of my visa. Is the same thing. Let us talk the truth as it is. It is the same experience. So, it is the law and my husband that abuse me... and I cannot separate them in my mind. (NK, 42)

This illustrates how migration policies intersect with social and private contexts that contribute to violence against women. The participant's view of the law as a factor in her abuse underscores the disproportionate

impact UK migration policy has on Nigerian migrant women, particularly in how it reinforces power imbalances within marriages and upholds gendered norms that subordinate women. This suggests that the law's role in sustaining systemic domination and subordination influenced the participants' mobilisation of the law and their engagement with the criminal justice system. In this context, the law's patriarchal inheritance, expressed through its institutional power, becomes evident as it interacts with pre-existing social structures that shape women's lived experiences. (Porter 2020; Henderson et al. 1991). This interconnectedness between gender and the law was also highlighted below:

My husband never helped me with the children. He says it is my job and would always criticise me for being a bad mother, but when the children cried, he would leave the house and sit in the car. He used to get very angry if I had not cooked dinner before he came back from work. He would call me a bad wife who did not know how to care for her husband. He told me that since I did not know my place as a woman and respect him as the head of the house, he would send me back to Nigeria. What baffles me is how can the Home Office not understand all this ... (sighs)... that it is not the same when you are a woman who is a migrant. The same law cannot apply to all of us because they call us properties as well as wives and mothers. Can they not be gentle with us? But the law is like a rock. When it is thrown at you, you can either dodge it or let it hit you. I chose not to let it hit me for my own good and for the sake of my children. (JY, 38)

This narrative tells of the participant's frustration and perceived powerlessness in the face of the law despite its hegemony. She perceived the law as either ignorant or dismissive of its gendered impact on women's experiences of violence and oppression. Yet, she chose to identify with the same law and use it as a mechanism for resistance. This suggests that although Nigerian migrant women may perceive the law as rigid and impenetrable, they may still choose to mould it to suit their interests. Therefore, their legal consciousness was created by navigating the role of the law within the multiple and interconnected layers of disadvantage that marked their experiences. This suggests that their reverence for the law was not out of a moral obligation or duty but for its facilities to meet desired and specific goals (Porter 2020). In line with this analysis, Nielson (2000) described the law as porous and often utilised, manoeuvred and manipulated by social actors to serve their interests, and it is at the point where the law intersects with their everyday lives that their understanding and engagement with the law and legality is often created. This is again seen below where the participant's perception and understanding of the law involved what the law could do to save her:

I realised that it was up to me to prove the abuse. My husband would never admit to anything. So, I started to gather evidence. I secretly recorded him whenever he was shouting at me and calling me all sorts of names. Whenever he grabbed me and left a bruise, I made sure I took pictures. I wrote down dates and times of incidents. It was therapeutic in a way because I was writing down my feelings. I hid the notebook outside our flat. And when it was time, I took everything I had to the police, the social workers, and all those that I knew could help me. (IV, 28)

In this instance, the participant silently engaged with the law to her advantage by gathering evidence she anticipated would help her. She recognised that the very law that marginalised her could also be manoeuvred for her benefit, thus giving it a new meaning that created a sense of empowerment and resilience. Rather than avoiding the law, she navigated it to her advantage (De Hart and Besselsen 2020). This suggests that, by strategically engaging with the very legal system that marginalised them, the women were able to counteract or mitigate other intersecting forms of marginalisation that impacted their experiences of IPV. However, this by no means imply that Nigerian migrant women in the UK easily navigate the various oppressive structures that render them vulnerable. Rather, it highlights how their informal engagement with the law or their legal consciousness shape how they exercise agency under very restrictive conditions and limited options.

Findings from this study also revealed how negative encounters with the law or its institutions shaped the women's legal consciousness. These negative encounters or experiences were not always personal experiences but stories from other people who shared the same social identity:

I know a lot of marriages like my own that have failed, and I hear all these stories about someone that was deported because her husband cancelled her visa or someone that left her home but could not survive on her own and things got really bad for her. I heard these stories even before I moved to this country, and I believe they are true, and I try to learn from their mistakes. I already know how our society treat women, so the key is to protect that visa. It is not a very good visa because it ties me to my husband, but at least it is something. When I let my visa go, the problem becomes double. If the visa is secure, then the problem is minus one. I looked into all these problems when I was trying to leave my husband.

A Black woman in a foreign country with no power at all? Ah! I had to be sharp oh! I had to hold on to something, at least. (ES, 38)

A migrant, and a black one at that... who is making too much noise? (sigh). It is like asking for trouble. That was how I saw it. As Black people, we say don't bother them, and they don't bother us. I hear all the stories, and I believe them. These days, racism is done gently, but it is still there. Look, I am not saying all white people are racist. I just did not want to meet the one who was, especially in the situation I was in and in my state of mind. I did not want to risk it because racism is painful, and what is the point anyway if you know that they may treat you differently? What is the point if you know that your visa will be an issue? I just felt it was better not to go there, abeg (please). (BP, 34)

Here, gendered narratives of failed marriages, racial oppression, and victimisation within a transnational social space shaped the way the women engaged with the law while in the UK. This highlights how Nigerian migrant women's experiences with the law and legality may also be negotiated within the contexts of both their indigenous and diasporic lives (Silbey 2005). For many, their understanding of the UK immigration law is framed by their lived experiences not only as migrant women but specifically as Black migrant women in Britain (De Hart and Besselsen 2020; Flores et al. 2019). This means that legal consciousness is not always developed in isolation but can be shaped by a wider social environment where race intersects with other oppressive structures, intensifying the experiences of Black ethnic minority groups. For the women, this involved a collective understanding of the legal and social challenges linked to the multiple identities they navigated in the UK as Black migrant women, leading them to informally develop strategies to mitigate the impact of racism in their lived experiences. This highlights the dual pluralism of the law, where both individual and shared experiences inform informal legal interpretations and engagement. Within this context, the women found the need to balance both the marginalisation tied to their identities and the privileges of their documented status as a form of resistance.

4. Discussion

This study critically examined two key dynamics: first, the patriarchal foundations of the law and its intersection with multiple social contexts that structurally and systematically marginalise African migrant women; and second, how survivors demonstrate agency and resistance by leveraging the same legal framework to empower themselves and mitigate their vulnerabilities. The findings revealed a complex dynamic of dependency and vulnerability shaped by the intersection of law, social identities, and individual agency. The UK immigration law played a dual role in the women's lived experiences, providing legal recognition and privileges while enforcing legal dependency on resident spouses, thereby heightening the risk of experiencing IPV. Consequently, many Nigerian women in the UK diaspora navigate the privileges of documented status alongside the overlapping social inequalities that marginalise them on multiple fronts (Sedacca 2024).

Perpetrators often weaponise the UK immigration law to reinforce patriarchal control, using threats of deportation as a powerful tool to sustain abuse and oppression (Erez et al. 2009). The legal responsibility placed on sponsoring spouses to secure their partners' residency in Britain, reinforces gender inequality and sustains immigration-specific mechanisms of control (Stark 2019). One woman reflected:

My immigration status showed up in everything and was everywhere like air.... but not in a good way. I could not do anything without his permission, first as a man and then as someone I had to depend on for my visa. I wanted to work, but he would not let me. I wanted to start a business... he would not let me. He was rude to any friend I tried to make. I could not also access any services without my ID, which was, by the way...with my husband. I felt like I was in a dark room, and two strong men blocked the door that was the only way out. (ES, 38)

Such narratives illustrate how the compounded oppression of gendered power dynamics and state-imposed legal vulnerability, creates a complex web of structural inequalities sanctioned by immigration law (Bhabha, 1994). The women understood the precarity of their dependent legal status and how their legal privileges were transformed to tools of subjugation by their abusers. Through an intersectional lens, the ways these intersecting oppressions shaped their legal consciousness, characterised by fear, distrust, and adaptability was highlighted. In this context, compliance with immigration laws was not simply an act of submission but a deliberate strategy to navigate and resist the oppression embedded in their intersecting identities (Abrego, 2019). This study revealed how many migrant women in the UK view prioritising their legal status over safety as a strategic necessity and a form of patriarchal bargaining, to avoid further marginalisation from losing their documented

status if they left the abusive marriage (Kandiyotti 1988; Heron et al. 2022). This power imbalance was articulated starkly below:

His favourite words were... 'All I need is a phone call to the Home Office, and it is all over for you'. The sad thing was that this was totally true. It would really be all over for me; I would not be able to get help to rent, eat and so on, and I would be deported. Even though what he was doing to me was wrong, it was still true that my visa gave my husband total control over me...and over my sanity too, and the worst part was that it felt like my visa made it legal in a way. It is a terrible way to live. I wanted to just go back home, but it is complicated when you have children. (EH, 33)

The women also grappled with the societal stigma and disadvantages attached to being an immigrant in the UK, with one participant describing it as:

This name that we have... immigrant...it is very shameful and very harsh. Before I was thinking it mean foreigner, but now I know that it mean another thing. It is very bad because it mark you everywhere you go. Is like saying... 'You are nothin' or 'we don't care'. Like another way to say, 'shoo or go away'. It give everybody power over you. Even strangers too. Landlord, bank, everybody ask for visa first before anything. So, no point reporting my husband to them. It is waste of time and will expose you even more as the person that have no power in their country. For a woman, this is very bad. (LT, 39)

Such stigma and institutional exclusions further reinforced their vulnerability and reluctance to report IPV, highlighting the compounded marginalisation of being both a migrant and a woman in an abusive relationship. From this, it is evident that the law's hegemonic and institutional power force many survivors to adopt a subculture of tolerance as a coping mechanism until they find a safe and secure way to leave their abusive relationships. Compliance with immigration laws becomes more than a mere act of submission but a deliberate strategy to navigate and challenge the oppression embedded in their intersecting identities (Abrego 2019). In this study, the pursuit of citizenship emerged as a fluid, ongoing process and a delayed form of empowerment, representing a broader desire for belonging, safety, and freedom within a dynamic and multifaceted context (Jackson, 2015). This aligns with Liang et al.'s (2005) argument that the help-seeking behaviours of women experiencing IPV are shaped by a cognitive process of deciding whether or when to seek help. The women primarily adopted a problem-focused approach, actively working to confront and resolve the sources of their marginalisation rather than merely managing its impact (Schoenmakers et al., 2015). Therefore, their legal consciousness encompassed both cognition and behaviour, shaping how they interacted with the law (Chua and Engel, 2019).

International frameworks such as the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and the Istanbul Convention mandate states to actively prevent structural violence and provide adequate protection for survivors, particularly those in vulnerable groups such as migrant women (UN Women 2009; Council of Europe 2011). However, this study argues that the UK's immigration policy falls short of meeting these obligations, as structural conditions embedded in its visa policies exacerbate migrant women's vulnerability to IPV. This gap between policy and the lived realities of migrant women highlights the need for a critical examination of the broader systems that normalise and sanction harm against women, particularly from marginalised groups.

5. Conclusion

This chapter explored legal consciousness as a fluid process in which legality is continuously shaped and re-interpreted through Nigerian migrant women's lived experiences of IPV in the UK. It draws attention to the need for a nuanced understanding of the dynamics shaping their helpseeking behaviours and engagement with the law under very structurally oppressive and marginalised circumstances. The interviews revealed that the women's relationship with UK immigration laws and the meanings they each attach to the legal process of escaping abusive situations played a significant role in shaping their experiences and responses to violence. The findings also highlighted the diversity in how they perceived and understood the law and used it to further their goals and interests. Intersectionality was used as an additional theoretical lens to discuss how their legal consciousness was deeply influenced by their encounters with discrimination, oppression, and marginalisation based on their gender, race, immigrant status and class, shaping their own informal interpretations of the UK immigration law. The relational aspect of legal consciousness was also examined, showing how it shapes the help-seeking behaviours of those experiencing IPV. Their perceptions of the law extended beyond individual factors to include its impact on their family, social networks and racial identities (Adjei 2018). This relational aspect is essential to understanding how legal consciousness impacts compliance, trust in the state, and

decision-making processes in the context of abuse (Chua and Engel 2019). This calls for urgent systemic reforms that adopt a gender-sensitive approach to UK immigration policies, addressing the risks associated with dependency-based visas that disproportionately impact migrant women. Such reforms must prioritise the creation of independent visa pathways and improve access to essential resources that ensure the safety for women experiencing IPV. Additionally, mandatory training for immigration officials and law enforcement should be implemented to help them recognise and respond to the unique vulnerabilities faced by migrant women. Feminist jurisprudence must continue to shed light on the structural inequalities embedded within immigration systems and the specificities in African migrant women's experiences, advocating for policies that empower them and uphold their rights to safety, autonomy, and justice.

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Reimagining the Cyborg: How Queer-feminist STS can Contribute to Prostheses Research

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Abstract: Queer-feminist science and technology studies (STS) critically inquire science and technology and their promises enable new possibilities and challenging their manifestations, which are often seen as reproducing and increasing inequalities on local and global levels (Cipolla et al. 2017). The transdisciplinary technology development project PROTEA (2022-2025) has received funding to integrate a gender dimension into the human-centred technology design of 3D-printed prostheses with integrated sensor technology (Thaler et al. 2024). The gender research is adding an intersectional perspective to the participatory technology design itself, and raising gender awareness and knowledge within the research team. This paper demonstrates how a queer-feminist STS lens can intervene with the aim of challenging existing norms and standards in human-centred design through using the cyborg narrative (Haraway 1991, 2016) to analyse data. The queer-feminist lens challenges potential defaults by the research funders, and led to new research questions beyond prostheses improvement.

Keywords: Intersectionality, Queer-Feminist STS, Prostheses, Sensor Technology, Human-Centred Technology Design

1. Introduction

For decades, Europe promoted gender-inclusive research projects and emphasized the importance of gender equality and gender perspectives in research. The transdisciplinary technology project PROTEA (2022-2025)¹ is one of those projects where research funding agencies introduce gender as a research dimension to technology experts who might not have dealt with gender in their work yet. The lead partner of PROTEA contacted me after a presentation at the funding agency, where I talked about a previous gender-sensitive technology research project (Thaler 2022). The integration of gender began at the very beginning of proposal writing, and I included theories from feminist STS (Haraway 1991, 2016, Oudshoorn et al. 2004, Wajcman 2004) and the concept of intersectionality (Crenshaw 1989, Hancock 2007).

From the research funder's perspective, gender research has two main tasks. Firstly, increasing the gender awareness of researchers, as well as industry partners. This gender awareness comprises background knowledge about the rationale of gender equity and diversity sensitivity, and includes a motivation to professionalise the gender knowledge of the involved persons. This means that potentially biased everyday gender knowledge must be reflected and complemented or substituted by a practically relevant knowledge of a certain gender expertise (Wetterer 2009). Secondly, gender theories and methods inform the technology design process itself. In PROTEA, a human-centred technology design approach was chosen, because with a focus on users and further stakeholders (orthopaedic technicians, etc.), gender and intersectionality are easier to integrate into the technology development (Oudshoorn et al. 2004).

In a previous publication, the research team explained mainly this second task, focusing on the knowledge co-creation aspects of the gender-sensitive human-centred technology design approach (Thaler et al. 2024). Based on empirical findings, literature, ethical and societal aspects of different user groups, the consortium agreed in a decision workshop on a specific use case. This use case focuses on a specific mobility class of amputated people and their needs, which were translated into personas followed by technological requirements and concepts. These first technical concepts and 3D-printed prostheses parts were tested for their suitability, pressure sensors placed on the curved surface, data issues discussed and the whole prototype continuously evaluated and adapted through regular exchanges with the whole consortium, advisors and users (see Thaler et al. 2024).

This paper at hand asks how a queer-feminist STS perspective (Cipolla et al. 2017) can be used to reflect human-centred technology research. Donna Haraway's cyborg metaphor (1991, 2016) has often been used and criticized in feminist STS, especially in relation to health technologies (Reeve 2012, Lupton 2013, Kalender 2023). I argue

¹ PROTEA is funded by the Austrian FFG and the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology as part of the FEMtech Research Projects Programme 2021 (<https://forschung.fh-kaernten.at/protea/>).

that, albeit seemingly dated, it still is a generative lens to examine and further develop the social construction of human-centred design. Haraway (2016) posits:

„Modern medicine is also full of cyborgs, of couplings between organism and machine, each conceived as coded devices, in an intimacy and with a power that were not generated in the history of sexuality.“ (p. 6)

In the following, relevant deductions from these cyborg narratives and discourses are used to analyse PROTEA's interview-data with a queer-feminist lens. A queer-feminist perspective is challenging norms and standards beyond gender and sexualities, it puts power relations in the centre and asks uncomfortable questions.

2. Methodology

The methodological approach of this paper is a thematic analysis (Braun & Clarke 2006) of existing interview data² with new research questions based on cyborg theories (Reeve 2012, Lupton 2013, Kalender 2023), which serve as a discursive framework to reflect on the transdisciplinary research project in a queer-feminist way.

The interview data stem from two crucial time points in the technology development cycle, a first online group interview with six prostheses users in winter 2022 (four female, two male) before the technology development started; a second group interview with four prostheses users and additional single interviews with three prostheses users between spring and autumn 2024 (two female, five male) in the phase of prototype testing of PROTEA. All prostheses users have one (or in one case two) lower leg amputations.

In a final step, results from this thematic analysis of user interview patterns were discussed in an interview with the project leader of PROTEA in winter 2024 to validate how a queer-feminist perspective can add epistemological richness to a participatory technology design project (in short 'validation interview').

The research questions for interview data analysis were:

1. Are economic and other real-world struggles mentioned by prosthesis users? If yes, how are those issues integrated into the ongoing technology research project?
2. Are bodily experiences and health problems discussed by prosthesis users? If yes, how were they regarded in the project?
3. Are amputated persons broaching the issues of reluctance to wear prostheses or social pressure to wear prosthesis? If yes, how are these discourses considered by the project team?
4. Are prosthesis users talking about resisting strategies towards technologies, are they specifically refusing to have sensors integrated in their prosthesis or are they worrying about the security of and access to their sensor data? If yes, how is the project team dealing with this potential user resistance?

3. Results

The group and single interviews with 13 prostheses users are analysed through the lens of the cyborg metaphor and its queer-feminist critique. This new epistemological dimension contributes to gender-sensitive technology research. Below I offer the research questions and present the answers we derived from the data. Additionally, a validation interview with the project manager of PROTEA offers insights on a meta-level of how the project funding influences the scope of the research and limits insights.

3.1 Research Question 1: Are Economic and Other Real-world Struggles Mentioned by Prosthesis Users? If yes, how are Those Issues Integrated in the Ongoing Technology Research Project?

One critique of feminist scholars on the cyborg narrative is aimed on the risk of erasing real-world problems from amputated people for instance concerning economic struggles:

² All group and single interviews were conducted with an informed consent procedure, audio recordings, and written summaries. Interview questions comprised personal health histories of the amputation and experiences with prostheses. In the first group interview an additional focus lied on challenges in wearing prostheses and wishes for improving the technology. In the second group interview first prototypes of 3D-printed soft and hard sockets were shown and plans of integrating pressure sensors explained and discussed with the prosthesis users (see Thaler et al. 2024).

„The ease with which cyborg politics offers a new language and possibilities for marginalised groups risks erasing the actual struggles that many disabled people face for economic survival, especially in the majority world.“ (Reeve 2012, S.96)

In each interview with prostheses users, their story of how their lower legs got amputated was shared. Thus, real-world problems and health struggles were of central interest for the project team. In the first group interview in 2023 the reasons for amputations varied a lot from trauma related amputations (accidents, war injuries, etc.) to complications after infections. Following this interview, a use case decision workshop led to the project's focus of the technology development and users. Thus, the second group and single interviews in 2024 were all conducted with prostheses users, whose lower legs all got amputated due to arterial occlusive diseases, which cause 75-80% of all lower extremities' amputations in the global north (Greitemann et al. 2016).

Another theme that emerged in several interviews was what type of prostheses is covered by which social and health insurance. This economic issue was explained further in interviews, for instance that retired, older persons receive only the 'most necessary' prostheses, and additional prostheses for sports or with more technological features are not covered by the basic insurance. As the majority of lower leg amputees are older, retired persons, suffering from Diabetes Mellitus (ca. 70% of all amputated lower extremities are caused by Diabetes Mellitus leading to arterial occlusive diseases, Greitemann et al. 2016) and often also multi-morbid, PROTEA focused on this group of prosthesis users. With this user group, the project wanted to make the most impact with a 3D-printed prostheses with integrated pressure sensors to detect potential lesions and wounds before they lead to further complications and amputations.

In the validation interview with the project manager of PROTEA, she agreed that educational background and economic questions are always important in her health technology projects. However, she emphasized the intersectional perspective of not adding factors but looking specifically on the cross-section of factors like gender, age and health status, who might lead to multi-discriminations were a new approach to her.

About the fact that in interviews with users and stakeholders the economic and health political context of prostheses use was discussed and several problems highlighted, but not further worked on in the project PROTEA, the project managers stated:

“I don't know how to deal with it. These are not unknown problems on the part of the stakeholders ... it affects many areas. The prosthesis is one area, but it often also affects the surgeries, any replacement products, ... it affects a lot of topics ... health policy in general. ... We would probably have to talk to the Austrian Association for Prosthetics to see if they are active at this political level. ... We could also really discuss this again with our Advisory Board, because they do a lot of networking.” (Validation interview³)

The thematic interview analysis could show that economic and real-world struggles are an important issue, mentioned by prosthesis users, and was also acknowledged by the research team, especially in their technology development focus. The validation interview however pointed out that the empirical findings could be fed back to the advisory board of PROTEA to follow up with the health policy issues beyond technology research.

3.2 Research Question 2: Are Bodily Experiences and Health Problems Discussed by Prosthesis Users?

The second research question regards leaving out the bodily experience of amputated persons wearing a prosthesis. Critical voices from disability studies highlight real life experiences of bodies with technological enhancements a reality, which Haraway's cyborg is supposedly missing (Reeve 2012., S. 96).

As discussed before in answering research question 1, all interviewees spoke very openly about their bodies and their pain, and so they also discussed their bodily issues with their prostheses. Some amputees talked about preferring to use a wheelchair at home, wear crutches or hobble with their healthy leg. One woman told us that putting on her prostheses quickly and not perfectly is the best way to react to her child's or her needs at night:

“I've put on weight due to stress and have to use the prosthesis at night to go to the toilet and put it on briefly. It's not ideal, but it's an option.” (Group interview 1, female)

³ All quotes from user and the validation interviews have been translated from German to English with DeepL (<https://www.deepl.com/de/translator>).

Ute Kalender points out that the cyborg metaphor can lead to unrealistic expectations towards wearing prostheses and neglecting negative experiences:

"... negative experiences of an 'ordinary cyborg' ... disappear behind Haraway's cyborg metaphor, which rather couples prostheses with pleasure, fun and irony, and thus sits on an idealized and depoliticized understanding of disability" (Kalender 2023, p.14).

The interview participants from PROTEA specifically broached the issue of bodily problems, like pressure and friction points, as this was one of the research questions at the beginning of the technology development. What are the usual problems of prostheses users, and how would they change technology if they could?

Almost all interviewees reported pressure points and lesions especially after wearing the prosthesis over a longer period of time, and during summer, when sweat and swollen limbs increase problems:

"I like to take my prosthesis off in the afternoon, especially in summer when I sweat a lot, as I then quickly develop friction and pressure points. Then I use crutches. After sport, I can only wear the prosthesis for a short time (max. 30 minutes)." (Group interview 1, male)

"I'm already looking forward to taking the prosthesis off in the afternoon. The prosthesis often feels like a lump on the leg, especially when the leg is chafed." (Group interview 1, female)

These results were translated into specific user requirements concerning the material and design of the inner socket of the 3D-printed prosthesis and the integration of pressure sensors to measure pressure before amputees feel the pain and experience lesions. Ideas of integrating additionally sensors measuring temperature, blood flow or oxygen saturation had to be left out in this project because of time restraints and a limited budget.

3.3 Research Question 3: Are Amputated Persons Broaching the Issues of Reluctance to Wear Prostheses or Social Pressure to Wear Prosthesis?

The critical point raised in research question 3 is aiming at the social pressure of wearing prosthesis to 'fix bodies':

"Cyborg theory celebrates technological innovations, and perpetuate the narrative of broken bodies, which supposedly need fixing." (Reeve 2012, S. 102)

Reeve (2012) discusses the gendered implication of prosthetics when she discusses the social pressure for women especially to wear a prosthesis as to not be marked different. Concerning feeling comfortable or not with visible prostheses the thirteen interviewees reacted differently, regardless their gender or age. Some prefer skin-coloured prostheses and ask for more adapters to be able to wear different shoes, others deliberately opt for metallic versions, highlighting a visible cyborg effect. One younger woman explained that she feels uncomfortable to leave her house without a prosthesis. One older male talked about his trauma concerning visible "naked iron rods" – as he called them – and emphasized that he cannot stand them:

"Mentally, I can't stand not encased prostheses!" (Group interview 2, male)

As in the project PROTEA the outer socket is 3D-printed with a resin, a material which can be coloured, users' wishes can be considered in the future. As the scope of the project is the development of a technology, it could be critically seen as technological fix or technoableism. Ute Kalender (2023) explains that a technoableist understanding rather uses resources to create technologies to help amputated persons overcoming challenges than changing the very environment that disables specific bodies. Ashley Shew (2022) has coined the term *technoableism* and criticizes how disabled people and their voices are steamrolled, whereas nondisabled helpers are focusing on technologies instead of listening to disabled persons and their suggestions on how to fix the systemic problems. Shew (2022) and Kalender (2023) both criticize research that sees disabled people only as recipients and focuses on technological fixes, where other solutions might be relevant for disabled persons.

In PROTEA disabled people are not seen as mere recipients, one of the advisors and co-author of the joined publication (Thaler et al. 2024) is a prosthesis user, and the thirteen interviewees were all participants in the

⁴ All quotes from Ute Kalender's German article were translated to English with DeepL (<https://www.deepl.com/de/translator>).

knowledge co-creation process, which means they are actively involved in the research throughout the three years.

And while PROTEA is a technology research project, it is not enforcing an unwanted technology. Most prostheses users talked about the degrees of freedom their prosthesis gives them, which is directly connected to the prostheses:

"I am happy that I can walk!" (Group interview 2, male)

"I have a personal trainer, I go walking, I just can't cycle. I can do everything; it just takes a bit longer. Window cleaning and things like that are a bit tricky, but it is possible." (Group interview 1, female)

The project manager talked about the technology focus of research projects, which receive funding explicitly for developing a technology and that there might be non-technical solutions for some amputees, but the focus of PROTEA are prostheses users and not amputees, who prefer other solutions. She stated:

"There are a few people for whom a prosthesis is ... they don't want it at all ..., but our funding relates to this further development of prostheses, which is why we look at people who have a problem with it (their prostheses, author's note)." (Validation interview)

However, it has never been the goal of PROTEA to develop prostheses for amputees who do not want to wear prostheses. Amputees who do not use prostheses were never seen as 'needed to be fixed', but rather as non-users, and the focus of PROTEA was to improve prostheses for those who already use or would like to use them. The project manager added, this might be an interesting angle for a next project, to not limit the target group in the beginning to prostheses users per se, but really look at all amputees and see what non-users might need.

3.4 Research Question 4: Are Prosthesis Users Talking About Resisting Strategies Towards Technologies?

The fourth research question is based on the fact that since Haraway wrote about the cyborg in 1991 technologies have become pervasive and embodied, and resisting these technologies, especially if they are connected to the notion of a 'healthy, good citizen' is seen negatively:

„The concept of cyberspace has become irrelevant for most users of ubiquitous digital technology in a world in which we carry, wear or insert our devices on or in our bodies. Personal computers no longer squat heavily on desks, as they did when Haraway was first writing about cyborgs.

They are now an integral part of our embodied habitus, frequently accompanying us wherever we go, and even monitoring our sleep patterns throughout the night." (Lupton 2013, S. 9).

All thirteen interviewees are prostheses users, and have generally a positive attitude towards prostheses as such. However, concerning additional sensor technology and a potential app illustrating the sensor data, the interviewees were divided. Most are curious and open (this can be a bias within the interview sample, as the interviewers asked for prostheses users who might be interested to participate in a research project dealing with 3 D-printer and sensor technology), however some interviewees also expressed concerns, for instance comparing additional electronics in cars, which changed driving in the last years tremendously:

"Please not like the Audi – no electronics please!" (Group interview 2, male)

"Feedback for me on my cell phone would be good and I'll take it to the orthopaedic technician" (Group interview 2, male)

The seven interviewees in the second part of the project (one group interview and three single interviews) were first shown prototypes and sensors and asked more questions concerning the placement of pressure sensors and the access to the sensor data. Here all interviewees voiced their trust in their personal orthopaedic technician, even the more techno-sceptical wanted that the orthopaedic technician should receive their sensor data, and would find it helpful to receive an immediate appointment connected to such a sensor warning to optimise the prostheses.

However, although all these interviewees stemmed from the defined use case group (amputation due to peripheral arterial occlusive disease) – and it is known that often occurring polyneuropathy leads to reduced sense of pain in the extremities – some of the interviewees stated they would not need sensors, they would recognize problems early enough. This was not only contradicted by interviewed experts (orthopaedic technicians and physicians), who discussed the problem of missing pressure points in an early stage especially

by Diabetes Mellitus patients. Also, one of the interviewed women stated that – although she declared to not need sensors – she actually already overlooked a lesion stemming from a pressure point:

“I wasn't paying attention!” (Single interview, female).

In the validation interview, considering the technology, it was mentioned how important it is to use different media to approach potential users, to not exclude anyone. For instance, interviews might be done online, but always have to be offered also in a face-to-face format. In PROTEA the decided use case (aiming at people with amputation due to chronic illnesses and limited mobility) also narrowed the focus on the technology development, especially the sensor technology (due to financial issues, and because users reported they would not need much technological feedback). The project manager discussed lower level of innovation, which is connected to the focus on users from a lower mobility level. However, the sensor technology and a potential application for rehabilitation offers possibilities, which was not the aim of PROTEA, but could be researched further:

“I believe that prosthetics with sensor technology and the results from it, the data, could be brought very close to the person so that they can perhaps learn more easily and better themselves in the rehabilitation process ... but there are still many levels to it, but we are a long way from that. That would have been another topic for me.” (Validation interview).

Technologies have changed a lot since Haraway first wrote about the cyborg (1991), but although wearable technologies like fitness watches are very common, and many people use health monitoring and tracking apps in their mobile phones, the prostheses user group of PROTEA is heterogenous in that regard. Some interviewees stated they would not need or want specific sensor technology. The validation interview showed that the technology development in the project focused more on 3D-printing and basic sensor integration, to support the use case. In future projects other innovative technologies could be developed for interested user groups in rehabilitation.

4. Discussion

The PROTEA project had to gender related goals. First to increase gender awareness and knowledge within the team. Second to integrate gender theories and methods into the human-centred technology design. The gender-sensitive human-centred prostheses design has been the topic of a previous publication written by the team of PROTEA (Thaler et al. 2024).

In this paper, I discussed how the gender knowledge used by the team influenced the research process and its outcome. I used the queer-feminist perspective of the cyborg metaphor (Haraway 1991, 2016), and its critique (Reeve 2012, Lupton 2013, Kalender 2023) to analyse the research beyond the scope of integrating gender into the technology development.

Interviews with thirteen prostheses users were analysed with a queer-feminist STS understanding (Cipolla et al. 2017) using the cyborg metaphor (Haraway 1991, 2016) – translated into four research questions – to broaden the scope of gender-sensitive technology research. Additionally, a validation interview with the project manager of PROTEA offered reflections on how decisions had been made and which influences might have limited the scope of the research.

One critique of feminist scholars of the cyborg narrative aims at the risk of erasing real-world problems of amputees (Reeve 2012). In PROTEA however, real-world and health struggles were of central interest for the project and led to the decision for the specific use case of prostheses users, whose lower legs got amputated due to arterial occlusive diseases, to make the most impact with 3D-printed prostheses with integrated pressure sensors to detect friction points before they lead to further complications and amputations.

In the validation interview economic and health policy issues of prostheses use were discussed but not seen as the main focus of PROTEA. A queer-feminist analysis of this topic led to the verbalised intention of discussing the broader context of prostheses use and challenges – for the specific PROTEA users – with the advisory board of the project and using their network to transfer the knowledge further.

A second criticism from disability studies was that the cyborg discourse neglects the negative bodily experiences of prostheses users and idealises the prostheses' use (Reeve 2012, Kalender 2023). This topic was at the core of PROTEA: the improvement of prostheses for users. Thus, all interviewees talked openly about their bodies and their pain, like pressure and friction points, some amputees spoke also about preferring a wheelchair or crutches

at home. These interview results directly led to prostheses requirements including the integration of pressure sensors.

Thirdly, queer feminists criticise the paradoxical issue of social pressure of wearing prostheses to fix 'broken bodies' on the one hand, while on the other hand, visible prosthetic limbs are marking amputees out as different (Reeve 2012). While the social pressure has not been broached in the interviews with prostheses users, the visibility and optics of prostheses were discussed often, regardless of gender or age of the interviewees.

Superficially, the project can be critically interpreted as technoableist, because technologies should help amputees overcome struggles rather than improving the environment (Kalender 2023), but the project manager explained that the research funding explicitly aimed at developing technology. Additionally, a potential new angle for a next project was discussed, by not limiting the target group from the beginning, but focusing on all amputees and their needs beyond the prostheses.

The fourth research question broached the issue of users' resistance towards technologies (Lupton 2013). Because of the scope of the technology development project most interviewees shared a general positive attitude towards prostheses, however the additional sensor technology and resulting app divided the users, and some interviewees expressed concerns. Most interestingly also the seven interviewees who lost their lower legs due to a peripheral arterial occlusive disease and experience polyneuropathy, which leads to reduced sense of pain in the extremities, were not all convinced of the usefulness of pressure sensors in their prostheses. Despite this feedback, the PROTEA project developed their 3D-printed prostheses with the sensor technology, because experts (orthopaedic technicians, physicians) agreed on the usefulness of the technology. It will be seen in future whether prostheses users opt out of the sensor technology or show other resistance strategies or if they will be convinced to use the technology.

5. Conclusion

The developed 3D-printed prosthesis prototype with integrated pressure sensors is the result of user and stakeholder needs and expectations. Interviews with amputees led to a specific group of users, which the 3D-printed prostheses including pressure sensors was designed for (Thaler et al. 2024).

The benefit of analysing existing interview data with queer-feminist critique stemming from cyborg theories and discourses (Reeve 2012, Lupton 2013, Kalender 2023), was especially visible in the validation interview with the project manager, where she reflected on the transdisciplinary technology research project and its limitations. The queer-feminist interpretation of data led to a challenging of existing power relations, a questioning of potential defaults by the research funders, and an attempt to get to the bottom of how the scope of a technology research project came to be and what insights were left out and why. A queer-feminist perspective is challenging norms and standards beyond gender and sexualities, it puts power relations in the centre and asks uncomfortable questions. For PROTEA, it will be seen if this queer-feminist intervention will have an impact, the project ends in summer 2025, and follow-up projects are potentially feasible, there are a lot of research questions not answered and innovation beyond prostheses improvement thinkable, for instance technology and non-technical solutions aiming at preventing amputation. It comes down to science and health policies and resulting research funding programmes and how much degrees of freedom they leave for research. With this paper I aimed to show that queer-feminist perspectives can be very valuable for science and technology research and will hopefully be integrated more explicitly in research funding in the future.

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Unveiling the Life Journeys of Newly Arrived Immigrant Women in Porto

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Abstract: With the rising number of women relocating to Portugal over recent years, this paper focuses on the lived experiences of newly arrived migrant women, employing an intersectional lens to examine their integration process. In this qualitative exploratory study, we conducted semi-structured interviews with 28 Central and South American women who migrated to the North of Portugal, analysing their perceptions about their migration and integration experience. Data were analysed using Braun and Clarke's Thematic Analysis proposal. The findings reveal that these women faced numerous challenges during the integration process, including cultural adaptation difficulties, economic disadvantages, and bureaucratic hurdles. These issues are exacerbated by class, ethnicity, and administrative status, significantly affecting their access to essential services such as housing, employment, healthcare, and social support networks. Participants often navigate the expectations of their new community and those they left behind, illustrating the complex interplay of multiple identities. They often encounter various forms of social discrimination, but despite their increasing presence, they remain underrepresented in national and regional statistics and academic discourse, with their specific needs frequently overlooked in policies and practice.

Keywords: Immigrant Women, Integration, Intersectionality, Porto, Qualitative Research.

1. Introduction

Over the past two decades, emigration from Central and South America has grown and changed significantly, transforming the region from one traditionally associated with immigration to one marked by emigration (Castles and Miller 2003). During the 1980s, South American emigrants increasingly selected Global North countries as their preferred destinations. This shift was largely influenced by socioeconomic and political upheavals, including the debt crisis, structural adjustment programs, and free-market reforms (Cerrutti and Parrado 2015). In the 1960s and 1970s, skilled South Americans had already begun migrating in search of better professional prospects, a phenomenon termed "brain drain," which sparked debates over the benefits and drawbacks of emigration. This discourse has evolved into discussions on "brain circulation" and "brain exchange," promoting the idea of reciprocal exchange and circulation of talent (Pellegrino 2003).

Castles and Miller (2003) argue that the economic downturn of the 1980s was a key driver of increased emigration from South America. In the 1990s, a series of political and economic crises intensified this trend, further accelerating migration to the Global North and neighbouring countries. In recent years, the number of South Americans emigrating has continued to grow (IOM 2020), with one of the most notable changes being the increasing presence of women and girls among migrants who seek to reach the Global North, including destinations like Europe and Portugal (Cerrutti and Parrado 2015). The migratory landscape in Portugal has seen

a significant rise in female migrants from these regions in recent years (AIMA 2024, Oliveira 2023).

This paper explores the feminization of migration in Portugal, focusing on the migration pathways of Central and South American women, the challenges they encounter, and their experiences of discrimination during the integration process. The study is set in a country with a colonial past and within a broader, increasingly politicized migration context. Across democratic systems worldwide—particularly in Europe—migration has become a polarizing issue, with anti-immigration sentiments and rising living costs influencing national elections (Nourbakhsh et al. 2023) and intensifying social discrimination. Drawing on Kukreja's (2023) analysis, this political climate is embodied in militarized border regimes that function as control systems intended to deter migration, often disproportionately criminalizing and marginalizing racialized migrant bodies, intensifying the challenges faced by migrant women in Portugal.

2. Migration: An Overview of Central and South American Women's Reality

Migration is an expanding global phenomenon with significant demographic, economic, social, and political implications, with various myths surrounding it (Heins 2024). The World Migration Report 2024 (IOM 2024) highlighted that recent large-scale displacements have resulted from political motivations and climate-related disasters in various regions, including Brazil and Colombia. In Portugal, where migratory flows are on the rise, the primary causes include economic, ethnic, political, and religious issues, as well as natural disasters, wars, and violence, prompting many migrants to seek a better life (Marinucci and Milesi 2012). Migration challenges the established social order, requiring the reorganisation of society to include the interests of all involved, given the diversity of contexts and cultures (Cerqueira 2022).

The experiences of prejudice faced by South American women in Portugal have been extensively analysed in the literature (França and Padilla, 2019; Gomes 2018; Novaes and Rossi 2018). These women are frequently stigmatised as hypersexualized "colonial bodies", an image derived from coloniality that affects their social interactions and self-esteem (Gomes 2013). Although newly arrived women may initially perceive little discrimination—often due to idealising the host country—they still fall victim to these practices. This scenario tends to change as they integrate, with barriers becoming more evident, especially in accessing services and the labour market, exacerbating exclusion and prejudice, as studies revealed that long-term immigrants are more likely to perceive discrimination than new immigrants (Fibbi et al. 2021).

Intersectional discrimination has impacted this population, inviting us to analyse which structural conditions affect individuals and which hierarchies subjectively distort cultural meanings through the interaction of structures stabilised by the oppression matrix in the form of identity (Akotirene 2019). This analysis offers a means to perceive all relevant human rights in a violation situation, as well as the multiple axes of oppression at play, which would not be possible with a traditional approach to human rights violations. Therefore, recognising and addressing intersectional discrimination is necessary to achieve meaningful substantive equality for all (Smith, 2016). In this case, the intersectionality of gender, race, class, and nationality reinforces the reach of the non-discrimination principle in the new territory these women find themselves in (Collins and Bilge 2021).

In this case, migration policies sensitive to women's needs are essential to address these challenges. Portugal is known for its local-level integration policies, promoting proximity between local services and migrant communities, especially through Immigrant Associations. These policies aim to grant rights and responsibilities equivalent to those of national citizens, promoting cultural diversity (Calado 2015). Even so, gender issues are seldom addressed in international migration analyses (Neves et al. 2016). Until recently, female participation in migration was thought to be secondary, limited to family reunification, with men seen as the main migration agents (Marinucci 2007).

In Portugal, studies on immigrant women remain sparse and intermittent, with little analysis of gender-specific aspects of migration (Peixoto 2006). The integration of migrant women requires an intersectional approach that considers gender, race, and nationality for the country's well-being and social cohesion. As Cleiton and Meier (2023) point out, intersectionality reveals distinct material realities and social experiences, including discrimination and exclusion, which are important for analysing and formulating public policies.

Another relevant factor for ethnic minorities is that perceptions of discrimination are often influenced by educational level. More educated minorities tend to perceive more discrimination in countries where education does not guarantee proportional financial returns, a phenomenon known as the "discrimination paradox" (Andriessen et al. 2014). Discrimination and stereotypes harm minorities' life opportunities and are sources of stress that compromise their well-being. In response, affected individuals and groups develop strategies to cope

with prejudice, but experiences of inequality affect how intensely these individuals perceive discrimination (Fibbi et al. 2021).

Integration is only possible with mutual engagement between the host society and the immigrant community. Inadequate treatment in inclusion can result in poverty, discrimination, xenophobia, and even human insecurity, through issues such as informal economic growth and urban marginalisation (Estevens 2018).

This paper aims to analyse the feminisation of migration in Portugal, focusing on the promotion and integration of Central and South American women into Portuguese society through labour markets, education, health access, and documentation. It considers their rights amidst the ongoing struggle for recognition of differences in contemporary society. This process is fraught with contradictions, requiring acknowledgement of the issues at hand and a commitment to finding solutions (Marques and Alcântara 2022).

3. Methodology

The MIGAP Project is an action-research initiative guided by an intersectional and critical approach that aims to shed light on the multifaceted migratory dynamics in the Porto area. The development of the MIGAP Project is being undertaken in phases. In the initial phase, the *Study on Migration Trends in Porto: An Exploratory Analysis* aimed to characterise the profiles of migrants living in Porto and to understand their journeys and challenges in the migration and inclusion process.

In this paper, we seek to understand the experiences, interactions, and integration process of Central and South American women living in Oporto (Portugal). The semi-structured interviews consisted of two parts, the first collecting sociodemographic data, and the second part made up of 3 sections: 1) migratory pathway 2) integration process and 3) discrimination perception.

The study was approved by the Ethics Committee of CEOS of the Polytechnic of Porto, as it adhered to all the ethical principles of research-

Participants were recruited through convenience sampling, shared by the MIGAP Project on social media and via partners. Eligibility criteria included: being a third-country national (non-EU), a migrant resident or former resident in the municipalities of Porto, Valongo-Gondomar, Maia, Matosinhos, or V. N. de Gaia, aged 18 or older, fluent in Portuguese, Spanish, English, or French, and residing in Portugal for at least 5 years.

It was also used, the snowball sampling technique, in which participants were encouraged to refer to other women who met the inclusion criteria, enabling wider access to potential interviewees.

The interviews were scheduled through direct contact, telephone, or email after obtaining the informed consent of those involved. Before beginning each interview, the objectives were explained, and the participants were assured of their anonymity and confidentiality. Explicit permission was obtained to record and transcribe the interviews. The interviews were conducted in person and online via the ZOOM platform to suit the convenience of the participants. Participation was completely voluntary, and data collection took place between May and July 2024, with each interview lasting an average of 40 minutes.

A total of 28 interviews were carried out with Central and South American migrant women. 15 of them were Brazilians, five were Colombians, three were Venezuelans, one was Honduran, one was Salvadoran and three of them had dual nationality. Participants' ages ranged from 22 to 63, with an average age of around 36 years.

26 participants self-identified as racialized women. All participants self-identified as cis women, with twenty identifying as heterosexual, two as pansexual, and one as bisexual. Five participants did not answer this question. In terms of educational qualifications, 15 have a university degree; two have attended higher education; three have a technical course; five women mentioned high school as their academic qualification, and one answered primary education. The participants have lived in the country for between three months and five years ($M = 1.81$). Participants had between zero and three children. Regarding the employment situation, 22 interviewees are employed; 6 are unemployed; 1 of them is a student.

The interview process was finished, recognizing that the principle of saturation had been achieved, as no new information or themes emerged, indicating that data collection was complete. Theoretical saturation was attained, signifying that the concepts and their interrelationships had been thoroughly developed and validated, and no additional data was required to further the theory (Fontanella, et al. 2008). To analyse the data, we applied Thematic Analysis following Braun and Clarke's (2006) approach, employing two methods: an inductive approach, ensuring that data itself could inform the development of codes and themes without being

constrained by pre-existing theories or assumptions, and a deductive approach, which uses a pre-established set of well-defined categories or themes aligned with existing theoretical frameworks and predefined research objectives. The balance between inductive and deductive approaches were outlined by Braun and Clarke's (2006) six-phase process: 1) Familiarization with the Data: Repeated engagement with the data ensured an in-depth understanding and facilitated the emergence of both data-driven (inductive) and theory-informed (deductive) insights; 2) Initial Coding: Coding was conducted iteratively, with inductive codes developed freely based on the content, and deductive codes aligned with the predefined categories; 3) Search for Themes: Both sets of codes were analysed to identify patterns and overarching themes, ensuring alignment between the data-driven insights and theoretical constructs, 4) Reviewing Themes: Themes were refined by integrating inductive and deductive insights, ensuring they were coherent, consistent, and supported by the data; 5) Naming Themes: Each theme was clearly defined and named to reflect its content and contribution to the research objectives, and 6) Writing the Report: The themes were integrated into the presentation and discussion of results section, with evidence from the data to support each theme.

4. Presentation and Discussion of Results

4.1 Migratory Experience

The Migratory experience of the participants can be analysed through push and pull factors (Gois, 2019). As pull factors, the interviewed reveal intrinsic and instrumental motivations related to the search for better educational opportunities, to improve their careers - *"To have a better opportunity in the part of education because in my country I can study for the master (...), but. It's not the same job opportunities ..."* (P08mHon), as well as the quality of life: *"I came here in search of a better quality of life, security, professional opportunities and personal fulfilment."* (P01mBra).

Some interviewees made it clear that, although it was a voluntary migration, it was about getting out of violent situations for themselves and their families: *"The intention is for us to leave Brazil, because there was a lot of violence there. (...). A better, more stable life, right? Without violence."* (P21mBra). The participants' migratory journey is characterised by autonomous decision-making, both on their own and with their nuclear family.

While some participants said they chose Portugal and Porto randomly or because other options, like Canada, were closed to them, most selected Porto as their destination. Linguistic and cultural proximity, the city and country's size, and positive references were common pull factors identified in interviews: *"I feel that in general Portugal, (...) have a very good academic offer for psychologists (...)"* (Pm65Col). There were also reasons related to the migrant network theory, as one of the most widely used theories to explain how migration happens (Sha 2021), associating the choice of city with the fact that friends or family were already in the city: *"a friend, my cousin, she lives here, she's lived here for a long time, (...) I spoke to her (...) if she would help me"* (P50mBra).

4.2 Facilitating Elements

Several positive elements were identified in their reception and integration processes, based on a feeling of generalised sympathy for the people of Porto. Despite the challenges associated with instability and what is reported as the condition of being a migrant, the participants classify their experience as positive, reflecting on their personal development and the effective and desired improvement in living conditions, both in terms of weekly breaks and security *"The security that is clear [... my children] have more freedom"* (P46mBra), especially in the case of being a woman: *"as a woman, I feel secure when I'm in public transport (...)"* (P08mHon).

Participants reported support networks with friends and individual support from classmates, especially among international students who highlighted the class's importance, the inclusive setting of higher education, and institutional support network. Support was chiefly found in social economy organisations providing food parcels, donations, or migration services, particularly accommodation, as well as in parish councils. Churches and other social networks were also viewed as key pillars of solidarity to facilitate integration. As one participant noted, *"We got a lot of donations of clothes, donations of things I needed for the house, I couldn't afford to buy them."* (P21mBra). These initiatives can be classified as informal volunteering or individual assistance, which represent common modes of human helping behaviour (Einolf et al. 2016), particularly through online platforms (Trautwein et al. 2020).

4.3 Cultural Adaptation

Experiencing cultural diversity was a transformative aspect of integration for some participants, fostering self-awareness and broader understanding. One participant reflected on the new cultural contact, saying: *'There was also this new contact with the culture, which [...] made me see, I think, my own culture, you know?'* (P12mBra-Lux). Another participant emphasized the enriching experience of a Portuguese language course that brought together classmates from various backgrounds: *'I studied with Russians, Arabs, [...] people from Thailand, China [...] I think that's very enriching because they are different cultures, and I have gained a broader vision'* (P60mVen). For some, even small details of daily life with classmates provided cultural insights: *'Most of my classmates are Portuguese. [...] they like to drink a lot of espresso [...] Being with my classmates really helped me'* (P08mHon). These interactions, across shared spaces and everyday moments, highlight the way immersion in diverse environments can deepen cultural awareness and connection.

4.4 Mismatch of Expectations

Despite the generalised positive feelings towards migratory experiences, some participants also revealed a certain mismatch between expectations and reality, particularly regarding the cost of living: *"Previously, from Colombia we saw it very easy, or at least I saw it easier. I used to say, with this we can do many things, with this money we save we can do such and such a thing. When you get there, you get a reality check because the economy is different (...). So, that was like the, I don't know if it was an exception, (...) but you don't believe it until you live it'.* (P28mCol), as well as the general difficulties: *"I think everyone has a little bit of expectation about living in Europe. But I've found some things here that I didn't realise I'd find. Especially in the situation that Portugal finds itself in today, with many people on the streets, or even homeless."* (P58mBra).

4.5 Challenges

Some interviewees faced pre-migration challenges, notably from the lack of a consulate in their country or city: *'Honestly, this was one of the biggest difficulties for me because I applied for the master's program, was accepted, and received the acceptance letter [from the institution] very quickly, but I couldn't get in touch with a Portuguese consulate in Brazil...'* (P58mBra). Upon arrival, the challenges encountered were broadly related to bureaucratic issues, the lack of consistent, centralized, and standardized information, as well as the slow pace of processes.

Participants highlighted challenges beyond bureaucracy, including lack of support networks, homesickness, cost of living, climate, language barriers, and integration into services such as the labour market, housing, healthcare, opening a bank account, especially as documents like the expression of interest or residence permit, along with associated costs, are required for legalisation and their children's schooling, noting issues of little information, some difficulty in communicating with school management, as well as the lack of places to keep siblings in the same school.

4.6 Perceived Discrimination

When addressing their current life, it was interesting to note the immigrants' awareness that there was a profile of "Central and South immigrants" back when multiple social representations emerged, which now underlie discrimination.

Despite some reports of a generalised perception of not feeling or observing discrimination, most of the participants report situations of xenophobia in public discourses and spaces: *'For example, on the bus, I always see people basically talking about Brazilians.'* (P17mBra). In fact, both in general and sometimes not associated with personal experiences, situations of micro-aggressions are reported: *'But at no time did I feel, did I feel this issue of being prejudiced or treated badly because I'm Brazilian, right? Of course, sometimes there's a little joke, then you say, ha ha ha, how funny'* (P04mBra). Several interviewees acknowledged their privilege, noting that other migrants face greater stigmatisation: *'... we have had to deal with this ugly discrimination. But I have noticed a high level of discrimination against people from Nepal and Indians. It's brutal'* (P65mCol).

Subtle discrimination, especially around Brazilian Portuguese, is noted even in higher education, revealing soft power dynamics and epistemic injustice (Bourgault 2023): *"... when it's group work, someone always has to revise my part to leave it in Portuguese from Portugal. [...] it's annoying, because it's not wrong. The Portuguese language is one [...] We feel a bit inferior"* (P58mBra).

There are also reports of participants who prefer not to report situations that they consider unfair, for fear of reprisals due to their situation of vulnerability or who say that they need to work harder to obtain the same conditions as nationals: *"I have to be more productive, I have to put more effort into things, you know? [...] at university, there are things that we have to put a lot more effort into, we always have to go the extra mile to be equal to the others"* (P12mBra-Lux).

Situations of multiple discrimination are also reported, at the intersection of nationality and age - *"I am a person who has a degree and has studied, but here it is also taken into account that the person is young, so unfortunately I don't have the same priority, that I could have my son, who is much younger"* (P60mVen) - and with gender - *"I lived in Maia for a month, I felt a lot of objectification of the female body like that, this Brazilian thing, this sexualisation, so they mess with me in the street..."* (P58mBra). Situations of direct discrimination occur in different contexts, from the various public services to personal and professional contexts: *"You can't sit at lunch next to the rubbish and pretend that that's OK"* (P65mCol).

Though these women view Portugal as a land of opportunity, they adapt to constraints faced as women, migrants, and often racialised individuals shaped by white Eurocentric ideals. These inequities reflect intersectional discrimination shaped by gender, race, ethnicity, and nationality in Portugal's social structures.

Many participants work in precarious jobs that don't match their qualifications. Despite their short time in Portugal (up to 5 years), their identities are reshaped—not simply as a response to migration but also due to Portugal's colonial legacy and historical domination (Lugones 2013). This 'coloniality of power' (Quijano 2000) perpetuates new post-colonial forms of intersectional exploitation within global neoliberalism (Gutiérrez Garza 2023).

5. Final Remarks

This research aimed to characterise the profiles of migrants living in Porto and understand their migration journeys and challenges in the migration and integration process. Consistent with other studies, it reaffirms that migration involves personal and professional challenges that heighten immigrants' vulnerability and profoundly impact their lives.

While migration offers greater economic independence and security, this study highlights and underscores the specific adversities faced by immigrant women. They frequently face discrimination and xenophobia in various public spaces. In Portugal, they experience precarious living conditions and challenges in accessing public services, underscoring the added difficulties of migration. These findings highlight the compounded challenges arising from the intersection of gender and migration, an area that remains underexplored in migration studies. Addressing these gaps requires the adoption of targeted programs focused on racial issues and gender equality to promote inclusion and integration. Additionally, the study emphasizes the critical role of fostering support networks and dialogue spaces as vital for migrant women to share experiences and build solidarity. Education and social awareness initiatives are crucial to dismantle stereotypes, counter xenophobic narratives, and advocate for inclusive practices. By shifting the focus from macro-level analyses to the micro-level realities of individual migration journeys, this research adds to migration and gender studies by foregrounding the biographical and intersectional dimensions of migrant women's experiences. Situated in a specific regional context where populist anti-immigration narratives are gaining momentum, it provides nuanced insights into the lived experiences of immigrant women, thereby filling a significant gap in both academic and policy discourses.

Moreover, this study calls attention to the need for policy frameworks that integrate critical interculturality and de-colonial pedagogies (Walsh, 2009), particularly in addressing the challenges faced by privileged migrants such as international students. These approaches could offer transformative strategies for inclusion, transcending the limitations of traditional multicultural policies.

This research serve as a valuable tool for fostering reflection among policymakers, professionals, and researchers, helping to identify and inform the design of inclusive measures and strategies that prioritize the needs of immigrant women.

Only through a joint effort can we ensure that these women not only survive but thrive, thereby contributing to the diversity and richness of Portuguese society.

6. Limitations and Further Research

Several limitations were observed in this study. First, the qualitative data cannot be generalised to all immigrant women in Greater Porto and in Portugal. Second, some nationalities were absent from our sample, so it does not fully represent the diversity of Central and South American women in Porto. Third, although participants were encouraged to speak in their native language, some opted for a second language, like English, which may have limited the depth of their self-expression.

Further studies with larger, more diverse samples—including a broader representation of nationalities and qualifications—could significantly enhance our understanding of the challenges associated with migration. For example, the qualification profiles of participants in this study do not allow for an analysis of the 'discrimination paradox,' which refers to the finding that higher-educated migrants often perceive more discrimination than those with lower levels of education (Andriessen et al. 2014).

Also in further research, it may be important to adopt a more systemic and holistic approach, by analysing also the existing responses and services that support the integration of migrant women. Understanding the forms of support being provided to address the key challenges these women encounter in their integration processes and their awareness of women's needs is crucial for enhancing practices and formulating public policies more inclusive and effective.

Another aspect that might be interesting to investigate has to do with the specific realities experienced by Brazilian migrant women and those who come from other South and Central American countries. The historical relationship between Portugal and Brazil, marked by the colonial past, brings complexities to the integration processes that will probably be different from those experienced by other migrants, and this comparative analysis could provide relevant information.

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Female Academics' Perception of Gender Roles in Working Life: A Qualitative Research Example in Türkiye

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Abstract: This study examines the perceptions of female academics working in Türkiye towards gender roles in working life. The main purpose of the research is to understand the experiences of female academics in business life, the difficulties they face, if any, and their perceptions shaped in line with gender roles. For the research, a semi-structured interview form was used and 18 female academics working in Türkiye were interviewed. Content analysis was used for the analyses. According to the findings, gender role perception for female academics refers to the roles attributed to females and men. On the other hand, it has been revealed that being a mother and wife as a female is the most prominent gender role. The negative situations they face in terms of gender roles are work-life balance, glass ceiling syndrome in career and the emotional pressure of not having time for children. The positive situations, on the other hand, are the pride of having a respectable job, the support received from spouses and family (solidarity behaviours of the Turkish family structure, grandmother, grandfather and grandfather taking care of the children, one of the parents of one of the spouses helping with housework and cooking during busy times, etc.), the comfort of having partially flexible working hours and being able to catch up with housework, positive discrimination towards female and especially mothers in the workplace. As a result, this study will be a guide to the effects of gender roles perceptions of female academics on their working lives and for further research to be conducted in this field. It is important to develop policies to support female academics and to ensure gender equality.

Keywords: Gender Roles, Perception of Gender Roles, Female Academics, Working Life, Türkiye

1. Literature Review

Gender refers to the knowledge that a person is of a certain sex, what is expected of a person at the social level within this knowledge, and the position assigned to the person in society (Vatandaş, 2011). The main idea in role-gender adaptations is that the individual is male or female. The learning of gender roles takes place through socialisation or internalisation (Dahrendorf, 1959). Gender is used in the sense of cultural, social role, spiritual-inner definition of the person and their representation. Gender is a concept related to the duties and responsibilities given to females by society, how females are seen, perceived and expected in society (Alisbah Tuskan, 2011). Gender determines femininity and masculinity on the basis of social, cultural and psychological factors. Gender is the psychological, social and cultural social manifestations of femininity and masculinity (Kessler & McKenna, 1978). As far as we see in the definitions in the literature, it is noteworthy that gender is defined in terms of the prominent responsibilities of men and female in a society.

The category of gender, which is based on a modern formulation of sexuality (Connell, 1998), is a concept that, unlike biological sex, is used to describe the social and cultural definition of men and female, the way society distinguishes these two sexes from each other, and its impact is reflected in all areas of society (Yüce et al, 2014). The roles and responsibilities that confine female and men with innate biological differences to defined identities, shape their lives by expecting behaviours in accordance with ideal patterns, leave deep traces especially in the lives of female, and are reproduced continuously through the socialisation process are called gender (Scott, 2017). This distinction emphasises that the differences between men and female are not merely innate or biologically dependent on sexual characteristics, but on the contrary, they are learned behaviours (Özdemir, 2019). In many societies, social norms are more restrictive towards females, especially when it comes to gender roles in the labour market and self-employment (Marques, 2017). In short, we see that gender roles are classified and evaluated according to socially learned behaviours.

A study conducted in Japan revealed that gender roles in working life are egalitarian and females are not adversely affected by this reason (Magnier-Watanabe et al, 2024). A study conducted in Poland, on the other hand, revealed that gender norms, female's participation in unpaid work at home, female's share in household income and inequality between spouses in the sharing of household chores persist. This is because females living in less traditional households are more likely to share housework equally with their husbands. Among couples with traditional gender attitudes, a female's contribution to household income is not associated with the sharing of housework. As a result, reducing gender pay gaps can be an important step towards greater equality not only at work but also at home (Magda et al, 2024). It is generally believed that female struggle with the balance between the demands of their career and their family life (Fetterolf & Rudman, 2014). From these studies, it is seen that the perception of gender roles is perceived differently in different societies. Furthermore, some study

suggested that the majority of studies on gender-related perceptions, attitudes and roles have been conducted in the United States or in a limited number of European countries (e.g. Germany, the UK) (Camussi & Leccardi, 2005; Hoebeke, 2008). Therefore, it is anticipated that conducting a study on gender roles in Türkiye will contribute to this gap in the field

Gender roles have varied between genders, cultures and even between homosexuals, and the unchanging result has been unequal practices (Bhasin, 2012); these practices lead to negativities in many areas such as female's education, participation in labour life, political representation and income level (Yılmaz et al., 2022). It is stated that the fact that the processes related to child or patient care are more favourable to gender roles considered to belong to female and that female are naturally more prone to these processes causes these fields to be professionally not preferred by men and more female to enter these disciplines (Şentürk, 2025). Another study conducted in Türkiye revealed that nursing and midwifery professions are more suitable for females in terms of gender roles (Gönül & Akyıldız, 2024).

A study conducted in Japan revealed that gender roles in working life are egalitarian and females are not negatively affected by this reason (Magnier-Watanabe et al., 2024). A study in Poland found that gender norms, female's participation in unpaid work at home, female's share of household income and inequality between spouses in the division of household labour persist. This is because females living in less traditional households are more likely to share housework equally with their husbands. Among couples with traditional gender attitudes, a female's contribution to household income is not associated with the sharing of housework. Consequently, reducing gender pay gaps can be an important step towards greater equality not only at work but also at home (Magda et al., 2024). The gender gap is larger in countries with higher gender role inequality, lower levels of financial development, and tighter adherence to gender roles (Love et al., 2024). In a few studies conducted in Türkiye, gender inequality is evident in various aspects of daily life and is often attributed to differences in gender. A clear distinction exists where men are primarily associated with the public sphere, while female are typically linked to the private sphere (Dildar, 2015; Günçavdı et al., 2017; Günindi Ersöz, 2016). According to these findings obtained from the literature, it is observed that the perception of gender roles varies from country to country.

There are a large number of quantitative and longitudinal studies on understanding gender roles (Amato & Booth, 1995; Brewster & Padavic, 2000; Bolzendahl & Myers, 2004; Berridge et al., 2009; Aygar et al, 2022). However, it is noteworthy that qualitative research is not so much. Moreover, it is predicted that qualitative research will be more powerful in providing deeper explanations and richer information about gender perception. It was thought that collecting real life stories of female academics' gender perceptions in the form of narratives would be more effective in collecting data for the purpose of this study. Thus, this research aims to examine the perceptions of gender roles in working life of female academics in Türkiye. In addition, a study conducted in Türkiye during the pandemic period revealed that the academic life of female academics changed in terms of academic productivity and that the pandemic deepened gender inequalities. Therefore, it was suggested that more research be conducted to develop more effective social policies (Parlak et al. 2020). Based on this research, it was envisaged that a new and in-depth study on gender roles in Türkiye would be a resource for Turkish society and other countries. Thus, this research has the potential to fill the gap in the literature and make important contributions.

2. Methodology/Design

The research method is a qualitative research method. A Semi-structured interview form was prepared for this research. Before starting the interview, the research scope was explained to the participants, and permission was obtained to take notes the interviews. Interviews were conducted by the author of the study at a time convenient for the participants and via telephone. The participants were encouraged to freely express their experiences and were given the opportunity to direct the conversation. The interviews lasted from 20 to 25 min. The meeting interview form consists of 2 parts. The first section includes 5 interview questions and the second section includes 4 questions about demographic characteristics. Therefore, a total of 9 statements are included in the interview form. The questions are generally open ended. Some sample questions are 'Is there a situation (positive or negative) that you have encountered in terms of gender roles in your working life? If so, can you tell us about them?', "Can you talk about the effects of your private life relationships (spouse, family, children, etc.) on your working life?". The research questions were created in light of the information available in the literature to reveal how female academics perceive and define gender roles in line with the purpose of the study. Within the scope of the research, interviews were conducted with 18 female academics working in different universities in Türkiye. The sample was selected in accordance with maximum diversity sampling, which is one of the

purposive sampling methods within the qualitative research method (Patton, 1990 and Yıldırım, 1999). This sampling method involves participants with the same characteristics but with different experiences that are unique to each other. This provides a variety in the sample (Friday and Leah, 2024). The qualitative research method (Patton, 1990 and Yıldırım, 1999) uses purposive sampling.

Firstly, the data were coded. Second, the themes of the coded data were determined. In the third stage, the codes and themes were organised. In the fourth stage, the findings were defined and interpreted (Guba and Lincoln, 1982). In this process Miles and Huberman's (1994) percentage of agreement method was used and the percentage of agreement of the analysis is 75%. An ethics committee report was also obtained from Karamanoğlu Mehmetbey University, Social and Human Sciences Publication Ethics Committee.

3. Results

3.1 Demographic Variables

The average age of female academics is 38.5 years. 9 of them have PhD, 5 have master's degree and 4 have bachelor's degree. 6 of them work as doctoral faculty members, 5 associate professors, 4 professors and 3 associate professors work as research assistants. 10 of the sample were married and 8 were single. Among female academics, 9 have 2 children, 6 have 1 child and 3 do not have children.

3.2 Results of the Qualitative Analysis

The theoretical framework most frequently encountered in the literature on gender roles was used in the selection of themes used in the analysis of the data. In this context 3 Themes emerged from the data obtained from the interviews. For example, since we noticed that gender roles are often discussed in the literature in terms of the responsibilities of being a woman and a man, we determined one of the themes as Gender and Behaviour-Appearance (Being a Female and a Man and Other). The other two themes Domestic Gender-Based Division of Labour, Becoming a parent (Being mother) and The Negative-Positive Situations They Face in terms of Gender Roles". In order to represent the opinions of the sample in the research by concealing their identities, they were given codes such as Sample 1 (S1), S2, S3, S4..., S18.

3.3 Theme 1: Gender and Behaviour-Appearance (Being a Female and a Man and Other)

Gender and Behaviour-Appearance is the most frequently used explanation of what is meant by the phenomenon of 'gender roles'. Like being a female and a man and others. 15 out of 18 female academics pointed to these facts. Some of the female academics' expressions on these subject are as follows:

S5: 'The roles and responsibilities attributed to females and men in a society by the society....'

S9: 'The roles attributed to females and men by society in line with their gender. They are the expectations of society from individuals based on gender....'

S12: 'Gender roles refer to socially determined and culturally shaped norms of behaviour, duties and responsibilities deemed appropriate for females and men in a society. These roles manifest themselves in many areas such as how individuals should dress, speak, work and behave within the family. Gender roles are based on the expectations and cultural values of society rather than biological sex and can change over time...'

S17: 'It evokes the jobs attributed to the sexes. Females are responsible for cleaning the house and men are responsible for earning a living...'

S18: 'The roles that society attributes to men and females...'

There are a few common conclusions we can draw from the participant statements. It is about the roles and expectations determined by the society based on genders. Each of them mentions the behaviours, duties and responsibilities deemed appropriate for men and female in line with social norms and cultural values. It is emphasised that gender roles are based on social expectations rather than biological differences and that these roles may change over time. It is also stated that these roles shape the behaviours that society expects from its individuals.

3.4 Theme 2: Domestic Gender-Based Division of Labour, Becoming a Parent (Being a Mother and Parents)

One of the findings of the research is that employees complain about the domestic gender-based division of labour. They state that being a mother about perception of gender roles is a great responsibility.

Some of the participants' views on this issue are as follow:

S1: 'In my mind, gender roles evoke the roles that society assigns to the sexes. An example of this is that the mother is responsible for ensuring that there is a hot meal at home every day and the father is responsible for taking the car for routine maintenance...'

S3: 'Employee, mother, wife, wife, child, sibling are allocated too many roles...'

S5: 'As an academic, I have to carry out intensive studies. However, as a mother, caring for my two children and constantly trying to take care of them makes it difficult for me to advance my academic career. The responsibility of a husband who does not help me in this regard is also on me...'

S10: 'I think that being a woman or a mother should be a privilege in business life. Determining working hours accordingly would encourage females to take more part in active working life...'

According to the statements above, female academics have difficulties in trying to establish a balance between their responsibilities at home and at the workplace due to their gender roles, and social systems make it even more difficult to establish this balance. In addition, it is noteworthy how gender roles shape individuals' lives and professional careers, and the difficulties and injustices that these roles can create are emphasised.

3.5 Theme 3: The Negative-Positive Situations They Face in terms of Gender Roles

Another theme is the negative-positive situations they face in terms of gender roles.

Female academics' 10 claim that they have positive and negative situations. Some statements on the subject are as follows:

S1: As female academics, despite the challenges we face, we have the potential to make significant contributions to society and the academic world. By strengthening our positive aspects and developing strategies to cope with negative aspects, we can create positive changes both in our own careers and at the societal level...'

S4: 'First of all, I do not think there is a negative aspect. I think it is a very important task to be together with our young people who represent our future at the university and to be able to convey something to them both academically and in terms of life experience. I think that the education that students will receive from female academics from a female perspective is of great importance in terms of shaping their perspectives and visions in life...'

S5: 'There is no situation that I can explain positively or negatively, I can say that an equal policy is applied...'

S7: 'I think there are gender-based prejudices. In another workplace, I have noticed that female employees are taken less seriously in technical roles than their male counterparts. Especially in a male-dominated field such as engineering, I have observed that female's competencies are questioned and they are left behind in important projects. This can negatively affect the career development of female employees and undermine equality in the workplace...'

S10: 'There were positive aspects due to the understanding of my professors. During my daughter's illness, they showed understanding and allowed me to take unpaid leave. If I were a man, I might not have had such leave even if I did not need it economically...'

Under the above theme, the aim is to raise awareness of the impact of gender equality and societal perceptions on professional life, while addressing the gender-related experiences, opportunities and challenges of female academics. Each of them assesses the challenges and opportunities that female face in academic and professional fields from different perspectives, but all of them emphasise the impact of gender in working life.

The themes created for the gender perceptions of female academics in Türkiye are included in the theme below.

Table 1: Expression Frequencies of Themes

The Perceptions	Expression Frequency
Gender and Behaviour-Appearance (Being a Female and a Man and Other)	15
Domestic Gender-Based Division of Labour, Becoming a parent (Being a mother and parents)	13
The Negative-Positive Situations They Face in terms of Gender Roles	10

4. Conclusions and Recommendations

As a result of this research, it has come to the forefront that when it comes to gender, academic females mostly use the expressions ‘being a woman and a man and being the other’. According to the European Institute for Gender Equality, in a given culture, gender refers to the social and behavioural norms that are widely accepted as socially appropriate for individuals of a particular gender (<https://tinyurl.com/yuxbhmkn>, 14.11.2025). In other words, it is noteworthy that gender perceptions have a gender-based approach. In the studies conducted in this field, gender role is defined as being of a certain sex (Vatandaş, 2011); being masculine or feminine (Dahrendorf, 1959); behavioural expectations based on biological sex (Fawcner, 2012). Our gender identity perception is our sense of who we are as a woman, as a man, or as a different gender (Cosker-Rowland, 2023). The traditional relationship, such as a female's primary responsibility for childcare, is a function of socially constructed gender roles. Particularly when combined with difficult demands, females may find it difficult to combine these two activities (Haynes, 2006). Gender can be explained as a cultural construct, which is the social categorisation of males/masculine and females/feminine (Oakley, 1985). Gender can also be understood as the roles, attitudes, attributes and behaviours associated with each gender (Hatchell & Hatchell, 2007). As a conclusion, it is possible to say that all over the world, although it varies according to the culture, the gender role is perceived as being of a certain gender type. On the other hand, it is noteworthy that gender is based on social norms determined by society rather than biological differences. It is seen how the socially accepted roles of female and men are shaped and how gender identity is associated with these roles.

Another theme that emerged was the “gendered division of labour within the family, being a parent (Being a mother and a parent)”. A key issue in gender is the gendered division of domestic labour (Peng, 2022). Similar results were found in previous studies. According to a study, they emphasise that the existing potential of females is distorted by sexist stereotypes. Females are forced to take responsibility for specific gender roles, such as motherhood and homemaking, which are hidden in their nature and abilities (Gill and Grint, 1995). Owing to gendered perceptions of motherhood and fatherhood, mothers will often reduce the number of hours they work for pay in order to devote more time to child-care responsibilities (Klerman & Leibowitz, 1999; Yeung et al., 2001). In the 20th century, the gendered division of labor in caring for children in many societies, especially in middle-class families, has been linked to a dominant model of “breadwinning father, houseworking mother”. This involves mothers taking on the physical and emotional burden of caring for children (Christopher, 2012). It is seen that the emphasis in this theme supports the literature. The gender-based division of labour within the family and the roles of motherhood and parenthood are observed to express gender roles. It is emphasised that female's being limited to certain roles such as motherhood and domestic care due to gender stereotypes leads to limitations in the field of labour force and career.

Last theme is “The negative-positive situations they face in terms of gender roles”. The results of a study conducted among male academics on the perceived gender roles of female academics in Türkiye revealed that culture and religion and patriarchal social structure have an impact on this role perception (Demirtaş, 2024). On the positive side, there are supportive family relationships in Türkiye. Therefore, gender roles show positive discrimination for females. For example, a study in Türkiye highlights the important role of workplace flexibility, supportive networks and policies that prioritise personal well-being and career advancement for females in gender roles (Bulut et al, 2024). In this way, it is predicted that gender role equality will be promoted (Bulut et

al, 2024). The results of a study on the perceived gender roles of female academics in Türkiye from the perspective of male academics revealed that culture, religion and patriarchal social structure have an impact on this role perception (Demirtaş, 2024). Another study conducted in Türkiye emphasises the important role of workplace flexibility, supportive networks and policies that prioritise personal well-being and career advancement. In this way, it is predicted that gender role equality will be promoted (Bulut et al, 2024). Based on recent research revealing the multidimensionality of gender role attitudes, the prevalence of a gender role ideology that favours female's employment but gives greater priority to caregiving roles is also still prevalent (Han et al, 2024).

Positive and negative aspects of the responsibilities imposed on females in terms of gender roles are another theme that emerged. In that context -negatively- female academics emphasised that gender-based prejudices cause occupational discrimination and pose an obstacle to career development. Some previous studies have also found results that confirm this. In many societies, social norms are more restrictive towards females, especially when it comes to gender roles in the labour market and self-employment (Marques, 2017). For example, gender roles have varied between genders, across cultures, and also between homosexuals, and the unchanging result has been unequal practices (Bhasin, 2012); these practices sometimes lead to negative effects on many issues such as female's education, participation in working life and political representation, and income level (Yılmaz et al, 2022). It is seen that there are positive and negative situations that female face based on gender roles. It is emphasised that the perceptions of female academics in Turkey towards gender roles are shaped by culture, religion and patriarchal social structures. On the positive side, supportive family relationships in Turkey and practices such as flexibility in the workplace are expected to promote a more equal gender role distribution for female. On the negative side, however, it is noted that gender-based prejudices hinder female's professional development and lead to discrimination in the labour market. It is also emphasised that even though female's participation in the labour force is supported, female's caring roles are still at the forefront and this may create constraints in their careers.

5. The Theoretical and Practical Implication

This study revealed the perceptions of female academics working in Türkiye about their gender perceptions. These findings will be an important source for both theory and practice showing that being a female, being a mother and being an academic are associated with a gender perception for female academics. This current research will theoretically develop the perception of gender and will be a guide for other studies to be conducted in the future. In particular, examining gender perceptions of female academics with scientific data will be an important theoretical source. In practice, this study will be a serious source for other countries to raise awareness about gender perceptions of female academics.

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Barriers Contributing to the Underrepresentation of Women in the Construction Industry

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Abstract: In recent years, the representation of women in the working population has improved. However, despite significant efforts in both academia and industry, the construction sector is still a male-dominated industry both numerically and hierarchically. This is a global issue, and the UK is not an exception. The gender imbalance in the UK construction industry starts with construction education and worsens as women progress in their careers. That is why the concept of the “leaky pipeline” is used in the literature to describe the problem of recruitment and retention of women in the industry. To investigate the barriers contributing to the underrepresentation of women in the UK construction industry, this research systematically reviews the literature from four databases from 1993 to 2023. Industry perception, motivation, environment, skill gap, role models, well-being, organisational support, satisfaction, career development, family responsibilities, and institutionalised inequality were identified as the main barriers for women in joining and progressing in the construction sector. This paper draws upon social cognitive career theory to discuss these barriers, the identified barriers were categorised into four dimensions: contextual influence, self-efficacy, outcome expectations, and goal orientation. In addition, the Super’s career development model was used to map these barriers to the leaky pipeline of women in the construction industry in four stages: exploring (pre-career), establishing (early career), mid-career, and late career. The research finds that industry perception and environment were barriers that prevented women from progressing in pre-career and early career, while family responsibilities were barriers that prevented women from progressing in mid-career and late career. The research provides an overview of the existing studies on barriers contributing to the underrepresentation of women in the construction industry. Also, this study shows that women face different barriers in their career development in the UK construction industry. This suggests that a combination of solutions should be considered to tackle the problem.

Keywords: Barriers, Construction Industry, UK, Women, Social Cognitive Career Theory

1. Introduction

Despite years of continual efforts to promote women in the workplace, underrepresentation of women in different sectors has remained a cause for attention both in academia and industry. The global labour force participation rate for women is just over 50% compared to 80% for men (World Bank, 2022). The construction industry as a key to the success of national economies provides 7% of the world's total employment (International Labour Organization, 2024). According to the Transition Pathway for Construction of the European Commission, Women only make up around 10% of the construction workers in Europe. This figure consists mainly of women in administrative and technical positions, while those actively working on construction sites are a smaller group (EBC, 2024).

Many countries have implemented policies to promote women's entry into the construction industry. For example, the ‘Women Can Build’ course in Germany raises the professional awareness of women about the construction industry and broadens their skills and potential career paths (Vaccaro et al., 2024). Spain and Belgium have carried out ‘Women Can Build’ projects (Liang and Vansteenkiste, 2022). The French Government, in cooperation with construction associations, has carried out promotional activities targeting women's entry into the construction industry through the media, schools and vocational training institutes (Norberg and Johansson, 2020). Gender quota regulation in Norway requires that at least 40% of a company's board of directors be women (Ciappei et al., 2023). In a similar policy, countries such as Finland and Israel have mandated that enterprises have at least one women director (Liang and Vansteenkiste, 2022).

The UK construction industry has traditionally been seen as a male-dominated sector, and women participation rates have long been low, particularly in senior and technical roles (Suresh et al., 2023). Compared to other developed countries, progress in women’s participation in construction has been relatively slow in the UK (Suresh et al., 2023). Despite measures such as the Equality Act 2010 and gender pay gap reporting, representation has not improved as expected (Naoum et al., 2020). Cast (2024) found that in the second quarter of 2024, there were approximately 2.04 million people employed in the sector in the UK, of which, 340,000 are women. Newsdesk (2024) also found that 81% of women in the construction industry are in administrative and design jobs, while 6% of women are senior managers. To show this gradual decline in the number of women

entering to the sector to reaching their highest position, the concept of 'Leaky pipeline' is used as an analogy in the literature (Yan et al., 2024).

The existing literature explores the barriers for women in the construction industry, but few studies explore how the barriers change at different career or life stages. This research conducts systematic literature review, using the Super career development model to differentiate various stages of a person's career development and using Social Cognitive Career Theory (SCCT) as a guide to categorise the barriers identified in the systematic literature review. This will lead to a more nuanced appreciation of the barriers for women practitioners' entrance and progression in the UK construction industry over time.

2. Literature Review

The latest statistics from the ONS (Office for National Statistics) (2024) show that the construction sector employs 2.93 million people in the UK. Associated employment has increased by 3.3% compared to 2022 and accounts for 10% of the national workforce. Despite its significant contribution to the country's Gross Domestic Product (GDP), the sector faces a prevalent and persistent gender imbalance, with 84.1% of male workers in the construction industry compared to 14% of women workers, and a significant underrepresentation of women in technical and leadership roles (CIOB, 2023). In 1997, when ONS began to provide data for the construction industry, the number of women employees was 242,000, or 14.6% of the total workforce (Martin and Barnard, 2013). In 2023, women made up 14% of the UK construction workforce (ONS, 2024). The gender imbalance begins as early as construction-related educational programmes and becomes more significant as women progress through their careers. 'Leaky Pipeline' is a metaphor to describe the journey of women in the UK construction industry from early education through to their careers (Savickas et al., 2018). According to national statistical offices in Germany, Spain, Italy, Belgium, and Portugal, the leaky pipeline exists in Europe, with women make up 9% of the construction industry's workforce. The proportion of women in senior positions is 27% and in primary positions 38% (Auriol et al., 2022). Although there is some difference between countries, these figures show that women have higher loss rates than men at different stages of their careers (Lundberg and Stearns, 2019).

Initially, women show a considerable interest and talent in STEM subjects (Bigelow et al., 2017). In 2023, 78.4% of women students achieved A*-C grades in GCSE STEM subjects, compared to 75.6% of male students (Buckley et al., 2023). However, only 30% of women continue to study STEM subjects at A-Level (UCAS, 2024). The second phase of the leaky pipeline in the UK construction industry begins as women move from education to career choices (Savickas and Porfeli, 2012). The number of women graduates in construction-related degrees, such as building surveying, civil engineering, construction project management, quantity surveying and property management in the UK in 2022 account for 33% of the total number of graduates from these programmes. However, 22% of the newly registered workforce in the industry in the UK are women (IfM Engage, 2024).

The early career stage represents another key stage in the leaky pipeline, where women leave the construction industry too early in their careers. Furthermore, for those women who persist, career paths in the industry are full of barriers that limit their progression into senior, technical and leadership roles (Mainiero and Sullivan, 2006). The gradual decrease in the number of women in UK construction sector suggests that despite initiatives and policies, women face extra barriers in this sector in comparison with their male counterparts. Therefore, it is important to understand the barriers faced by women who are already working in the industry and those seeking to enter the industry (English and Le Jeune, 2012).

3. Research Method

To clearly identify barriers for women in the construction industry, this research used a systematic literature review. The use of this method helps to reduce bias and produce clear findings with reliability. The findings were then analysed through social cognitive theory as a guide for categorising the barriers and finally using Super's career development model to map the barriers against various stages of individual's career development.

To ensure comprehensive coverage of high-quality research, searches were conducted using the Scopus, Web of Science, ProQuest and ERIC databases. Scopus and Web of Science are invaluable for tracking the development of research topics over time (Birkle et al., 2020). ProQuest was selected for its diversity of papers and conference proceedings (DEI, 2024). As the leaky pipeline starts with construction-related degree programmes in the universities, it was decided to include the ERIC database to ensure that the academic papers concerned with gender imbalance within these programmes are included in the literature review.

The keywords chosen for this research relate to “UK”, “construction”, “women”, “underrepresentation”, and “barriers”. Figure 1 shows the combination of keywords. The following two exclusion criteria were established: (1) studies of women academics working in construction-related schools, considering the research focus was the construction industry and women practitioners in the industry and not women educators in construction degree programmes; (2) literature written in languages other than English was excluded due to inaccessibility for the researcher. In pursuit of data integrity, searches are not time limited. According to the search results, the earliest study appeared in 1993. The broad initial search generated 1,413 papers, including peer-reviewed scholarly, and conference papers. Each paper was systematically recorded in Microsoft Excel, and following the PRISMA guidelines, the initial collection went through a rigorous screening process. As a result, 80 papers were selected for in-depth analysis and then organised in reference management software to facilitate efficient management and retrieval of sources. Figure 2 shows the flow chart for the paper selection decision.

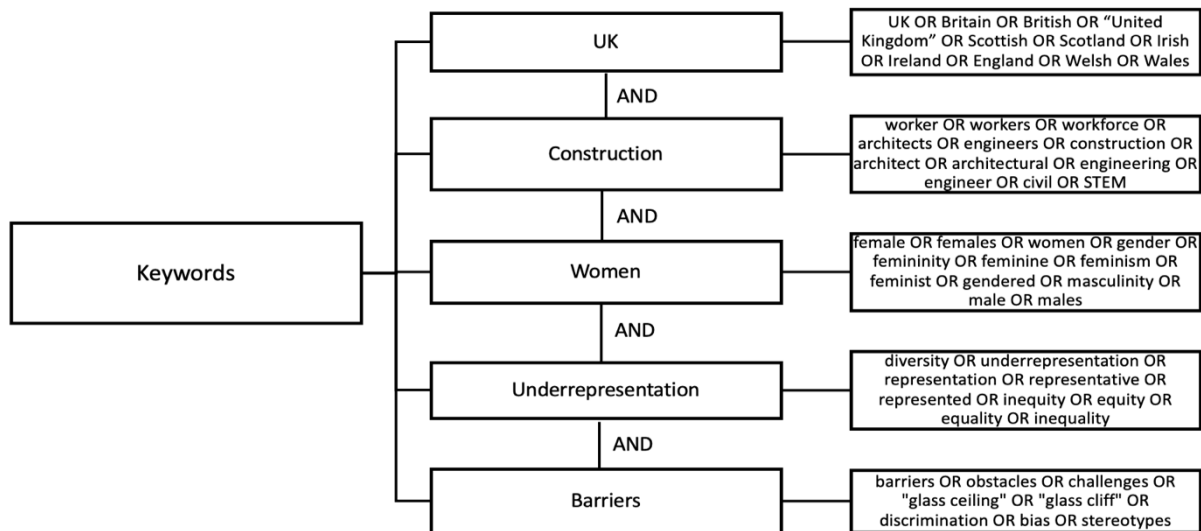


Figure 1: The final combination of keywords

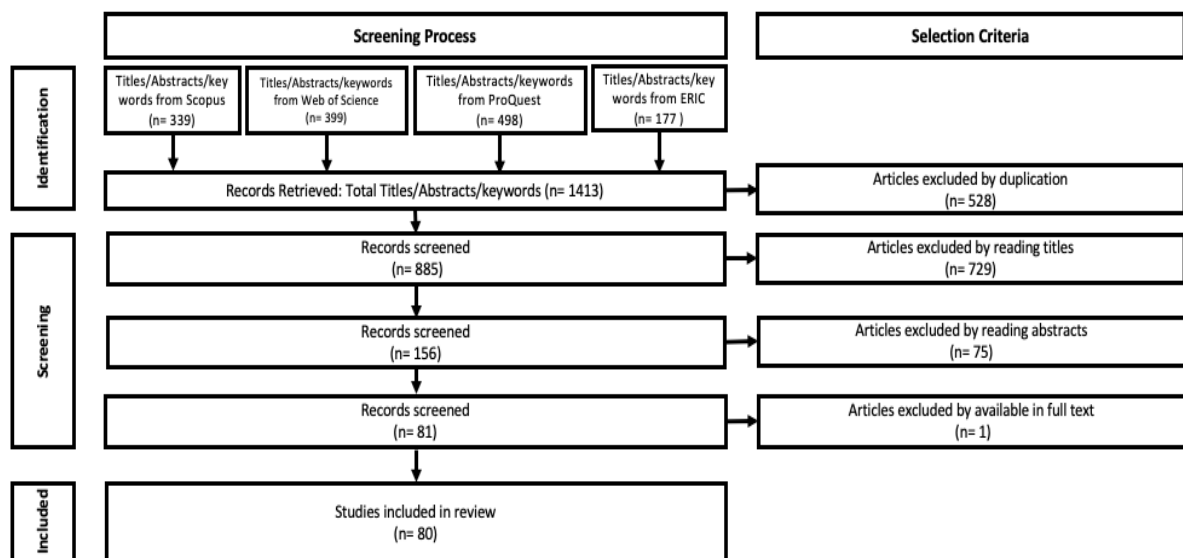


Figure 2: Flow chart for paper selection decision

4. Result and Discussion

After the systematic literature review, this research classified the barriers for underrepresentation of women in the construction industry into industry perception, motivation, environment, skill gap, role models, well-being, organisational support, satisfaction, career development, family responsibilities, and institutionalised inequality.

The results show that industry perception, environment and skill gap were the top three barriers appeared in the papers.

4.1 Results

4.1.1 Industry Perception

Industry perceptions are deeply influential in shaping women careers, with the most influential factors being gender stereotypes and industry image. Stereotypes create a bleak self-image, a lack of confidence in one's ability to compete, and a belief that one is unable to pursue prestigious positions in more male-expressive careers despite having the skills to succeed (Gerdeman, 2019). Also, industry image persists discrimination across career stages, leading to the continued underrepresentation of women in professional roles (García-Jiménez and Herrero, 2022).

4.1.2 Motivation

Motivation is the key to influencing whether women choose to enter the construction industry and can be categorised as lack of awareness, interest, and aspiration. Kiernan et al. (2023) show that lack of awareness originates early in the career due to a shortage of information, inaccessibility or inaccuracy that causes women to feel unwelcome in the construction industry. When women lack interest in the construction industry, they are more likely to choose other industries (Padwick et al., 2023). The results emphasise the importance of developing career awareness at university, with access to more information about careers and an easier transfer of interest to research and career aspirations (Ahuja and Weatherall, 2023).

4.1.3 Environment

The male cultural environment in the construction industry often makes women feel less valued due to their gender identity (Navarro-Astor et al., 2017). Dainty et al. (2000) state that many women are faced with choosing between career and family at an early stage in their careers. The results show the importance of culture and a flexible work environment in achieving a positive work environment (Suresh et al., 2023).

4.1.4 Skill Gap

Skills are a key factor in women career development, and these skills include specific job abilities acquired through education, training, or practical experience (Blake et al., 2023). Lack of skills and subject knowledge not only substantially limit women's career progression in the construction industry, but also prevents them from progressing through the career exploration period by weakening their self-efficacy (Chan and Murphy, 2006). It is suggested that higher education should take measures to provide equitable opportunities to enhance student employability and support the talent pipeline (Chance et al., 2023).

4.1.5 Role Models

Bryce et al. (2019) indicate that many of the role models mentioned by practitioners were always male, such as fathers or uncles. The presence of women role models not only attracts more girls and women into the construction industry, but also inspires women engineers to rethink the value and change that women leaders can bring to the workplace (Chan and Murphy, 2006). It is suggested that role models are meaningful to students and that their achievements be emphasised as achievable, thus inspiring more women to participate and succeed (Henri et al., 2023).

4.1.6 Well-being

In early careers, women have to deal with a variety of challenges, including finding a balance between work and personal life (Kiernan et al., 2023). Hosseini and Sharifzad (2021) show that the lack of effective interpersonal support exacerbates this stress, leading to a feeling of isolation amongst women, which can in turn diminish their self-efficacy and self-confidence. In early careers, the industry should ensure that teams are diverse and that diversity and inclusion are valued in the work environment (Padwick et al., 2023).

4.1.7 Organisational Support

The early career period is a time of professional growth for women, and effective support from organisations, such as the implementation of gender equality laws and guarantees of equality in company policies, can influence women's expectations of fairness and equality in the workplace (García-Jiménez and Herrero, 2022). For women, improving access to industry support services was the most common recommendation. Improvements related to training were emphasised, as well as the strengthening of equality among employees (Aboagye-Nimo et al., 2019).

4.1.8 Satisfaction

Difficulties in achieving work-life balance have been recognised as a major challenge for women in the construction industry, negatively affecting their career progression and willingness to stay in the industry (Ghanbaripour et al., 2023). Improved work-life balance, a better working environment and competitive salaries are more likely to improve job satisfaction (Buckley et al., 2023).

4.1.9 Career Development

Lu and Sexton (2010) show that external support from managers, mentors, and professional networks is one of the most important factors in facilitating women's career progression. However, Aboagye-Nimo et al. (2019) note male managers' difficulties in understanding and empathising with the unique challenges faced by women in a male-dominated industry.

4.1.10 Family Responsibilities

In mid-career, women are usually at a key stage in their career development and need to balance their professional ambitions with family responsibilities. The additional stress during this period may lead to the adjustment or abandonment of career development goals (Aboagye-Nimo et al., 2019). Offering flexible work arrangements such as flexible hours, telecommuting, and job sharing can help women manage their work and family (Suresh et al., 2023).

4.1.11 Institutionalised Inequality

As their careers progress, women may feel the profound impact of these long-standing systemic barriers on their development (Ahuja and Weatherall, 2023). These inequalities not only limit their career choices, but also have a profoundly negative impact on their goal orientation in the broader professional environment (Chance et al., 2023).

4.2 Discussion

Social Cognitive Career Theory (SCCT) proposed by Lent et al. (1994) is a well-referenced framework to understand factors that influence career development of individuals. SCCT emphasises the interconnections between cognitive processes and interpersonal factors, as well as the context in which an individual makes a career decision. SCCT recognises that an individual's career path is the result of the interaction of multiple career elements, including contextual influence, self-efficacy, outcome expectations and goal orientation (Lent et al., 2017).

Contextual variables influence individuals' career interests and choices by shaping learning experiences and act in career decision making. Contextual variables overlap with each other and have different effects on academic and career performance at different stages (Wang et al., 2022). Lent et al. (1994) proposed that career development is influenced by objective and perceived environmental factors. So that industry perception, motivation, and environment barriers identified in the systematic literature review are directly related to the contextual variables of the SCCT.

Self-efficacy is a belief in an individual's ability to achieve a goal (Bandura, 1997). Self-beliefs as dynamic and related to the task-related environment or the nature of the task itself (Lent and Brown, 2013). For women in the construction industry, strong role models and positive learning experiences can increase self-efficacy and encourage women to participate in the industry (Henri et al., 2023).

Outcome expectations are perceptions of the results, effects or consequences of certain behaviours (Lent et al., 1994). In the context of career development, positive outcome expectations may include receiving financial

rewards, achieving career progression (Shirley et al., 2016). Satisfaction and organisational support barriers identified in the systematic literature review interact with outcome expectations to enable women to pursue long-term career goals in the construction industry (Blaese et al., 2021).

Goal orientation shaped by self-efficacy and outcome expectations helps individuals to organise, direct and maintain career-related behaviours (Lent and Brown, 2013). Women with goal-orientation more likely to persist when faced with career challenges (Kiernan et al., 2023). However, institutional inequalities and family responsibilities limit women's ability to maintain a focus on career development, which hinders their persistence in the industry (Blake et al., 2023).

Super career development model proposed by Donald Super (1980, p. 282) defines a career as “the combination and sequence of roles played by a person during the course of a lifetime”. Super career model is based on the belief that self-concept changes over time and develops as a result of experience. Super (1980) extends the stages of life and career development to five stages: exploration (pre career), establishment (early career), midcareer, late career, and decline.

During the exploration stage, individuals try out various career options and gain the knowledge and skills needed to enter the industry. For women, factors such as industry perceptions, motivation, and role models are influential in this stage (Super, 1980). In early career, women are often unfamiliar with the construction industry due to a lack of information, inaccessibility or inaccurate information, which further hinders their career exploration (Kiernan et al., 2023). During the establishment phase, women face barriers in adapting to a male-dominated work culture, dealing with sexual harassment, and balancing work and life demands (Zhang et al., 2021). These situational variables affect career development in the early stages. In mid-career, mentoring and workplace flexibility promote career development. Research emphasises that mentor support can overcome barriers and sustain career motivation (Agyekum et al., 2024). Henri et al. (2023) suggests women's career goals are influenced by personal and professional factors and require a balance between work and family responsibilities for long-term career development.

Combining the SCCT with Super career development model, these barriers can be categorised into four key dimensions - contextual influence, self-efficacy, outcome expectations, and goal orientation - that are related to the four stages of career development: exploring, establishing, mid-career, and late career. The theoretical intersection provides the framework used to understand the complex dynamics affecting women's career development in the construction industry, as shown in Figure 3.

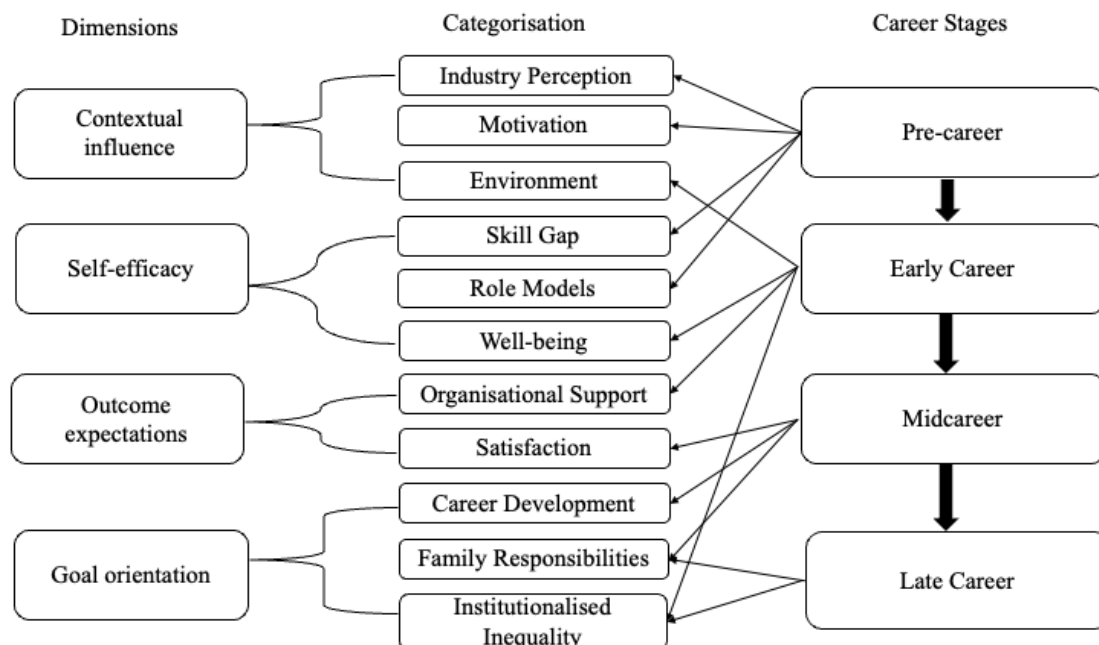


Figure 3: Application of SCCT through the lens of Donald Super's career development model

5. Conclusion

This research identifies 11 barriers that contribute to the underrepresentation of women in the UK construction industry through a systematic literature review analysing 80 articles from the last 30 years. Through social cognitive theory, the identified barriers were categorised into four dimensions: contextual influence, self-efficacy, outcome expectations, and goal orientation. In addition, Super's career development model was used to map these barriers to the leaky pipeline of women in the construction industry in four stages: exploring (pre-career), establishing (early career), mid-career, and late career. The research finds that industry perception and environment were barriers that prevented women from progressing in pre-career and early career, while family responsibilities were problematic at later stages.

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Addressing Rape and Femicide: The South African Gender-based Violence Legal Framework

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Abstract: Although gender-based violence and femicide (GBVF) are a global phenomena, the extent and severity thereof vary amongst countries. In the last quarter of 2023, more than 12,200 rapes were reported to the South African Police Services (SAPS) and the femicide rate in South Africa is more than five times the global average. The South African Constitution, and specifically the Bill of Rights, protects various human rights, such as the right to equality, dignity, and life. The protection of human rights are given practical effect in specific legislation and over the years various pieces of human rights centred legislation have been implemented to protect the safety and security of women against GBVF. South Africa has also aligned its domestic laws governing GBVF to give effect to its obligations in terms of the international law. Unfortunately, the high levels of gender-based violence continue to impede the full attainment of human rights for women. The South African government is committed to reduce and ultimately eradicate GBVF. In 2020 the South African government adopted a National Strategic Plan (NSP) in this regard. Many multi-disciplinary interventions across various sectors have been made since the NSP adoption. The discussion will show that there has been a disconnect between the different interventions. To address the absence of a unified multidisciplinary and multisectoral approach, legislation was passed in 2024 providing for the implementation of a National Council for GBVF that will bring together all the stakeholders that are involved in the elimination of GBVF. The discussion focusses on specific forms of GBVF, namely rape and intimate partner femicide. It explores how and why the laws dealing with rape and intimate partner femicide have evolved over the years. It will show that despite the 2020 NSP, the interventions post NSP and the human rights-centred laws implemented over the years, the amount of rape and intimate partner femicide are still very high. Rape and intimate partner femicide present many challenges and solutions to the challenges must be found on many levels. The discussion explores the possible solutions to address the different challenges experienced in the eradication of GBVF.

Keywords: South African Laws Regulating Gender-based Violence and Femicide (GBVF); Criminalisation of Rape and Intimate Partner Femicide; Sentencing Upon a Rape and Femicide Conviction; Challenges in Reducing GBVF; Solutions in Addressing GBVF.

1. Introduction

The phenomenon of gender-based violence and femicide (GBVF) is a serious social evil that affects public health and human right protection. The female victims of GBVF are among the most vulnerable members of society.

In South Africa, GBVF is widespread and affects women of all races. The discussion focuses on specific forms of gender-based violence, namely rape and intimate partner femicide. South Africa has one of the highest rape statistics in the world. According to the 2023/2024 crime statistics, a rape is reported every 12 minutes in South Africa (Action Society, 2024). Every day 86 people are murdered, 88 attempted murder cases are reported and 595 people are assaulted with the intent to inflict grievous bodily harm (Action Society, 2024). The majority of the victims are women and children. The South African Medical Research Council released a report in 2024, indicating that intimate partner femicides now account for 60.1% of all femicides and 1 in 6 women murdered showed evidence of prior sexual violence (SAMRC, 2024).

In 2020, the South African government adopted a National Strategic Plan on Gender-based Violence and Femicide (GBVF-NSP). Despite the GBVF-NSP and all the interventions addressing GBVF, the number of reported cases continue to rise. Between April 2022 and March 2023 alone, a staggering 53,498 sexual offences were reported to the South African Police Service (SAPS), with rape accounting for 42,780 of these cases (Oosthuizen, Martin and De Villiers, 2024).

It is against this background that the discussion explores the South African legal framework dealing with GBVF with the emphasis on specific forms of GBVF, namely rape and intimate partner femicide. The focus in the discussion is on the adult victim of rape and femicide.

The discussion considers the following inter-related issues from a legal perspective:

- Constitutional protection of women;
- GBVF-NSP;
- Overview of the legal framework governing rape;
- Overview of the legal framework governing femicide; and

- Identifying solutions to the challenges impeding the elimination of rape and femicide.

2. Conceptualising Key Terminology

The following key terms are conceptualised to provide a better understanding of the discussion of the legal framework regulating GBVF, namely

- GBVF refers to violence against women, girls, and LGBTQIA+ people, intimate partner violence, domestic violence, sexual violence, and structural violence.
- Violence against women is any act of GBVF that results in physical, sexual or psychological harm of suffering to women including threats of such acts, coercion or arbitrary deprivation of liberty (Oosthuizen, Martin, and De Villiers, 2024).
- Intimate partner violence (IPV) refers to physical, sexual, or psychological harm inflicted by a past or current romantic partner or spouse.
- Domestic abuse refers to any violence or emotional abuse committed by a family member or intimate partner.
- Femicide may consist of different forms. For purposes of this discussion, the focus is on intimate partner femicide which refers to the killing of a female person by an intimate partner or any person who had an actual or perceived romantic, intimate or sexual relationship with the deceased female person for any duration of time.

3. Constitutional Protection of Women

The South African Constitution constitutes the cornerstone of democracy in South Africa. Particularly the Bill of Rights affords women various human rights such as the right to equality, dignity, life, freedom and security of the person and privacy. The government has an obligation to respect, protect, promote and fulfil the rights in the Bill of Rights. Over the years, the government has implemented various pieces of human rights centred legislation aimed at securing the safety and security of women. As will be shown in the discussion, the judiciary has played an integral role in providing judgments that take a strong stance on the constitutional protection of the female victim and the seriousness of GBVF crimes. Many of these judgments have resulted in statutory reform.

South Africa has also given effect to its obligations in terms of the international law. The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was adopted in 1979 by the United Nations General Assembly. It is often described as the international bill of rights for women, and came into force in 1981 and has thus far been ratified by 189 governments. In 2015, South Africa was one of 193 countries that adopted the 2030 United Nations (UN) Sustainable Development Agenda which provides for 17 sustainable development goals (SDGs). The Bill of Rights supports the UN SDGs. SDG 5 provides for gender equality and are subdivided into different tasks. Task 5.2 requires the elimination of all forms of violence against women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation. The South African government has taken various steps in achieving the SDGs with specific reference to the elimination of violence against women.

4. National Strategic Plan on Gender-based Violence and Femicide (GBVF-NSP)

The GBVF-NSP adopted in 2020 aims to provide a multi-sectoral, coherent strategic policy and programming framework to strengthen a coordinated national response to the crisis of gender-based violence and femicide by the government of South Africa and the country.

In the preface to the 2020 GBVF-NSP, the South African president, Ramaphosa, stated that “(t)he unacceptably high levels of gender-based violence and femicide in South Africa are a blight on our national conscience, and a betrayal of our constitutional order for which so many fought, and for which so many gave their lives. South Africa holds the shameful distinction of being one of the most unsafe places in the world to be a woman. We have amongst the highest rates of intimate partner violence, and recently released data from Statistics SA show that rape and sexual violence have become hyperendemic. This is a scourge that affects us all: young and old, black or white, rich and poor, queer or cis, rural or urban. It pervades every sphere of our society” (GBVF-NSP, 2020).

Since the adoption of the GBVF-NSP in 2020, several interventions have been implemented, namely

- Extensive legal reform;
- Support for survivors through the provision of evidence kits at police stations;
- Psychological and social services;
- The establishment of a GBVF Response Fund;
- Support for Thuthuzela and Khuseleka Care Centres, which provide vital services for GBV survivors; and
- The National Council on Gender-Based Violence and Femicide Bill was signed into law in 2024. This landmark legislation is a critical step forward in ensuring the safety and protection of women and children from abuse and violence. It facilitates the establishment of the council, a statutory body charged with providing strategic leadership in the fight against GBVF in South Africa. This multi-sectoral council will draw on the expertise of all stakeholders which includes civil society, labour and business, to further strengthen national efforts to combat gender-based violence, using a more inclusive, focused and better resourced approach.

5. Overview of the Legal Framework Governing Rape

5.1 Criminalisation of Rape

In 2007, comprehensive legislation in the form of the Criminal Law (Sexual Offences and Related Matters) Amendment Act 32 of 2007 (referred to as the Sexual Offences Act or SORMA) was implemented. It provides for various sexual offences and *inter alia*, rape which is defined as any person who unlawfully and intentionally commits an act of sexual penetration with another person without consent.

Prior to 2007, rape was a common law crime in South Africa. To understand the development of the regulation of rape, notice must be taken of the common law definition of rape. Rape in terms of the common law was a formally-defined crime and consisted of a male penetrating a female vagina with the male organ without her consent (Hector, 2020). The common law crime of rape was gender-specific and limited to vaginal penetration. The biggest criticism of the common law offence of rape was that it was not in line with the right to equality as enshrined in the South African Constitution. In 2007 the presiding officer in the *Masiya* case found that the common law definition of rape was not only archaic, but irrational and amounted to arbitrary discrimination with reference to which kind of sexual penetration that was regarded as the most serious, namely vaginal penetration, and then only in respect of women. The court extended the definition of penetration to include anal penetration, and found “(t)he distinction appears on face value to be irrational and totally senseless, because the anal orifice is no less private, no less subject to injury and abuse, and its sexual penetration no less humiliating than the vaginal orifice” (Masiya, 2017). The legislature responded to the *Masiya* judgment by implementing the Sexual Offences Act.

5.2 Brief Discussion of the Statutory Elements of Rape

The elements of penetration and consent have been the focus of court cases.

5.2.1 Element of Penetration

In respect of penetration, the 2019 *Tshabalala* case is relevant.

Prior to the *Tshabalala* case, rape was considered a conduct or instrumentality crime and only the accused who had penetrated the victim in his own capacity could be convicted of rape as a perpetrator (Watney, 2020). In the *Tshabalala* case, a group of young men masqueraded as police and requested entry to various residences. If entry was refused, they broke down the doors and once inside, assaulted, robbed, and raped the occupants. The perpetrators were convicted of various crimes which included rape. On appeal the Constitutional Court had to deliberate whether the accused who had not penetrated the victims could be convicted of rape as part of the principle of common purpose. The Constitutional Court found that the instrumentality argument had no place in a modern society founded upon the Bill of Rights and commented as follows: “(i)t is obsolete and must be discarded because its foundation is embedded in a system of patriarchy where women are treated as mere chattels. It ignores the fact that rape can be committed by more than one person for as long as the others have the intention of exerting power and dominance over the women, just by their presence in the room. The perpetrators overpowered their victims by intimidation and assault” (*Tshabalala*, 2019).

5.2.2 The Element of Consent

In respect of consent, the leading matter is the 2024 *Coko* case.

“Consent” means voluntary or unforced agreement. This means that the victim must freely, willingly and deliberately agree to the sexual act; and the victim must be able to understand what she is consenting to. In 2024 in the *Coko* case, the Supreme Court of Appeal reinforced the significance of consent in sexual encounters. In doing so, the court reaffirmed the position taken by the Commission for Gender Equality (CGE) on the issue. The *Coko* judgment represents a pivotal shift in how South African courts view consent, particularly in cases where survivors exhibit passive or involuntary responses to trauma, such as tonic immobility. The judgment acknowledges the complex psychological factors that may prevent survivors from clearly communicating non-consent, either verbally or behaviourally, thus rendering the “mistaken belief” defence untenable in such circumstances. This breakthrough addresses a critical gap in the legal framework, ensuring that consent must be objectively reasonable. As a consequence of the *Coko* judgment, certain provisions in the Sexual Offences Act were declared unconstitutional which the legislature will have to address (Meterlerkamp, 2024).

5.3 Sentencing

Sentencing is regulated by the Criminal Law Amendment Act 105 of 1997 (referred to as the Minimum Sentencing Act). A perpetrator may upon conviction be sentenced to life imprisonment or 15 years imprisonment depending on the circumstances of the rape. In the *Tshabalala* case, the rape was carried out by a gang and a gang related rape carries a penalty of life imprisonment. In 2022, the legislature amended the Minimum Sentencing Act by increasing the custodial sentence of 10 years to 15 years. The amendment is in line with the government’s commitment to show that rape will not be tolerated and upon conviction, the custodial sentence will reflect the seriousness of rape. In 2024, the Prevention and Combatting of Hate Crimes and Hate Speech Act 16 of 2023 was signed into law. If the perpetrator committed rape based on prejudice or intolerance on gender, sex, or sexual orientation, it will serve as an aggravating factor at sentencing. If convicted of a sexual offence, such person will be registered in the Sexual Offences Register.

6. Legal Framework Governing Intimate Partner Femicide

Murder is a common law crime and is defined as the intentional and unlawful killing of a human being (Hector, 2020). Intimate partner femicide is the killing of a woman by a current or former partner which includes a same sex partner. The Minimum Sentencing Act provides that upon conviction for murder either life imprisonment or a 15-year custodial sentence may be imposed.

7. Identifying Solutions to the Challenges Impeding the Elimination of GBVF

As indicated, the many interventions over the years have not resulted in a decrease in the commission of rape and intimate partner femicide. It remains shockingly high.

Finding solutions to the various challenges impeding the eradication of GBVF is an ongoing process. It requires identifying the various challenges hindering the elimination and actively working on finding solutions. Eliminating GBVF requires a unified multi-stakeholder and multi-disciplinary collective approach. The announcement in 2024 that a National Council of GBVF will be established has therefore been welcomed as such a Council will hopefully represent all the various stakeholders, convene regularly to discuss the challenges, establish solutions to address the different challenges, and evaluate the effectiveness of the solutions.

The challenges are discussed hereafter within the ambit of a specific category, but the categories cannot be seen in isolation. The categories are all inter-linked and call for a unified approach in finding real and meaningful solutions.

7.1 Challenges Experienced by the Criminal Justice System With Investigation and Prosecution

- Many rape cases go unreported. One of the contributing factors for under-reporting, may be that the victim fears secondary victimization by the criminal justice system. **Other factors may be that the victim** lacks trust in the criminal justice system, fears intimidation by the abuser, is financially dependent on the perpetrator, has a fear of not being believed, has a desire to avoid the stigma associated with rape, has access issues with distant police stations, and has a lack of information or knowledge of how the criminal justice system functions (Oosthuizen, Martin, de Villiers, 2024). The National Prosecuting

Authority (NPA) is attempting to mitigate the fears of secondary victimisation by providing specialized sexual offence prosecutors to courts to work with only GBVF cases. During sentencing, the victim provides a victim statement to show the impact the rape had on her life.

- **The low conviction rate in respect of GBVF is concerning. In 2024 the South African Medical Research Council (SAMRC) report found that only 1 in 5 intimate partner femicide cases result in a conviction.** The SAPS recorded 43,037 rape cases between April 2022 and March 2023, but only 519 accused were sentenced for rape offences (Ditshego, 2023).

There are many factors that may account for the low conviction rate. South Africa's theoretical legal framework is more than adequate, but giving practical effect to the theoretical legal framework provides investigatory and prosecutorial challenges. If the evidence gathered during the investigation was not done in accordance with the correct procedure, then such evidence will be inadmissible. The prosecution must prove a criminal case beyond reasonable doubt and this high standard of proof can only be achieved by means of properly obtained evidence. The Bill of Rights provides that a suspect is innocent until proven guilty and such guilt can only be proven by means of admissible evidence.

Mitigating the investigative challenge will not be easy as it requires extra financial and personnel resources which is hampered by an already constrained budget and staff shortages. South Africa has a high crime rate and GBVF cases are just some of the many cases that must be investigated.

- Constitutional Court Justice Madlanga opined in 2023 that many of the male judiciary is embedded with a patriarchal view point (Dayimani, 2023). He said judges' experiences and outlooks on life were deeply entwined. He added that it would be naïve to think that just because the country had a Constitution and a Bill of Rights, those experiences would no longer influence decision-making. He said patriarchy, sexism and misogyny would continue to be ingrained in the thought processes of some, if not most judges. He called for more female judges to be appointed.

Many judgements, such as the *Masiya*, *Tshabalala* and *Coko* cases to name but a few, have shown that the South African courts are addressing the role of male dominance and power in the commission of GBVF. GBVF is not only a women's issue, but men need to speak out against GBVF (Flood, 2024). Over the years, the South African courts have taken a strong stance against patriarchy.

- Public trust and confidence in the criminal justice system includes serving a custodial sentence in full. The Thabo Bester prison escape in 2022 showed the fragility of such trust. Bester, referred to as the Facebook rapist, killed his partner and life imprisonment was imposed. He was able to orchestrate his escape from prison with the assistance of some of the prison wardens and evade authorities for some time before his re-arrest in 2023 (Khaas, 2023).
- GBVF is not only a criminal justice system issue (SAMRC, 2024). The criminal justice system is reactive which means that the rape and intimate partner killing can only be investigated once it has been reported. Intervention after the commission does not address prevention. Preventative measures should be in place to prevent these crimes. In many instances, intimate partner femicide is preceded by violence. Such violence should be reported otherwise pro-active measures cannot be put in place to prevent the killing.

7.2 Challenges Experienced in the Implementation of the NSP

The launch of the NSP in 2020 as part of the process in eliminating GBVF was a commendable initiative as it highlighted the government's commitment in addressing GBVF and resulted in many interventions. However, as will be shown hereafter, it did not foster collaboration and communication between the various stakeholders on a multi-disciplinary level.

- The approaches to addressing GBVF can be divided into response and prevention. Response services aim to support and help survivors of violence in a variety of ways, such as medical help and shelter. Prevention initiatives look at how GBVF can be prevented from happening. Response services can in turn contribute towards preventing violence from occurring or reoccurring. The NSP does not provide for effective communication and collaboration between the various stakeholders in respect of response and prevention. It is hoped that the council will in future facilitate a cohesive multi-disciplinary approach to ensure coordination between all the sectors.
- The Commission for Gender Equality (CGE) is working towards a GBVF index which will provide comprehensive statistics on the various forms of sexual violence. The index will serve as a guideline to

see which form of sexual violence needs urgent intervention, for example, establishing how many of the sexual offences constitute a hate crime. To establish such a detailed index, accurate data and the supply thereof on a regular basis is required. Obtaining the data requires cooperation and willingness from various stakeholders and in this regard, the council can play a leading role.

7.3 Challenges Experienced on Social, Cultural and Economic Level in the Elimination of GBVF

To eradicate or mitigate against GBVF, the root causes at so-called ground level must be established:

7.3.1 Societal Inequalities

South Africa has a diverse society with some parts of the society characterised by an imbedded system of patriarchy and sexism. Mshweshwe (2020) provides that South Africa has a strong patriarchal system of social structures that encourage men to dominate, oppress and exploit women. GBVF reflect deeply rooted societal inequalities and requires a comprehensive, multi-sectoral approach to prevent and reduce it. Societal inequalities may be cultural, but it could also be a manifestation of apartheid.

In 2024 South Africa celebrated 30 years of democracy. It was preceded by a history of oppression, referred to as apartheid in which black people and especially black women were severely marginalised. Since dismantling apartheid, much of its evils have been undone. The Bill of Rights is resonating in all spheres of life. Systemic discrimination against women has been addressed. The NPS provides for economic empowerment as part of promoting gender equality.

The high levels of GBVF may be indictive that some remnants of inequalities and the social injustice of apartheid still linger. Mshweshwe (2020) refers to black men being subjected to violence during apartheid with the consequence that this systematic violence has resulted in men's adoption of violent behaviour that may be transferred from one generation to the other.

In societies which are dominated by a specific culture or traditions, men may be perceived as superior to women and as the head of the household and may consider disciplining his female partner as his "right". Women may have been brought up to believe that they should be subordinate to men.

George (2020) provides that during apartheid, very few legal and social structures existed to protect women against GBVF, but this had an impact on women of all races. For example, marital rape was not recognized as a criminal offense in South Africa until the adoption of the Prevention of Family Violence Act of 1993 (now the Domestic Violence Act 116 of 1998), which provided that a husband may be charged and convicted of the rape of his wife. As indicated earlier in the discussion, the common law crime, rape, did not provide for the use of penetrative instruments such as bottles (George, 2020). Over the years, the laws have evolved to provide for improved human rights-centred protection, but societal inequalities call for pro-active intervention within those communities.

7.3.2 Socio-economic Factors

The Masiphephe Network report published in 2024 provides that there is a social class and income link with GBVF. Gender-based violence is more prevalent among less educated women than those with secondary education or higher. In addition, it found that wealth/income is a key factor in the prevalence of gender-based violence (Masiphephe Network, 2024).

The NSP provides for economic empowerment to give effect to gender equality. In 2023 during the State of the Nation Address, the government allocated R21 billion to implement economic empowerment programmes for women who are vulnerable to abuse due to poverty, unemployment and social inequality (Masiphephe Network, 2024).

It is not only women that must be economically empowered, but also men. Unemployed men are more likely to perpetuate violence due to powerlessness associated with unemployment and lack of economic resources (Mshweshwe, 2020). Gender violence is more prevalent amongst couples where a man is unemployed and the man may use violence as a means of asserting power.

7.3.3 Cultural Practices

Ukuthwala is an African customary practice which provides for a couple who wish to marry to precipitate the marriage negotiations between the families. The man, with the consent of the woman, “pretend kidnaps” her whereupon the families of the couple negotiate the customary marriage.

In the *Jezile* case (2015), the cultural practice of *ukuthwala* was used as a defence for raping and assaulting the victim. The court rejected the defence as it did not correspond with the traditional understanding of *ukuthwala*. In the case, the victim was 14 years old at the time of the so-called “kidnapping”, she did not know the accused, nor did she consent to the customary marriage. The South African Law Reform Commission (SALRC) published a report in 2022 on the practice of *ukuthwala* in which it recommended legislation prohibiting forced marriages.

7.3.4 The Value of Women may be Monetised, e.g., Sexual Human Trafficking

In the 2017 *Dos Santos* case the accused lured women from African countries to South Africa with the promise of employment and a better life. Once in South Africa, the women were forced into sex work and subjected to multiple rapes. Sexual human trafficking is criminalised. The case shows that the value of women is monetised. Although the devaluation of a woman may reflect patriarchy, the perpetrator in the *Dos Santos* case was a woman. Perpetrators in GBVF are generally male, but she dehumanised the victims as sexual objects.

8. Conclusion

The aim of the eradication of GBVF is to create a world based on gender equality, justice, and non-violence in which women live without fear of GBVF (Flood, 2024).

The discussion explores the challenges experienced in finding solutions to secure and protect women against GBVF. The South African theoretical legal framework provides for the criminalization of rape and intimate partner femicide and upon conviction, the imposition of a sentence. The practical application of the theoretical legal framework presents challenges, but these challenges are being addressed. The National Prosecuting Authority has played a critical role in terms of prosecuting GBVF cases and being the voice of vulnerable groups.

Even if the challenges in the criminal justice system are resolved, the high rape and intimate partner killings will persist as it cannot be resolved by the criminal justice system - which is reactive - on its own. The other challenges identified in the discussion need to be collectively addressed. The newly instituted council may go a long way to ensure a cohesive unified multi-disciplinary and multi-sectoral collective and pro-active approach to finding solutions. South Africa has made a lot of progress, but the elimination of GBVF is an ongoing process.

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Creating Organisational Changes to Support Gender-Responsive Innovation: Implementing GILL Tools for Organisational Change

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Abstract: Gender inequality in entrepreneurship and innovation (E&I) persists as a significant barrier to harnessing the full potential of diverse talent across Europe. The Gendered Innovation Living Labs (GILL) project seeks to tackle these barriers by providing over 40 practical tools and methods aimed at fostering gender-sensitive changes throughout the organisational and E&I lifecycle. These tools, which have been tested in 15 case studies across Europe, focus on addressing systemic biases that often go unnoticed but significantly impact gender equality, particularly in key decision-making spaces. This paper focuses on two case studies from the GILL project, highlighting how gender-responsive tools and methods have been successfully implemented to change organisational practices and foster inclusive cultures of innovation. The Experimentarium, a Danish science centre, which has adapted its programs, exhibits, and practices to create a more inclusive environment for both employees and visitors, demonstrating how inclusivity can shift the culture of an entire organisation and The NIHR HealthTech Research Centre in long term Conditions (Devices for Dignity) in the UK, which has interrogated its own practices to explore gender biases in new and developing health technology innovation. A central theme emerging from these case studies is the critical role of change agents in driving gender equality initiatives within organisations. Change agents, particularly women in male-dominated sectors, face unique challenges such as lack of authority, confidence, and resistance from colleagues. Their success relies on strong support networks, mentorship, and organisational buy-in. This paper argues that gender inequality should not be framed as a “women’s problem” but as a broader societal issue that affects everyone in the workplace). By integrating gender-responsive practices into organisational processes and leadership, organisations can foster a more inclusive, innovative, and productive environment. Ultimately, the findings demonstrate that fostering gender inclusion is not just an ethical imperative but also a strategic advantage, enhancing organisational performance and driving societal change. The paper is organised as follows: it begins with the theoretical framing, followed by the methodology, then presents the results, and concludes with a discussion on the implications for both practice and research.

Keywords: Gender Equality, Entrepreneurship, Innovation, Organisational Change, Inclusion, Change Agents, GILL Project, Systemic Biases.

1. Introduction

Gender inequality in entrepreneurship and innovation (E&I) continues to undermine the potential of diverse talent pools, limiting the capacity to address pressing societal, environmental, and health challenges. Across Europe, women and individuals outside traditional entrepreneurial stereotypes encounter systemic barriers that impact every stage of their journey. From struggles to secure funding and having their ideas heard in decision-making spaces to grappling with imposter syndrome and navigating weaker networks, these challenges create a playing field that is far from level (Wang, 2019; Brush et al., 2019). Addressing these disparities is not just an ethical imperative; it is a strategic necessity to unlock the full spectrum of innovation and creativity (Ferrin, 2023).

The Gendered Innovation Living Labs (GILL) project steps into this gap, offering over 40 practical tools and methods designed to dismantle systemic biases and foster gender-sensitive changes (GILL, 2023). These tools go beyond addressing surface-level inequities by embedding inclusion into the very fabric of organisational practices and cultures. Tested across 15 case studies in Europe, GILL’s methods show how gender-responsive practices can drive meaningful transformation and create environments where all voices are valued and empowered.

One example is Experimentarium, a Danish science centre, which has embraced gender inclusion as a cornerstone of its organisational culture (Bienkowski & McGowan, 2025). By adapting its programs, exhibits, and internal practices, Experimentarium has redefined what it means to be inclusive, ensuring that employees, partners, and visitors alike feel welcome, respected, and valued. Such examples underscore how inclusivity,

when fully integrated, has the power to reshape an entire organisation, making it more innovative, equitable, and impactful. Our second example is Devices for Dignity (D4D), a health tech research centre, funded by the NIHR, focussed on the development and implementation of new technologies for people living with long term conditions. D4D straddles industry, academia and the healthcare sector in the UK and works with patients and carers to develop new technologies based on patient unmet need. Throughout the GILL project D4D has used and tested key methods from the GILL consortium to assess their own bias in the screening of potential technologies, the educational and training materials they provide, methods of conducting patient and public involvement and engagement and assessment and adaptation of internal core team processes and areas of technology focus

Yet achieving such change requires more than tools and frameworks; it needs to be put at the top strategic level of an institution or company and be valued as equally important as any other strategic initiative. It demands the active involvement of change agents who navigate the delicate dynamics of organisational transformation. These individuals often face resistance, lack of authority, and confidence challenges, particularly in male-dominated sectors (Nienaber et al., 2023). Their success hinges on support from senior leadership, mentorship networks, and collaborative spaces to share challenges and co-create solutions. Gender inequality is often mistakenly seen as a “women’s problem,” but in truth, it is a societal issue affecting everyone (IESOGI, 2021). Recognising this broader perspective is essential for fostering genuine inclusivity and building equitable workplace cultures.

This paper explores how the tools and methods of the GILL project have been used to create such changes, focusing on two case studies that reveal the transformative potential of gender-responsive practices. By addressing the systemic roots of inequality, we aim to demonstrate how fostering inclusion is not just an ethical choice but a practical one that enhances innovation, productivity, and resilience in organisations.

1.1 Organisational Change and Gender

Organisational change is essential for lasting impact, especially when it addresses and corrects biases embedded in organisational cultures, paving the way for gender-responsive innovation to thrive. Organisational change refers to transforming structures, processes, and cultures to meet new challenges or opportunities (Nienaber et al., 2023). In the context of gender, this often involves recognising and addressing systemic biases that impact decision-making, leadership, and innovation. Gendered organisational change aims not only to increase diversity but also to embed gender equity in core practices, values, and structures (Ely & Myerson, 2000).

Current organisational change processes should recognise how gender shapes institutional structures, processes, hierarchies, and practices. These are often not gender-neutral but can privilege men and traditional masculine norms, manifesting in gendered divisions of labour, unequal power relations, and exclusionary decision-making. Nienaber et al. (2023) highlight how gender dynamics within organisations, especially in male-dominated sectors, can hinder women’s advancement, with female change agents facing challenges in informal networks and political arenas. These environments require resilience, political astuteness and leadership skills. Addressing gender inequality thus requires changing how work, leadership, and authority are conceptualised, especially in innovation, where decisions often marginalise women’s contributions.

Gendered innovation tools, like those developed by the GILL project, aim to make these hidden gender biases visible and address them. Achieving gender equality requires a multifaceted approach involving policy reform, leadership training, and cultural shifts to create gender-conscious organisations. This approach goes beyond diversity metrics, such as counting the number of women in leadership roles, to fostering deeper organisational commitment to gender equality by embedding gender-responsive frameworks into cultures and decision-making processes.

A central strategy is gender mainstreaming, which integrates gender considerations into all aspects of policy and practice, transforming structures to ensure they respond to gendered needs (Götzmann & Bainton, 2021; Hannan, 2022). The GILL project helps organisations implement such tools, making gender equality an integral part of decision-making, not an afterthought.

For organisations in innovation and entrepreneurship, the role of organisational culture in fostering gender inclusion is critical. Innovation, often assumed to be neutral, is shaped by gender dynamics that influence who participates, what ideas are valued, and how they are developed into products or services. Gender-inclusive innovation challenges the idea that innovation systems are meritocratic and instead highlights that innovation processes are gendered. Creating a culture of gender-inclusive innovation goes beyond gender balance in teams

to actively fostering an environment where diverse perspectives are integrated into the process. GILL tools help organisations assess and reshape their innovation practices to address these gender biases.

2. Method

The GILL consortium has collated, tested and refined over 40 tools and methods to engage in gender responsive design in all stages and settings in which E&I take place. Available through the GILL platform, the interactive interface (<https://www.gillhub.eu/explore/gender-responsive-methods/>) enables the selection of suitable, useful to use tools and methodologies to enhance gender and diversity awareness in practice and with limited resources. To validate the tools, 15 case studies have acted as ‘mini living labs’ working on gender responsive E&I in the fields of health, sustainability and digitalisation integrating appropriate tools and methods in their work and engagement with Quadruple Helix agents (i.e. industry, civic society, policy makers and educators). All 15 case studies (termed Action Oriented Experimentations (AOEs) within the project) were required to demonstrate how gender and inclusivity can be used in research and entrepreneurship (<https://www.gillhub.eu/explore/action-oriented-experimentations/>), for example, in terms of the team composition, idea generation of ideas and the enabling of hidden voices. Each AOE followed two iterative ‘living lab cycles’ including understanding, co-creation, implementation and evaluation phases. This enabled the tools and methods to be tested under a variety of conditions. Table 1 has been developed from activity monitoring of the first of these cycles, lasting around 15 months for 2 case studies.

In this paper, we demonstrate how these cases studies have utilised GILL methodologies to create more equitable workplaces and foster gender-inclusive innovation practices. Mapping out their activities has led to the development of a step model of organisational change (see Table 1 and below). This builds on the earlier work of Nienaber et al. (2023) addressing how female organisational change agents may be supported.

2.1 Case Studies for the Application of GILL Case Studies

The case studies focus on two institutions, specifically addressing organisational change; Devices for Dignity, a UK-based NIHR HealthTech Research Centre specialising in long-term conditions and healthcare technologies, and the Experimentarium, a Danish science centre aimed at increasing public engagement with science and technology. In both cases the change agent was female.

At **Devices for Dignity**, the emphasis is on addressing gender disparities in healthcare, particularly in the design and development of medical devices and technologies. The organisation’s work focuses on clinical needs associated with chronic health conditions, many of which are overlooked and disproportionately affect women. Through the implementation of GILL tools, Devices for Dignity aims to increase awareness of gender health inequalities and promote gender-responsive innovations in the healthcare sector.

The initial experimentation cycle for D4D aimed to integrate the tools and methodologies developed in the GILL project into key aspects of the innovation process, with a particular focus on enhancing gender sensitivity in HealthTech innovation and development processes. Key areas of focus were selected to trial these methods, and an internal review was conducted to assess key stages of the D4D innovation pathway, namely core team meeting and information sharing structures, educational tools and gender balance of publicly facing materials, approaches to patient and public involvement and engagement and a full review of our project portfolio through a gendered lens. A range of GILL methodologies were employed to support this process. First, an analysis of past collaborations within D4D examined gender balance among project leads over the past five years. Additionally, the Fellowship programme—designed to train healthcare scientists in innovation—was evaluated using three GILL tools: GenderMag for reviewing learning resources, Gender Impact Assessments, and reflective interviews with fellows. Meeting structures within D4D were also scrutinised, with gender balance and speaking time assessed using the Fair Meetings and Monitoring Airtime tools. Finally, Patient and Public Involvement and Engagement (PPIE) activities were reviewed through reflective interviews with community groups to identify unmet needs and barriers to HealthTech adoption.

Experimentarium is a non-profit foundation dedicated to fostering public interest in science and technology and has similarly embraced the GILL tools to enhance its role as a communal space that facilitates shared cultural experiences. Here, the shift toward greater inclusion is aligned with the broader role of museums in society, where inclusion is enacted through structured frameworks of awareness, practice, and agency. This paper analyses how Experimentarium’s inclusive practices contribute to the institution’s mission of promoting scientific literacy and technological engagement across diverse demographic groups.

Inclusion refers to the processes that embed diversity within an organization, so that people of all types feel welcome, accepted, respected, valued and that they belong (Bienkowski & McGowan, 2025). In the case of Experimentarium, it refers to the process through which it will adapt its practices, activities, programs and exhibits, to welcome people who work there, those who provide services, partners, and its visitors who enjoy Experimentarium. In other words, being inclusive impacts and shifts the culture of the whole of an organization. The role of museums in society is to serve as communal spaces where people can come together, share experiences, and engage in cultural exchange (Port Albert Maritime Museum, 2023). This notion implies that the museum is an open and welcoming institution that serves all segments of society and connects with everyone in a personal and unique way through its exhibitions, programs, and special events. To achieve this goal, museums need to practice the principles of inclusion in every aspect and process of their operations, governance and strategies, the way staffing is managed, how the content is created and delivered, their understanding of accessibility and the way they build and maintain partnerships with other institutions.

3. Key Findings

In the following section, the key results of implementing the GILL methods will be summarised. This includes an overview of how each step of the developed organisational change step process contributes to creating a more inclusive and gender-equal organisation, with a particular focus on the outcomes related to innovation, leadership representation, and the overall organisational culture. The impact of these interventions on gender biases, systemic barriers, and decision-making processes will be assessed, providing insights into the effectiveness of the approach and identifying areas for continued improvement. By summarising these key findings, the intention is to offer practical recommendations for organisations aiming to foster gender equality and inclusivity within their own structures and processes. These actions are designed to create a more equitable organisational environment, particularly in the realm of innovation and decision-making.

Table 1 shows a breakdown of the steps in the model, followed by a description of each step detailing the objective, potential actions, aimed outcomes and the specifics of how this was done in the GILL project by each of our AOE organisations. The successful implementation of these steps will lead to a more inclusive, innovative, and dynamic organisation, where gender equality is not just a policy, but a core value ingrained in every aspect of its operations.

Table 1: Activities of DVD and Experimentarium mapped against the model for organisational change
Step 1: Assessment of Current Gender Dynamics

Step	Objective	Examples of potential actions	Desired outcome	Examples of case study activities	
				D4D	Experimentarium
1: Assessment of Current Gender Dynamics	Identify existing gender biases, inequalities, & systemic barriers within the organisation	- Conduct gender audits and assessments of organisational policies, structures, and decision-making processes. - Gather data on gender representation, leadership roles, and participation in key innovation activities - capture the experiences of employees from diverse backgrounds.	Clear understanding of how gender dynamics currently function within the organisation, providing a baseline for change.	Review of current gender policy within our institution; team discussions around how gender can impact innovation and entrepreneurship.	Mapping inclusion on 5 transversal pillars in the organisation: access, content, partners, staff and strategy.
2: Awareness and education	Build awareness of gender biases & their impact on innovation & organisational culture.	- Provide gender-sensitivity training & workshops for leadership & employees, focusing on unconscious bias, systemic discrimination, and gender-responsive innovation and the consequences - Disseminate information on importance of gender equity in decision-making processes & its benefits for innovation outcomes. - Introduce key concepts e.g. gender mainstreaming, intersectionality, & gender-responsive innovation.	A workforce that is informed and aware of the importance of gender equality and the role it plays in fostering inclusive innovation.	Involvement of core team on training, testing and application of GILL tools & methods: Building awareness through iterative use of the methods in different aspects of our innovation ecosystem; Reporting back findings to the core team and co-planning subsequent iterative activities	A self-evaluation workshop using reflection tools to get the Experimentarium teams reflecting on the topic of inclusion, diversity and equity. It allows for awareness raising, discussions and designing the road map for change.
3: Integration of Gender-Responsive Tools	Implement gender-responsive tools & methods, into organisational processes & decision-making.	- Embed gender analysis tools into product development, meetings, and innovation pathways (e.g., gender impact assessments for new products). - Use frameworks that ensure gender considerations are incorporated into all stages of innovation, from design to implementation. - Adapt tools to fit the organisation's specific context, ensuring they address both overt and subtle gender biases.	Systematic integration of gender-responsive practices that influence key organisational decisions, fostering equitable innovation.	Audit previous project decision making processes: Review of current approaches for Patient and Public involvement and engagement: Review of gendered content of educational platforms for innovators; Evaluation of internal processes & structures: Reflective interviews with collaborators to map holistic experiences of innovation and entrepreneurship for women	Workshops to define stop, start and continue efforts on inclusion throughout the organisation.
4: Organisational restructuring for inclusivity	Redesign organisational structures to promote gender equality & inclusive participation.	- Review and revise leadership roles, team compositions, & decision-making processes to ensure balanced gender representation and influence. - Establish gender equity policies, including gender-balanced hiring practices, mentorship programs for women, and equitable distribution of leadership opportunities. - Ensure accountability by creating a gender equity task force or appointing gender champions within the organisation to monitor progress.	An organisational structure that supports equal participation and influence by all genders, enhancing inclusivity and innovation.	Increased sensitivity of the core team around specific challenges and preferences for female innovators; Fair meetings and monitoring airtime methods have been incorporated throughout our thematic structures; Gender mag and impact assessments utilised in the assessment of all our learning modules, website design and case studies; Analysis of gender spread of collaborators	'Firecracker workshops' in all the respective departments to listen and 'transform words into action' – moving from awareness towards practice and agency.
5: Cultural change & institutionalisation	Embed gender equity into the organisation's culture and values.	- Promote a gender-inclusive culture by celebrating diversity and creating an environment where all voices are heard and valued. - Encourage continuous dialogue about gender equity, and actively address instances of bias or exclusion. - Institutionalise gender-responsive practices through updated policies, consistent training programs, and ongoing evaluation	A shift in organisational culture where gender equity & inclusion are core values, with these principles deeply embedded into everyday practices.	Addition of a women's health theme to the new 5-year funded programme of Devices for Dignity; Increased sensitivity to gendered issues involving patient and public involvement and engagement – increased sensitivity around mental health / taboo cultural subjects (making space to allow PPE groups to co-create their own methods for expression); Planned dissemination of findings to other groups involved in Health Tech Innovation nationally (UK)	- Appointing an inclusion and equity team with the first task of defining an 'inclusion, diversity and equity' policy.
6: Monitoring, Evaluation, and Continuous Improvement	Regularly evaluate the effectiveness of gender-responsive interventions and make necessary adjustments.	- Establish key performance indicators (KPIs) to track progress on gender equity (e.g., representation in leadership, participation in innovation processes). - Conduct regular reviews and gender audits to assess the impact of changes on innovation outcomes and workplace equity. - Use feedback loops to refine tools, policies, and practices based on findings and emerging gender issues	An adaptable and evolving approach to gender equity, ensuring sustained progress and a commitment to continuous improvement.	As above also, EDI review incorporates gender as a reportable outcome	Developing 90-day projects defined in the 'stop, start, continue workshops' that are monitored and continuously followed by the inclusion team – also in relation to improvement.

Creating a step model for the intersection of organisational change and gender in innovation, allows a process through which the tools and methods in the Gendered Innovation Living Labs (GILL) project can be applied to organisations, this involved outlining a structured, sequential process that organisations can follow to achieve gender equity and inclusive innovations.

The first step involves understanding the current gender dynamics within the organisation by identifying existing biases, inequalities, and systemic barriers. This includes conducting gender audits, assessing organisational policies, structures, and decision-making processes, and gathering data on gender representation in leadership and participation in key innovation activities. Qualitative methods, such as interviews and surveys, can be used to capture the experiences of employees from diverse backgrounds, providing a clear understanding of how gender dynamics currently function within the organisation. This assessment serves as a baseline for any future gender-focused interventions. For example, a case study activity might involve auditing previous funding decisions or mapping inclusion across five key areas: access, content, partners, staff, and strategy.

Step 2: Awareness and Education

Building awareness about gender biases and their impact on innovation and organisational culture is crucial for cultivating a more inclusive environment. This step focuses on providing gender-sensitivity training and workshops for both leadership and employees, emphasizing unconscious bias, systemic discrimination, and the importance of gender-responsive innovation. These initiatives will inform the workforce about the significance of gender equity in decision-making and its broader benefits for innovation. An activity from the case study might include a self-evaluation workshop for team members, encouraging reflection on inclusion, diversity, and equity, followed by discussions on designing a roadmap for organisational change.

Step 3: Integration of Gender-Responsive Tools

To systematically embed gender equality into the organisation, gender-responsive tools and methods should be integrated into all organisational processes and decision-making frameworks. This includes using gender analysis tools in product development, meetings, and innovation pathways—such as gender impact assessments for new products. Frameworks should ensure that gender considerations are embedded throughout all stages of innovation, from design to implementation. An example from the case study involves conducting workshops to define efforts that need to be stopped, started, and continued in relation to inclusion, fostering a deeper integration of gender-responsive practices in the organisation.

Step 4: Organisational Restructuring for Inclusivity

Redesigning the organisation's structure is essential to promote gender equality and inclusive participation. This may involve revising leadership roles, team compositions, and decision-making processes to ensure balanced gender representation and influence. Establishing gender equity policies, such as gender-balanced hiring practices and mentorship programs for women, is also important. A gender equity task force or appointed gender champions can monitor progress and hold the organisation accountable for achieving gender inclusivity. Case study activities such as 'Firecracker workshops' can be used to listen to employees across departments and transform awareness into action, helping to move from theory towards practice.

Step 5: Cultural Change and Institutionalisation

To truly embed gender equality into the organisation, cultural transformation is key. This step focuses on promoting a gender-inclusive culture by celebrating diversity, ensuring that all voices are heard and valued. Continuous dialogue about gender equity should be encouraged, and instances of bias or exclusion must be actively addressed. Gender-responsive practices should be institutionalised through updated policies, consistent training programs, and regular evaluation. A practical example from the case study might include appointing an inclusion and equity team tasked with defining an 'inclusion, diversity, and equity' policy that guides the organisation's day-to-day operations.

Step 6: Monitoring, Evaluation, and Continuous Improvement

The final step involves regularly evaluating the effectiveness of gender-responsive interventions and making necessary adjustments to ensure sustained progress. Key performance indicators (KPIs) should be established to track gender equity progress, including measures such as leadership representation and participation in innovation processes. Gender audits and regular reviews will help assess the impact of these changes on workplace equity and innovation outcomes. Continuous feedback loops should refine tools, policies, and practices based on emerging gender issues. In the case study, this could involve developing 90-day projects that are monitored and continuously reviewed by the inclusion team to ensure ongoing improvement.

4. Discussion and Practical Implications

Organisational change requires the active buy-in of the entire workforce. A crucial aspect of ensuring that change is successful is the role of the change agent and the support they receive both within and outside their organisation. Nienaber et al. (2023) explored the challenges faced by change agents in the Horizon 2020 funded CIVITAS SUITS project, which aimed at improving urban transport systems, with a particular focus on gender dynamics in leadership and decision-making processes. The role of gender in organisational change is significant, as it can deeply influence the success of change initiatives. For example, women, as change agents in male-dominated sectors, may struggle with a lack of authority and confidence, feeling undermined by imposter syndrome. Their efforts to implement change may also be perceived as a threat by less enlightened colleagues who resist gender-inclusive approaches. These challenges highlight the importance of providing female change agents with comprehensive support from senior management, mentors, networks, and action learning sets, which enable them to share problems and co-create solutions in a safe and empowering environment.

Furthermore, gender inequality is often framed as a “women’s problem,” limiting its scope and the actions needed to address it. However, as IESOGI (2021) argues, gender is not a concept confined to women; it is a societal construct that shapes personal identities and social interactions for everyone. Gendered dynamics, whether overt or subtle, affect all individuals within a workplace, and it is essential that gender be considered when tackling broader issues of equality, diversity, and inclusion (EDI). By integrating gender into the broader conversation around workplace culture, we can move beyond exclusionary approaches and foster a truly inclusive environment. This is where the tools and methods promoted by initiatives such as GILL come into play, as they enable a ground-up approach to organisational change. The GILL framework provides organisations with the tools to identify and address sources of discrimination, empowering individuals to create fairer, more equitable workplace cultures that benefit everyone, regardless of gender.

The practical implementation of gender-responsive practices begins with assessing current gender dynamics through audits and evaluations of policies, decision-making processes, and leadership representation. This provides a baseline for identifying biases and inequalities. Next, awareness-building activities, such as gender-sensitivity training, help educate the workforce on unconscious bias and systemic discrimination. Integrating gender-responsive tools into organisational processes, such as product development and leadership decisions, ensures that gender considerations are embedded throughout. Restructuring to promote equal opportunities for women in leadership roles is key to creating an inclusive environment. Once changes are made, organisations should focus on embedding gender equity into their culture by promoting inclusivity and institutionalising practices through policies and training. Regular monitoring and evaluation, using key performance indicators (KPIs), ensure continuous progress and adjustments. This ongoing cycle helps sustain gender equity as a core organisational value, fostering a more inclusive and productive workplace.

In summary, organisational change for gender equality requires a holistic, multi-step approach that engages all levels of the organisation, from top management to all of the workforce. By integrating gender analysis tools, promoting awareness, and fostering inclusive leadership, organisations can create cultures that are not only diverse but truly equitable. The support structures for change agents, particularly women, are crucial for overcoming the challenges they face in male-dominated sectors. The strategies outlined here, as exemplified in the GILL framework, provide a pathway for organisations to tackle gender inequality and foster a more inclusive workplace for all.

5. Conclusions

In conclusion, this paper contributes to both theory and practice in gender equality and organizational change by offering insights into how targeted tools and methodologies, such as those developed by the GILL project, can address deeply embedded biases within institutional structures. Through the implementation of these tools in diverse settings, this paper provides a framework for understanding the processes that drive gender-responsive innovation, illustrating how gender inclusion can be embedded within organizational practices. The examples of Devices for Dignity and Experimentarium offer valuable lessons, highlighting both the successes and challenges faced in adopting these tools and offering a roadmap for other organizations committed to fostering equality, diversity, and inclusion in their own operations.

In terms of institutional habits and culture, it is imperative that the whole institution (leaders, staff, board, partners, volunteers...) takes individual and collective agency of their role, and, from their place of power and influence, contributes to the accessibility of the organization, having an inclusive attitude, and more importantly acting in a welcoming and nurturing way. Every individual in the organization, irrespective of their role or position, has power that can be used to drive inclusion. It requires that they continue doing their jobs with the

same professionalism and expertise, but adding a lens that allows the values, principles and strategies of inclusive practice to permeate. Building on these insights, incorporation of gender sensitive tools and methods (such as those from GILL) offers the opportunity to not only help to uncover gender-specific barriers to technology adoption, but also ensure that innovations align with real-world needs, and to confirm progress against key metrics when working to achieve meaningful organisational change, combining cultural transformation, structural reforms, and continuous evolution. Throughout this process, use of GILL tools and methods has facilitated a deeper understanding of the unique challenges faced by different demographics. Gender considerations must be integrated alongside other social determinants, such as race, disability, and socio-economic status, to ensure an intersectional approach that fosters truly inclusive innovation.

This study furthermore emphasizes the broader implications of organizational change, underscoring the importance of diversity and inclusion in shaping downstream processes and outputs. The goal of embedding inclusivity within the culture of organizations extends beyond simply meeting diversity targets; it aims to create environments where all individuals—regardless of gender, race, ability, or background—are not only represented but are empowered to contribute meaningfully. By examining these transformations, the paper highlights how gender equality and inclusive innovation can be systematically embedded within organizational practices, leading to more equitable and effective outcomes. The role of change agents, particularly women in leadership, is central to driving these shifts, although they often face challenges related to authority, confidence, and resistance from peers. This reinforces the importance of creating strong support structures for these agents, ensuring they receive mentorship, and the backing needed to lead successful change efforts. Ultimately, the insights provided by this paper underscore the value of integrating gender-responsive strategies into organizational processes, not only to ensure fairness but also to enhance the innovation, productivity, and sustainability of institutions. By prioritizing gender equality, organizations can create more inclusive, diverse, and effective environments, which benefit both individuals and the broader community. This approach will ensure that all members of society are given the opportunity to contribute to and benefit from innovation and entrepreneurship.

The different activities described in table 1 elicited useful information for assessing the status of the organization and fine tuning the activities and processes as well as providing a clear understanding of the organization and its dynamics.

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Challenging the Discourse: Scoping Survey on the Needs and Motivations of Female Silver Entrepreneurs

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Abstract: The population of older people (aged over 65) in the EU-27 is expected to reach 129.8 million by 2050, while at the same time there will be 13.5% fewer people aged less than 55 years (Eurostat, 2020). The ratio of older women to men is expected to decline from 1.33 to 1.24 in this time frame. Given the shrinking size of the working-age population and the growing number of 'able and healthy' older people, one of the most pressing concerns for policymakers is to support and encourage this group to remain economically active, not simply to reduce the strains on social security and pension systems, but to enhance the quality of later life. Self-employment in later life may increase and support active engagement and Maslow's (1943) higher order needs (e.g. self-realisation, belonging) as well as providing financial security. Entrepreneurship has youthful and masculine tropes. Healthy older people have the skills, financial resources and time available to contribute to economic activity through extending their working lives. However, few are involved in entrepreneurship, particularly women. Additionally, their enterprises tend to be less growth oriented than those of younger entrepreneurs which may suggest they have different needs, motivations and interests from the more stereotypical entrepreneur. In terms of gender, whilst ageing and retirement may threaten masculinity, it can be a time of liberation for women who may be freed from care and family related duties enabling them to pursue second careers or work in the informal economy. A key question is how can such women be supported in this journey. How can we reduce the risk, the jargon and biases to make entrepreneurship more attractive to older female entrepreneurs and change the discourse and narratives around passive retirement? The paper presents a literature review of the research and grey literature on older, especially female entrepreneurs with a view to discovering their needs and motivations. It has been conducted as part of the Horizon Europe funded Gender and Innovation Living Laboratory (GILL) project which aims to reduce inequalities in the Entrepreneurial and Innovation (E&I) Ecosystem, to find out more about the motivations and support needs of this group. In so doing, we hope to remove intersectional biases which predominate the literature and signal the need for greater attention to be given to this group of entrepreneurs.

Keywords: Older Female Entrepreneurs, Ageing, Employment, Silver Entrepreneurship, Female Needs and Motivations.

1. Introduction

The European Commission communication 'A Union of Equality: Gender Equality Strategy 2020-2025' (EC, 2020) states that *"women and men in all their diversity should have equal opportunities to thrive and be economically independent, be paid equally for their work of equal value, have equal access to finance and receive fair pensions."* Ensuring equality could contribute substantially to the EU European economic recovery, through the creation of jobs resulting in the growth and strengthening of the EU's competitiveness as well as improving quality of life. Women constitute 52% of the European population, yet only 34.4% of the EU self-employed and 30% of start-up entrepreneurs (We-Gate, 2025). Some of this discrepancy can be attributed to systemic gender biases within the Entrepreneurship and Innovation (E&I) ecosystem (Veckalne & Tambovceva, 2023). In line with the need to highlight and reduce these biases and further discussion on the ways to strengthen women's roles as business leaders to bring cultural and societal change, this paper focusses on older, female entrepreneurs.

Entrepreneurship is defined as *"the discovery, evaluation, and exploitation of opportunities to create new and useful products and services"* (Bohlmann et al., 2017, p.1) which encompasses self-employment, formal economy and informal economy employment. Referring to people aged over 50 years, the term 'silver economy' has been used to encompass a *"unique cross-section of economic activities related to production, consumption and trade of goods and services relevant for older people, both public and private, and including direct and indirect effects"* (Technopolis and Oxford Economics, 2018, p.6). In 2015, the silver economy sustained over €4.2 trillion in GDP and over 78 million jobs, with a forecast that this would rise to €5.7 trillion in 2025. Obviously, the design of products and services serving older consumers has gained in popularity and has been well researched. The silver economy is an instrument of [ageing policy](#) and the political idea of forming a potential, needs-oriented economic system for the [aging population](#) (EC, 2018). It now includes the group of *"latent businesspeople with unleashed potential. Thus, business dynamics are related not only to businesses (and related services) created "for people with white hair", but also to businesses founded and owned "by people with white hair"* (Greco et al., 2023, p.124).

In this paper we are not focussing on older people as consumers, but as entrepreneurs - variously termed 'oldpreneur' (Technopolis & Oxford Economics, 2018, p.40), senior or silver entrepreneur (see Greco et al., 2023 for comprehensive definition). In this paper we use the term 'silver entrepreneur' to refer to older individuals who start their new venture either after retirement or at late-stage career transition (Greco et al., 2023) who, as articulated in Ahmed et al. (2014) might have different motivations for choosing this course, with a special focus on the needs of female silver entrepreneurs. Martin and Omrami (2019) outlined two motivational factors which may lead seniors to start new businesses in the EU: (a) environmental factors linked, such as internet and information and communication technologies (ICT) diffusion, the level of status and respect of successful entrepreneurs, and relaying information about successful new businesses in the media; and (b) individual factors such as gender, education, job position, income, and skills. Many may wish to remain economically active in order to maintain their lifestyle (Walker and Webster, 2007) by pursuing income-generating activities that they may have been denied whilst in fulltime employment (e.g. turning hobbies into income-generating projects), contributing to society or improving their quality of life and reducing their risk of poverty (Jayo, González and Conzett, 2010). In other cases, older people may be forced out of the workforce (e.g. by being compelled to take early retirement) or feel the need to work more flexibly (e.g. as consultants).

The promotion of entrepreneurship among older age segments is a prospective policy option to prolong the working lives, reduce older-age unemployment and enhance the social inclusion of older individuals (Kautonen et al., 2008). Entrepreneurship among older people could also have benefits for an economy. Maintaining the labour market attachment of older people may, in the short-run, offset expected regional labour and skill shortages and facilitate a transfer of human capital between generations. Other benefits include increased tax revenue to potentially offset rising social and health care costs.

In 2011, an analysis of labour market participation rates in OECD countries for people over 55 years of age shows that the participation rate for men is nearly double that of women, suggesting that older men are more likely to consider entrepreneurship because they have a stronger attachment to the labour market. Approximately 16% of the third-age respondents were either considering entrepreneurship as a late-career alternative or are engaged in entrepreneurial activities (Halabisky, 2012). Older people have different opportunities and decisions to make about their career and lifestyle. These demographic changes should affect entrepreneurship policy, because a new group is emerging, which may have different demographic profiles, needs and aspirations to traditional entrepreneurs.

Widespread inequalities within the E&I ecosystem mean that women, and those falling outside of the traditional entrepreneurial stereotype, are disadvantaged at all stages of their research, innovation and entrepreneurship journeys. For example, women face challenges in acquiring funding from research councils and investment angels, getting their voices/ideas heard in decision-making meetings, are more likely to suffer from imposter syndromes and lack of confidence, have weaker and less influential networks and fewer role models (Abdulla & Ahmad, 2023; Vardhan et al, 2020). Even though these challenges are known, Abdulla and Ahmad (2023) concluded that little progress had been made in addressing these, and that intersectional and co-related issues should be considered. Hence the focus on older female entrepreneurs.

The Gendered Innovation Living Labs (GILL) project addresses gender inequality in entrepreneurship and innovation (E&I) by providing actionable strategies to foster gender sensitive changes at all stages of the E&I lifecycle. Its aim is to help to create a level playing field for all creative thinkers, aspiring innovators and entrepreneurs that are needed to enable the EU to make use of its full talent pool and find new ways of solving the most urgent societal, environmental and health related problems. The tools developed in GILL directly address systemic biases that often go unnoticed but significantly impact gender equality, especially in key decision-making spaces where decisive product and process choices are made. The methods have been tested in 15 case studies across Europe. However little research has considered the needs of older entrepreneurs (Greco et al., 2023; Isele & Rogoff, 2014) or attempted to distinguish the needs of female silver entrepreneurs.

To address this gap, a scoping literature review was undertaken by a placement student associated with the project. The review provides an exploration of older entrepreneurship as a recent development within entrepreneurship literature following the growth of an ageing workforce globally (Moulton & Scott, 2016) with the aim of informing the development of tools and methods with GILL to support this group. The review positions older entrepreneurship as a recent development within entrepreneurship literature following the growth of an ageing workforce globally (Moulton & Scott, 2016). Entrepreneurship often has youthful and masculine tropes (Meliou et al., 2018, pp.529-530) with research highlighting support for different demographics being less studied.

2. Methodology

This literature review began with systematic Boolean searches into Google Scholar using key words and phrases like “entrepreneurship” alongside “older”, “gender”, “age”, “support” and “retirement” to gain a holistic view of the research conducted. The literature search was limited to the English language, peer-reviewed articles and those published from January 2015 until April 2024 to give this research relevance in a pre- and post-COVID society and economy (Otrachshenko et al., 2022; Sharma et al., 2024) as well as generally being of contemporary relevance for policymakers and researchers. Ratten (2019) provided an existing literature review of older entrepreneurship and research gaps from six years ago in addition to a methodology like the one used within this literature review. Both academic and grey sources were studied with papers from disciplines including business, geography, economics and sociology as well as interdisciplinary and multidisciplinary journals. Subsequently, snowballing searches was conducted which allowed for the emergence of more seminal pieces as well as highly referenced research such as Kerr (2017)

3. Broad Overview

From the literature review, three broad themes have been selected for discussion: barriers, motivations, and recommendations.

Firstly, the research clearly demonstrates that, entrepreneurship is a rapidly developing field responding to new barriers and opportunities. Older entrepreneurs are usually characterised as being between 50 and 65 years of age, to distinguish them from the traditional representation of ‘white’ male entrepreneurs between 25-49 years (Whiting & Pritchard, 2020). It is however recognised that, at least in the EU, 50 would not be characterised as ‘old’, but instead ‘middle aged’. Entrepreneurtainment media shows such as ‘Dragons’ Den’ and ‘The Apprentice’ in the UK continue to reinforce the image of the entrepreneur as a tech-savvy innovator in his/her/their early twenties, when evidence suggests that in some countries (e.g. Finland) the highest rates of start-up activity are actually seen in the 55–64 age bracket (Römer-Paakkanen & Takanen-Körperich (2022).

Secondly, many previous models of employment are out of date. Few people have a job for life or straightforward career progression due to external factors such as recessions, inter/national disasters such as COVID-19, changing demographics (e.g. the need to look after older parents), the rise of the gig economy and home-working and different social-cultural values. These provide both challenges and opportunities, requiring people to pivot and adapt. Retirement has been redefined as a state that provides an opportunity for productivity as well as a threat to governance, services and finance. Neoliberalism idolises freedom, autonomy and competition and critiques welfare discourses that restrict economic growth (Kupiainen et al., 2023, p.747). Richardson (1996) described women’s careers as ‘snake-like’, whereas men’s careers are more ‘ladder-like’. Römer-Paakkanen and Takanen-Körperich’s (2022) findings from a qualitative study of Finnish female linguists outlined the incentives and motivations for self-employment and entrepreneurial career decisions for older women in their paper (reproduced here as Figure 1). The model has resonance with ongoing work in the GILL project regarding the barriers and motivations for entrepreneurship for female academics from minority groups (Hacsek et al., 2025) and the analysis of gender bias in Dragons’ Den (forthcoming). Women entrepreneurs are one of the fastest-growing sectors of entrepreneurship throughout the world (Rusydiana & Izza, 2022). Thirdly, there is a need to consider intersectionality. Women entrepreneurs are one of the fastest-growing sectors of entrepreneurship throughout the world (Rusydiana & Izza, 2022).

This is important to consider in a European context where cultural, societal and religious factors play important, yet hidden roles in women’s journeys



Figure 1: Incentives and motivations for self-employment and entrepreneurial career decisions for older women from Römer-Paakkanen and Takanen-Körperich (2022).

Thirdly, there is a need to consider intersectional factors. Cultural, societal and religious factors play important, yet hidden roles in women’s journeys towards entrepreneurship and may be even more difficult to address than

the gender biases within the E&I. This requires a detailed, nuanced understanding of the different subgroups, eg older entrepreneurs, migrant women (e.g. Vardhan et al, 2020). All female entrepreneurs are not the same so incentives and motivations need to be placed in context (e.g. in terms of women's agency and relationships and self-efficacy) before effective policies can be put in place.

Fourthly, 'silver' or 'older entrepreneurs' continue to be overlooked, despite global demographic, economic and employment changes and the socio-economic contributions they could make.

3.1 Barriers to Entrepreneurship

Table 1: Compares the barriers faced by older entrepreneurs (Halabisky, 2012) to those faced by female entrepreneurs across 18 countries (Wu et al., 2019)

Barriers faced by older entrepreneurs (Halabisky, 2012):	Barriers faced by female entrepreneurs (Wu et al., 2019):
1. Human capital, e.g. outdated skills, lack of entrepreneurship skills, low levels of digital literacy.	1. Lack of industry experience.
	2. Societal expectations that women's primary role is childcare and domestic household duties.
2. Social capital in the form of powerful, appropriate networks.	3. Unfavourable lifestyle choices that women make daily.
3. Access to finance especially for those who do not have access to pensions and personal wealth.	4. Fewer tendencies to invest in training and development of employees.
4. Declining health which may limit their capacity to engage in entrepreneurial activities.	5. Discrimination.
5. Financial disincentives such as loss of state pensions, benefits and confusing tax systems.	6. Negative attitude against women.
	7. Problems related to childcare.
	8. Inadequate education and training.
6. Age discrimination: older people may be seen as less flexible, less committed and less able to cope (Curran & Blackburn, 2001; Kibler et al., 2012).	9. Exploitation of women.
	10. Ethnic or religious barriers.
	11. Family commitments.
7. Opportunity cost of time: Older individuals may be less willing to commit time to activities that yield a stream of future payments and are associated with risk, compared to activities that generate instant and riskless returns, such as waged labour. Also, older people tend to prefer leisure activities to work once their health begins to decline (Singh & DeNoble, 2003).	12. Lack of access to capital.
	13. Lack of access to business information.
	14. Lack of access to networks.
8. Lack of awareness of the opportunities for self-employment and the steps involved in starting a business hindered by poor and overly complex information provided by different governmental bodies and support agencies, especially for early business phases. Information targets younger, media-savvy and well-educated generations (Kibler et al., 2012)	15. Lack of access to advice.
	16. Lack of tendency to acquire quality business information.
	17. Lack of entrepreneurial skills.

It is acknowledged that Table 1 does not compare like with like. However, it clearly reveals that female entrepreneurs have more challenges than their male counterparts and that many of these relate to social and cultural issues. Many barriers identified by Wu et al. (2019) related to the motherhood penalty, as women become older, they may still be carers – by looking after grandchildren, partners or older parents. In addition, they may face increased discrimination and dismissal because they are old and a woman. Ethnic/religious/cultural barriers are also extremely important (see Hacsek et al., 2025) in shaping women's entrepreneurial journeys (eg what they are allowed to do, receiving recognition and ability to keep control of

finances. Muslim female role models are using social media to tell their stories and inspire others.¹ These difficulties are compounded for older female entrepreneurs, and indeed some gaps may be widened (e.g. in terms of access to finances and networks).

Other well-known barriers not mentioned in the above include the male domination of E&I ecosystem such as the gender make up of investment panels, lack of female investment angels (10% in EU), un/conscious bias to those not conforming to traditional stereotypes (e.g. aggression, incredulity, setting different standards), lack of interest and understanding of gender responsive/sensitive product innovations, inability to understand the female market, lack of interest in social and new models of entrepreneurship which may be more attractive to female entrepreneurs, gender bias in research funding, lack of women on decision making boards, lack of role models and powerful networks (for more details, see report by the Committee on Women's Rights and Gender Equality, 2021).

Despite this, women as new entrepreneurs have become an important feature of European and global entrepreneurship growth in the last 30–40 years, despite the post – COVID-19 'she-cession' which Torres et al. (2023) and the EU Business School (2021) claimed disproportionately effected female entrepreneurs. Reasons for this included reduced demand for services in retail, health, lifestyle and wellbeing sectors, women-owned businesses were forced to close for extended periods due to their need to focus on caring and schooling, underfunding of businesses meaning they had less capital reserves to draw on and challenges to work life balance. Whilst condemnatory of societal expectations on women and the financial support offered to female entrepreneurs, the reports remained optimistic, highlighting that women were more able to pivot, adapt and be flexible to meet new challenges. Their wider entry into the E&I ecosystem is seen as providing opportunities for change.

3.2 Motivations of Female, Older Entrepreneurs

Orhan and Scott (2001) argue that women become entrepreneurs via different routes: dynastic compliance, no other choice, chance, natural succession, forced entrepreneurship, informed entrepreneur, and pure entrepreneur. They may be motivated by the need for independence and achievement arising from job frustration, lack of flexibility and family related reasons (Welsh & Dragusin, 2006; Tomlinson & Colgan, 2014; Pääkkönen & Hanif, 2011).

Moore (2020) argued that for women in later life, starting a business may be a rewarding alternative to retirement, providing opportunities to generate additional income or fulfil a long-held ambition. Tomlinson and Colgan (2014) noted four themes that can explain and justify the pursuit of older women's self-employment:

1. Continuity which means they have had an ongoing interest in self-employment for a longer time,
2. Validation which explains that previous experiences both within and outside of work provide evidence of their capacity to be self-employed,
3. Change since women may have more spare time, once free from caring duties or paid employment – which gives them an opportunity to change their lives by becoming self-employed,
4. Agency which means that their stories can be interpreted as the self-representation of an active agent.

Researchers such as Pöllänen (2002) and Vardhan et al. (2020) amongst others argue that there are no differences between entrepreneurial men and women in personality dimensions such as achievement, motivation, independence, leadership, and risk-taking propensity. However, there is a tendency for men to see entrepreneurship as a business decision, whereas women may view it as a life choice – a way of integrating family and career needs. Mainieiro and Sullivan (2005) argued for gender-based differences in which women's career decisions form part of a larger and intricate web of interconnected issues, people, and aspects that come together in a delicately balanced package. Women make decisions about their career options after considering their impact on others. With an increase in gender equality in household duties, this may be changing. However, in many cultures, women are still expected to perform all household and caring duties and may be denied the opportunity to set up her own business. There is overwhelming evidence in support of the existence of gendered, cultural and age-related differences in both barriers and motivations in entrepreneurship. The final section

¹ E.g. <https://www.revivingsisterhood.org/expressions/zaynab-abdi-entrepreneurship>;
<https://www.bbc.co.uk/news/business-37798677>; <https://www.bbc.co.uk/news/business-37798677>;
<https://muzzbizz.com/muslim-women-entrepreneurs/>

considers what steps need to be undertaken to create a fairer E&I ecosystem, especially for older, female entrepreneurs.

3.3 Review of Suggestions for Creating a Fairer E&I Ecosystem

To paraphrase a core concept in ergonomics, if you design for the most disadvantaged or excluded you improve the system for all. Women, people from older age groups, people from different cultures and those who do not conform to the traditional image of an 'entrepreneur' or 'business leader' continue to be disadvantaged in their attempts to set up their own businesses. Those within the sector recognise that little is changing and encourage people from more diverse backgrounds to enter the sector, make changes from within and act as role models. Is this good enough? Most new entrepreneurs struggle with the demands of setting up a new business and maintaining a satisfactory work life balance without this additional task. It is up to governments, agencies and policy makers to understand and invest in these entrepreneurs, rather than continually alluding to untapped potential and relying on the willingness of others to cover gaps in funding and policy – especially when this places a greater burden on women.

The Gender Equality Strategy for Europe 2020-2025 set the Commission's work on improving gender equality and all policy objectives are pertinent here, to make sure that women and men have equal opportunities to thrive and guarantee that women and men have equal chances to lead European society and ensure freedom from gender-based violence and stereotypes. These are embedded in a number of structural reforms, policies, directives and measures, for example to reduce gender stereotypes and the effects of multiple stereotypes on women. With 44% of Europeans thinking that the most important role of a woman is to take care of her home and family and 43% thinking that the most important role of a man is to earn money, there is still a long way to go. The role of the media and the cultural sectors have been noted as shaping people's beliefs, values and perception of reality, and are key channels for changing attitudes and challenging stereotype.

Although a significant minority of Europeans express outdated views of the role of women, this is changing. Men are increasingly sharing care and household activities. This is supported by policies related to parental leave, more flexible working conditions and greater opportunities for women to continue their education, different career paths and economic changes which require new skills and provide new business opportunities (e.g. work-life balance directives). Digital divides (age and gender) are still prevalent, but many women have embraced opportunities provided by e-commerce and the gig economy. The need to support micro-entrepreneurs has been recognised by e-commerce platforms such as Etsy who help women, craft entrepreneurs and small businesses (Etsy Advocacy, 2025).

Progress towards meeting Sustainable Development Goals (SDGs) in the Member States, in particular their labour market, social inclusion and education dimensions is monitored through Semester country reports. This includes gender equality (SDG 5), and the way in which economic and employment policies can help deliver on them. The structural reform support programme can support Member States in mainstreaming gender in public administration, state budgeting and financial management and in closing the gender employment gap and to address the higher proportion of women in poverty, particularly in older age.

Using the contextual factors suggested in the OECD report by Halabisky (2012), policy should focus on what influences an older person's decision to enter self-employment by:

- Promoting the benefits of entrepreneurship to and by older people, to reduce discrimination and raise awareness of opportunities. This is included in 2012, the European Year of Active Ageing and Solidarity between Generations. Targeted funding is needed in all work programmes to share good practices, develop networks, mentoring and training schemes for women and older entrepreneurs.
- Addressing entrepreneurship skills gaps through customised support programmes at local and national level to targeted subgroups.
- Developing and supporting networks and mentorship which provides practical, emotional and culturally sensitive support. These can address issues relating to shortfalls in social capital and boost confidence when family and friends express negativity (Kautonen, 2013).
- Improving and simplifying access to finance, for example through targeted grants, low-interest loans and crowdfunding capital to support silver entrepreneurs, providing tax incentives for investing in senior start-ups.
- Addressing disincentives to entrepreneurship such as by ensuring state benefits are not lost, introducing sick leave insurance for self-employed people.

Additional recommendations include:

- Providing support for the early stages of business startups to increase self-efficacy and confidence.
- Creating national one stop shops for those new to entrepreneurship, which provides jargon free and accurate support, broken down into clear stages to reduce fear and confusion to make the industry more accessible (Maritz, 2015).
- Bojanić et al. (2024) likewise stressed the need to provide information and regulations which are relevant to the early stages of their business, sufficient and understandable (most terms are more suited to the well-educated, media-savvy younger generations).
- Changing the E&I power narratives from an economic/financial/profit focus to one which focuses on the wider benefits in terms of health, wellbeing and social enterprise (Chatterjee et al., 2022) and non-monetary gains (Kautonen et al., 2017)
- Addressing lack of diversity in leadership at all levels has been well documented. In this particular case there is a need for meaningful contributions and leadership at the top of the E&I ecosystem, to change the rhetoric, models and funding biases.
- Gendered support, respectful of cultural norms, encouraging more women to start up their own businesses require new models and approaches to entrepreneurship which recognise and enable women's needs and motivations (as shown in Figure 1), not simply wealth creation. In many cultures, looking after children and the needs of the local community are important. Here policies on economic and social development focusing on removing cultural norms othering women and providing child and social care facilities would encourage older entrepreneurship (Adom et al., 2018; Arshed et al., 2023).
- Policies are urgently needed which address long term care in the community – as older women may find themselves caring for older relatives, husbands and neighbours at a time when they could be starting small businesses which fulfil their higher-level needs.

4. Conclusions

The entrepreneurship efforts of older people will, and need to have, a growing impact on national economic performance, policy frameworks, academia and the business community. This paper has looked at the barriers, motivations and ways in which this can be easier for older, female entrepreneurs. Stereotypes need to be broken down – not only in terms of the 'model entrepreneur', but also about older people – their capabilities, aspirations and needs in later life. It is a disservice to perpetuate the image of passive acceptance of old age where people slide into retirement, steady decline, long illness and neglect. Having amassed around 40 years of work and life experience, and increasing levels of healthy life expectancy post-retirement, setting up new businesses may be an attractive proposition for some if the right support is available.

Understanding the needs of this subgroup can influence the E&I ecosystem – leading to new models of entrepreneurship and what it means to be an entrepreneur and even the focus of innovation. More importantly this work can be transferable to other subsections of the entrepreneurial community, increasing diversity and the recognition that high profit may not, or even should not, be the key driver or outcome.

Although older entrepreneurs share the same barriers and could benefit from the enactment of many of the recommendations, there are gender inequalities; namely a mismatch between women's motivations for setting up a business and popular models of entrepreneurship; the dual burden of women and cultural expectations which require them to prioritise work in the home, at the expense of paid employment. As women live longer than men and are the main (un)paid carers in all societies, with an ageing population, older women may have a very small window in which to start their businesses.

The review would benefit from a closer look at the entrepreneurship experiences of women from different cultures, including migrant women in the EU. Some qualitative studies have been included in the references with previous rounds of EU funding having focussed on how cultural, societal and religious norms curtail opportunities for entrepreneurship. However, a focus on gender and multiple marginalisation are often absent from studies on older entrepreneurship and would be a valuable area of further research and social policy.

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Ethics

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Use of AI

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Women and Relationship Conflict: Effect of Leadership Preferences, LMX, and Organizational Justice

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Abstract: The 2018 report from the Indian Labor Organization (ILO) highlighted the serious issue of slow progression and underrepresentation of women in the global workforce. Several reasons for such underrepresentation have been documented in the literature, including lack of family support, low autonomy over career-related decisions, relationship conflict with superiors, gender discrimination, harassment during work, etc. For the career progression of women, social support not just from the family members, but also from the superiors and colleagues is important. Since there is a substantial difference in the expectations of men and women in the workplace, which often leads to role conflict and relationship conflict, it is significant to understand and align these expectations to develop harmonious work relationships between superiors and their women subordinates to ensure optimum performance. The present study therefore focuses on identifying the leadership behaviour preferences of Indian women employees. The study also aims to determine the effect of Leader-Member Exchange (LMX) and the perception of Organizational Justice on the Relationship Conflict experienced by women employees vis-à-vis their superiors. The study follows an empirical approach and quantitative research methodology. Purposive and snowball sampling methods were deployed for data collection. Data were collected from 512 Indian women working across various sectors and at various levels in the organizational hierarchy. Descriptive statistics and Structural Equation Modelling were used for analyzing the data. Results of the study provide valuable insights into the leadership behaviour preferences of Indian women employees and the relationship between LMX, Organizational Justice, and Relationship Conflict. It is identified that Indian women prefer their superior to possess the attributes of 'respect', 'ethics' and 'communication skills'. The results also indicate that organizational justice mediates between LMX and relationship conflict. The study findings will be useful for managers, HR professionals, and researchers to better understand the concerns of women in the workplace. The insights from the study will aid in gaining a comprehensive understanding of women's preferences at work, which will further help nurture superior-subordinate relationships and address relationship conflict more effectively.

Keywords: Leadership Preferences, LMX, Relationship Conflict, Organizational Justice, India, Gender, Women

1. Introduction

Organizations across the globe have reported serious concerns over the slow progression of women in the workplace (Barhate et al, 2021). Although women constitute almost half the world's population; they continue to remain under-represented in the organizational hierarchy (Chaudhari and Inamdar, 2024).

India, the most populous country and one of the fastest emerging economies in the world, scores one of the lowest in terms of female labour participation. Gender studies indicate that the responsibility of domestic obligations is tilted more towards women in India which slows down their progression path (Barua, Haukanes and Waldrop, 2016). According to the Centre for Monitoring Indian Economy Report (2022), there is a huge gender imbalance in the Indian workforce, where only 10% of working-age Indian women are either employed or actively looking for jobs in organized sector. The report states that out of 85.2 million salaried employees in India during 2022-23, 76.3 million were males and only 8.9 million were females. The presence of women in top leadership and senior managerial roles is also disproportionately low (Nair, 2023), and women continue to be plagued by discrimination at work.

While both men and women experience workplace discrimination, the psychological consequences of the apparent gender discrimination are different in both men and women, which reduces their sense of belonging (Tost et al, 2022) and increases the chances of potential interpersonal relationship conflict at work (Advani and Gulzar, 2016). Women particularly face challenges in handling discrimination and conflicts at both- the organizational level and individual levels (Inamdar, Chaudhari and Nagendra, 2020) due to domestic obligations, expectations of society, power dynamics, and gendered norms (Kim et al, 2020). Despite advancements in workplace DEIB (Diversity, Equity, Inclusion, and Belonging) practices, women continue to experience discrimination, conflict and stress in their interpersonal relationships at work resulting in depressive symptoms and job dissatisfaction (Kim et al, 2020).

Research highlights the role of leadership in shaping workplace relationships and conflict dynamics (Yadav, 2022; Larsson and Vinberg, 2010). Literature also confirms that employee work performance and workplace

relationships are highly impacted by the perception of justice (Wolfe and Lawson, 2020) and how the leader leads the team (Larsson and Vinberg, 2010). Therefore, a leader's behaviour forms the core of leadership as leadership is performed through action, not cognition (Denison, Hooijberg and Quinn, 1995). There can be potential conflicts if the behaviour is undesirable, and employees perceive unfairness and injustice (Yadav and Chaudhari, 2020). Hence, Leadership Preferences, Leader-Member Exchange (LMX), and Organizational Justice have emerged as key factors influencing relationship conflict in the workplace (Yadav, 2022). While the role of LMX in employee workplace relationships and outcomes is well established, the mechanism through which LMX predicts these relationships and outcomes needs more exploration (Bhal and Ansari, 2007). Moreover, the intersectionality of these factors with Indian women's experiences is yet to be explored.

Therefore, through this study, we endeavour to contribute to the existing body of knowledge by exploring:

1. The leadership behaviour preferences of Indian women employees, and
2. The effect of LMX and Organizational Justice on the Relationship Conflict between women employees and their superiors.

A study of this nature is instrumental in the Indian context as it offers a unique perspective, especially in the emerging Indian economy where the progression of women is still sluggish than progressive.

2. Relevant Review of Literature and Hypotheses Development

2.1 Leadership Preferences

Leadership preferences are the desired leadership attributes (knowledge, skills and characteristics) that employees prefer in their superiors. Within the constraints of a given situation, these attributes prompt the superior to behave in particular ways (Moss and Jensrud, 1995). Such behaviour of the superior directly impacts employee's work behaviour (positive and negative) and their relationship with the superior (Jackson, Alberti and Snipes, 2014). Research has established that men and women value different aspects at work (Peterson, 2004) and have considerably different preferences regarding leadership behaviour from their superiors (Stewart and Wiener, 2021). Women gravitate towards collaborative, cooperative and relationship-oriented behaviour which is interpersonally oriented, while men prefer action-oriented or task-oriented behaviour which is defined by independent and assertive tendencies (Eagly, 2009; Eagly and Johannesen-Schmidt, 2001). The superior-subordinate relationship strengthens when the leadership preferences are met, and conflicts arise when the expectations are unmet (Ruderman, 2008).

2.2 Leader-Member Exchange (LMX)

How a superior behaves and deals with the subordinate forms the foundation of the superior-subordinate relationship. The quality and nature of such a relationship are identified by the interpersonal exchange that happens between the superior and the subordinate. The LMX theory examines this relationship in an interpersonal interface (Collins, Burrus and Meyer, 2014) and states that superiors follow different leadership styles while dealing with subordinates as they have different relationships with each of them (Liden and Maslyn, 1998). The theory categorizes the superior-subordinate relationship into "in-group" or high LMX and "out-group" or low LMX. The nature of such relationship exchange impacts the subordinate's outcomes. A high-quality interpersonal exchange between the superior and the subordinate has a positive effect on the subordinate's work outcome (e.g., increased commitment and productivity), whereas the perception of low-level support from the superior leads to the perception of unfairness, conflicts and turnover (Podsakoff et al, 2000). Research suggests that gender also affects the quality of LMX. Superiors exhibit positive bias towards subordinates of the same gender and give higher ratings to them and vice versa (Varma and Stroh, 2001). Since the presence of women in leadership and managerial roles is low (Nair, 2023), most superiors are male, and hence, women fall mostly into the out-group (Andrews, 2019).

2.3 Organizational Justice

The extant literature on Organizational Justice suggests that subordinates perceive the quality of their relationship with their superiors as an indicator of organizational justice, fairness and support (Collins, Mossholder and Taylor, 2012). Organizational Justice is the personal perception of fair and ethical behaviour of superiors and the organization's management regarding the procedures and processes (procedural justice), distribution of rewards, compensation and benefits (distributive justice), information sharing (informational

justice) and interpersonal behaviour (interpersonal justice) towards the subordinates (Ledimo, 2015). Being the personal perception of the subordinate, it is highly subjective as it is based on what the subordinate perceives to be fair rather than on the objective reality (Ledimo, 2015). Perceived injustice and discrimination in the workplace have been associated with negative work outcomes, behaviour and relationships (Kamble, Kumar and Chalise, 2020; Colquitt, 2001), while gender discrimination is specifically said to result in conflicts (Gutek, Cohen and Tsui, 1996). Researchers have documented that women perceive justice much more differently than men, often facing discrimination and bias in the workplace in terms of work responsibility, pay and perks etc. (Deepak, 2021; Gutek, Cohen and Tsui, 1996).

2.4 Relationship Conflict

Employees may experience different types of workplace conflicts, which may be related to the task at hand, organizational processes or the interpersonal relationships between the individuals. Relationship conflict in the workplace are perceived interpersonal incompatibilities that are not task-related (Yadav and Chaudhari, 2020). Such conflicts usually occur when the superior and the subordinate perceive that their interests, values, and preferences do not match (Jehn, 1995). Since relationship conflict is interpersonal, it develops on personal and emotional levels. Hence, it has a more negative impact on workplace relationships and team performance than any other type of conflict (Dreu and Weingart, 2003). It has also been documented that women are significantly affected by such conflicts than men, and women see relationship conflict as disruptive (Kirti, 2017). Hence, LMX becomes weak when the women subordinates perceive interpersonal incompatibility with the superiors, resulting in relationship conflict (Yadav and Chaudhari, 2023).

Based on the above review of literature, we argue that when the leadership behaviour preferences of women subordinates are fulfilled, there is a strong LMX which results in positive work relationships. However, if the women subordinates perceive low LMX and unfair or unjust practices in the workplace, it negatively influences the relationship resulting in conflicts. Hence, we hypothesize:

H1: Leadership preferences are positively related to LMX

H2: LMX is negatively related to relationship conflict

H3: LMX is positively related to organizational justice

H4: Organizational justice mediates negatively between LMX and relationship conflict

3. Methodology

3.1 Sample

The present study is focused on the Indian women employees working across various sectors and at various levels in the organizational hierarchy. The sample was selected based on purposive and snowball sampling methods. The online survey questionnaire was floated via WhatsApp, email, and LinkedIn chat, and 512 completed anonymous responses were received. The purpose of the study was detailed at the beginning of the online survey questionnaire and assurance about the confidentiality of responses was given to the respondents. Demographic details of the sample are presented in Table 1 below.

Table 1: Demographic Profile of the Sample

		Level in Organizational Hierarchy		
		Top-level management	Middle-level management	Lower/junior-level management
Sector of Employment	Public sector	1.5%	18%	9%
	Private Sector	6%	31%	26%
	Other	-	7%	1.5%

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy test was conducted to determine the adequacy of the sample. The KMO coefficient value for the data came out to be 0.956, which is considered marvelous (Kaiser, 1974).

3.2 Measures

The primary variables under the study were Leadership Preferences, Leader-Member Exchange, Relationship Conflict, and Organizational Justice. Standardized scales were used to measure the variables.

Leadership Preferences: Leader Attributes Inventory (LAI) by Moss et al (1994) was used to identify the preferred leadership behaviour attributes of Indian women employees. A brief description of each attribute was provided for better understanding. The scale included 27 attributes which were rated on a scale of 1 to 6, where 1-not at all preferred and 6-extremely preferred.

Leader-Member Exchange: To measure the dimensions of the superior-subordinate relationship, the LMX scale developed by Liden and Maslyn (1998) was adopted. The scale included 10 items that measured affect, loyalty, contribution, and professional respect towards the superior. Examples of items in the scale are “My superior is a lot of fun to work with”, “I am willing to apply extra efforts, beyond what is specified in my job description, to meet my superior’s work goals”. The items were measured on a 5-point scale ranging from 5-strongly agree to 1-strongly disagree.

Relationship Conflict: The Workplace Interpersonal Conflict Scale (WICS) by Wright et al (2017) was adapted to measure the sensitivity of conflict between the superior and the subordinate. Examples of items in the scale are “How often have you been treated with hostility or rude behaviour by your superior?”, “How often have you felt unappreciated by your superior?” The scale included 8 items which were measured on a 5-point scale ranging from 5-always to 1-never.

Organizational Justice: A standardized scale developed by Colquitt (2001) and Brashear, Brooks and Boles (2004) was used to measure the dimensions of Organizational Justice. The Colquitt (2001) scale had 9 items which measured Interpersonal and Informational Justice, while the Brashear, Brooks and Boles (2004) scale had 17 items which measured Procedural and Distributive Justice. Examples of items in the scale are “To what extent does your superiors treat you in a polite manner?”, “To what extent are you fairly rewarded for the amount of effort you put forth?” The items were measured on a 5-point scale ranging from 5-to a very large extent to 1-to a very little extent.

Personal Demographics: Single statement items were used to collect demographic information of the respondents such as gender, birth year categorization, sector of employment, and level in the organizational hierarchy.

Cronbach Alpha, the most common method of Reliability Testing for a survey instrument was carried out. The Cronbach Alpha value of each measure indicates that the items have high internal consistency. Refer to Table 2 below.

Table 2: Cronbach Alpha Values

Measure	Cronbach-Alpha
Leadership Preferences	.968
Leader-Member Exchange	.890
Relationship Conflict	.924
Organizational Justice	.950

4. Data Analysis and Results

Descriptive Statistics were used to determine the highly preferred leadership behaviour attributes of the female employees. Descriptive statistics summarize the data, make information assimilation easier (Hesse and Ofosu, 2017), and help in understanding, comparing, and interpreting the data (Lee, 2020); thereby allowing the researcher to make inferences from the measures of central tendency. Descriptive statistics about the leadership behaviour preferences of women employees (in descending order of Mean value) are presented in Table 3 below.

Table 3: Descriptive Statistics: Leadership Behaviour Preferences

	Mean	Std. Deviation	Variance
LP17 (Respectful)	5.62	.866	.750
LP15 (Ethical)	5.60	.797	.635

	Mean	Std. Deviation	Variance
LP16 (Communication- listening, oral, written)	5.57	.783	.614
LP3 (Visionary)	5.56	.776	.603
LP2 (Adaptable to change)	5.55	.792	.628
LP24 (Decision-making)	5.52	.867	.751
LP9 (Enthusiastic, optimistic)	5.50	.830	.689
LP7 (Confident, accepting of self)	5.45	.870	.757
LP27 (Mentoring)	5.45	.943	.890
LP25 (Problem-solving)	5.44	.937	.877
LP22 (Time management)	5.41	.911	.830
LP18 (Planning and organizing)	5.41	.873	.763
LP19 (Delegating)	5.40	.874	.764
LP14 (Intelligent with practical judgement)	5.39	.872	.760
LP23 (Stress management)	5.39	1.001	1.002
LP20 (Coaching)	5.37	.938	.879
LP11 (Dependable, reliable)	5.33	.976	.953
LP5 (Achievement oriented)	5.30	.857	.734
LP4 (Tolerant of ambiguity and complexity)	5.29	.935	.874
LP6 (Initiating)	5.29	.880	.775
LP10 (Tolerant of frustration)	5.26	1.039	1.080
LP26 (Information management)	5.23	.948	.900
LP13 (Even disposition)	5.19	.993	.986
	Mean	Std. Deviation	Variance
LP8 (Willing to accept more duties/responsibilities)	5.18	.969	.940
LP12 (Courageous, risk-taker)	5.14	.979	.958
LP21 (Conflict management)	5.12	1.061	1.125
LP1 (Energetic with stamina)	5.09	.954	.909

Structural Equation Modelling was used to establish the relationship between the variables in the form of a path diagram and to fit the hypothesized model. Hair et al (2015) have suggested the criteria for model fit indices. The Path Diagram of the Structural Model is presented in Figure 1 and the Actual values of the model fit indices are presented in Table 4 below.

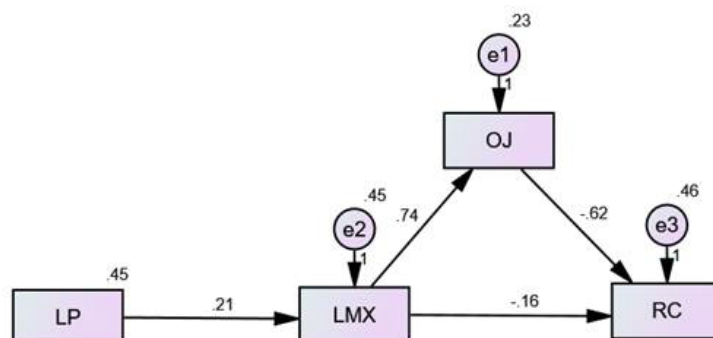


Figure 1: Path Diagram

(LP= Leadership Preference, LMX= Leader-Member Exchange, OJ= Organizational Justice, RC= Relationship Conflict)

Table 4: Model Fit Indices

Test	Target Value Criteria	Actual Value of Model
χ^2/df	< 3	2.538
Goodness of Fit (GFI)	> 0.90	0.995
Root Mean Square Error of Approximation (RMSEA)	< 0.08	0.055
Root Mean Square Residual (RMR)	< 0.10	0.014
Normed Fit Index (NFI)	0 < NFI < 1	0.992
Comparative Fit Index (CFI)	> 0.95	0.995
Tucker Lewis Index (TLI)	> 0.95	0.985

The above structural model (Figure 1) displayed a good fit as all the values of absolute fit indices (χ^2/df , GFI, RMSEA, RMR) and relative fit indices (NFI, CFI, TLI) were within the acceptable target criteria as specified by Hair et al (2015).

Table 5: Path Coefficient Regression Weights

			Estimate	S.E.	C.R.	P
LMX	<---	LP	.213	.044	4.834	***
OJ	<---	LMX	.744	.031	23.720	***
RC	<---	LMX	-.163	.064	-2.542	.011
RC	<---	OJ	-.618	.062	-9.910	***

The path coefficient regression weights (Table 5 above) indicate that there is no statistically significant relationship between LMX and RC ($\beta = -0.163$, ns), while there is a positive and significant relationship between LP and LMX ($\beta = 0.213$, $p < 0.01$), and LMX and OJ ($\beta = 0.744$, $p < 0.01$). The results also suggest a negative and significant relationship between OJ and RC ($\beta = -0.618$, $p < 0.01$). Therefore, hypotheses H1, H3 and H4 are accepted and hypothesis H2 is rejected.

5. Discussion and Conclusion

Several reasons have been documented in the literature for the slow progression and underrepresentation of women in the workforce. Researchers have identified lack of family support, workplace biases (Inamdar, Chaudhari and Nagendra, 2020), gender discrimination, role conflict (Chaudhari and Inamdar, 2024) etc. as some of the reasons. Although the dynamics of Indian workplaces are changing with more and more women being employed, the progression of Indian women in the workplaces has still been slow (Chaudhari and Inamdar, 2024). Since women constitute almost half of the total Indian population, it is imperative to understand their preferences, experiences and relationships in the workplace to promote equitable representation and provide a conducive work environment.

The findings of our study suggest that Indian women prefer their superiors to be respectful, ethical, communicative, visionary, adaptable to change, good at decision-making, and enthusiastic ($\bar{X} > 5.50$). This indicates that women prefer relationship-oriented behaviour (respectful, communicative) from their superiors, which is in line with the findings of some of the earlier studies that state that women value and engage in more communal behaviours which are interpersonally oriented (Eagly, 2009; Eagly and Johannesen-Schmidt, 2001). Our results also indicate that women prefer their superiors to possess intellectual and action-oriented attributes (visionary, decision-making, enthusiastic), as well as be fair and just (ethics). Such attributes inspire trust and confidence in the abilities of the superior and women subordinates look up to superiors with these behavioural attributes as role models. Moreover, superiors are more than just managers of work-related outcomes. They also guide, support and inspire their subordinates (Cable and Judge, 2003). Collins, Burrus and Meyer (2014) established that though women prefer communal or relationship-oriented behaviour more than men, both men and women value agentic or action-oriented attributes. They stated that the spillover socialization from non-work roles leads women to value communal or relationship-oriented attributes. Conversely, they prefer intellectual and action-oriented behavioural attributes because of their positive effect on resource allocation (Collins, Burrus and Meyer, 2014).

Women, who mostly face biases and discrimination concerning various aspects of professional life, value justice and consider it as an indication of how their contribution is perceived by the superior and the organization's management (Deepak, 2021). The results of our study are similar. Results indicate that the women subordinates perceive the quality of their relationship with their superiors as an indicator of organizational justice. The findings corroborate some of the earlier studies (Deepak, 2021; Collins, Mossholder and Taylor, 2012) which state that the subordinates may not necessarily be in direct touch with the organization's management; hence, the superior becomes the face of the management and the representative of the organizational justice, support and fairness. The results have also identified that organizational justice mediates between LMX and relationship conflict for the women subordinates, meaning that the perception of injustice acts as scarring for the relationship between the superior and the subordinate resulting in relationship conflict (Yadav, 2022). Women are significantly more affected by such conflicts than men, and they see these conflicts as disruptive (Kirti, 2017).

6. Theoretical Contribution and Practical Implications

The present study has made some significant theoretical contributions. We have contributed to the literature on "leadership behaviour preferences" by identifying the preferred leadership behavioural attributes of Indian women in the workplace. While earlier studies have focused more on the leadership style of the leader, there are limited studies which have explored the preferred leadership behavioural attributes of women. We have also contributed to the growing literature on LMX by identifying the mechanism through which LMX predicts workplace relationships and outcomes for Indian women.

Although both men and women are considered at par with each other in the workplace, equal treatment and consistent norms for both genders are encouraged (the equity approach). Conversely, differences do exist between men and women, therefore, unique norms for both genders should be practiced in the workplace (complementary approach) (Collins, Burrus and Meyer, 2014). Hence, the findings of this study will help superiors to understand that their support and behaviour will ensure more positive work outcomes and relationships with the women subordinates, whereas these behaviours may affect the male subordinates less. This is also consistent with the fundamental principle of LMX that superiors follow different styles while dealing with different subordinates.

The study results will also help HR professionals and policymakers to tailor-make the policies and procedures to ensure justice and fairness for both men and women. Significant measures for ensuring the involvement of women in decision-making, formulation of policies and procedures, and transparency in information-sharing will help reduce the perception of unfairness and discrimination. The experience of fairness will develop a sense of belonging and will improve workplace relationships.

7. Limitations and Scope for Future Research

Although the study findings have important implications, it also has potential limitations. Organizational justice is considered a unitary construct in the study. Future studies may look at how various dimensions of organizational justice impact relationship conflict in the workplace. Future studies may even do a comparative study between genders and see how the results differ.

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PhD Research Papers

Exploring Financial Inclusion and Gender: A Structured Literature Review

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Abstract: In recent years, female entrepreneurship and women-led businesses have experienced significant growth. However, these ventures often face challenges in securing financial resources, limiting their potential and performance. This research aims to analyze the development of literature on financial inclusion and gender gaps, uncovering their implications for female entrepreneurship and identifying emerging trends and patterns. Through the implementation of a Systematic Literature Review (SLR) methodology, this study examines 352 sources. Despite notable progress, critical challenges remain for women in accessing financing and formal financial services. These barriers are influenced by geographic, socioeconomic, and cultural factors that vary across regions. Key strategies identified in the reviewed literature include leveraging digital tools, microfinance, technological innovations, and financial education. The findings highlight that promoting financial inclusion is crucial for reducing gender gaps and encouraging female entrepreneurship. This review offers valuable insights into the factors that impact financial inclusion from a business perspective, emphasizing its transformative role in increasing women's economic participation. Limitations of this study include the manual analysis of SLR results and reliance on a single database, which may constrain the breadth of the findings. Future research should focus on overcoming barriers to financial access through innovative products, digital services, and technological tools. Analyzing both demand and supply factors is essential for developing effective policies. Financial inclusion should be considered an integral component of financial development, as providing more efficient and innovative services to vulnerable groups is essential.

Keywords: Financial Services, Digital Financial Inclusion, Entrepreneurship, Women.

1. Introduction

Financial inclusion of women entrepreneurs has gained significant importance at the global level due to its direct impact on both economic and social development in both developed and developing economies. Moreover, tools such as mobile money have a positive effect on achieving the Sustainable Development Goals (SDGs), particularly in terms of eradicating poverty (SDG 1), promoting gender equality (SDG 5), fostering decent work and economic growth (SDG 8), and reducing inequalities (SDG 10). Consequently, access to bank accounts is the first step toward financial inclusion. According to Loaba (2023), 79.6% of the population in high-income countries has access to banking services, a percentage that goes down to only 65% in low-income countries, with women being the most affected. This exclusion limits their ability to start businesses and achieve economic independence.

Financial development is essential for achieving financial inclusion. In developing countries, microfinance and innovations in digital finance have emerged as practical solutions for capital accumulation, productivity enhancement, and the reduction of income inequality. Microfinance institutions (MFIs) assist beneficiaries in launching income-generating activities through microcredit (Datta and Sahu, 2021). Despite these efforts, challenges persist. As noted by Morsy (2020), women entrepreneurs still face limited access to formal credit and often rely on informal financial systems, which are less sustainable (Kairiza et al., 2017). These barriers emphasize the critical importance of financial inclusion, which the World Bank (2020) defines as “access to formal financial products and services tailored to individual needs, with a clear understanding of associated risks and benefits”. However, financial inclusion goes beyond merely accessing these services; it also involves the ability to use them effectively.

One essential tool for improving financial inclusion is financial education, which, according to Koomson et al. (2020), significantly impacts bank account ownership in female-headed households. These programs help reduce the gender gap and enhance financial management skills, thus promoting greater economic independence among women.

In addition to gaps in financial education, other barriers such as limited access to technology and deeply ingrained sociocultural factors also hinder women's access to financial resources (O'Toole, 2023). Among the proposed solutions is the use of mobile money, which enables access to financial services via mobile phones. This tool holds substantial potential, particularly in rural areas, since it reduces distance, time, transaction costs, and the infrastructure requirements of traditional banks. Koomson et al. (2020) highlight that mobile money has

proven especially beneficial for female-headed households, even more so during times of crisis. Nevertheless, despite the advancements offered by mobile technology, new challenges have emerged, including digital literacy, gender-based digital discrimination, and information asymmetries (Wu et al., 2023; Kala Kamdjoug et al., 2021).

Therefore, this review provides a comprehensive understanding of the factors that affect women's access to financing while offering practical and actionable recommendations to promote inclusive, gender-focused economic growth (González, 2023; Loaba, 2023; Morsy, 2020). With these considerations in mind, this paper aims to answer the following research questions:

RQ1: How is research on financial inclusion and gender gaps evolving?

RQ2: What are the main approaches in the existing literature?

RQ3: What are the areas for future research?

This study uses a Systematic Literature Review (SLR) to explore challenges faced by women in achieving financial inclusion, focusing on issues like gender disparities in financing, digital literacy, tools, and economic inclusion's role in socio-economic development. Analyzing 352 articles (2013–2023) offers insights into how academia addresses these challenges.

The article is structured as follows: Section One introduces the topic; Section Two explains the methodology and framework; Section Three summarizes key findings, research methods, geographic origins, and citation patterns; Section Four discusses trends; Section Five concludes and suggests future research; and Section Six highlights research limitations.

2. Research Methodology

This study adopts the Systematic Literature Review (SLR) methodology for its effectiveness in analyzing existing ideas, generating new perspectives, and identifying future research areas (Guthrie & Murthy, 2009; Paoloni & DeMartini, 2016). The SLR method offers valuable insights into the financial inclusion of women entrepreneurs.

The SLR process involves several steps: (i) identifying research questions, (ii) creating a research protocol, (iii) developing a coding and classification framework, and (iv) conducting analysis (Massaro et al., 2016). The research questions (RQ1, RQ2, and RQ3), as shown in Step 1, were identified in the introduction section. For the protocol, the SCOPUS database was selected for its reliability and multidisciplinary coverage. Data extraction, conducted in June 2024, focused on 2013–2023. Inclusion and exclusion (I&E) criteria guided the search and quality assessment of results.

Keywords such as "inclusive finance*" and "financial inclusions*" yielded 5,578 results. Adding gender-specific terms like "female* OR women* OR woman* OR gender*" narrowed the results to 764. Further refining the search to disciplinary areas (e.g., Business, Management, Economics, and Finance) reduced the results to 459. This set included various document types, such as "Articles," "Books," and "Book Chapters," resulting in 441 eligible papers. As a final step, the authors established additional exclusion criteria:

- The search was limited to fully published studies.
- Only research in English was considered.
- Studies were restricted to the period between 2013 and 2023.

Consequently, the final dataset for SLR analysis is comprised of 352 studies. Figure 1 below illustrates the process for identifying eligible research publications, following the PRISMA flow diagram methodology developed by Moher et al. (2009).

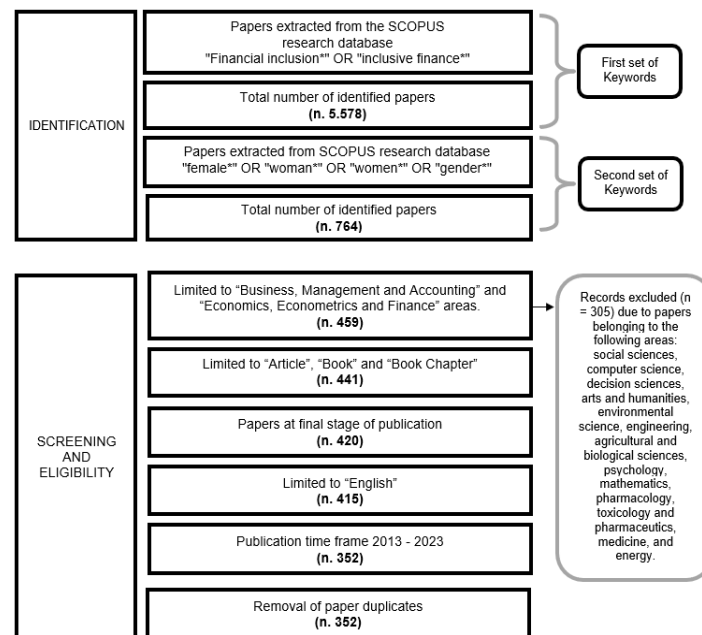


Figure 1: Flow Diagram – Procedure for Selecting Eligible Articles

2.1 Definition of the Analytical Framework

This section outlines the analytical framework, and the criteria applied to break down the selected elements. The first stage of the SLR methodology involved reviewing the titles, abstracts, and keywords of all selected documents (Massaro et al., 2016; Paoloni & Demartini, 2016). In this paper, the analytical framework is divided into three primary categories: article focus (A), research methodology (B), and geographic areas (C), as described below:

2.1.1 Article Focus

The authors identified four key categories to organize relevant SCOPUS literature (see Figure 2), each with subtopics:

- Gender Gap in Access to Credit (Class A1): Examines financial literacy, structural barriers, informal markets, and P2P lending. It highlights how financial literacy, and alternative financial systems help women overcome credit barriers and institutional challenges, fostering business growth and inclusion.
- Digital Tools for Financial Inclusion (Class A2): Explores mobile money, digital literacy, financial services, chatbots, and AI. It shows how digital tools improve banking access, resilience, and inclusion in underserved areas.
- Financial Inclusion in Developing Countries (Class A3): Covers economic development, energy poverty, gender gaps, SDGs, and government policies, focusing on financial inclusion's role in reducing poverty, empowering women, and advancing socio-economic progress.
- Others (Class A4): Includes studies that do not fit the above categories.

2.1.2 Research Methodology

The analytical framework distinguishes the following approaches:

- Literature Review (B1): A comprehensive review of existing literature that synthesizes key findings and conclusions from prior research.
- Qualitative Research (B2): In-depth exploration of complex concepts through case studies, experiments, surveys, interviews, and focus groups.
- Quantitative Analysis (B3): Application of statistical tools to analyze large datasets derived from surveys, databases, or reports.
- Mixed Methods (B4): Qualitative and quantitative techniques are integrated to obtain a more comprehensive understanding of a given phenomenon.

- Others (B5): Methodologies that do not fit into the previous categories; they are tailored to specific topics and objectives.

2.1.3 Geographic Area

The geographic areas (C) are determined based on the institutional affiliations of the authors and are categorized as follows: Eastern Europe (C1), the Middle East (C2), South and Central America (C3), North America (C4), Northern Europe (C5), Southern Europe (C6), Asia (C7), Africa (C8), the United Kingdom (C9), Oceania (C10), and Mixed Regions (C11). This classification provides a structured framework for presenting research on financial inclusion and female entrepreneurship across various regions. It offers valuable insights into the unique challenges and opportunities faced by women entrepreneurs in each geographic area, enabling a deeper understanding of both global and regional trends. This, in turn, helps to effectively address the specific issues identified through the Systematic Literature Review (SLR). The following section presents a detailed analysis of each relevant article identified in the process.

3. Results

To answer the research question (RQ1), which examines the development of financial inclusion and female entrepreneurship, the authors analyzed and categorized the 352 eligible documents into four key areas (see Figure 1), focusing primarily on Classes 1 - 4.

3.1 Research Focus

After applying the SLR methodology, organize the literature into various topics. Figure 2 presents a historical analysis of the literature, which provides valuable insights into the phenomenon of evolution and its significance in different contexts. However, the content analysis focuses on recent years (2013 onward) to clarify the current relationship between financial inclusion and gender gaps in female entrepreneurship (see the discussion section).

Of the 352 papers analyzed, Class A3 (Financial inclusion in developing countries) dominated with 167 studies, reflecting the challenges and opportunities in regions with limited financial service access. Class A1 (Gender gap in access to credit) appeared in 98 studies, emphasizing the need to address credit inequalities between men and women. Class A2 (Digital tools for promoting financial inclusion) accounted for 84 studies showcasing technology's role in improving financial access. Lastly, Class A4 (Others) contained three unrelated articles excluded from the analysis. The following subsections provide further details of this analysis.

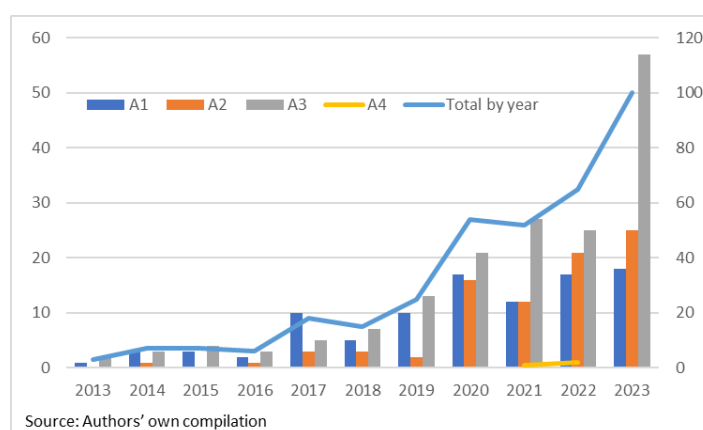


Figure 2: Research topics classified by year of publication

3.2 Research Methods

Among the various methodologies of research, Quantitative Research (B3) was the most widely used, comprising 148 of the 352 documents analyzed. This method was predominantly applied in studies on Financial Inclusion in Developing Countries (A3), accounting for 60 papers (40.5%), followed by research on the Gender Gap in Access to Credit (A1) with 48 papers (32.4%) and Digital Tools for Promoting Financial Inclusion (A2), which included 40 papers (27%). The second most frequently used methodology was Qualitative Research (B2), employed in 136

articles, followed by Mixed-Methods Research (B4), which appeared in 65 studies. Additionally, only one article utilized a Literature Review (B1), while two documents applied Other Methods (B6).

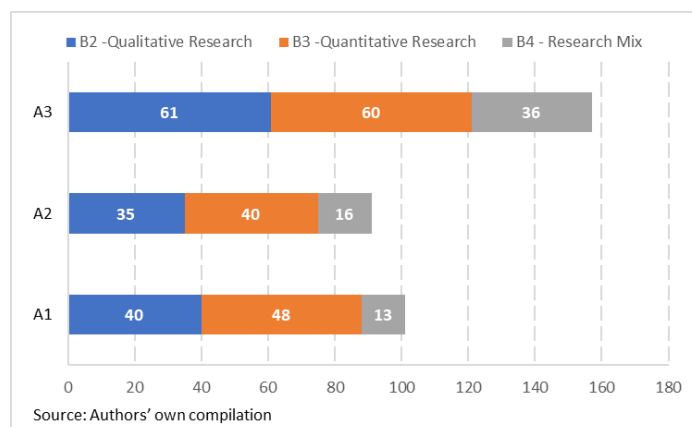


Figure 3: Distribution Research Methods by Article Focus

3.3 Geographic Areas of Authors' University Affiliations

The analysis reveals that authors represent a wide range of global regions. Most articles originate from Asia (74), followed by Mixed-Region Research (57), Africa (33), the Middle East (13), Northern Europe (10), North America (10), South and Central America (8), and Southern Europe (5). Figure 4 provides a detailed visualization of these results.

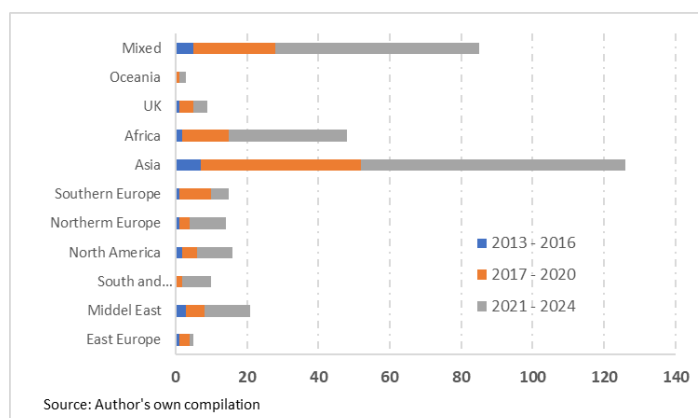


Figure 4: Authors' university affiliations by geographic areas

3.4 Most Cited Research

This section evaluates the impact of key studies (Ardito et al., 2015; Paoloni et al., 2021) using a citation index (h-index) averaged across all eligible articles. The analysis yielded an h-index of 35, selecting 25 studies with values from 36 to 420. Over 60% of these studies focused on Financial Inclusion in Developing Countries (Class A3), 28% on Digital Tools (Class A2), and 20% on the Gender Gap in Credit Access (Class A1). No articles fell under "Other" (Class A4). The sample includes all cited research, not limited to high-impact journals.

In Class A1, four studies highlighted structural barriers faced by women, such as a lack of credit information and educational disparities (Morsy, 2020). Additionally, informal markets, while offering financial support, were noted for perpetuating women's exclusion from formal financial systems in developing countries (Kairiza et al., 2017). Moving to Class A2, eight studies analyzed key aspects of digital financial access and digital literacy (Makina, 2017), the digitization of financial services (Abdulquadri et al., 2021), and the role of artificial intelligence (Mhlanga, 2020). In Class A3, 13 significant studies addressed financial inclusion as a critical tool for social development and empowering women (Bhatia & Singh, 2019). These studies explored the role of savings programs in reducing poverty and promoting financial security (Lyons et al., 2018). They also examined strategies to strengthen financial regulations and expand education to foster inclusion (Soumaré et al., 2016). Finally, Class A4 had no articles cited.

Qualitative research methods (B3) were most frequently employed, representing 60% of the studies, followed by quantitative methods (B2) at 32%, and mixed-method approaches (B4) at 8%. Geographically, the most cited studies originated from researchers affiliated with Mixed Regions (C11), accounting for 60%, followed by Africa (C8) at 20%, Asia (C7) at 16%, and Northern Europe (C5) at 4%.

4. Discussion

This section addresses Research Question 2 (RQ2): What are the main areas of focus in existing literature? and explores key questions related to each category:

Gender Gap in Access to Credit (Class A1): The literature consistently highlights a significant gender gap that restricts women's access to credit. Although, financial inclusion programs aim to improve access to credit, savings, insurance, and transfers, women face structural barriers, including limited access to credit information (Morsy, 2020). In India, microfinance programs have demonstrated a positive link to women's empowerment (Laha & Kuri, 2014), yet they still exclude women from formal financial systems. As a result, many women entrepreneurs look to informal markets, further restricting their access to finance opportunities (Kairiza et al., 2017). Microcredit is a crucial tool for women, it allows them to generate income (Datta & Sahu, 2018). However, the lack of collateral remains a major challenge, as access to credit is often tied to land ownership (Balasubramanian et al., 2019). For some regions, such as Pakistan, gold-backed microcredit has proven effective due to its cultural value (Zulfiqar, 2016), but this may reinforce dependency on specific assets. In the MENA region, there is growing support for more innovative financial products tailored to women-owned businesses (Saviano et al., 2020). Similarly, in Indonesia, group lending programs have shown positive results in overcoming collateral barriers by leveraging social capital (Indriani et al., 2020). However, critics like Reboul et al. (2021) caution against the risks of over-indebtedness among women. Furthermore, while digital credit and peer-to-peer lending offer increased access, they often come with high interest rates, which may lead to unsustainable financial burdens.

Class A2 – Digital Tools for Promoting Financial Inclusion: Mobile banking and digital financial technologies have a crucial role in making financial services more affordable and accessible. However, gender gaps still persist, limiting their overall impact (Lee et al., 2022). In regions where digital banking systems are more advanced, people use a wide range of digital banking services, unlike in less developed areas (Guerra-Leal et al., 2023). Mobile money has significant potential for financial inclusion, especially in rural areas and female-headed households. Koomson et al. (2020) highlight its effectiveness during crises, while Kala Kamdjoug et al. (2021) argue that sociocultural factors and privacy concerns influence its adoption. Additionally, Makina (2017) suggests that mobile money helps overcome barriers such as gender discrimination. Artificial intelligence also reduces risks and enhances access to financial services for vulnerable groups (Mhlanga, 2020). Research has shown that mobile money promotes saving, especially among women and individuals with lower levels of education. FinTech offers a promising solution to reduce gender gaps by enabling women to access entrepreneurship opportunities and increase their incomes (Guo et al., 2021). A study found that only 21% of women use FinTech products, compared to 29% of men (Chen et al., 2023). One innovative strategy is the Financial Opportunity Index (FOI), proposed by Imam et al. (2022), which emphasizes the need for promotional and educational programs to encourage adoption, especially among women and older adults. Additionally, digital currency projects, such as Central Bank Digital Currencies (CBDCs), aim to expand lending and include the unbanked population (Agarwal & Pandey, 2023). Both initiatives are emerging in developing countries. The importance of financial and digital literacy underscores the need for solutions tailored to local contexts, incorporating local languages and digital skills (Abdulquadri et al., 2021). Collaboration between governments and the financial sector can further facilitate technological adoption, making digital financial inclusion more accessible.

Class A3: Financial Inclusion in Developing Countries: Financial inclusion is a vital tool for addressing social and economic challenges, particularly in low- and lower-middle-income countries, where its impact is more pronounced than in high-income nations (Maruta et al., 2023). This underscores the need for inclusive models that not only broaden access to financial services but also cater to the specific needs of women. This focus on women is essential for closing the gender gap and advancing gender equality (Bhatia & Singh, 2019). Financial inclusion plays a crucial role in driving women's economic participation, thereby enabling their contributions to family well-being and broader social development (Zawaira et al., 2023). Despite these advancements, numerous gaps persist, perpetuating gender inequality in financial inclusion. Adegbite and Machethe (2020) identify various socio-economic, socio-cultural, institutional, legal, and regulatory factors that affect the demand for and supply of formal financial services. These barriers reinforce patterns of economic exclusion, particularly for women, emphasizing the urgent need for policies and financial models that are gender-sensitive and adaptable

to local contexts. One key approach to overcoming these barriers is digital financial literacy. Goyal and Kumar (2021) highlight that improving digital financial skills facilitates not only greater access but also more effective use of financial services, opening up new opportunities for vulnerable groups. Redford and Verhoef (2022) support this argument, noting that financial education has contributed to the growth of informal savings groups in Africa, promoting inclusive economic development and strengthening local resilience. Women, particularly in vulnerable regions, face substantial obstacles when accessing and using financial services (Swamy, 2014). Technological solutions, alongside financial security, have the potential to alleviate poverty and integrate the most disadvantaged groups (Ghosh & Vinod, 2017). Moreover, financial inclusion in sectors such as small-scale agriculture is key to achieving SDG 5, as it helps reduce inequalities and empowers women (Adegbite & Machete, 2020). Finally, Naidoo (2018) asserts that financial inclusion is crucial for driving sustainability, emphasizing initiatives such as the Green Fund and gender-focused financial products in South Africa.

5. Conclusions

The literature on financial inclusion and gender gaps has experienced significant growth since 2017. Financial inclusion has become a multifaceted concept, evolving to address the unique challenges faced by women and positioning itself as a key tool in reducing these disparities. Numerous studies have shown that financial inclusion strategies add value to the financial services sector by providing women with greater access to financial instruments, such as loans, primarily through digital platforms offered by banking institutions. This development has helped dismantle traditional barriers, bringing financial products closer to historically excluded groups. It is important to note that most of the research has been concentrated in developing countries, while in developed countries, this area of study is still in its early stages. After conducting a systematic literature review, the authors formulated the following research questions.

RQ1: How is research on financial inclusion and gender gaps evolving?

Over the past seven years, there has been a significant increase in the literature on financial inclusion and gender gaps, coinciding with a growing global focus on gender issues. Early studies primarily examined macroeconomic and developmental factors as potential causes and key drivers of poverty reduction. Around the same time, research began shifting towards exploring financial services as tools to provide access for marginalized populations, uncovering the structural, educational, and financial barriers that disproportionately affect women. Since 2020, technological advances have introduced a new phase of research, emphasizing digital tools for financial inclusion. This shift has sparked renewed interest in the opportunity's digitalization offers, such as access to credit and financial services through technological platforms. However, new challenges have emerged, including the persistence of the digital divide and the vulnerability of women and other marginalized groups to emerging technologies. Despite significant progress, several critical gaps remain, such as the lack of tailored financial inclusion strategies for women entrepreneurs and their businesses, the absence of inclusive regulatory frameworks, and insufficient attention to the social dynamics that sustain financial inequalities. These challenges underscore the need for more focused and comprehensive approaches to achieve truly effective and equitable financial inclusion.

RQ2: What are the main focal points in the existing literature on this topic?

The existing literature identifies several key patterns and strategies across four primary areas. First, the gender gap in access to credit (A1) exposes structural barriers women face, such as limited access to collateral and exclusion from formal financial systems. In order to address these challenges, strategies like microcredit, group lending, and digital loans are used, though these approaches carry the risk of over-indebtedness. It highlights the urgent need for more inclusive and sustainable solutions. The second area, digital tools for promoting financial inclusion (A2), highlights that while digital technologies support financial inclusion, gender gaps and cultural barriers persist. Initiatives like mobile money and FinTech projects emphasize the importance of digital literacy programs to encourage the widespread adoption of these tools. Regarding financial inclusion in developing countries (A3), its significance in driving socioeconomic development, particularly in low-income communities, is well-documented. However, despite technological progress, challenges such as insufficient infrastructure and cultural resistance remain, necessitating strategies to address these obstacles. Finally, the fourth area (A4) explores issues that, while not directly related to the central theme, still reflect emerging trends in financial inclusion research. Together, these patterns highlight the urgent need for comprehensive strategies including education, infrastructure, and inclusive policies to reduce gender disparities in access to financial services.

RQ3: What Are the Areas for Future Research?

Future research on financial inclusion should address gender disparities and explore how digital tools can mitigate women's financial exclusion, particularly in low-income and developing countries. A key research focus should be the role of both digital and traditional financial literacy in strengthening the economic resilience of women entrepreneurs. Reducing barriers to accessing financial services must remain a priority, as doing so can stimulate entrepreneurship and foster the growth of new businesses. Effective and inclusive policies require analyzing both demand- and supply-side factors. Research should explore improving service accessibility, reducing costs, and developing digital tools for women entrepreneurs. Key areas include the impact of digital currencies, mobile money, and fintech innovations. Although much research focuses on developing countries, these insights can also address financial access gaps in developed economies.

6. Research Limitations

This study has two primary limitations: reliance on a single database (SCOPUS) during article extraction and the use of a manual method for collecting eligible articles. Future research should broaden the scope by incorporating additional databases, such as WoS or Google Scholar. Although the manual approach lacks automated classification capabilities, it was chosen for its cost-effectiveness and flexibility. Despite these limitations, the method facilitated a more comprehensive and precise classification through detailed content analysis.

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Women on the Range: Gendered Adaptation Strategies for Resilience in Kenyan Pastoralism

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Abstract: This study delves into the gendered dimensions of climate adaptation in Kenyan pastoralist communities, focusing on the experiences of women in Kajiado County. Through twelve gender-disaggregated focus group discussions, this research explores how gendered social differentiation shapes women's adaptation strategies. The findings reveal that despite facing significant challenges due to cultural norms, limited access to resources, and climate-induced shocks, women play a crucial role in household and community resilience. By understanding the complex interplay between gender, culture, and climate change, this study aims to contribute to the development of more effective and equitable climate adaptation strategies that enhance the agency and well-being of pastoralist women and build resilient communities.

Keywords: Climate Change Adaptation, Pastoralism, Resilience, Social Differentiation, Women.

1. Introduction

Climate change and environmental degradation are significantly impacting Kenya's Arid and Semi-Arid Lands (ASALs), home to numerous pastoralist communities. These communities have traditionally relied on livestock rearing in challenging terrains characterized by erratic rainfall and frequent droughts (Birch, 2018; Howell et al., 2021; Wangui and Smucker, 2018). Historically, pastoralist systems have developed complex adaptive mechanisms to withstand environmental stressors. However, the increasing frequency and severity of climate-related events are testing their resilience (Grillos, 2018). In these pastoralist systems, gender roles have been deeply embedded, serving as adaptive mechanisms that have ensured the endurance of families and communities. Men have typically managed livestock and herding, while women have focused on domestic duties and, more recently, income-generating activities (Sandstrom and Strapasson, 2017; Yurco, 2018). These roles are not merely societal norms but are linked to the environmental challenges and economic practices sustaining pastoralism for generations. Nevertheless, these gendered roles are being called into question in the face of the escalating environmental crisis as the strategies that were once effective for survival are no longer viable under current climate stresses.

The changing climatic conditions have disproportionately affected pastoralist women, who now must adjust not only to shifting environmental conditions but also to the evolving gender expectations (Anbacha and Kjosavik, 2019; Venkatasubramanian and Ramnarain, 2018). In the absence or diminished ability of their male counterparts impacted by migration and other climate-driven pressures, women now frequently oversee multiple revenue streams, ensure the food security of the household, and make crucial adaptation decisions (Rao et al., 2019). This shift in gender roles highlights the dual burden on women to maintain traditional responsibilities while adopting new roles essential for household survival. Yet, despite their critical roles, gender-specific coping strategies are often overlooked in climate adaptation studies, leading to generalised strategies that fail to capture the nuances of gendered experiences and access (Furusa and Furusa, 2014; Walker et al., 2022). This failure to account for these gender-specific experiences can result in adaptation strategies that do not adequately address the needs and constraints faced by women. This exclusion can weaken pastoralist communities' general resilience and worsen already-existing gender disparities (Venkatasubramanian and Ramnarain, 2018).

In Kenyan pastoralist communities, women are at the forefront of climate adaptation, employing strategies like intercropping and utilising Indigenous knowledge to maintain livelihood security (Omolo and Mafongoya, 2019). However, societal structures often limit their access to resources such as land, livestock, and technology, impeding their adaptive capacity (Carr and Thompson, 2014). These challenges are not solely issues of gender inequality but are intertwined with other social categories, creating a complex web of individual distinctions that significantly affect women's adaptive capacity and opportunities. As highlighted by Alare et al. (2022), gendered social differentiations play a crucial role in shaping resilience and vulnerabilities, influencing how women navigate and respond to climatic challenges. The intersectionality of gender with factors such as age, socio-economic status, and household structure means women experience these challenges in diverse and nuanced ways (Rao et al., 2019). Furthermore, cultural expectations and structural inequities in many pastoralist

communities further compound women's adaptive capacities. Entrenched patriarchal norms often restrict women's agency, limiting their access to critical resources and participation in climate adaptation mechanisms (Balehey et al., 2018; Mushi and Makauki, 2017). This exclusion not only limits women's contributions to adaptation efforts but also perpetuates their vulnerability to climate change impacts.

This study, therefore, aims to explore the gendered dimensions of climate adaptation in Kenyan pastoralist communities, focusing on women's coping mechanisms and the influence of their gendered social differentiation on adaptation strategies. This research will seek to illuminate how gendered social differentiation within pastoralist communities' shapes adaptation strategies. The analysis of women's perspectives will provide valuable insights into the unique ways they navigate the challenges posed by climate change, contributing to a more nuanced understanding of resilience in pastoralist settings. Through this research, we aim to contribute to the development of inclusive and sustainable adaptation strategies that recognise and leverage the critical role of women in addressing climate challenges, ensuring their voices are heard and valued in decision-making processes.

2. Methodology

This chapter outlines the methodological approach employed in exploring the gendered dimensions of climate adaptation in Kenyan pastoralist communities, with a particular focus on women's coping mechanisms and the influence of gendered social differentiation on adaptation strategies. By employing a gender-sensitive qualitative approach, this study utilises focus group discussions to provide a comprehensive analysis of how women and men experience and respond to climate change within these communities.

2.1 Research Design

The research design involved qualitative primary data collection through focus group discussions. These discussions were conducted in four locations across three different communities, encompassing both agro-pastoral and pastoralist settings. This approach allows for a comparative analysis of mixed farming pastoralists and purely pastoralist communities, providing valuable insights into the unique challenges and opportunities faced by each group. The focus groups were gender-disaggregated, with twelve sessions in total (six with women and six with men), to ensure that the specific experiences and coping mechanisms of women are thoroughly explored. The communities were purposefully selected to represent a diverse range of contexts and characteristics, enabling a nuanced understanding of the gendered dynamics within the context of climate adaptation in pastoralist communities.

2.2 Selection of Study Sites

The selection of study sites was based on capturing the heterogeneity of agro-pastoral and pastoralist communities and their experiences with climate adaptation. The chosen communities include:

Illbisil: A rural mixed farming community practicing a combination of crop cultivation and livestock rearing. This site highlights the diversity of pastoralist experiences and challenges stereotypes, allowing exploration of how climate adaptation strategies intersect with gendered roles and responsibilities.

Kimana: A peri-urban community engaging in agro-pastoral practices with access to irrigation systems. This community faces unique challenges related to land-use changes, urbanization pressures, and limited access to resources, enabling an exploration of gendered dynamics in a rapidly changing environment.

Rombo: Comprising mostly nomadic and semi-nomadic households, this community provides insights into how climate adaptation specifically affects nomadic pastoralists, especially women, who often bear a disproportionate burden of climate-related impacts. The community's indigenous knowledge and practices offer valuable insights into traditional coping mechanisms and adaptation strategies.

This selection strategy ensures that the study captures a wide range of experiences and perspectives, particularly focusing on the role of women and the influence of gendered social differentiation on adaptation strategies.

2.3 Data Collection Techniques

The primary data collection technique employed in this study was qualitative focus group discussions. These discussions were designed to delve into the gendered dimensions of climate adaptation, with a particular emphasis on women's coping mechanisms. Conducted across the selected study sites, the focus groups were

gender-disaggregated to ensure that both women and men could freely express their experiences, perceptions, and concerns related to climate adaptation. This approach facilitated the creation of safe spaces where participants could discuss the impacts of climate change, their vulnerabilities, and the coping mechanisms they employ. The discussions were structured to elicit detailed narratives and insights, allowing for a deep exploration of the gender-specific challenges and opportunities within each community.

2.4 Data Analysis

The data collected from the focus group discussions underwent a comprehensive qualitative analysis process. The discussions were transcribed verbatim, and the transcripts were then coded and thematically analysed to identify key patterns, themes, and narratives related to gendered perspectives on climate adaptation. This thematic analysis allowed for the identification of recurring issues and unique insights across different communities and gender groups. The analysis aimed to uncover the underlying factors that influence gendered experiences of climate adaptation, with a particular focus on the strategies employed by women and the impact of gendered social differentiation on these strategies.

2.5 Ethical Considerations

Ethical considerations were of paramount importance throughout the research process. Informed consent was obtained from all participants, ensuring their voluntary participation and the confidentiality of their responses. The research was conducted in consultation with local community leaders, respecting local customs and norms, and with authority from Universidad de Oviedo. This ethical framework ensured that the research was conducted with integrity and respect for the communities involved, fostering trust and cooperation between the researchers and participants.

2.6 Limitations

This study faced certain limitations that should be acknowledged. Firstly, the research design focused on specific study sites, which may not fully represent the diversity of agro-pastoral and pastoralist communities across the broader region. Secondly, the reliance on self-reported data in focus group discussions may introduce biases, as participants may have varying levels of awareness or willingness to disclose certain information. Despite these limitations, the qualitative approach and the rich data obtained from the focus group discussions provide valuable insights into the gendered dimensions of climate adaptation.

This study highlights the significance of context-specific insights and the need for gender-sensitive adaptation policies that acknowledge and support the distinct strengths and challenges faced by women in pastoral and agro-pastoral settings. The study's focus on gender-disaggregated data collection and analysis guarantees that both men's and women's perspectives are heard and considered, offering a more comprehensive understanding of the vulnerabilities and adaptive capacities inherent in these communities. In pastoralist areas of Kenya, this method not only advances scholarly knowledge of gendered climate adaptation but also provides guidance for real-world interventions meant to boost resilience and advance equitable adaptation tactics.

3. Findings

The purpose of this study was to investigate how gender affects climate adaptation in pastoralist communities in Kenya, with a particular focus on how women's coping and adaptive strategies are influenced by gendered social differentiation. This study explores the relationship between gender, social diversity, and cultural norms to highlight the challenges and opportunities that women face when adapting to climate change.

3.1 Resource Accessibility and Gendered Constraints

Pastoralist women face significant resource constraints that limit their ability to adapt to climate change. The focus group discussions reveal heterogeneity in resource access and adaptive capacity, shaped by intersecting social differentiations such as age, education, class, and marital status.

Older women, reliant on traditional livestock-based livelihoods, are particularly vulnerable. One respondent noted, "This climate change has taken away our livestock. They are our main source of wealth, so when we have no cows, children will be sent home for school fees." In contrast, younger women, with better access to early warning information and climate-smart agricultural practices, have more opportunities to diversify income sources. Thus, these younger women who have higher literacy levels, access and, utility of technologies like

smartphones may have more opportunities to diversify their income sources and access information about climate change adaptation. However, the data indicates that there is unequal access to these information sources, with those younger women from lower-income or remote households face significant disadvantages in accessing these resources.

Furthermore, marital status and household dynamics also influence women's resource accessibility. Married women or those with their own land and livestock have more autonomy and access to resources like communal grazing lands, enabling practices such as "paddock" and "zero-grazing." Conversely, unmarried women or those from resource-constrained households struggle with traditional livelihoods and petty trading, exacerbating their vulnerability to climate impacts. The poorer women are more dependent on traditional livelihoods and petty trading like "milk production for sale" but "now we do not have any milk to sell" because the drought killed livestock". Consequently, due to the marital status, the unmarried and poor women may struggle to negotiate access to communal resources, which are vital for sustaining their livelihoods. The lack of access to these resources can exacerbate their vulnerability to climate change impacts, as they have fewer options for managing and mitigating the effects of drought and other environmental stresses.

Additionally, class and wealth differentials further influence adaptation choices. Women from affluent households can invest in alternative livelihoods, such as "chicken rearing" and "beekeeping," providing a buffer against climate impacts. However, for the economically strained women, the loss of livestock is catastrophic. Livestock is not just a "primary source of income" it also serves as "credit collateral". Consequently, with the loss of livestock women's ability to sustain their livelihoods and invest in alternative strategies is severely impacted. Without the necessary capital to explore new income-generating activities, these economically strained women may find themselves trapped in a cycle of poverty and vulnerability, with fewer options for building resilience against climate impacts.

In response to these disparities, the respondents emphasize the need for community-level interventions that address the heterogeneous needs and constraints of different groups of women. Initiatives like tree planting and education on climate-smart practices could benefit the entire community but may require tailored approaches to ensure equitable access and participation as one of the respondents suggested.

3.2 Decision-Making Authority and Gender Dynamics

Social differentiations among women significantly influence their roles, responsibilities, and decision-making authority within households and communities. Economic pressures have compelled women to take on more prominent roles in providing for their families, particularly among widows and households where men are absent. As one participant noted, "nowadays, women are the most responsible ones, especially for the widows. We are no more different from those with husbands." This statement reflects the growing recognition of women's contributions to household survival and the necessity for them to step into roles traditionally held by men. This increased economic responsibility has, in turn, empowered women to become more involved in decision-making processes related to adaptation strategies. As women take on greater roles in securing household livelihoods, they gain more influence over decisions concerning resource management, agricultural practices, and community adaptation initiatives. This empowerment is not only reshaping gender dynamics within households but also challenging traditional power structures within communities. By actively participating in decision-making, women can advocate for adaptation strategies that address their specific needs and priorities.

Moreover, the data suggests that education may be playing a role in shifting gendered decision-making dynamics. Pastoralist women are increasingly prioritising education for their children, including orphans, to empower the next generation. This collective effort is evident in their initiatives to unite and contribute resources to ensure that even the most disadvantaged children have access to schooling. As one respondent noted, "That is why we have united and contributed to those who are very low to ensure that their children go to school and also the orphans." This investment in education is not only a testament to the women's commitment to their children's future but also a strategic move to enhance the community's overall resilience to climate change. By ensuring that all children, regardless of their family's wealth or social status, have access to education, women are laying the groundwork for a more equitable distribution of decision-making power in the future.

However, persistent gender hierarchies and constraints remain. Despite women's increasing involvement in decision-making, traditional gender norms continue to pose significant challenges. Men, traditionally seen as the primary providers in this pastoralist community may be struggling to perform this role in the face of

economic hardships, which inadvertently may undermine women's decision-making authority. As one participant highlighted, "you may find that when a child comes home for school fees and finds their father, he tells them 'look for your mother because I don't have money.'" This scenario illustrates how economic pressures are reshaping household dynamics, with women stepping in to fill the financial void left by men. However, this shift does not necessarily translate into a complete transformation of gender hierarchies, as women still face societal expectations and limitations that can restrict their authority.

These findings demonstrate the complex nature of gender roles in adaptation decision-making. Economic pressures and evolving socio-ecological circumstances are contributing to a more prominent role for women, but social differentiation, including class, wealth, and marital status, continues to shape the extent of female participation in decision-making processes.

3.3 Social Networks and Informal Support Systems

The data highlights the strong sense of community and mutual support among women in pastoralist communities. Social networks serve as critical safety nets, transcending individual differences and social differentiations such as class, wealth, and marital status.

These networks enable women to pool resources and provide mutual support, ensuring the wellbeing of the entire community. As illustrated by the statement, "we as women, have united and loved each other. If it weren't for them, my children would have not gone to school," these networks operate on principles of solidarity and collective responsibility. By coming together, women can mitigate the impacts of economic hardships and social inequalities, providing essential support to those who are most vulnerable. This collective approach not only strengthens community resilience but also challenges traditional social hierarchies, as women leverage their unity to address shared challenges and advocate for their needs. Through this lens, social differentiation becomes a unifying rather than divisive factor, as women harness their diverse strengths and resources to foster a more inclusive and supportive community environment.

In addition, women's social networks are essential for exchanging information and developing new skills, particularly in alternative livelihood strategies. These networks facilitate the exchange of insights on activities like "beekeeping," "chicken rearing," and "trading," as well as environmental preservation techniques like "tree planting." Through making information and resources more accessible, these networks help close gaps between women from different socioeconomic backgrounds. This cooperative atmosphere allows women to leverage their diverse experiences and knowledge, creating opportunities for all members to contribute to and benefit from new adaptation strategies. This collective approach not only enhances individual and community resilience but also challenges traditional social hierarchies, as women from different backgrounds unite to address shared challenges and drive innovation in adaptation practices.

Furthermore, self-help groups, such as "Tuinuane," play a pivotal role in providing economic support and resilience in the face of climate change challenges. These groups enable women to engage in cooperative activities, such as "selling milk" and "accessing loans", which are crucial for sustaining their livelihoods and enhancing their financial independence. However, the severe drought has disrupted these cooperative activities, leading to a loss of this vital source of income and support. This disruption highlights the vulnerability of these networks to environmental stressors and underscores the need for adaptive strategies that can sustain their operations even in adverse conditions. Despite these challenges, the existence of such networks demonstrates the potential for collective action to transcend social differentiations, as women unite to address common challenges and build resilience.

Despite these challenges, the existence of such networks demonstrates the potential for collective action to transcend social differentiations. Women unite to address common challenges and build resilience, emphasizing the crucial role that gendered social networks play in helping women deal with environmental issues. These networks provide access to information, resources, and emotional support, enabling women to explore innovative adaptation techniques and ultimately enhancing the resilience of their communities.

In summary, the findings of this study underscore the importance of understanding the complex interplay of gender, social differentiation, and cultural norms in shaping climate adaptation strategies in pastoralist communities. By highlighting the unique challenges and opportunities faced by women, this research contributes to a more nuanced understanding of gendered adaptation and informs the development of more equitable and effective adaptation policies and interventions.

4. Discussion

The findings of this study provide a nuanced understanding of the gendered dimensions of climate adaptation within Kenyan pastoralist communities. By integrating intersectional and feminist geography theories, we can further illuminate the complex interplay of social identities and power dynamics that shape women's adaptive strategies. This discussion aims to deepen the theoretical integration by drawing on these frameworks to provide a critical perspective on the findings.

4.1 Intersectionality and Gendered Climate Adaptation

Intersectionality, as highlighted by Crenshaw, offers a powerful lens to understand how overlapping social identities, such as gender, age, education, and marital status, influence women's experiences and adaptive capacities in pastoralist communities (Wangui, 2014; Wangui and Smucker, 2018). The study's findings reveal that while gender is a significant factor, it is the intersection of various social identities that truly shapes women's access to resources and decision-making power. This intersectional approach underscores the heterogeneity within gender groups, highlighting that adaptation strategies are not uniform but are influenced by a myriad of social factors.

An intersectional perspective reveals that older women, especially widows, experience more restrictive circumstances, while younger, educated women frequently have more agency and access to a variety of economic opportunities (Anbacha and Kjosavik, 2019). This differentiation within gender groups challenges the notion of women as a monolithic category and emphasizes the need for adaptation strategies that are sensitive to intra-gender variations. Intersectionality thus enriches our understanding of resilience by illustrating how social stratification within gender groups affects adaptive capacities.

4.2 Feminist Geography and Power Dynamics

Feminist geography provides a critical framework to examine how spatial and social structures influence gendered power dynamics in climate adaptation (Carr and Thompson, 2014; Macgregor, 2010). The study's findings reveal that decision-making authority, traditionally male-dominated, is being reshaped by climate-induced stressors. This shift in power structures is not uniform but varies across social lines, with women in certain social positions gaining more influence in household and community decisions.

This study reveals that climate-induced stress is reshaping traditional gender hierarchies, leading to incremental shifts in decision-making roles within households and communities. In households led by widows or female elders, women frequently assume roles previously held by men, especially in financial and resource management. The findings reveal that women's agency in decision-making is influenced by social differentiation, with factors such as household structure, socio-economic status, and education playing significant roles. For instance, women who are household heads or whose husbands engage in migratory labour are increasingly taking on decision-making roles. This shift in decision-making authority reveals intra-gender differentiation in women's agency. Agency, in this differentiated context, is not only about empowerment but also about navigating power within intersecting social structures. While some women successfully assume decision-making roles, others face barriers due to age, literacy, or social expectations tied to marital status. These differences in agency across social lines within gender groups illustrate that adaptive capacity is shaped not just by gender but by the interaction of various social factors within that gender. Nevertheless, all these shifts are constrained by enduring cultural norms that still prioritise male authority.

Feminist geography emphasizes the importance of space and place in understanding gendered experiences. In pastoralist communities, the spatial distribution of resources and the cultural norms governing essential assets ownership and decision-making mechanisms for land and livestock ownership create structural barriers for women (Mushi and Makauki, 2017). Feminist geography helps create a better understanding of how women's adaptive strategies are shaped by the intersection of these spatial dynamics with social identities. This viewpoint emphasizes the necessity of adaptation strategies that consider women's living and working environments as well as gender.

4.3 Synthesizing Theoretical Insights

The integration of intersectionality and feminist geography theories provides a comprehensive framework for understanding the gendered dimensions of climate adaptation in pastoralist communities. This theoretical

synthesis reveals that adaptation is a multifaceted process influenced by the intersection of social identities and spatial dynamics.

The study identifies three key themes: the diversification of livelihoods, shifts in decision-making power, and access to resources. Applying an intersectional lens corresponds with previous findings in studies by Wangui and Smucker (2018) that not all women have equal access to diversifying their sources of income; those whose identities as youth and education intersect are better positioned to do so. Feminist geography further explains and allows a correspondence with other studies such as Mushi and Makauki (2017) that spatial constraints, such as land ownership norms, limit the ability of women to engage in diversified livelihoods.

Shifts in decision-making power are also influenced by these theoretical frameworks. Intersectionality highlights how women from different social strata experience varying degrees of empowerment in decision-making processes (Anbacha and Kjosavik, 2019). Feminist geography provides insight into how these shifts are spatially situated, with women in certain geographic areas gaining more influence due to changes in resource availability and community dynamics (Carr and Thompson, 2014).

Access to resources is the critical theme where both theories intersect. Intersectionality reveals how social identities affect women's access to resources, with marginalized groups facing greater barriers (Wangui, 2014; Wangui and Smucker, 2018). Feminist geography emphasizes the spatial distribution of these resources, illustrating how geographic location and cultural norms further complicate access for pastoralist women in the Kenyan rangelands (Macgregor, 2010).

The findings of this study underscore the importance of integrating intersectional and feminist geography theories into the analysis of climate adaptation strategies. By doing so, we can deepen our understanding of the complex interplay of social identities and spatial dynamics that shape women's adaptive capacities. This theoretical integration not only enhances the academic impact of the study but also provides valuable insights for developing inclusive and equitable adaptation policies that empower women and strengthen community resilience.

4.4 Contributions and Future Research Directions

This study makes significant contributions to both policy and practice, as well as to the academic literature on climate adaptation in pastoralist contexts. In terms of policy and practice, the research underscores the necessity of integrating gender-sensitive approaches into climate adaptation policies. Through the diverse roles and contributions of women in pastoralist communities, policymakers can craft interventions that enhance women's decision-making capabilities, and address gender-specific barriers to adaptation. Academically, the study illuminates the often-overlooked intra-gender variations in adaptation strategies, demonstrating that adaptation capacities among women are not homogeneous. This finding challenges the prevailing assumption of uniformity in women's adaptation strategies and highlights the need for tailored interventions that consider these variations.

The study also suggests areas for further research, particularly in exploring longitudinal shifts in intra-gender decision-making roles. Future studies could examine how decision-making roles evolve over time across social strata within gender groups, especially as climate pressures intensify.

5. Conclusion

The study provides valuable insights into the gendered dimensions of climate adaptation in pastoralist communities in Kenya. It highlights the significant role of social differentiation in shaping women's access to resources, decision-making authority, and adaptive capacities. The findings underscore the importance of considering intersecting social factors such as age, education, class, and marital status in designing interventions to support women's adaptation efforts. By addressing the diverse needs and constraints of different groups of women, community-level interventions can enhance the resilience of pastoralist communities to climate change. Additionally, the study emphasizes the critical role of social networks and informal support systems in fostering collective action and building resilience, offering valuable lessons for policymakers and practitioners working to support climate adaptation in similar contexts.

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Perception of Engineering Among Girls in India: Implications on Career Decisions

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Abstract: India is witnessing a steady growth in the enrolment of girls into engineering education. There has been a change in the enrolment status from 9% in 2012 to almost 20% in 2023. This positive movement may be attributed to the affirmative actions taken by the Indian government in promoting engineering education among girls. These actions were conceived with a hope to reach critical mass to maintain the momentum. The vision thus is to facilitate participation of girls in technical domain as an organic movement. Taking this development into cognizance, this study examines the current perception of engineering among female science students (those opted for Physics, Mathematics, Chemistry in senior secondary classes) and their intended direction of higher education. Senior high school female science students from seven different high schools (n=150) were administered an open-ended question seeking their understanding on engineers and engineering. 137 students responded. The responses were analysed using content analysis. The analysis resulted in four categories viz., 'Impression of engineers', 'Impression of engineering career', 'Association of utilitarian value, and 'Association of income'. The theme which ran across these categories was 'relate, recognize and requirement'. The study revealed that largely female students have expressed their intention of higher education, without exploring or seeking more clarity on the image which they hold to be correct. It could also be seen that there was no explicit mention of the gendered nature of engineering although it was implicit in their perception. We, thus propose interventions aiming at providing a comprehensive view on engineering field making it as an attractive and possible career option for female science students.

Keywords: Women Engineers, Engineering Education, Perception of Engineering, Belonging

1. Introduction

Inclusivity of women in STEM education and career has been a concern across the world. The under representation of women has been attributed to factors like self-efficacy beliefs (for example, de las Cuevas, García-Arenas and Rico, 2022), interest (for example, Sadler et al, 2012; Weisgram, Bigler and Liben, 2010), gender-role beliefs (for example, Dicke, Safavian and Eccles, 2019; Obura and Ajowi, 2012; Zhang, Kong and Wang, 2023) belongingness, and identity (Joshi et al, 2020; Wofford, Smith, and Branch, 2024). In addition, preferences to work with people was found as a positive influence (Eccles and Wang 2016; Su, Rounds and Armstrong, 2009). It could be seen that the factors themselves are outcome of constant interplay between the images which person holds about the occupation and what she sees/ experiences in the external world. However, around the globe, continued efforts are on from the policy makers to encourage and facilitate women's contribution into engineering. In India, under representation of women is seen specifically in engineering and not in health sciences. India has achieved gender parity with respect to enrolment in higher education as per the latest survey on higher education (Ministry of Education [MoE], 2021). However, the choices made by girls in higher education is not uniform across disciplines. The enrolment of girls into engineering education has remained around 26% for a decade plus. India experienced gender-gap in the enrolment of engineering, especially in the Institutes of National Importance (INI) like IITs (Indian Institute of Technology) and NITs (National Institute of Technology). Studying in these institutes meant access to quality education at affordable fees and promising careers with a significantly higher compensation package. Entrance to these institutes is through national level Joint Entrance Examinations (JEE). Qualifying in these examinations would generally require rigorous preparations, beginning as early as class 9. And this would generally require the students to attend coaching institutes outside the school hours. The phenomenon of lower enrolment of girls, despite qualifying in JEE, intrigued the government and hence a committee was set up. The committee came up with the recommendation of introduction of supernumerary quota for girls (Gonsalves 2017) in INIs and There has been a change in the enrolment status from 9% in 2012 to almost 20% in 2023 (Ministry of Education [MoE], 2024). In addition, the report stressed the need to take up interventions at high school levels to ensure sustained participation of girls. The report also highlighted the importance of organic growth, meaning participation of girls in technical domain as an internally driven phenomenon. To ensure sustained participation of women in engineering field, we need to address the phenomena holistically. It is important to instill the confidence in young women so that they can inspire their juniors by being role models. A study by Gupta (2020) shares that the experiences of the young women students, in elite institutions, are still evolving to be positive.

The study underscores the need to have healthy social relations within these elite institutes. Also, whether the positive wave has reached the next level of aspirants needs to be investigated. Towards this, a larger study aimed at understanding the factors influencing the choice of higher education among senior high school students was taken up. A part of the study was to capture their perception about engineering education along with their intention to take up engineering education as their choice for higher education. This paper presents the analysis of the perception of girls about engineering and about engineers and its association with their intention to take up engineering education.

2. Perception and Decision Making

Luthans (2012) describes perception as the interpretation of a situation which is unique to individual and that it may not be the exact representation of the situation. How an individual makes the meaning of a situation depends on a complex process, rendering a unique image of the surroundings. The external world offers same visuals, actions to everyone, however, it is the individual who applies different filters in registering and organizing the sensory information to arrive at some conclusions which are meaningful to them. For example, associating working with machines to engineering may be common across the genders, but whether one can relate to that profession depends on the socially constructed roles acting as filter. The assumed suitability of individual to a career is a result of implicit and explicit messages they gather during their growing years. Further, social perception is the constant interaction of the perceiver and the perceived. Robbins and Judge (2015) share that “the world as it is perceived is the world that is behaviourally important”. Hence, perception plays a significant role in decision making, either at individual level or at group level. The rational way of making decision involves careful evaluation of each alternative. It assumes little or no relevance to difference in filters used in elimination of alternatives. It is natural for human beings to prefer simplicity over complexity, which makes them adopt some generalized notions. However, this also brings in the danger of stereotypical evaluation of alternatives. Individuals use tried and tested methods and the one which they are familiar with, in making choices (Robbins & Judge: 176-177, 2015). For example, if a child sees men working on machines more often than women, she may understand that working with machines belong to men. Similarly, in growing years, when one sees the direct help offered by doctors to the needy through their profession, or through a nurse, medicine field appears to be more connected with people than engineering. Hence, understanding how girls perceive engineering field can give one of the important angles to work on solutions. This is also evidenced in the recent study by Batz-Barbarich, Strah and Tay (2024). Therefore, our focus was to understand how girls perceive engineers and engineering career.

3. Methods and Materials

3.1 Participants

The study used two primary criteria for the selection of sampling population: the schools selected must have student-representation from most of the regions of India and follow the same system of education (Central Board of School Education). A questionnaire was administered to Senior high school science students (Class 11) as part of a large project aimed at identifying the factors influencing their higher education choice. Of the total 342 respondents, 150 were girls. As part of the questionnaire, a free text question - 'what comes to your mind when you think of engineers or engineering?' was asked. 137 girls responded to the free text question. Majority of them (54%) were from south, 20% from North, 6% from East, and 4% from West. 15% of the girls had not taken Mathematics. Around 38% of the mothers and 40% of the fathers had education graduation and above. Around 18% of the students had seen a female engineer in the family, which included mother, sister, cousin and aunt. 41 students (out of 150) expressed their intention to take up engineering education as their higher education choice.

3.2 Data Analysis

Qualitative content analysis (QCA) was adopted as a method to understand the responses. Schreier (2012) explains how this method is suitable when there is certain amount of interpretation needed. It can be applied to data gathered by variety of techniques, say interviews, television programmes, social media responses etc. It is especially recommended when the data is rich. The advantage of using QCA is that it helps in selecting the data with respect to the question and hence reduces the data. All other information not relevant to the question are not considered. It focuses on context and meaning of the text rather than the frequency of occurrence of certain word as in content analysis. Another important difference is that QCA focuses on the latent meaning of

the text. QCA was combined with coding to arrive at categories, sub-categories and theme. The coding procedure was adopted as per Saldana's (2013) coding manual. The first cycle of coding yielded fifteen sub-categories. Further, four categories were formed, grouping the sub-categories. The lead author did the first set of coding, which was subsequently reviewed and discussed with co-authors to arrive at the final set. Finally, a primary theme 'Recognize, relate, and requirement' emerged out of the data. Our sensing from the data was that girls perception of engineering could be captured by these three parameters. While the categories explained the content of perception, the theme captured the essence of the data (Morse 2008). Table 1 gives example responses, codes, subcategories and categories.

4. Findings

4.1 Categories and Subcategories

Figure 1 shows the relationship between categories and subcategories. A brief explanation of the categories and the theme is given in the discussion section.

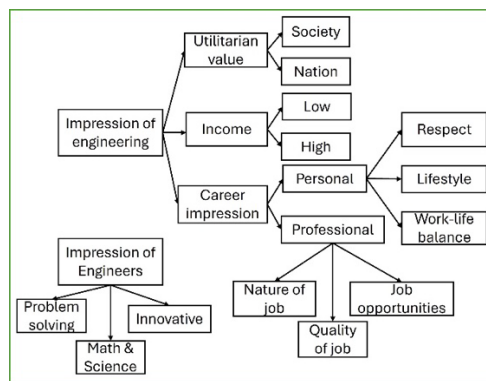


Figure 1: Categories and subcategories

Table 1: Example responses, codes, subcategories and categories

Responses (verbatim)	Codes	Subcategories	Categories
'...building block of our country, ... good job opportunities, timely promotion, salary hikes and the best facilities. ...math person in the engineering jobs.'	Useful to the country, job opportunities, good working conditions, high income, Academic excellence in Math, perseverance	Useful to country, job opportunities, quality of job, high income, math, hard working	Utilitarian value, Career impressions, Income, Impressions of engineers
'A man standing wearing yellow cap with a pen and paper, study hard, especially math'	Man with yellow cap, studious, Academic excellence in Maths, study hard	Gender association Construction site (nature of job), Math excellence	Impression of engineers, Career impression, Impression of engineers
'I can only imagine people working on their jobs 24/7, insufficient time of rest for themselves or their family. I feel engineering as draining and with no purpose'	Working hard, no time for family, engineering is draining, no purpose	Lifestyle, work-life balance, lack of purpose	Career impressions
'Engineers are found everywhere, ...computers, actors, govt jobs, start-up companies, businesses, industries etc. can't think about one particular picture for engineers, it's vast field and engineering students pursue things other than engineering'	Engineers everywhere	Lack of respect, recognition	Impressions of engineers, Career impressions
'machines, tools etc',	Machines, Work-life balance	Nature of work, Lifestyle	Career impressions

'first thing that I can think of is working with machines and people unable to give proper time to family members'			

4.1.1 Impression of Engineers

The overall impression of engineers was positive. Engineer was seen as someone who is proficient in Mathematics and Physics. In addition, traits such as being innovative and having an aptitude for problem solving were attributed to engineers.

4.1.2 Impression of Engineering

This category captures participants' understanding on engineering career in terms of perceived personal life and professional life. Under personal life, they shared their understanding on presence or absence of work-life balance, lifestyle, and perceived respect in the society while 'nature of job', 'quality of job', and 'job opportunities' were cited under professional aspects.

4.1.3 Association of Income

Engineering was seen as a career with a scope for decent earnings. It was believed that only those who qualify from premium engineering colleges have more scope to earn than graduates from tier-2 or tier-3 colleges.

4.1.4 Association of Utilitarian Value

The responses highlighted the understanding of the usefulness of engineering careers to society and country.

4.1.5 Theme —, Relate, Recognize and Requirement

'Relate' refers to seeing alignment of personal goal with engineering career and the lifestyle. For example, visualizing oneself in the areas like - construction, IT, automobile, etc. This includes implicit gender association as well. 'Recognize' is the perceived respect and recognition from the society which involves pride association with engineering career; 'requirement' refers to the perceived utilitarian value of engineering education or job to people, society, country and the like.

5. Discussion

Scholars have explained 'recognize and relate' under the concept of Identity and goal congruence and 'requirement' is akin to communal affordability that an engineering career can offer. Gee's (2000) in his work on identity, shares four ways in which identity can be viewed – first one is 'nature-identity' which is a state, developed by natural forces (like genetic); second is 'institution or position identity' which the institute authorizes, third is 'discourse identity' that which is recognized by others in interaction and the fourth on is 'affinity identity', which is shared in the affinity groups. The classification is to help understand what it means to be "certain kind of person". He also shares that a person's identity is a combination of all the four and that there can be no boundary experienced. For this study, discourse identity seems to be more relevant. It could be seen that students perceived engineering careers as those which are respected in the eyes of society. This might be due to the association of position, income level and the intelligence associated with the degree. However, unless they see the alignment of this type of career with their own intended lifestyle, relating to engineering becomes challenging, evidenced by the response from a participant who does not wish to go for engineering education below:

engineer is building block of our country, ...I see good job opportunities, timely promotion, salary hikes and the best working facilities. I visualize a math person/brain in the jobs related to Engg. Even with tough working conditions, they give best performance, i see my mother slogging every day in hot climate

While the participant acknowledges the positive aspects of engineering field, the choice of words like *-slogging* can be inferred as not the lifestyle participant wishes to go for. In addition, when engineers are recognized as math-competent, a higher self-efficacy can only facilitate considering engineering education. Joshi et al (2020) found that the scope for helping the community becomes the deciding factor for women while choosing career. For example, if helping people is the goal and if they perceive engineering career to offer that possibility, then the person has a positive inclination towards engineering education. It is important to note here that most girls related helping people to a doctor not an engineer. Engineering was more associated with helping society grow

through technological advancements. Similarly, Eccles (2009) in her work found that women are less likely to opt for engineering as they want occupations which directly help people. This translates into education in the medical field. Weisgram et al (2010) found that occupational values are recognized differently between male and female genders. It is evidenced in this work as well that a career in engineering is recognized more with machines by girls. Similarly, Capobianco et al (2011) found in their study that children of elementary schools form the conceptualization of engineer as masculine. This notion further gets amplified by the social roles they witness and hence distances them from the path. Eidlin-Levy et al (2023) in their work with primary and high school students, found that the girls preferred less-Math intensive fields. In another study by Tandrayen-Ragoobur (2022), it is found that despite the affirmative actions, the probability of women choosing engineering education is lesser.

It is of noteworthy observation that there is difference in processing of the same information between young women who wish to take up engineering education vis-à-vis who do not wish to take up. The general notion about engineering among both the groups is that it is a career which is Mathematics intensive and that it involves working with machines and technology. The significant deterrent factors were perception of non-availability of good jobs, and non-association of utilitarian value with the engineering career. Those who expressed their intention to pursue it saw it as an opportunity to help society and the presence of work-life balance. This means the perception is formed based on here say or the exposure they get through their family and around. There was no evidence showing awareness on available opportunities for girls who want to pursue engineering. No one mentioned the availability of supernumerary quota which offers additional seats for young women in INIs but mentioned the difficulty of getting into INIs (E.g. quote -*The path to become engineer is very difficult because they have to clear exam called JEE, Jee advance which is considered the most difficult exam*). It can be inferred that the option of studying in INIs remains filtered out despite the efforts by the policy makers. There was no evidence to show that they considered the possibility of studying engineering in these institutes, which could enhance their career opportunities. Censoring self from such available opportunities suggests lack of awareness and lack of belonging. This study hence accentuates the necessity of interventions that can bring in gender-neutral image of engineering career and necessary awareness to empower them to make informed career-decisions. The significance of interventions and proposed interventions are discussed in the next section.

5.1 Significance of Interventions

In India, one of the significant steps was the introduction of supernumerary quota for girls in IITs and NITs. However, this study found minimal or no awareness of such a policy existing among girls. This suggests that interventions should start much earlier in middle schools. Jiang et al (2024) found in their study that increased awareness on Math-intensive careers significantly increased the intention among high school girls to pursue STEM careers. Sadler et al (2012), in their longitudinal study on high school boys and girls, found that there is a significant decrease in interest in pursuing engineering education career among girls during high school. Colvin et al (2013) experimented with middle school girls by making them do hands-on activities such as constructing bridge, water purification etc., as part of civil engineering. They found that there was change in the perceptions of girls about engineering with respect to engineering career's usefulness to people and society. A study of the influence of social networking on the decision to pursue engineering revealed that women attributed it to the school counsellor. Furthermore, the study found that the decision to higher education in engineering occurs during high school or pre-college levels (Wao et al, 2023). Capobianco (2011) conducted qualitative longitudinal study of undergraduate female engineering students to understand how they construct engineering identity. They found that involving them more in real-life engineering tasks strengthens their professional engineering identity and hence their intention to pursue engineering careers. Despite decades of study on the subject, there is no direct solution to trigger interest. Verdin (2021), found that there is interaction of interest, belongingness and engineering identity and that it is the interest which is more significant than the other two. Schools need to really change the paradigm on how Math and Science are made interesting and inclusive. A design thinking workshop as intervention was found to have increased girls' positive evaluation of STEM subjects by means of better perception and self-image (Kijima et al, 2024).

5.2 Proposed Interventions

Thus, this study proposes the interventions focusing on the theme that emerged – 'Relate, recognize, and requirement', at high school level. First one is to hold interactive sessions for female students with women engineers, aimed at communicating the significance and importance of engineers' role in the society. The session should also highlight the contribution of engineering in medical sciences. Since it was evidenced that female

students perceive medical sciences as a socially recognized profession, this awareness has the potential make engineering an attractive option. The second type of intervention should focus on creating a sense of belonging (relate) among girls. Possible interventions can be in the form of exposure to all possible careers, which are gender-neutral in nature. These interventions should be in the form of small projects, which focus on attributes like -problem solving and creativity. This can boost the self-efficacy of the children, which in turn can make them view engineering as a possible career option. The third type of intervention should focus on the need (requirement) for engineers, especially on the need to have diversity in offering solutions. These can be in the form of workshops for the students with activities where real-life challenges of society are presented, and they are encouraged to come a wide variety of engineering solutions. Witnessing themselves as part of the solution has the potential to not only boost their self-esteem but also trigger a sense of responsibility. The aim is to make these young girls feel responsible for contributing to the engineering field. The significance of their contribution should be conveyed. A recent study by Batz-Barbarich, Strah and Tay (2024) supports the strengths of such interventions which can potentially change the perception of young women on engineering. Furthermore, a study by Casad et al, (2018) accentuates the strength of psychological interventions, addressing the need to work the theme that emerged in that study. To achieve gender-parity in engineering, it is not enough if only students are encouraged but the atmosphere in which they grow should also be considered. In their growing up years, the children spend the maximum amount of time in their schools and the most influencing person would be the schoolteacher. Evidence shows that educating teachers through interventions has significant effects on teaching and learning of STEM students (Baker et al, 2007).

5.3 Limitations

The study presents the analysis of only girl students. However, similar analysis of boys' perception might bring in different dimensions. Understanding the reasons for such perception through select interviews will add value to the findings and interventions. Influence of culture on perception is not considered, which is crucial factor in India, being a home for diverse cultures, practices and value systems.

6. Conclusions

The solutions to problems in society should consider the benefits of all the stakeholders. To achieve that it is essential that women participate in designing and developing engineering products and services. This might bring in a paradigm shift in the way products are designed and developed. Being part of the technology creation and drive not only empowers women but also contributes to innovative solutions. A good half of society, not taking part in the development of technology, is akin to depriving society of benefitting from alternate possibilities. The study revealed that it is not the lack of potential but lack of awareness that keeps young girls away from engineering education. Although planned interventions at school levels have proven beneficial, the implementation and the follow-up have not been effective. Unless the eco-system is convinced of the cause, stand-alone interventions may not serve the purpose. Moreover, conviction in the cause needs to be expressed by all the concerned - parents, teachers, and employers. Children will gather information from their surroundings in their growing years and understand that as reality. The onus of providing an informed ambience lies with the surrounding eco system.

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At the Frontline of Climate Activism: An Ethnographic Exploration of the Gendered Dynamics Within Contemporary Climate Activist Movements in Ireland

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Abstract: Utilising a gender lens, this research explores the dynamics of contemporary climate activism in Ireland. A gendered analysis of climate activism can aid the development of novel understandings of how gender identity and relations inform approaches to tackling the climate crisis. Climate related disasters are increasing in severity and frequency at an alarming rate, resulting in the emergence of new climate movements on a global scale. Broadly, contemporary climate movements aim to hold governments and corporations accountable for climate catastrophe and have played a substantial role in the public push for governments globally to declare a climate emergency.

Ethnographic observations followed by semi-structured interviews with members of contemporary climate movements are used to gain insight into how gender is embedded in climate movement identity, participation, and tactics. An ethnographic research approach aligns with previous research studies that commonly deploy ethnographic methods for the in-depth exploration of how gender informs environmental movement activism (Krauss, 1993; Kurtz, 2007; Bell and Braun, 2010; Willow and Keefer, 2015). This research incorporates visual ethnography through photo documentation of the props and banners used during demonstrations. Props and banners can be used by activists as a tool to frame the movements' identity, motivations and demands and therefore visual documentation and analysis enriches data collection and findings. The theoretical underpinning of this research is informed by feminist interpretations of social movement research, providing a systematic analysis of how social movements are gendered (Kuumba, 2001; Einwohner et al., 2000). This theoretical synthesis combines new social movement theory with ecofeminist theory to develop a distinct gendered analysis of contemporary climate activism.

Keywords: Contemporary Climate Activism, Ecofeminism, Ethnographic Observations, Gender, New Social Movement Theory, Visual Ethnography

1. Introduction

The increasing severity of climate change has mobilised individuals across the world, forming new climate movements that demand action be taken by governments to address the climate crisis. There has been a gradual increase of climate activism since the early 2000's, with significant mobilisation present from 2018 onward, with the formation of the climate movements, Fridays for Future (FFF) and Extinction Rebellion (XR) (Hayes and O'Neill, 2021). FFF was sparked by the young female activist, Greta Thunberg, who in 2018 solo protested outside the Swedish Parliament, choosing not to attend school to protest. The attention Thunberg received for her activism inspired an international youth-led climate movement of school strikes that centres on the issue of intergenerational climate justice. At the time that youth were organising and mobilising the FFF movement, another climate movement was developed in the United Kingdom, known as Extinction Rebellion (XR). The now transnational movement of XR utilises tactics that are non-violent through mostly direct action and civil disobedience, attempting to elicit social transformation.

Research that explores participation and dynamics of contemporary climate movements such as XR and FFF identifies a trend associated with gender distribution, establishing that on average there is a higher proportion of women compared to men and other genders present at climate protests (Wahlstrom et al., 2019; Saunders et al., 2020; Cologna et al., 2021; Noth and Tonzer, 2022). Survey data across European countries have found the representation of Greta Thunberg as a 'role model' and 'political icon' has a mobilising impact predominantly on young people (under 20) and females, reflecting a trend of the FFF movement being led by female youth (Wahlstrom and Uba, 2023). XR displayed similar trends of gender distribution among climate protesters as outlined in a working paper detailing the profile of participants at XR protests in London during 2019 (Saunders, 2020). Although FFF and XR have been established in Ireland since 2018, there remains a gap in knowledge relating to how gender has impacted the dynamics of these climate movements in the Irish context.

2. Theoretical Framework

2.1 New Social Movement Theory and Gender

New social movement (NSM) theory emerged in response to new social movement development from the 1960s onward in predominantly Western societies. This shift to NSM theory is identified as the cultural turn in social movement studies (Tarrow, 2022). Social movements draw on existing cultural frameworks which inform the identification, interpretation, and expression of 'social and political grievances' (Taylor, 2000, p.511). This means that movements 'frame specific grievances with collective action frames which dignify claims, connect them to others, and help produce a collective identity' (Tarrow, 2022, p.124). The ways that movements frame their actions and identities has been influenced by cultural understandings of gender. Rachel L. Einwohner et al. (2000) claim that 'gender can be used by social movement participants who wish to construct their image in a certain light, frame an issue in a particular way, or claim legitimacy as actors in a given arena' (p.680). For instance, commonly deployed in women's activism is the 'maternal frame' (Kuumba, 2001), known in relation to environmental activism as 'motherhood environmentalism'. Ecofeminist scholar Catriona Sandilands (1999) claims that the narrative of 'motherhood environmentalism' is imposing a simplistic and narrow view of women's motivations as climate activists, essentializing their relationship to nature, care work, and thus to climate activism. Ecofeminist theory has critically analysed how patriarchal power justifies the mutual devaluation of both nature and women through the essentialist association of women to the non-human world (Warren, 1994).

Research has found that women's engagement in environmental activism is more likely to be framed around cultural expectations of motherhood and care, compared to male environmental activists commonly framing their activism as motivated by scientific understandings of climate change (Bell and Braun, 2010; Kizewski, 2015, Willow and Keefer, 2015). Moreover, gender has been found to influence distribution of roles and responsibilities in climate movements, reflective of a wider gender division of labour. Older female XR activists in Australia describe the disproportionate expectation to carry out emotional support for other climate activists, outlining the 'gendered politics of care' and emotional labour within climate movements (Gardner et al., 2023). Additionally, an intersectional analysis of two anti-fracking organisations in the US identified that work was distributed differently among organisation members based on gender, in that women were more likely to perform outreach and administrative work, in other words, 'the brunt of the work' while men 'adopted roles in the organization that mirrored that of their professional lives' (Kizewski, 2015, p.86). Although such examples display conformity to traditional constructions of gender, it is important to acknowledge that 'gender expressions and identities within the context of environmental activism are complex and overlapping' (Willow and Keefer, 2015, p.93) and can both conform to and challenge conventional gender roles. For instance, a young woman described her motivations to participate at a climate protest in 2019 as 'taking an active stance against patriarchy' (Martiskanian et al, 2019: 15).

3. Methodological Framework

3.1 Research Design

This research is carried out using the qualitative research methods of ethnographic observations and in-depth interviews. Ethnography is concerned with the process of interactions within a chosen setting. Coffey (2018) posits that ethnography is an interactional process 'between the ethnographer, the field of study and social actors with/in the field' (Coffey, 2018, p.7), meaning researchers often participate, to varying extents, within the field of study. This research entails the participation of the researcher as a climate activist at XR and FFF protests, events, and meetings, embedding the researcher in lived experiences of climate movement activists in Ireland. Ethnographic observations are commonly accompanied by photography and video/audio recording (Madden, 2017; Coffey, 2018) which this research incorporates using visual ethnography of the props and banners used at climate protests. Examples of props and banners used at climate protests include:



Figure 1: 'Non-Violent' (Extinction Rebellion)

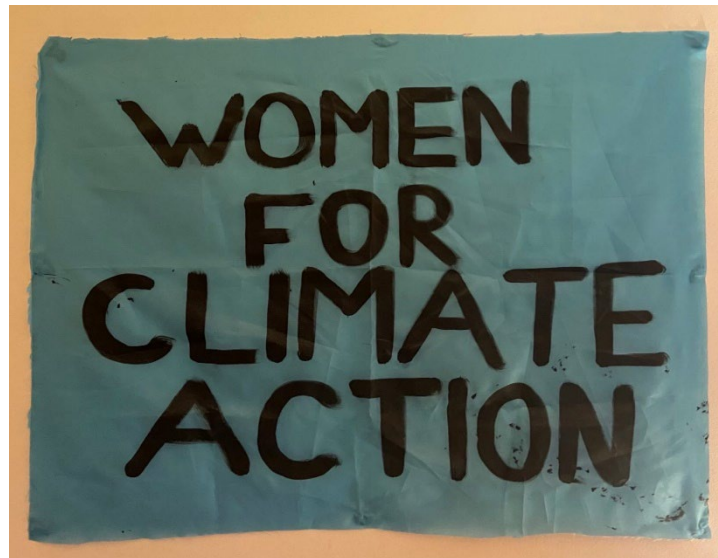


Figure 2: 'Women for Climate Action' (Extinction Rebellion)



Figure 3: Image of Greta Thunberg with the caption 'Hope is taking action' (Fridays For Future)

Observations not only provide an opportunity to understand the social world of contemporary climate activism in Ireland but also inform the curation of interview topics and techniques. In-depth semi structured interviews with an estimated 8 FFF activists and 8 XR activists are used to gain further insight into how gender informs the identities of those who participate in climate activism, the motivations of climate activists, the organisational and protest tactics of the climate movements, and the distribution of roles and responsibilities of climate activists.

3.2 Feminist Ethnography

This research deploys a feminist ethnographic approach to study contemporary climate movements, meaning it utilises a gendered perspective ‘to highlight the ways in which gender ideologies and identities are embedded in the framing and identity construction processes of social movements’ (Kuumba, 2001, p.18). Although ‘there is no single “feminist way” to do research’ (Reinharz, 1992, p.243), Davis and Craven (2022) have developed a working definition of feminist ethnography which includes but is not limited to paying attention to and challenging marginality, injustices and power differentials; drawing inspiration from feminist scholarship; acknowledging and reflecting upon power relations; and an aim to produce scholarship that may contribute to movement building (p.13).

4. Conclusion

My empirical research will inform and advance understandings of the under researched relationship between gender and contemporary climate activist movements. Investigating how gender informs our responses and approaches to climate action can help ‘challenge the patriarchal systems that perpetuate climate change to leave behind a more gender-just and ecologically sustainable society for future generations’ (Iglesias, 2022).

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AI Biases in Marketing Practice: Perception and Action Strategies

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Abstract: While the integration of artificial intelligence (AI) into marketing practices can improve efficiency and personalization, there are concerns about inherent biases that might produce unfair outcomes. Inherent biases refer to systematic, unintended preferences or exclusions embedded within AI algorithms, often originating from training data or design choices. Through qualitative interviews, this study examines how marketing professionals manage AI bias, offering actionable recommendations and best practices. Initial findings indicate a spectrum of attitudes towards AI bias in marketing, ranging from proactive engagement with the issue to avoidance.

Keywords: Artificial intelligence (AI), Bias, Marketing, Expert Interviews

1. Introduction

The rapid development of artificial intelligence (AI) has made significant progress in recent years, touching many sectors of our society. In marketing especially, AI technologies offer numerous applications that enhance marketing efficiency and effectiveness (Haleem et al., 2022), from automation to personalized content generation. However, AI-driven strategies often operate within a "black box," limiting marketing professionals' oversight and potentially disrupting strategic control (Kozinets and Gretzel, 2021). Given that marketing decisions impact people, it is crucial to uphold principles of fairness, transparency, and equality (Jones and Middleton, 2007). Delegating these decisions to AI inherently transfers ethical considerations to algorithms as well. Unfortunately, algorithmic decision-making sometimes falls short of meeting our fairness expectations. Studies show that AI can inadvertently replicate and amplify human biases, resulting in unintended negative consequences in marketing (Rivas and Zhao, 2023; Wach et al., 2023). Bias refers to a situation where systematic differences emerge despite lacking an objective basis for disparate treatment (Turner Lee et al., 2019).

This research project addresses this unexplored issue by posing the following questions:

- What efforts are marketing professionals currently making to recognize, manage and mitigate algorithmic biases in AI-driven marketing, including biases related to demographic representation, cultural sensitivity, and stereotype propagation?
- What strategies can be developed to address these challenges and design responsible, diversity-oriented marketing concepts?

2. AI and Marketing Ethics: Examples of Marketing Decisions Distorted by AI Bias

The primary applications of AI in marketing currently lie in execution (SRH Berlin University of Applied Sciences, 2023). Content creation is likely to constitute a significant portion of this (Chui et al., 2023) as generative AI is already widely used for writing texts and creating images. Generative AI refers to algorithms that can create new content, such as text, images, or music, often based on patterns learned from existing data (e.g., GPT models). Given the profound influence that marketing content can have on individual perceptions, AI wields substantial social impact in this field (Zhou et al., 2023).

Biases in AI are well-documented in numerous studies within the field. For example, AI-driven facial recognition systems have consistently shown weaknesses related to gender and skin color, performing better for men and individuals with lighter skin tones (Buolamwini and Gebru, 2018). This limitation likely extends to generative AI as well. For instance, when prompted with "happy family," image suggestions often predominantly feature white individuals. Such outputs perpetuate stereotypes and reflect underlying cultural biases (Bianchi et al., 2023).

Bias in AI manifests not only in content generation, but also extends to operational processes fundamental to marketing. A particularly significant example is the automated display of advertisements, where similar biases can be replicated and amplified (Varsha, 2023). Turner Lee et al. (2019), for instance, found that algorithms are more likely to show exploitative credit card offers to African-American consumers than to white Americans. Furthermore, based on gender stereotypes, Facebook displays different job advertisements to men and women (Hao, 2021).

Biases have also surfaced in product and distribution policy. Amazon, for example, excluded certain geographical areas from same-day Prime delivery for reasons tied to profitability. The decision employed parameters such as the number of Prime members in an area, proximity to a distribution center, and the number of service providers available for delivery. Ultimately, these exclusions affected predominantly lower socioeconomic neighborhoods with largely Black populations (Ingold and Soper, 2016).

This discussion naturally extends to marketing ethics, which provides a lens for evaluating the fairness and inclusivity of AI-driven marketing practices. Marketing ethics refers to principles and standards guiding fair, equitable, and transparent marketing decisions. A marketing measure's ethicality can be assessed through two dimensions: (1) the product's potential harm and (2) the target group's vulnerability (Jones and Middleton, 2007). The aforementioned examples refer to target group vulnerability and thus highlight the ethical quandary posed by AI biases in marketing. These biases negatively impact certain groups, even if there was no programmer intent to discriminate. Thus, it is imperative and timely to investigate the unintentional (re)production of biases by AI in marketing (Turner Lee et al., 2019). Flowers (2019) suggests that biased algorithms should not be seen solely as failures but as starting points for examining societal biases.

3. AI Bias and its Causes

Fui-Hoon Nah et al. (2023) outline potential biases impacting marketing decisions in general, such as favoritism towards certain groups/individuals, the underrepresentation of groups, cultural misunderstandings, language preferences, and stereotype propagation. These biases are often reproduced and amplified by AI through various processes:

1. Stereotypes and prejudices are deeply entrenched in society (Kuck, 2023). Existing human biases and implicit prejudices are replicated and amplified by machines through feedback loops (Turner Lee, 2018).
2. AI-inherent biases also arise due to inadequate training data (Jain et al., 2023). An over- or underrepresentation of certain groups in the data can have significant consequences. Additionally, programming teams often lack diversity, which can result in unnoticed problems. The opacity in data origins further complicates efforts to identify potential biases (Zhou et al., 2023).
3. Even when characteristics like gender or racial identity are deliberately omitted from AI systems to ensure equal treatment, algorithms may still use proxy variables that indirectly reveal group membership. For instance, height and weight might be indicators of gender (Angwin and Parris, 2016).

4. Recognizing and Avoiding AI Bias in Marketing

Beyond ethical concerns, marketers should be interested in avoiding biased decisions for legal and liability reasons (Turner Lee et al., 2019). Ensuring AI-supported decisions are inclusive and fair is crucial (Rivas and Zhao, 2023). While marketers have very limited influence over the AI itself (Kozinets and Gretzel, 2021), they should be equipped to recognize and rectify biases.

Typically, algorithms can be evaluated by testing their outputs for inconsistencies, such as by comparing results across different groups (Turner Lee et al., 2019). With generative AI, this becomes more challenging due to the absence of objectively correct outputs (Zhou et al., 2023). Instead, outputs need to be scrutinized for bias-containing patterns. However, this is complicated further as outputs can reinforce existing stereotypes and cement biases. Turner Lee et al. (2019) propose increasing team diversity, evaluating training data quality, and generally reflecting cultural sensitivity in decision-making as potential recommendations.

5. Methodology

The study utilized a qualitative methodology, employing semi-structured interviews with a sample of 12 marketing professionals across various roles, including content creators and communication agency representatives. Each interview lasted between 45 and 60 minutes and followed a thematic guide exploring topics such as perceptions of bias in general, AI bias in particular, mitigation strategies, and ethical considerations in AI-driven marketing. Data was analyzed using thematic analysis, with codes and themes iteratively refined to ensure reliability and validity.

6. Preliminary Results

Initial findings from the ongoing interview process reveal a diverse range of perspectives and strategies. Opinions vary from those who resolutely believe in taking a stand against bias and communicating clear values

to those who prefer to avoid the topic altogether. Conscious strategies to avoid bias in AI usage are scarce. Those practitioners who prioritize bias avoidance often cite personal values and life experiences as their primary safeguards against bias. They do not feel that the use of AI necessitates a change in approach. In contrast, some interviewees even express dissatisfaction when AI adopts a perceived politically correct stance.

The preliminary results reflect broader challenges identified in the literature, such as the unintentional perpetuation of stereotypes and the opacity of algorithmic decision-making (Buolamwini and Gebru, 2018; Turner Lee et al., 2019). This underscores the urgent need for marketing-specific frameworks to detect and mitigate bias, integrating both technical and ethical considerations.

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It's NOT "Only a Game"! Strategies Against Sexual Harassment in Immersive VR Environments

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Abstract: Sexual harassment and cyber grooming have been happening in all digital media since their beginning. Recently, more users are experiencing 3D worlds in Virtual reality (VR), and immersive multiplayer environments allow talking and interacting with other users' avatars or even "touching" each other's virtual body. This can lead to sexual harassment situations. Especially female and queer VR users are frequently "contacted" in inappropriate ways. Since the identity of a user is often not revealed, the barriers for offence up to virtual rapes are relatively low. There is no clear jurisdiction against the offenders if no physical contact has been made, but the victims can severely suffer from this experience. This research describes different forms of virtual abuses and discusses what counter measures software companies have already taken and whether these are effective. It then discusses the necessity of digital house rules and different technical measures against offenders.

Keywords: Virtual Reality, Sexual Harassment, Avatar, Digital House Rules, Virtual Rape, Metaverse

1. Introduction

Virtual Reality (VR) experiences and the Metaverse are designed as three-dimensional graphical spaces striving for a maximum degree of immersion and presence that users can perceive. These spaces lead to all kinds of interaction formats between users of virtual experiences – including negative side effects like cyber-mobbing and sexual harassment ranging from written or oral communication to virtual touching, grabbing, or even performing sexual movements on a user's avatar. What some users might perceive as harmless gestures might lead to traumatizing experiences in others. According to Outlaw & Duckles (2018) almost every second female-identifying user in VR has already experienced virtual sexual harassment. Companies providing virtual rooms for social VR like Meta's Horizon World, VRChat or RecRoom have started reacting to this phenomenon with different technical features.

With regard to the Metaverse as a space that "transcends borders and countries" (Dwivedi et al., 2022), we need to discuss whether guardrails, rules and laws from the real world can be used as a foundation for international standards, so that technical solutions can be based on a common ground. Software companies or platform enterprises could even be obliged to provide security mechanisms to protect their customers.

This paper discusses the phenomenon of digital sexual harassment especially in 3D-environments and identifies classification frameworks. It analyzes technical approaches and how they fit into this classification. Finally, the idea of digital house-rules and technical or legal sanctions in case of their violation are discussed.

2. Sexual Harassment in VR: Examples and Countermeasures

Sexual harassment (SH) has originally been defined as "unwelcomed sexual [advances], or . . . unwelcome [requests] for sexual favours, or . . . other unwelcome conduct of a sexual nature in relation to the other person" (Mason & Chapman, 2003, p. 206), mostly found in workplace environments maintaining social inequality. Barak (2002) looks at sexual harassment as "gender-based harassment" (like telling chauvinistic jokes or posting pornography), "unwanted sexual attention" (like sexual insults), and "sexual coercion" (using physical or psychological force or threat to gain sexual cooperation). Meanwhile the definition has broadened to include the use of digital media. Slaughter and Newmann (2022, p.7) define online harassment as "interpersonal aggression or offensive behavior(s) that is communicated over the internet or through other electronic media" (Slaughter and Newmann, 2022, p.7).

In online environments, SH happens mostly in the form of active (sending explicit content to a user) or passive (storing content where an unsuspecting user encounters it) graphic or verbal harassment. Technology-assisted abuse on the internet has happened for a long time, because anonymity protects the perpetrators from being discovered, so the barriers are low. What's new in VR environments is the graphical and haptical representation

(e.g. if controllers can give force-feedback using vibration or if the user wears data-gloves). 3D experiences are far more immersive and emotional than flat 2D representations on a screen (Blackwell et al., 2019).

Jordan Belamire (20.10.2016) was one of the first to write about her experiences, when an anonymous player tried to grope her avatar after only three minutes in a multiplayer VR game. The programmers of the game reacted instantly (Stanton, 25.10.2016). Although there was a “personal bubble” function, this function only worked if other players tried to block your view but did not if they touched the avatar’s body. They improved the feature, but the problem persisted. Therefore, the programmers turned it into a power gesture that fades out all players. As a power gesture, it can immediately be carried out instead of pausing the game and selecting it from a menu. It fades out all players coming too close and mutes their voices. They made the code open source so it could be used by other developers to become a standard “911 gesture”. A similar experience was reported by Nina Jane Patel, a female beta tester in Meta’s Horizon worlds (Clayton, 29.01.2022). In both cases, discussion arose whether virtual sexual harassment in VR counts as such. One recommendation to avoid harassment situations was removing the VR headset, thus ending the immersive experience. But this does not solve the problem, since the situation would continue as soon as the user re-enters the VR world. Distorting users’ voices would make females more difficult to recognize but would also limit desired user interactions in normal conversation situations in social VR.

Nowadays, “safety bubbles” evoked by a power gesture are built into most social VR spaces like RecRooms, Horizon World or Roblox. Apart from regulating a minimum distance between avatars or blocking other users in one’s own account, some systems also have tried installing invisible moderators present in the environment, watching the situation and coming for help if a user signals a problem (Ryan-Rosley, 2023). But this is time-consuming and cost-intensive, so human moderators might be exchanged for AI-based bots, trading in reduced costs for a higher danger of misunderstandings.

Zheng et al. (2022) discuss six categories of countermeasures. The first, “intimacy proxemic”, describes the forementioned safety bubble as a standard boundary feature between a user and other characters. An “intimacy rank” (used in VR chat) would allow for different levels of trust (trusted user, known user, new user etc.). “Social retreat spaces” where nobody else can enter are a feature in RecRoom. “Image control” allows to hide or show other avatars or change one’s own avatar concerning race, gender etc. VR Chat has built a whole “Trust System”, where the users can adjust microphone settings, graphical effects etc. Some systems also use some kind of “Age Check” to especially protect children.

Nowadays, users can normally choose between three ways of quick responses: immediate safety reactions, turning on a longer-lasting safe mode or safety reports to the platform owners for heavier sanctions. But what can be done to prevent critical situations in advance?

3. A Sanction-based Approach for Virtual “House-rules”

It has become clear that a common set of rules should be installed and accepted when users create their account for a virtual world. Blackwell et al. (2019, 100:23) suggest a responsive regulatory pyramid ranging from persuasion and counselling to license revocation for users who commit (sexual) harassment in digital environments. Kunz and Skerra (2023) outline a set of digital house-rules for virtual E-commerce environments, regulating the behavior of customer avatars visiting 3D online shops. Some of these rules are also applicable in Social VR, e.g. concerning spatial proximity of avatars, free, but polite speech and protection from harassment and fraud. Based on these ideas, we suggest the following technical sanctions, depending on the different types of harassment committed:

Table 1: Technical measures against different forms of (sexual) harassment in virtual environments

Content presentation mode	Content Media Type		
	Textual	Graphical	Acoustical
Passive (content placed for users to see)	- AI-based text recognition, then deleting critical content from display	- marking the aggressor's avatar, e.g., with a warning sign above his head - labelling content with user's name	- (impossible, since vocal expression can only be uttered in real-time)

Content presentation mode	Content Media Type		
	Textual	Graphical	Acoustical
Active (carried out on another user's avatar in real-time)	- AI-based text recognition (e.g., by identifying stop words) - Blocking text entries (e.g., by blocking input devices)	- marking the aggressor's avatar, e.g., with a warning sign above his head - "paralyzing" the aggressor's avatar for a certain time - "mutilating" the aggressor's avatar, e.g. by removing an arm or leg or changing the texture, color etc.	- AI-based speech recognition - muting the harassing user for the victim - increasing duration of muting with every encounter - muting to all other users

In all cases, a warning message should be sent to the aggressor to inform him about the violation of rules. There should be some kind of scoring system counting every moral failure and displaying that score to the aggressor or even other users. Depending on the score, accounts could be temporarily disabled or deleted. Re-opening an account could be prohibited by using identification procedures for new users. The owners of digital platforms could be forced to establish such guard rails by the Digital Services Act (DSA) that – among other goals- aims to create a secure digital environment that is free of illegal content.

But this opens up another dilemma: recognizing critical content requires a common and cultural-independent understanding of what is classified as offensive or illegal and also a continuous surveillance of all user actions. And there might also be environments (e.g., for adults) where a certain behavior will still be tolerated (or even desired) that might be inappropriate in other applications.

4. Conclusion

Sexual harassment in VR is a problem that cannot be technically avoided. Apart from countermeasures that require the victims to take action like power-gestures or incident reporting, there is a need for ethical and legal rail guards that are valid cross-border between countries and cultures. In some ways, 3D-E-Commerce environments are facing similar problems and therefore could be a driver to formulate digital house-rules that users have to accept when creating their accounts. Further research needs to analyze how legal constructs like the DSA can be used as a basis for sanction systems.

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Intersectional Gender Budgeting

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Abstract: This study explores intersectional gender budgeting (GB), originating from feminist economics, along with its implementation opportunities and challenges. Using a methodology of triangulation, the research emphasizes the importance of intersectional GB by considering factors such as gender, mobility, and (un)employment. Despite its potential, intersectional GB faces challenges, including complexity and diminished political power. The research question addressed is: How can intersectionality be integrated into gender budgeting without reinforcing existing inequality? By focusing on the development of intersectional indicators for municipal budgets from a practice-theoretical perspective, the study positions itself within Germany's evolving landscape of GB.

Keywords: Gender Budgeting, Intersectionality, Municipal Budgets, Indicators, Germany, Practice Theory

1. Introduction

Gender budgeting (GB) originates from feminist macroeconomics, to address the limitations of gender-blind economic theories and policies, as well as the neglect of women's economic experiences (Klatzer, 2018). Its core objective is to tailor public budgets to meet the diverse needs of both women and men, thereby fostering more equitable resource distribution and reducing gender-specific disparities (Alami, 2024). Several nations have legally adopted GB. In most cases, GB is implemented at the national level instead of regional or municipal level. In Germany's North Rhine-Westphalia, GB was proposed but never implemented (Rudolf, 2017). Some municipalities such as Reykjavik and Vienna implement GB voluntarily (Steinflórsdóttir & Barkardóttir, 2024; Wien, 2023). Despite its early development, scholarly work on gender budgeting is sparse (Moser & Korac, 2021; Martínez Guzmán, 2024).

Intersectional GB further develops the GB concept and can be conceived as an inspiration for socially inclusive budgeting (Nazneen & Cole, 2018). Intersectional GB integrates various factors into gender budgeting, such as housing, migration, employment status, and caring responsibilities. Some OECD countries have expanded GB in their public accounts to include intersectional analyses, as seen in Sweden and Finland (Nicol & Jihyun, 2023), with GBA+ in Canada (Cameron & Tedds, 2020), and in Victoria, Australia (Canisius, 2024). However, significant challenges exist in intersectional GB. First, there is a lack of consensus concerning the meaning and relevance of intersectionality itself (Cameron & Tedds, 2020). According to Scott Brenton (2023), many intersectional GB initiatives prioritize (binary) gender issues to gather political support, often neglecting wider disparities. At the same time, scholars warn that an overly complex system of indicators can render implementation cumbersome and diminish political and transformative effectiveness (Alami, 2024). Lastly, each added factor risks reiterating an additive approach that isolates factors rather than integrating them (Brenton, 2023; Cameron & Tedds 2024).

All this criticism points to the need to develop and implement a transformative intersectional GB in a way that does not focus on differences between men and women in different social spaces, but rather on the practices that produce such disparate differences. The key research question of this study is: How can intersectionality be effectively integrated into gender budgeting without reinforcing existing inequality? This question will be approached from the practice-theoretical perspective.

2. The Context

Germany has been slow to adopt GB, with no legal requirement mandating its implementation (EIGE, 2022). Although not utilized at the national level, the German Parliament has occasionally reviewed its potential, deeming it unhelpful in both 2012 and 2016 (European Parliament, 2023). However, the European Commission announced in October 2022 its intent to aid Germany and eight other EU Member States in incorporating GB into their budgets (European Commission, 2022). Cities like Berlin, Münster, and Freiburg have already adopted GB practices in their local budgets.

On January 31, 2022, Cologne decided to integrate GB into its financial planning (Stadt Köln, 2023). In many municipalities, resource allocation already skews toward wealthier areas, negatively affecting those relying more on public services, typically in less affluent regions (Brenton, 2023). Therefore, an intersectional approach to GB is crucial at this level.

Cologne has implemented performance-based budgeting in its municipal budgeting process. Performance-based budgeting provides information to the public about the goals of expenditures and the outcomes they generate. According to OECD (2019), for citizens, performance-based budgeting provides the opportunity for increased transparency regarding the objectives and outcomes of public expenditures. Clearly defined goals and indicators offer a great opportunity for an intersectional GB to be integrated into the municipality budget.

3. Methodology

The research will be conducted through a multi-step approach.

Step 1: Literature review on GB, with a particular focus on the existing knowledge and practices in countries, where intersectional GB has been more widely implemented than in Germany.

Step 2: A gender audit will be conducted in the VHS Cologne. This audit aims to examine the distribution of resources and recognize gender-specific patterns in the participation, location and topics of further education courses. The Gender Audit can be compared with the one conducted in 2004.

Step 3: Data triangulation will be employed to compare the findings from the gender audit with other secondary statistical data sources. This step involves considering factors such as sex and gender, place of residence, socio-economic factors, migration background, mobility, childcare responsibilities and local child-care facilities. These findings will be compared with the gender audit in order to develop explanations for the patterns. Tools like PowerBI and AI software will be utilized for data visualization and analysis.

Step 4: The final step involves the development of gender-equitable indicators for the municipal budget, specifically for the VHS Cologne. These indicators will be designed to integrate an intersectional gender perspective.

The research will utilize a variety of data sources:

- Gender-specific participation data for VHS education courses from 2023
- VHS course catalog
- The Mobility Report Cologne 2022
- Structural data from the City of Cologne.

4. Expected Results and Discussion

This project aims to overcome the challenges identified by GB scholars by emphasizing how gendered practices intersect and create barriers to access. To be transformative, the GB targets and indicators shall address the intersecting gendered practices that create access barriers, such as caregiving responsibilities, residency in peripheral areas, lack of language skills, and unemployment. This approach can also address a broader group of people beyond just categorizing by gender, as it focuses on challenging the practices involved in designing educational courses rather than victimizing specific groups of individuals.

The practice of performance-based budgeting presents opportunities for integrating GB targets and indicators into the official municipal budget targets and indicators. It allows for the formulation of targets and indicators in both quantitative and qualitative terms.

At present, in the Cologne municipal budget for 2023-2024, the target for the VHS Cologne is: "The course offerings are tailored to meet demand and are implemented based on current needs" (Stadt Köln Haushalt 2023/2024, Band III)."

The indicators expressing the success include

1. Course utilization rate in %
2. Course cancellation rate in %

The problem is that these existing quantitative indicators reveal very little about whether the offerings truly meet demand, as they initially fail to address whose demand is being met. Utilization and cancellation rates provide no information about the obstacles that citizens face when trying to access the offered courses.

Structural data on Cologne can help in identifying obstacles to access. The data indicates that in some districts, the unemployment rate, single-parent household rate, and the rate of families with young children living on social assistance are higher than average (Stadt Köln, 2024). Concurrently, daycare facilities and all-day school

placements in these areas are below average (Stadt Köln, 2021). This usually suggests practices such as staying within one's neighborhood during the day (instead of commuting) and spending afternoons and evenings (with children).

At the intersection of 'staying within one's neighborhood during the day' (due to unemployment) and 'spending the afternoons/evenings with children' (due to caregiving responsibilities), we might expect gender-specific effects that result in a typical female position of 'spending the entire day in the neighborhood.' After all, women still predominantly bear the responsibility for unpaid care work in Germany (Destatis, 2024).

The most obvious indicator would be:

Unemployed participants in morning and evening courses (women/men) in relation to all unemployed people (women/men) (in %).

This would provide valuable information about the vulnerable group, but it could also inadvertently reproduce the existing group of the unemployed. One possible solution to this might be the following:

Number/share of morning and evening courses
Number/share of morning and evening courses with a babysitting service
Course utilization rate in morning and evening courses
Course utilization rate in morning and evening courses with a babysitting service

Such indicators would consider the gender perspective as a starting point yet would not be limited to gendered stereotypes. They would take into account the time use of unemployed men and women, parents with care responsibilities, and single parents without a babysitting network.

It can be expected that staying within one's neighborhood also implies non-commuting. The indicator could be further specified by its intersection with the non-commuting practice (due to financial or physical mobility limitations affecting people with disabilities). These indicators would avoid establishing vulnerable participant groups or specific courses for 'the needy,' and yet still be transformative.

Number/share of morning and evening courses in District A
Number/share of morning and evening courses with a babysitting service in District A
Course utilization rate in morning/evening courses in District A
Course utilization rate in morning/evening courses with a babysitting service in District A

There are two primary risks associated with such indicators: first, that they may legitimize the practices of non-commuting and remaining within one's own neighborhood for the entire day; and second, that the indicators may become too opaque or vacuous, failing to target any specific group effectively. To mitigate these risks, the intersectional analysis underlying the indicators must be clear and transparent.

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Gender Bias in Generative Artificial Intelligence: A Literature Review on Perspectives and Implications

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Abstract: This article examines how generative artificial intelligence (GenAI) systems reflect pre-existing gender biases and explores their implications in social and technological contexts. While GenAI holds transformative potential in healthcare, employment, and finance, it also poses considerable risks concerning diversity in training data, development teams, and other factors that can reinforce stereotypical representations and discriminatory decisions, highlighting the need for a comprehensive approach to mitigate these issues. The study employs a systematic literature review following PRISMA guidelines, complemented by thematic analysis to identify key patterns. Articles published between 2020 and 2024 were reviewed, focusing on the nature, origins, and implications of gender biases in GenAI. The thematic analysis enabled the identification of emerging trends and proposed solutions, providing a comprehensive view of current limitations and priority areas for future research. The findings reveal that gender biases in GenAI manifest at various levels, ranging from algorithms reinforcing stereotypes to underrepresentation in generated images. The implications include the reinforcement of social inequalities and the erosion of user trust in GenAI systems. However, strategies such as diversifying development teams, using representative datasets, designing equity-aware algorithms, and establishing robust regulations are highlighted as ways to address these challenges. This article contributes to academic and professional fields by offering a detailed analysis of gender biases in GenAI, identifying practices and strategies to build unbiased systems. Furthermore, it emphasizes the importance of raising public awareness and fostering education on gender biases in GenAI to create more critical and informed users.

Keywords: GenAI, Gender Biases, Algorithmic Fairness, Diversity in AI, Technological Stereotypes

1. Introduction

The rise of Generative Artificial Intelligence (GenAI) has intensified concerns about gender bias, a pervasive issue rooted in the data and algorithms that shape these systems. AI models, particularly in natural language processing (NLP), often reflect and amplify societal gender inequalities (Locke & Hodgdon, 2024; Currie et al., 2024). Research shows that even gender-neutral AI applications, such as search engines, frequently produce male-dominated results (Antonopoulou, 2023). These biases stem from training datasets that lack diversity, leading to skewed representations of gender roles (De Silva and Alahakoon 2022; Ferrara, 2024). The impact extends beyond representation, influencing societal perceptions and professional opportunities (Biswas, et al., 2024; Abdelhay et al., 2024). While mitigation strategies like adversarial learning show potential, they fail to eliminate bias entirely (Cirillo and Rementeria, 2022; Leavy et al., 2020). Addressing gender bias requires a multifaceted approach that considers intersectionality (Hall and Ellis 2023), ensuring AI development promotes fairness and inclusivity. This research addresses: What is the current state of research on gender bias in Generative AI, and what challenges persist in mitigating its impact?.

2. Methodology

To ensure a thorough and current analysis, this review examines literature published between 2020 and 2024. Adhering to PRISMA guidelines, a systematic and structured search was conducted. A keyword-based query in the Scopus database identified peer-reviewed articles in English, using terms such as (Generative Artificial Intelligence OR Generative AI AND Gender Bias OR "Algorithmic Bias" OR "Fairness in AI"). The selection criteria prioritized studies within social sciences and technology, excluding those outside these fields or lacking empirical or theoretical contributions. A full-text analysis was performed on the shortlisted articles to verify their relevance, ultimately leading to the inclusion of 42 studies. The complete methodological framework is illustrated in Figure 1.

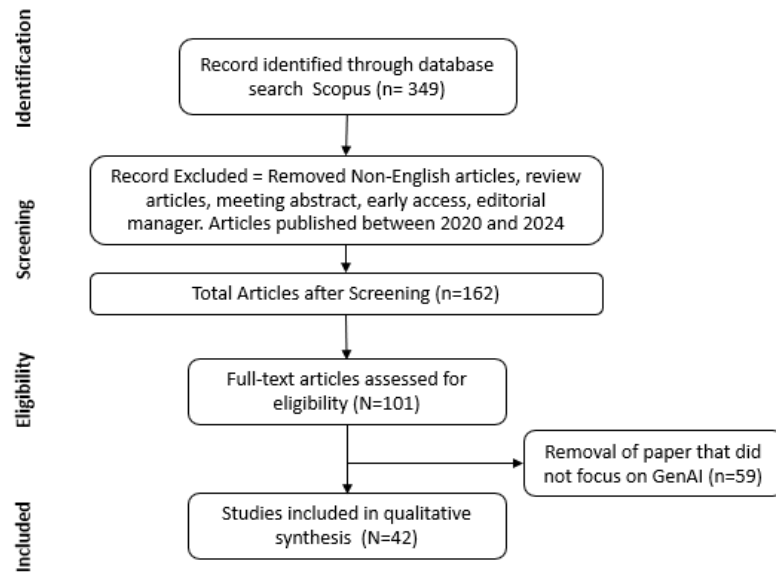


Figure 1: Flow Diagram Prisma

3. Findings

GenAI systems reinforce gender biases across employment, finance, healthcare, and media due to algorithmic design flaws and biased training data. In the job market, AI-powered hiring tools and large language models (LLMs) associate male-coded terms with high-paying roles, systematically disadvantaging female candidates and sustaining economic disparities (Leong and Sung, 2024). Furthermore, AI-generated content in media and digital platforms underrepresents women in male-dominated professions while overrepresenting them in caregiving and administrative roles, reinforcing occupational segregation (Sun et al., 2024; Locke and Hodgdon, 2024). Similar biases exist in finance, where credit-scoring algorithms trained on historically biased datasets restrict women's access to loans and investment opportunities, worsening economic inequality (Ferrara, 2024; Gross, 2023). These biases are further exacerbated by algorithmic opacity, which limits users' ability to contest or even detect discriminatory outcomes, highlighting the need for greater transparency in AI decision-making (Pérez-Ugena Coromina, 2024).

Beyond economic disparities, gender bias in GenAI has significant implications for healthcare. AI-driven diagnostic tools and mental health applications demonstrate lower accuracy for female patients, leading to disparities in treatment recommendations and healthcare accessibility (Park et al., 2022). For example, mobile mental health assessments have shown differential accuracy rates based on gender, disproportionately misdiagnosing female users (Isaksson, 2024). These biases extend to AI-generated medical research content, where male-dominated datasets contribute to underrepresentation in clinical trials, impacting women's health outcomes (Nwafor, 2024). Moreover, GenAI recruitment algorithms, already biased against women, show an even stronger bias against women of color, amplifying the intersectionality of gender discrimination with race and socioeconomic status (Kim et al., 2024). This phenomenon, observed in multiple domains, underscores the necessity of inclusive training datasets that adequately represent diverse demographic groups (Parsheera, 2018).

The social implications of these biases are profound, shaping public perceptions and reinforcing structural inequalities. Gendered AI-generated content perpetuates stereotypes that influence career choices, financial stability, and healthcare access, creating a self-reinforcing cycle of disadvantage (Møgelvang et al., 2024). These biases also impact user trust, as demonstrated by research indicating that individuals—particularly women—express greater skepticism towards AI-generated content due to perceived bias and misinformation (Moon, 2024). Additionally, biased AI systems erode public trust, leading to algorithmic aversion and skepticism toward automated decision-making, particularly among marginalized groups (Zlateva et al., 2024). Addressing these systemic issues requires proactive interventions, including comprehensive bias audits, regulatory oversight, and the implementation of fairness-aware AI models (Newstead et al., 2023). A multi-stakeholder approach involving policymakers, AI developers, and impacted communities is essential to ensuring equitable and transparent AI-driven decision-making (Kim et al., 2024). By integrating diverse perspectives into AI development, it is possible

to mitigate bias and promote fairer technological advancements that do not disproportionately disadvantage specific gender groups.

4. Expected Results and Future Plan

Mitigating gender bias in GenAI requires integrating gender-aware methodologies, diverse datasets, and continuous monitoring to ensure equitable representation and user trust (Zhou et al., 2024; Gross, 2023). While efforts remain inconsistent across linguistic and cultural contexts, successful real-world applications highlight effective strategies. Bias-aware dataset curation has reduced gender disparities by ensuring diverse training data, particularly in AI-generated content where underrepresentation skews outputs (Isaksson, 2024). In healthcare, including marginalized groups in clinical datasets has improved diagnostic accuracy, addressing gender-driven medical bias (Isaksson, 2024). Algorithmic transparency, enforced through systematic audits and bias detection mechanisms, has also proven essential in preventing discriminatory AI outputs before deployment (Nwafor, 2024). Moreover, interdisciplinary collaboration between AI developers, policymakers, and social scientists fosters inclusive governance frameworks that embed fairness principles at every stage of AI development (Isaksson, 2024). Sustainable implementation demands integrating these measures into AI regulations, mandating continuous auditing and proactive intervention to prevent algorithmic discrimination (Nwafor, 2024). Beyond textual and decision-making applications, gender bias also affects AI-generated visual and multimedia content, reinforcing harmful stereotypes in digital media (Zhou et al., 2024). Future research should adopt a cross-cultural and longitudinal approach to assess the persistence and evolution of bias across different regions and over time. Expanding studies geographically will uncover regional disparities, while long-term evaluations will determine the sustained effectiveness of mitigation strategies, ensuring that AI systems evolve to be fair, unbiased, and socially responsible (Muller et al., 2023).

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Exploring Workplace Mental Health: Burnout, Self-Efficacy, and Organizational Commitment Among Female Executives in the Financial Sector

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Abstract: This study investigates the critical interplay between mental health challenges and job performance among women in executive roles within financial sector in 2024. Focusing on burnout, professional self-efficacy, and life satisfaction, the research explores how these factors influence job performance, with organizational commitment as a mediation variable. Female executives face distinctive challenges, including gender-related barriers and the pressure of managing multiple roles, which can hinder their productivity and career progression. Employing a quantitative, non-experimental cross-sectional design, data were collected from a representative sample of peruvian female executives using validated instruments: the Burnout Unique Item (IUB), Professional Self-Efficacy Questionnaire (IWPQ), and Utrecht Work Engagement Scale (UWES-9). Partial Least Squares Structural Equation Modeling (PLS-SEM) was utilized to analyse the mediating effects of organizational commitment on psychological factors and job performance. The findings emphasize the importance of organizational policies fostering supportive environments that address mental health concerns, improve well-being, and enhance job performance. This study offers valuable insights for stakeholders in the financial sector, where demands for productivity and leadership performance are particularly high. The results contribute to the broader understanding of workplace dynamics, providing practical recommendations for creating equitable and supportive workspaces.

Keywords: Burnout, Professional Self-Efficacy, Organizational Commitment, Female Executives, Financial Sector

1. Introduction

In line with the World Mental Health Report by the World Health Organization (WHO 2022), the global health crisis has increased worldwide levels of anxiety and depression by 25%. This has resulted in the loss of 12 billion workdays annually and nearly one trillion dollars in productivity costs (WHO 2024). This situation underscores the urgency of addressing workplace mental health, particularly burnout (BO), which affects the physical and emotional well-being of employees and their organizational performance (Gandi et al, 2011). In Peru, 78% of workers experienced BO in 2023, a 12-percentage-point increase from 2022 (Vinatea & Toyama 2023). Women, disproportionately affected by gender inequalities and multiple responsibilities, show higher BO levels, negatively impacting job performance (JP) (Bhagat 1983). Despite increased leadership participation, only 34.24% of executive positions in Latin America and the Caribbean were held by women (International Labour Organization 2019), yet their contributions significantly enhance organizational performance (ILO 2019). Organizational commitment (OC), linked to life satisfaction (LS), is key to improving efficiency, professional self-efficacy (PSE), and JP, serving as a protective factor against BO (Bernales-Turpo et al, 2022; Stephanou & Giorgali 2020). Consequently, this study aims to analyse the impact of BO, PSE, and LS on JP, mediated by OC, among women in leadership roles within Peru's financial sector in 2024. Burnout, resulting from chronic workplace stress, is characterised by emotional fatigue, cynicism, and reduced efficacy, impacting well-being and JP (Salvagioni et al, 2022; Gandi et al, 2011). Self-efficacy, defined as belief in one's ability to complete tasks, predicts skills and confidence in the workplace (Khalil & Siddiqui 2019). Diener's Subjective Well-Being Model includes LS, positive emotions, and low negative emotions, influencing organizational outcomes (Diener 2000). OC, comprising vigour, dedication, and absorption, fosters a sense of belonging and focus (Schaufeli & Bakker 2004). JP, reflecting workplace skills and talents, is shaped by job complexities and personal factors (Hackman & Oldham 1976; Sackett & Lievens 2008). The workplace influences OC and JP based on the balance between demands and resources (Yikilmaz et al, 2024). The Job Demands-Resources (JD-R) theory links high demands and limited resources to BO, while the Conservation of Resources (COR) theory associates resource loss with reduced JP (Bakker et al, 2021). Self-efficacy and optimism mitigate BO and promote positive behaviours (Bakker & Demerouti 2017).

2. Methodology

This research employs a quantitative applied approach to objectively measure variables (Hernández et al, 2006). Using an explanatory, non-experimental, cross-sectional design, data will be collected at a single point in time (Saunders et al, 2007). Surveys will target female executives in Peru's financial sector in 2024, who face gender-

related barriers that hinder their professional development and regional economic potential (Gender and Non-Discrimination Department 2024; WomenCeo 2024). The population comprises 4,842,489 women working in this sector, classified as an economic enabler (INEI 2024; Bureau of Labour Statistics 2024). A sample of 150 observations, suitable for PLS-SEM (Hair et al, 2017), will be selected using non-probabilistic snowball sampling (Biernacki & Waldorf 1981). The Burnout Unique Item (IUB), validated in Peru by Merino-Soto et al (2018), evaluates physical and mental exhaustion across five categories, with validity linked to the Maslach Burnout Inventory - General Survey (MBI-GS) (Maslach et al, 1986; Fernández et al, 2015). PSE will be measured using the 10-item Professional Self-Efficacy Questionnaire (AU-10), demonstrating high reliability ($\alpha = .84$) (Calderón-De la Cruz et al, 2018). LS will be assessed with the Satisfaction With Life Scale (SWLS), validated for reliability ($\omega = .90$) (Pavot & Diener 2008). JP will be measured with the Individual Work Performance Questionnaire (IWPQ) ($\alpha > 0.70$) (Gambino & Salessi 2016), and the Utrecht Work Engagement Scale (UWES-9) will measure vigour, dedication, and absorption, validated for the Peruvian population (Jiménez et al, 2015). Data collection will utilise digital surveys, ensuring quality, confidentiality, and adherence to ethical standards. The mediation model includes BO, PSE, and LS as predictors, OC as the mediator, and JP as the dependent variable. PLS-SEM with SmartPLS version 4 will analyse latent variable relationships in small samples (Hair et al, 2017). This method, suitable for complex models, integrates factor analysis and linear regression, using indicators and descriptive statistics such as mean, standard deviation, skewness, and kurtosis (Chin 1998; Kline 2015). Internal consistency will be assessed with Cronbach's Alpha and composite reliability (≥ 0.7), while convergent validity will use Average Variance Extracted (AVE ≥ 0.5). Discriminant validity will follow the Fornell-Larcker criteria and Heterotrait-Monotrait (HTMT) ratio (≤ 0.85) (Fornell & Larcker 1981; Hair et al, 2017). Model fit will be evaluated using the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Squared Error of Approximation (RMSEA) (Rex 2015; Xia & Yang 2019).

3. Results

Stress and BO negatively affect psychological and physical well-being, reducing OC and JP (Gandi et al, 2011; Mijakoski et al, 2015). BO impacts employees' identification with organizational values (Maslach & Leiter 2016) and is associated with job dissatisfaction and unhealthy behaviours (Rawat et al, 2021; Shubayr et al, 2022). This is especially evident among female executives, who face greater workplace and family demands (Gil-Monte 2020). Therefore, the following hypothesis is proposed: H1: BO has a significant negative effect on OC. PSE, understood as the perception of workplace competence, is positively related to OC (Bandura 1997; Schunk & DiBenedetto 2020). High levels of PSE enhance performance and dedication, making it easier to face challenges and achieve organizational standards (Bernales-Turpo et al, 2022; Wallin et al, 2021). Therefore, the following hypothesis is proposed: H2: PSE has a significant positive effect on OC. LS enhances OC by strengthening overall well-being and emotional connection to the work environment (Diener et al, 2017). Employees with high levels of LS increase organizational satisfaction and profitability (Bernales-Turpo et al, 2022). However, organizational factors may influence this relationship (Hobfoll & Freedy 2013). Therefore, the following hypothesis is proposed: H3: LS has a significant positive effect on OC. OC is a key predictor of JP, as committed employees demonstrate higher levels of dedication and perseverance (Bakker et al, 2014). Meyer et al (2002) highlight that OC strengthens the emotional connection to work, thereby improving JP. Among female executives, OC enhances not only individual performance but also team performance (Albrecht et al, 2015). However, Cole et al (2012) suggest that this effect may depend on the availability of resources. Overall, studies confirm the positive relationship between OC and JP (Bernales-Turpo et al, 2022). Therefore, the following hypothesis is proposed: H4: OC has a significant positive effect on JP. Similarly, OC enhances JP by motivating employees, transforming tasks into challenges, and mitigating BO (Dai et al, 2021). It acts as a mediator between PSE, LS, and BO, strengthening efficiency and job satisfaction (Bernales-Turpo et al, 2022; Nayak & Sahoo 2015). Employees with a high quality of life show greater commitment to organizational goals, improving social networks and amplifying JP (Carmeli & Freund 2003). Accordingly, the general hypothesis is based on the study by Bernales-Turpo et al (2022), which demonstrated that the mediation of OC in the relationship between PSE, LS, and BO had a positive effect as a predictor of JP.

4. Conclusion and Discussion

The study has limitations that provide opportunities for future research. The cross-sectional design limits causal conclusions, while its small, female-focused sample reduces generalisability. Future studies should expand sample sizes and consider factors like prior mental health and family support. This research examines how BO, PSE, and LS influence JP through OC in the financial sector, where women face gender barriers. Workplace

exhaustion increases absenteeism and turnover, affecting costs and efficiency (ILO, 2019). Findings highlight key strategies: for companies, mental health policies, flexible work models, and gender-sensitive leadership; for employees, resilience-building strategies, and professional support networks; for policy makers, regulations that promote equity and workplace well-being. Strengthening OC through workload management and support enhances performance, while diversity fosters inclusive workplaces, benefiting employees and society (Virtanen et al., 2022; ILO, 2019).

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PHANTOMATRIX: Explainability for Detecting Gender Bias in Affective Computing

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Abstract: The PHANTOMATRIX project is a research incubator running at the International University of Applied Sciences and aims to advance the field of Human-Machine Interaction by integrating machine learning (ML) techniques to predict emotional states using physiological and facial expression data within Virtual Reality environments. A major focus of the PHANTOMATRIX project is on employing trustworthy ML models by using explainable AI (XAI) methods that allow to rank features according to their predictive power, which aids in understanding the most influential factors in emotional state predictions. In addition, a comparative analysis of XAI techniques to emotion prediction models allows us to assess and correct for the effect of gender on the predictive performance. As affective computing is a highly sensitive research arena, it is of outmost importance to ensure bias free models. Key XAI methods such as Deep Taylor Decomposition (DTD), and SHapley Additive exPlanations (SHAP) are employed to clarify the contributions of features towards model predictions, providing insights into how specific signals influence emotion detection across individuals. This allows for a comprehensive comparison of different XAI approaches and their utility in gender bias detection and mitigation. To further our understanding of gender dynamics within emotional predictions, we develop intuitive visualizations that graphically represent the link between multimodal input data and the resulting emotional predictions to support the interpretation of complex model outputs and to make them more accessible not only to researchers but also to novice users of the system. Our background research demonstrates the effectiveness of XAI methods in identifying and mitigating gender bias in emotion prediction models. By applying XAI, the project reduces the influence of gender-based disparities in affective computing, leading to more equitable model performance across demographics. This research not only highlights the importance of transparent, bias-free AI-affect models but also sets a foundation for future developments in responsible affective computing. The findings contribute to advancing trust in AI-driven emotion analysis, promoting fairer and more inclusive applications of this highly relevant technology.

Keywords: Explainable AI, Human-Machine Interaction, Machine Learning, Affective Computing, Virtual Reality, XAI.

1. Introduction

Affective computing, a term created by Rosalind Picard (1995), is a multidisciplinary subfield of artificial intelligence (AI), develops systems that recognize, interpret, and simulate human emotions. This research area is essential for enhancing human-computer interactions and developing applications that respond empathetically to users. Understanding human emotions is not only vital for creating more user-friendly technologies but also plays a crucial role in various domains such as mental health, education, and customer service (Pei et al, 2024).

Wearable technology has revolutionized the way we collect and analyze emotional data (Schmidt et al, 2019). Devices such as smartwatches and specialized sensors can continuously and non-invasively monitor physiological signals that correlate with emotional states and hence provide insights into the emotional experiences of individuals in real-time. The integration of multi-modal wearable data offers researchers valuable tools for capturing the complexity of human emotions. However, incorporating multiple data sources requires a more sophisticated interpretation to ensure that end-users understand how insights are derived from their data. Especially when "black-box" machine learning (ML) techniques are applied, it becomes crucial to explain the outcomes to enhance transparency, provide meaningful insights, and control. Explainable AI (XAI) can play a key role in making ML models more interpretable and reveal potential bias (Pahde et al, 2023).

Despite the advancements in affective computing, the presence of inherent biases and ethical concerns poses significant challenges concerning privacy, consent, discrimination, and the potential for data misuse (Iren et al, 2023). Affective computing can gather sensitive biometric and behavioral data that is susceptible to bias, arising from datasets that do not represent diverse cultures or demographic groups, leading to discriminatory outcomes and social stereotypes, including gender bias (Manresa-Yee et al, 2023; Suman et al. 2022). As algorithms can be vulnerable to stereotyping and discrimination, particularly when their performance varies across gender groups as shown for affect classification, also Microsoft committed to the retirement of classifiers for attributes like

gender and emotion in its Face API¹. This highlights the critical need for fairness and transparency in emotion recognition to prevent a perpetuation of harmful stereotypes and unjust outcomes, to ensure these systems are both fair and inclusive. By enhancing the transparency and reliability of emotion recognition technologies, we can better address these biases and reduce the risk of discrimination, ensuring a more equitable deployment of AI in emotion detection applications (Murindanyi et al, 2023).

In sum, PHANTOMATRIX focusses on AI-based multi-modal emotion classification and aims to explore whether XAI methods can be utilized to identify and mitigate potential gender biases present for classifying emotions.

2. Methods

2.1 Multimodal ML-analysis in PHANTOMATRIX

The resulting data from 100 participants of the PHANTOMATRIX study will be used, which is derived from the FDA-cleared Empatica EmbracePlus, a state-of-the-art wearable device, that collects multi-modal physiological data, e.g. electrodermal activity (EDA) and skin temperature. In addition, self-report data from participants that reflect their emotional experience, and a structured questionnaire (PANAS) will be used to ensure the mapping of emotional states to physiological signals. Also, facial expressions will be recorded and analyzed.

Features indicative of specific emotions (e.g. anxiety) are extracted from the raw physiological data using dimensionality reduction techniques, such as Principal Component Analysis (PCA) or t-Distributed Stochastic Neighbor Embedding (t-SNE). Relevant time intervals are then determined and mapped to each modality. The ML model design from Vu et al (2023) will be adapted, which uses an early fusion of multi-modal emotional features based on Gaussian Transformation of physiological signals followed by a Transformer Encoder processing. The design will be extended for PHANTOMATRIX with facial expressions (see Figure 1). Model performance is evaluated using a subset of the data reserved for testing (five-fold cross validation) and based on the self-report outcomes that serve as ground truth.

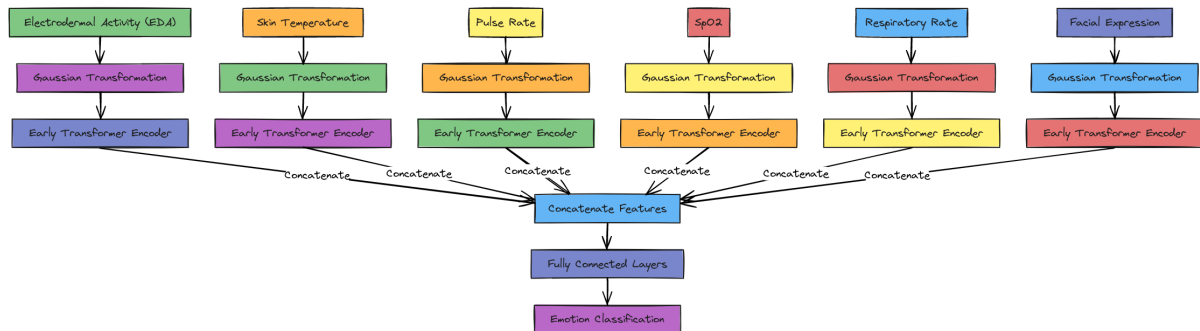


Figure 1: ML model design showing the integration of the different features

2.2 Bias Detection and Mitigation

Post-hoc XAI techniques such as Deep Taylor Decomposition (DTD) and SHapley Additive exPlanations (SHAP) will be applied to analyze and visualize the importance of sensitive features across modalities. After assessing their impact on the prediction outcome, the effects will be mitigated from the overall predictive model to obtain a bias-free general affect model.

2.2.1 Deep Taylor Decomposition

DTD explains neural network predictions by breaking down the output into contributions from each input feature by propagating relevance scores backward through the network (Lauritsen et al, 2020). Using a first-order Taylor series expansion around a chosen reference point for each neuron, DTD estimates how changes in input features affect the overall prediction. Using DTD, the relevance of each input feature (e.g., physiological signals) to the model's emotional state predictions can be traced back through the Transformer layers. By calculating the relevance scores separately for male and female data samples, DTD can identify if certain physiological features disproportionately influence the predictions based on gender.

2.2.2 Gender Bias Detection Based on SHAP

SHAP have been repeatedly used to quantify bias, like gender effects, in ML models (Kristjanpoller et al, 2023). To enable time-series analysis with SHAP, VARSHAP, a method that uses vector autoregressive models to capture temporal dependencies, is used (Villani et al, 2022). Additionally, an event detection method aggregates feature importance over time, enabling identification of influential time steps.

SHAP interaction values will be used to assess not only the individual feature contributions to emotion predictions but also the interaction effects between different features, specifically focusing on how these interactions may differ between genders. This method is adapted from Lundberg et al (2020) and allows for a nuanced understanding of how combinations of physiological signals and facial expressions interact to affect emotional state predictions, with respect to gender differences. Lundberg's SHAP interaction plots are adapted to show interactions between gender and time-dependent features to uncover whether certain feature combinations disproportionately affect predictions for specific groups. By using VARSHAP to compute feature importances and interactions for different demographic subgroups, it's possible to create interaction plots for each subgroup, indicating potential biases. Combining time series SHAP with interaction plots will visualize how interactions vary over time for different groups, based on heatmaps and line plots. In addition, event detection to interaction values (rather than just individual SHAP values) will allow to identify moments when demographic-feature interactions spike unusually. This indicates that a model's response to certain interactions is heightened for specific groups at certain times.

2.2.3 Bias Mitigation Strategies

To mitigate bias detected in the ML models, two approaches will be applied:

- An adversarial network is applied that learns to predict gender based on DTD/SHAP outputs. The main model is trained to minimize this predictability, reducing demographic-based dependencies. Then attention weights are adjusted or regularized to ensure that the focus on key features is consistent across gender. This minimizes differential impacts on predictions based on gender characteristics.
- The calculated feature importances from gender are used for each prediction and SHAP values corresponding to these sensitive features are summed to understand how much they contribute to the overall prediction. Then the summed SHAP contributions of the sensitive features are subtracted from the model's raw prediction with the SHAP Explainer². This adjustment effectively "removes" the influence of demographic information, leaving only the contributions from non-sensitive features.

Insights derived from the XAI methods, and the mitigation strategies will be used to refine the emotion detection models iteratively and the model will be adapted and retrained to minimize these biases. See Figure 2 for an overview of the process pipeline.

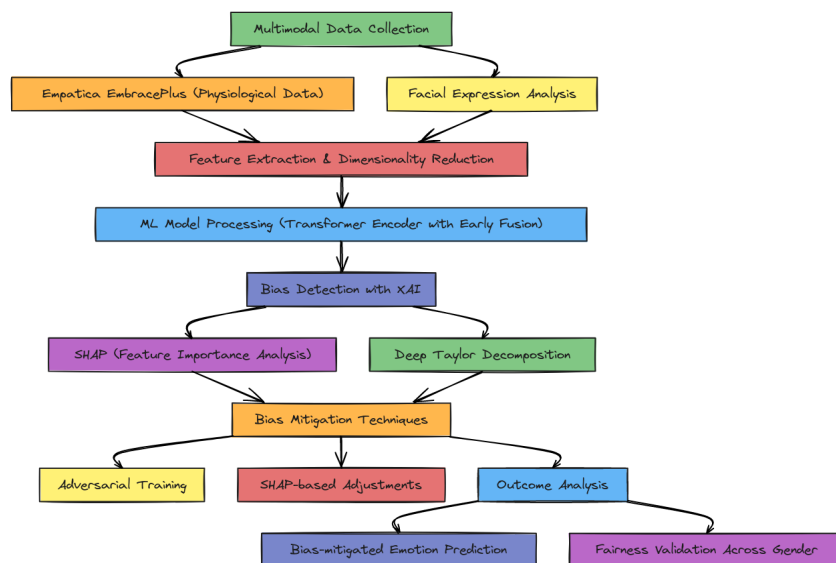


Figure 2: Overview of process for detecting bias in ML emotion classification with XAI

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Late Submissions

Diversity, Endowments and Inclusion: Pay-for-Performance and Gender Differences in University Presidents Base Salaries

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Abstract: This study investigates gender disparities in base salaries among university presidents, focusing on how endowment levels affect gender-based pay-for-performance differences. Pay-for-performance links compensation to performance outcomes. Using ordinary least-squares, quantile regression, and the Generalised Linear Model, we analyse data from 422 colleges and universities. Results show that while endowment sizes for male and female presidents are similar, an additional \$1 billion increases female presidents' average base salary by 10%, with little to no impact on male presidents' salaries. This financial sensitivity may lead female presidents to avoid financial risks and suggests they may face different financial expectations than their male counterparts. Control variables allow for examining gender pay disparities across six institutional categories, linking president salaries to institutional diversity, high-potential women pay premiums, operational scale economies, teaching and research trade-offs, and wage optimisation.

Keywords: Gender Disparities, University Presidents, Pay-for-performance, Endowments, Salary, Higher Education, Regression Analysis.

1. Introduction

Despite progress in women's labor market outcomes, significant gaps in earnings and leadership persist, and numerous initiatives to close them have had limited success (Macis, 2017)). The enduring nature of these disparities suggests a complex interplay of economic forces, cultural and social norms, discrimination, and unequal legal rights (Macis, 2017). The gender pay gap is a well-documented issue in higher education, affecting both faculty and administrators in private and public institutions. Research consistently shows that women in academia earn less than their male counterparts, even when accounting for factors such as rank, experience, and field of study (Blevins, 2019; AAUP, 2022; NCES, 2021). A report from the American Association of University Professors (AAUP) highlights that female faculty members earn approximately 81 percent of what their male colleagues make. Additionally, data from the College and University Professional Association for Human Resources (CUPA-HR) reveals similar trends among administrators, where women often receive lower salaries than men in equivalent positions. These findings underline the systemic nature of the gender pay gap in higher education, necessitating efforts to address these disparities.

Given the significance of this topic, this paper aims to deepen our understanding of gender disparities in university presidents' compensation by exploring the dynamics of pay-for-performance and its impact on gender differences in base salaries. In our study, university endowment level serves as the metric for pay-for-performance. Endowment signifies the president's ability to secure the institution's long-term financial stability. Moreover, the president's success in increasing endowment levels is often linked to solid fundraising skills, highlighting their capacity to attract significant donations and support for the university, which enhances financial resources and demonstrates leadership in generating external support vital for growth and sustainability. Additionally, allocating endowment funds towards critical university initiatives underscores the president's strategic planning and resource management capabilities. Universities can incentivise effective leadership by tying the president's compensation to endowment performance.

This study uses base salary as the main factor to determine pay rather than total compensation, which is the usual practice. This intentional decision aims to improve the clarity and consistency of our analysis, especially when examining gender disparities in the salaries of university presidents. The essential advantage of choosing base salary over total compensation is that base salaries are generally more transparent and structured, unlike bonuses and benefits, which can vary and be up for negotiation. This transparency promotes a sense of fairness and equality within an organisation. Furthermore, base salaries are less affected by external factors like negotiation skills or performance metrics, making them a more steady and reliable compensation. In their final year of employment, some presidents could receive higher total compensation through bonuses or benefits, known as "golden parachutes," which could skew the total compensation without accurately reflecting

performance. Additionally, many base salaries are subject to legal and regulatory constraints, making them a more relevant factor from a policy perspective.

This study combines OLS regression, quantile regression, and GLM to address outliers and skewness, confirming the robustness of our model and findings. Changes in endowment levels strongly increased female presidents' base pay but had little or no effect on male presidents'. This asymmetry makes female presidents' salaries more sensitive to endowment changes, especially at higher levels, potentially influencing financial risk-taking and reflecting differing standards for female leaders. The findings inform solutions for narrowing the gender pay gap.

2. Literature Review

The existing research presents mixed findings on whether such a correlation exists between endowments and university presidents' compensation. Bartlett and Sorokina (2005), Saunders (2007), Cheng (2014). Henry (2015) found a highly significant and positive relationship between compensation for executives at four-year public institutions and the levels of university endowments. Conversely, Ehrenberg et al. (2001) did not observe a significant link between endowment and compensation. Some studies report a negative correlation between endowment size (or alums contributions) and presidential compensation (Langbert & Fox, 2013). Part of the discrepancy may be due to how endowments get specified (e.g., endowment level vs. endowment per student).

Pay-for-performance links compensation to individual or organisational outcomes, aligning incentives to motivate goal achievement. For university presidents, this involves tying pay to metrics like financial performance, institutional advancement, or other goals. Research shows mixed results on pay-for-performance in higher education. Cheng (2014) found that such policies improved applications, enrollment, graduation rates, faculty salaries, fundraising, efficiency, and operating surplus. Ehrenberg, Cheslock, and Epifantseva (2001) observed that while fundraising success influenced presidential pay, overall performance had a limited impact.

Monks and McGoldrick (2002) noted similar incentive responses among presidents of liberal arts colleges and research institutions. Parsons and Reitenga (2014) found that private university compensation is linked to future reputation and resources but not educational quality. Risler and Harrison (2014) highlighted limited performance-based variables and persistent presidential pay increases, suggesting that public university presidents are paid like bureaucrats. Bai (2014) emphasised aligning compensation with institutional goals, such as research and enrollment growth.

2.1 Disparities, Employment and Inequities

Stereotypes against women persist in finance, limiting their access to top positions and credit (Van Staveren, 2014; Capelle-Blancard & Rebérioux, 2021). The few women who reach top financial positions tend to perform better than men, particularly under uncertainty (Staveren, 2014). Overall, gender inequalities in finance appear to stem from socialisation and self-fulfilling stereotypes rather than inherent differences (Capelle-Blancard & Rebérioux, 2021). Figure 1 shows how economic conditions influence the hiring of university presidents. Periods of stability and growth (2002-2008; 2013-2018; 2021-2023) saw more new female presidents, while economic uncertainty (2009; 2019-2020) coincided with a preference for male leaders, reflecting the stereotype that men are better suited for crises.

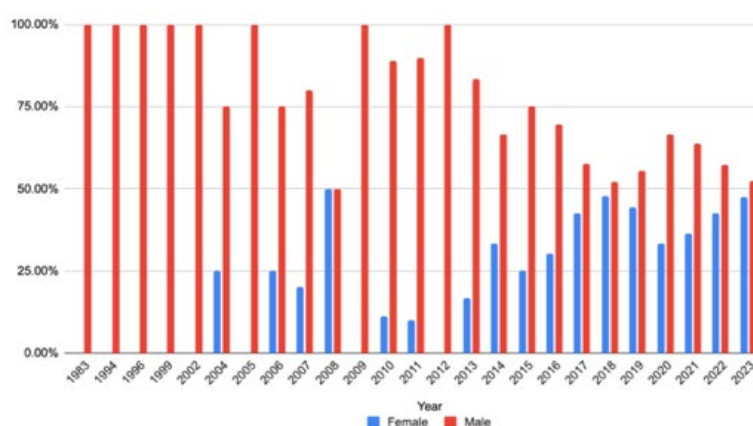


Figure 1: Percent of Female and Male New University Presidents

Source: compiled from authors' dataset

Figure 1 shows increasing percentages of new female presidents coinciding with periods of economic stability and growth (2002-2008; 2013-2018; 2021-2023). Conversely, during economic uncertainty (2009; 2019-2020), institutions seemingly adopted a more risk-averse approach, translating into a greater preference for new male leaders. Figure 1 also supports our finding of endowments' asymmetric effects on presidential pay. The decline in new female presidents in 2019, before the COVID-19 pandemic, aligns with the 2017 Tax Cuts and Jobs Act, which taxed university endowments starting in 2018.

3. Data Sources

Our study uses universities and colleges from AASHE's STARS program, ensuring a diverse sample to enhance the generalisability of findings on pay-for-performance and gender differences in university presidents' salaries. Private university salary data came from ProPublica.org, while public university data came from the *Chronicle of Higher Education* (2023). Community college salary data was sourced from college and state publications. Presidents' background details (e.g., *EXPERIENCE*, *TENURE*, *STEM*, *GENDER*, race, and ethnicity) were collected via LinkedIn and university announcements. *EXPERIENCE* measure the years of experience as University *PRESIDENT*, *vice president (VP)*, *PROVOST*, *DEAN* and/or department *CHAIR* prior to receiving their current presidential appointment. Enrollment and campus size data were from DATA USA and the National Center for Education Statistics (NCES). Endowment figures came from the National Association of College and University Business Officers (NACUBO). Research intensity (*R1*) was from the Carnegie Classification of Institutions of Higher Education (2024) and Power 5 (*P5*) classification from *Sports Illustrated* (2022).

Table 1: Summary Statistics

Variables	Mean	SD	Min.	Max.
<i>SALARY (dollars)</i>	555,981.3	370,888.7	3,000,000.00	65,945.04
<i>ENDOW (billions)</i>	1.428	4.504	0.00	43.00
<i>SIZE (acres)</i>	836.22	1898.96	3	25,000.00
<i>TENURE (years)</i>	5.97	5.17	0	49
<i>EXPERIENCE (years)</i>	14.93	8.64	0	49
<i>STUDENTS</i>	15,453.51	16,672.93	0	164,091
<i>GENDER</i>	0.36	0.48	0	1
<i>ASIAN</i>	0.05	0.23	0	1
<i>BLACK</i>	0.11	0.31	0	1
<i>LATINO</i>	0.08	0.27	0	1
<i>WHITE</i>	0.72	0.44	0	1
<i>OTHER</i>	0.01	0.11	0	1
<i>PUBLIC</i>	0.60	0.48	0	1
<i>Community College</i>	0.07	0.26	0	1
<i>R1</i>	0.25	0.43	0	1
<i>P5</i>	0.13	0.34	0	1
<i>IVY</i>	0.009	0.09	0	1
<i>HIRED_23</i>	0.16	0.36	0	1
<i>STEM</i>	0.38	0.48	0	1
<i>VP</i>	0.39	0.87	0	1
<i>PROVOST</i>	0.31	0.46	0	1
<i>DEAN</i>	0.48	0.71	0	1
<i>CHAIR</i>	0.16	0.36	0	1

4. Disparities, Exclusions, and Inequalities

Table 2 shows descriptive statistics for six institutional groups. Although not causal, the data suggests a positive correlation between endowment size and salary equality. As endowments grow, male and female salaries increase, and the female-to-male salary ratio rises, indicating greater responsiveness of female salaries to endowment changes.

Table 2: Average Base Salary, Endowment, and Base Salary Ratio

Institutional Grouping	Average Salary (SD)	Average Endowment (SD)	Female/Male Average Salary	Female/Male Salary Ratio
Com. College (CC)	264875.0 (92,859.4)	3.70 (7.36)	243,950.5/283,324.6	0.8610
Public 4-year (Pu4)	521817.6 (252,234.0)	1,112.59 (3,509.44)	501,507.0/530,482.9	0.9454
Private 4-year (Pr4)	589421.2 (448,655.6)	1,818.28 (5,812.86)	518,577.3/635,595.7	0.8324
Research 1 (R1)	824138.4 (510,379.8)	4,195.45 (7,543.68)	822,366.0/824,908.1	0.9969
Power 5 (P5)	857101.5 (398,069)	5069.78 (7,918.69)	853,348.2/858,690.1	0.9937
Ivy League (IVY)	1,651,498.0 (1,036,205.0)	21,160.00 (13,578.40)	1,835,847.0/1,467,140.0	1.2513

SD = Standard Deviation

The standard deviations suggest heteroskedasticity, as residual distribution varies with endowments and salaries. Higher mean endowment and salary compared to medians reveal positive skewness. Contrary to expectations, Power 5 and Research 1 universities show similar endowment levels and gender equity. Notably, female Ivy League presidents earned more than males, reflecting the possibility of a "pay premium" for high-potential women (Hill et al., R. I., 2016; Williams & Ceci, 2015). In this case, the institution's performance, as measured by its commitment to diversity and excellence, may be rewarded with higher compensation for female leaders who can contribute to these objectives (Gayle et al., 2012).

Table 3 shows a link between institutional inclusivity and gender equity, where the number of excluded institutional groups measures inclusivity. Research 1 institutions are the most inclusive, excluding only community colleges. Table 2 indicates they are also the most gender-equitable, with a female-to-male salary ratio of 0.9969. Power 5 institutions have a similar ratio of 0.9937. This is not coincidental, as 51 of our sample's 60 P5 schools are among the 109 Research 1 universities.

Contrary to the common belief that athletic-focused institutions like those in the P5 and R1 universities are less favorable towards women, the descriptive statistics in Table 2 reveal that these institutions have similar endowment levels and gender equity. This association is not coincidental; 51 of the 60 P5 schools are also among the 109 R1 universities in our sample.

Table 3: Median Base Salary, Median Endowments, Disparities, Exclusions and Inequities.

Institutional Grouping	Median Salary	Median Endowment	Disparities, Exclusions, and Inequalities
Community College (CC)	247,000.00	0.00	<i>Pu4, Pr4, R1, P5, IVY</i>
Public 4-year (Pu4)	457,944.50	225.75	<i>CC, Pr4, IVY</i>
Private 4-year (Pr4)	450,000.00	422.00	<i>CC, Pu4</i>
Research 1 (R1)	690,000.00	1,600.00	<i>CC</i>

Institutional Grouping	Median Salary	Median Endowment	Disparities, Exclusions, and Inequalities
Power 5 (P5)	778,389.00	1,915.00	CC, IVY
Ivy League (IVY)	1,467,150.00	21,160.00	CC, Pu4, P5

The following econometric analysis establishes a statistically significant link between endowment size, inclusivity, and gender equity, corroborating the observed patterns inferred from the descriptive statistics of Tables 2 and 3.

5. Methodology

We applied OLS, quantile regression, and GLM to address data issues. OLS is simple and interpretable but sensitive to heteroscedasticity (Wooldridge, 2010). GLMs handle skewness and heteroscedasticity with flexible distributions and link functions (Dobson & Barnett, 2018). Quantile regression resists outliers and captures the central tendency in skewed data (Koenker & Hallock, 2001). These methods link base salary, gender, endowments, and pay-for-performance.

We start with a model explaining base salary variation, incorporating university endowments in equation (1).

$$Salary_i = \beta_0 + \beta_1 ENDOW_i + \varepsilon_i \quad (1)$$

Table 4 shows six significant β_1 estimates, confirming persistent gender differences across GLM, OLS, and quantile regressions. The GLM (log-level) model predicts a \$1 billion endowment increase raises female presidents' salaries by 13.1% but males' by 2.1%. The quantile regression (log-level) model estimates a 14.5% increase for females and 3.5% for males. The OLS (log-level) model predicts a 12.4% increase for females and 1.9% for males. These gender gaps are not due to endowment size, as male and female averages (\$1.6B vs. \$1.2B) and medians (\$0.244B vs. \$0.233B) are similar.

With zero endowments, Table 4's quantile regression predicts median salaries of \$357,479.8 for women and \$447,383.3 for men, yielding a 0.80 female-to-male ratio. This aligns with the 20.7% gap found by Barbezat & Hughes (2005), AAUW's 21% gap (2014), and U.S. Bureau of Labor Statistics data (2019), showing that women earned 82 cents per male dollar.

Table 4: OLS, Quantile, and GLM Estimations of Equation (1)

	Dependent Variable	Female β_0	Female β_1	R-sq. / L.R. (Female)	Male β_0	Male β_1	R-sq. / LR (Male)
OLS	Salary	381124.5*	108995.0*	R-sq. = 0.503	546621.8*	18823.21*	R-sq. = 0.069
OLS	ln(Salary)	12.859*	0.124*	R-sq. = 0.276	13.084*	0.019*	R-sq. = 0.039
Q (0.50)	Salary	357479.8*	107037.8*	R-sq. = 0.228	447838.3*	29694.32*	R-sq. = 0.075
Q (0.50)	ln(Salary)	12.866*	0.145*	R-sq. = 0.156	13.017*	0.035*	R-sq. = 0.062
GLM ^a	Salary	380886.3	135102.0	LR = 92.574*	484537.1	83710.67*	LR = 37.048*
GLM ^a	ln(Salary)	12.852*	0.131*	LR = 56.519*	13.081*	0.021*	LR = 10.799*

^a family: gamma; link: identity Q (0.50): quantile (median)

*p-value <0.001

6. Gender, Endowment and Pay-for-Performance

Equation (2) adds an interaction term $ENDOW * GENDER$ to equation (1) to capture the differential impact of endowment size on the salaries of male and female university presidents.

$$Salary_i = \beta_0 + \beta_1 ENDOW_i + \beta_2 GENDER + \beta_3 ENDOW_i * GENDER + \varepsilon_i \quad (2)$$

Equation (2) allows us to use the following hypothesis tests to determine if the different endowment effects on base salary are statistically significant.

Hypothesis Test 1:

Ho: If changes in the endowment do not impact male base salary, then $\beta_1 = 0$, implying that base salary is not associated with changes in pay-for-performance

Ha: If changes in the endowment impact male base salary, then $\beta_1 \neq 0$, implying that base salary is associated with changes in pay-for-performance.

Hypothesis Test II:

Ho: If there is no significant difference between males and females in the effect of endowments on salary, then $\beta_3 = 0$, implying that gender does not influence pay-for-performance outcomes.

Ha: If there is a significant difference between males and females in the effect of endowments on salary, then $\beta_3 \neq 0$, implying that gender does influence pay-for-performance outcomes.

7. Achieving Gender Equity

This subsection develops an equation linking gender equity in presidential salary to endowments. The differing intercepts and the positive female endowment coefficients and negative male endowment coefficients in Table 4 suggest an endowment level at which female and male base salaries are equal.

When $GENDER = 0$, equation (2) yields the male presidents' endowment equation:

$$Salary_i = \beta_0 + \beta_1 ENDOW_i + \varepsilon_i \quad (3)$$

Conversely, when $GENDER = 1$, equation (2) becomes the female presidents' endowment equation:

$$Salary_i = (\beta_0 + \beta_2) + (\beta_1 + \beta_3) ENDOW_i + \varepsilon_i \quad (4)$$

Setting equation (3) equal to equation (4) and solving for $ENDOW$ yields the endowment level that achieves gender equality in salary;

$$ENDOW = -\frac{\beta_2}{\beta_3} \quad (5)$$

Since endowments cannot be negative quantities, β_2 or β_3 are restricted to be negative in equation (4), which represents the balance of two opposing forces; β_2 reflects the extent to which female salaries differ from males, while β_3 represents the marginal effect of university endowments on female presidents' base salaries differs from male presidents.

Table 5 shows that each estimation method yields $\beta_2 < 0$ and $\beta_3 > 0$, suggesting that women's salaries are significantly lower than men's and that the marginal impact of endowments on female presidents' salaries is greater than the marginal impact endowments have on male presidents' base salaries.

Table 5: OLS, Quantile, and GLM Estimations of Equation (2)

	Dependent Variable	β_0	β_1	β_2	β_3	$-(\beta_2/\beta_3)$	
OLS	Salary	550963.7*	18678.21*	-152839*	90307.7*	1.692	$R^2=0.215$
OLS	log(Salary)	13.08*	0.019*	-0.224*	0.105*	2.133	$R^2=0.130$
Q(0.50)	Salary	447838.3*	29694.32*	-90358.44**	77434.24**	1.165	$R^2=0.124$
Q(0.50)	log(Salary)	13.01*	0.035*	-0.151**	0.109**	1.358	$R^2=0.097$
GLM ^b	Salary	484587.1*	83710.67*	-103650.7*	51391.29	2.016	LR=113.54*
GLM ^b	log(Salary)	13.08*	0.021*	-0.228*	0.110*	2.069	LR=64.960*

^b family: gamma; link: identity

* p -value < 0.001

Table 5 shows that the OLS, quantile, and GLM estimates of β_3 with $\ln(\text{Salary})$ as the dependent variable are highly significant and remarkably consistent. Table 5 also reveals that the average gender-equal endowment ranges from \$1.692 billion to \$2.133 billion; the median equity endowment ranges from 1.165 billion to \$1.358 billion. The $-(\beta_2/\beta_3)$ GLM estimates are the most consistent, suggesting that the relationship between university endowments and gender equality in salaries is robust, indicating that the findings are not heavily influenced by the specific estimation method.

8. Control Variables Analysing Gender Disparities in University Presidential Salaries

Equation (3) extends equation (2) by introducing 30 control variables: nine human capital characteristics (HC_i), nine university characteristics (U_i), six individual characteristics (I_i), and six interaction terms, INT_i .

$$Salary_i = \beta_0 + \beta_1 ENDOW_i + \beta_2 GENDER + \beta_3 ENDOW_i * GENDER + \delta HC_i + \rho U_i + \gamma IND_i + \eta INT_i + \varepsilon_i \quad (6)$$

8.1 Human Capital

This study includes dummy variables for prior roles (president, VP, provost, dean, chair) and calculates cumulative years in leadership ($EXPERIENCE$). As seen in executive compensation research, a quadratic salary model captures the diminishing or reversing returns to experience. In a log-level format, $TENURE$ reflects how accumulated human capital during a president's tenure increases effectiveness and salary. The dummy variable $STEM$ indicates whether the president holds a STEM degree, acknowledging the trend of hiring STEM-educated presidents to enhance institutional technical expertise.

8.2 University Characteristics

Gender wage disparities are analysed using $GENDER$ interactions with institutional group dummies across $PUBLIC$ and $PRIVATE$ four-year schools, community colleges (CC), Ivy League (IVY), $P5$, $R1$ universities. Larger institutions typically pay higher salaries (Cheng, 2014; Ehrenberg et al., 2001), with campus size ($SIZE$) included as a control variable. Larger campuses often require more extensive physical infrastructure to support various facilities and academic departments, which can influence compensation packages for university presidents (Essaji & Horton, 2010). $SIZE$ and $SIZE^2$ capture the non-linear relationship between size and salary: administrative costs initially rise with complexity, but economies of scale reduce average costs as campuses grow. This approach aligns with pay-for-performance by balancing administrative costs and operational efficiency.

Langbert & Fox (2011) reported that institutional size, which includes enrollment, is linked to presidents' salaries in private institutions. Pay-for-performance in university presidents' salaries can be modeled as a research-teaching trade-off, as represented in equation (4):

$$Salary_i = \beta X + \eta_1 R1 + \eta_2 Students + \eta_3 R1 * Students + \eta_4 R1 * GENDER + \varepsilon_i \quad (4)$$

Equation (4) rewrites equation (3) for analytical convenience, where the term βX includes all independent variables except for research intensity ($R1$), student enrollment ($Students$), and interaction terms: $R1 * Students$ and $R1 * GENDER$. Equations (5) and (6) indicate how the president's salary varies with enrollment and depends upon the university's research intensity (the coefficient of $GENDER * Students$ was not significant and, therefore, dropped from the model).

$$\text{When } R1 = 0: \partial Salary_i / \partial Students = \eta_2 \quad (5)$$

$$\text{When } R1 = 1: \partial Salary_i / \partial Students = \eta_2 + \eta_4 \quad (6)$$

Including $R1$, $Students$, and $R1 * Students$ as control variables in equation (4) allows the university to interpret the president's base salary as an administrative cost of production and the university president to interpret the base salary as income she is incentivised to maximise. University presidents can increase base salary compensation by reducing expenses and operating efficiently. Specifically, the enrollment level that maximises the president's base salary for Research 1 universities is determined by setting equation (6) to zero:

$$\eta_2 + \eta_4 = 0 \quad (7)$$

This condition highlights the balance universities must strike between enrollment size and research intensity as part of their broader strategy for minimising costs and salary structure that incentivises operational efficiency.

8.3 Individual Characteristics

We included racial/ethnic dummy variables (*ASIAN*, *BLACK*, *LATINO*, *WHITE*, and *OTHER*) to account for salary biases. For 84 new 2023 presidents, we checked public sources for salary data and introduced the dummy variable *HIRED_23* to compare salaries with incumbents.

9. Results

Table 6 shows regression estimates of equation (6). Model 4 has the highest L.R. statistic, making it the focus. The *ENDOW* coefficient, estimating endowment effects on male presidents' salaries, is insignificant. However, *GENDER*ENDOW* coefficients are robust and significant, reflecting differential effects for female presidents.

Table 6: OLS, Quantile, and GLM Estimations of Equation (6)

Estimation	OLS	Quantile	GLM	GLM	GLM	GLM
Model	(1)	(2)	(3)	(4)	(5)	(6)
family	---	---	gamma	gamma	gamma	exponential
link	---	---	identity	log	inverse	log
Dependent Variable	ln(salary)	ln(salary)	ln(salary)	salary	ln(salary)	ln(salary)
CONSTANT	12.283*	12.682*	12.256*	12.415*	0.081*	2.498*
ENDOW	-0.019*	0.003	-0.021*	-0.008	0.0001*	-0.002*
GENDER	-0.276*	-0.249**	-0.277*	-0.258*	0.001*	-0.022*
GENDER*ENDOW	0.133*	0.129*	0.136*	0.115*	-0.0007*	0.012*
ASIAN	-0.035	0.090	-0.038	-0.083	0.0002	-0.004
BLACK	-0.109	0.001	-0.114	-0.126	0.0006	-0.011
LATINO	-0.042	-0.032	-0.050	-0.082	0.0002	-0.006
WHITE	-0.049	0.019	-0.052	-0.059	0.0003	-0.005
PUBLIC	-0.455*	-0.387*	-0.452*	-0.493*	0.002*	-0.035*
PUBLIC*GENDER	0.311*	0.193	0.314*	0.304*	-0.001*	0.026*
CC	-0.818*	-0.858*	-0.817*	-0.887*	0.004*	-0.063*
CC*GENDER	0.304***	0.291***	0.307**	0.288***	-0.001***	0.024**
STUDENTS	1.2E-05*	1.3E-05*	1.2E-05*	1.3E-05*	-6.6E-08*	1.4E-06*
R1	0.540*	0.401*	0.542*	0.538*	-0.003*	0.043*
R1*GENDER	-0.124	-0.064	-0.124	-0.109	0.0006	-0.010
R1*STUDENTS	-1.4E-05*	-1.0E-05**	-1.4E-05*	-1.3E-05*	7.6E-08*	-1.4E-06*
P5	0.419*	0.327*	0.427*	0.383*	-0.002*	0.037*
P5*GENDER	-0.278***	-0.228***	-0.292***	-0.256	0.001***	-0.030**
IVY	1.136*	0.220	1.193*	0.657	-0.006*	0.127*
IVY*GENDER	-1.992*	-1.440**	-2.089*	-1.492**	0.011*	-0.216*
LOG(SIZE)	0.200**	0.090	0.208**	0.196**	-0.001**	0.018*
LOG(SIZE) ²	-0.015**	-0.008	-0.015**	-0.016**	9.2E-05**	-0.001*
HIRED_23	0.076	-0.025	0.079	0.072	-0.0004	0.007
STEM	0.099**	0.077	0.096**	0.115*	-0.0005	0.006**
PRESIDENT	-0.021	0.017	-0.024	-0.002	0.0001	-0.004
VP	-0.024	-0.004	-0.023	-0.024	0.0001	-0.001
PROVOST	-0.057	-0.062	-0.058	-0.054	0.0003	-0.004
DEAN	0.019	-0.008	0.021	0.017	-0.0001	0.003
CHAIR	0.016	0.006	0.011	0.011	-0.0001	-0.001
TENURE	0.014**	0.004	0.0148*	0.015*	-8.0E-05**	0.001*

Estimation	OLS	Quantile	GLM	GLM	GLM	GLM
EXPERIENCE	0.022*	0.013**	0.022*	0.022*	-0.0001*	0.001*
EXPERIENCE ²	-0.0005*	-0.0002***	-0.0005*	-0.0005*	3.4E-06*	-4.6E-05*
Adj-R ²	0.474	0.351	---	---	---	---
Obs.	422	422	422	422	422	422
LR-Statistic	---	---	412.382*	462.018*	406.822*	405.799*

p*-value <0.001 *p*-value <0.05 ****p*-value <0.10

A \$1 billion endowment increase raises female salaries by 10.7%, with no significant effect on males. Female presidents earn 28.8% more at community colleges and 30.4% more at public universities but 25.8% less at private institutions and 149.2% less at Ivy League schools. *R1*GENDER* and *P5*GENDER* coefficients are negative but insignificant, consistent with nearly equal male-female base salary ratios in Table 2. The *SIZE* and *SIZE*² coefficients show salaries peaking at 457 acres, while *EXPERIENCE* and *EXPERIENCE*² coefficients show salaries peaking at 18.68 years. *TENURE* increases base salary by 1.5% annually. Race and ethnicity (*ASIAN*, *BLACK*, *LATINO*, *WHITE*) are not significant predictors of salary, aligning with prior findings (Barbezata & Hughes, 1999; Hebner, 2018).

9.1 Gender-Equity Endowment Estimations

Table 7 confirms the robustness of equation (5) estimates. Model 4 predicts a gender-equity endowment of \$2.243 billion (CI: 0.989–3.489), consistent with $-(\beta_2/\beta_3)$ estimates in Tables 6 and 7.

Table 7: Estimate of Gender-Equity Endowment Level and Confidence Interval

Model	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	Q (0.50)	GLM	GLM	GLM	GLM
Family	---	---	gamma	gamma	gamma	exponential
Link	---	---	identity	log	inverse	log
Dependent						
Variable	ln(salary)	ln(salary)	ln(salary)	salary	ln(salary)	ln(salary)
β_0	12.283*	12.682*	12.256*	12.415*	0.081282*	2.498*
β_1	-0.019*	0.003	-0.021*	-0.008	0.000115*	-0.002*
β_2	-0.276*	-0.249**	-0.277*	-0.258*	0.001528*	-0.022*
<i>c</i>	0.133*	0.129*	0.136*	0.115*	-0.000728*	0.012*
$-(\beta_2/\beta_3)$	2.027**	1.930**	2.036**	2.243**	2.173**	1.815**
CI	(1.013, 3.13)	(0.499, 2.413)	(0.997, 3.062)	(0.989, 3.489)	(1.507, 2.847)	(0.926, 2.680)

**p*-value <0.001

***p*-value <0.05

Q (0.50) = median quantile regression

Table 7 results corroborate the gender equity inferences of Tables 2 and 3, showing that Research 1 and Power 5 institutional groupings are the most gender equitable. The quantile coefficients $-(\beta_2/\beta_3)$ in Table 7 predict a gender-equity median endowment of 1.930, close to the Power 5 median of \$1.915 billion. The quantile confidence interval (0.499–2.413) aligns with the DEI data in Tables 2 and 3, including (the median endowments of) Research 1 institutions (\$1.600 billion) and Power 5 schools but excluding community colleges (\$0.00 billion), public 4-year (\$0.225 billion), private 4-year (\$0.422 billion), Ivy League (\$21.00 billion), female (\$0.244 billion), and male (\$0.233 billion) median endowments.

10. Discussion

Endowments impact male and female university presidents' base salaries differently. Female presidents' salaries rise with endowments, while male salaries show minimal change. This analysis focuses on base salaries, not total compensation, which likely depends on endowment performance. Control variables confirm that these differences are not due to institutional type, school activities, complexity, race, ethnicity, or human capital factors (e.g., tenure, experience, STEM education). Female presidents may be incentivised to improve financial

performance and fundraising due to the direct link between endowment growth and compensation. Male presidents, less influenced by endowment performance, may focus on academics, efficiency, or strategy. Median gender-equity endowment levels and confidence intervals highlight diversity and inclusion patterns, especially in Research 1 and Power 5 institutions, which are the most equitable and inclusive. These findings, significant given women's historical underrepresentation in research and sports, suggest that Research 1 and Power 5 universities share progressive practices promoting diversity, equity, and opportunity campus-wide (Scott, 2019).

10.1 Pay-for-Performance

Equation (7) requires η_2 and η_4 for cost minimisation (salary maximisation). Model 4 meets this with $\eta_2 = 1.3\text{E-}05$ and $\eta_4 = -1.3\text{E-}05$, confirming a gender-neutral pay-for-performance structure. This alignment balances research and teaching, supporting cost minimisation and institutional goals. Findings align with studies linking research, teaching, administrative efficiency, and enrollment targets to pay-for-performance (Jauch, 1976; Bai, 2014). Diminishing returns to experience indicate that salary growth depends on performance, not tenure alone. *EXPERIENCE* and *EXPERIENCE*² highlight the value of leadership, while insignificant prior experience dummies suggest limited transferability of expertise across institutions. Longer tenures improve effectiveness, reflected in higher pay under pay-for-performance. STEM-degree presidents earn 11.5% more, signaling a premium for innovation and leadership in technology-driven initiatives.

10.2 Policy Implications

Figure 2, Figure 3, and Figure 4 depict equations (2), (3), and (4) interpreting the quantile regression parameter estimates shown in Table 7. These simplified diagrams illustrate the main findings of our report and act as visual aids for evaluating gender-equity proposals. Equation (3) represents the equation for male presidents and is depicted by line *M*. It has an intercept of β_0 and is shown as a horizontal line (perfectly elastic), indicating the insignificant coefficient of *ENDOW*, β_1 . Equation (4) corresponds to the equation for female presidents and is illustrated by lines *F*₁, *F*₂, *F*₃, and *F*₄. The slope of these lines is determined by $\beta_1 + \beta_3$. Equation (5) represents the gender-equity endowment level, $E^* = -(\beta_2/\beta_3)$, and is graphically shown at the intersections of equations (3) and (4). Table 7's quantile regression estimates $E_1^* \approx 2.0$, positioning the R1 and P5 schools at point B on line *F*₁. The approximate median endowment for both female and male presidents is $E_2^* \approx 0.23$, leading to a pay gap represented by (C - A) on line *F*₁. This section analyses gender-equity policies and their effects on closing the (C - A) pay gap.

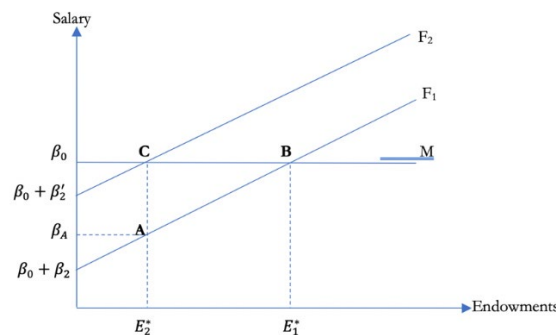


Figure 2: Impact of Effective Policy Measures on Gender Disparities in Base Salaries

Policies like equal pay laws, gender equity initiatives, salary transparency, and anti-discrimination efforts reduce gender salary gaps and lower the *GENDER* coefficient β_2 . Figure 2 shows this as a shift from *F*₁ to *F*₂, moving from A to C and reducing the equity endowment level from E_1^* to E_2^* .

Effective policies—equal pay laws, gender equity initiatives, salary transparency, and anti-discrimination efforts—can reduce gender salary gaps, lowering the *GENDER* coefficient, β_2 . Figure 2 shows this shift from *F*₁ to *F*₂ (point A to C), decreasing the equity endowment level (E_1^* to E_2^*). Beyond point C, female presidents out-earn males, not due to a pay premium but asymmetric pay-for-performance tied to endowments. This aligns with findings that female community college and public university presidents earn 28.8% and 30% more than men, while female private university presidents earn 25.8% less (point A).

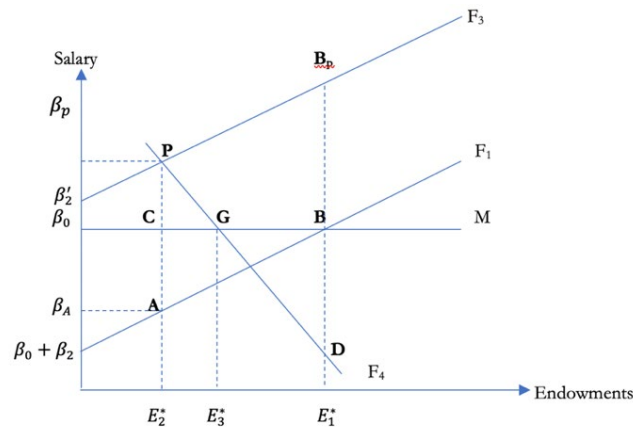


Figure 3: illustrates the scenario where all-female university presidents receive a paid premium, shifting the curve from F_1 to F_3 . F_3 is higher than M across all endowment levels.

A pay premium makes β_2' s positive, meaning female presidents earn more. To keep the gender equity endowment level $E_3^* = -(\beta_2' / \beta_3)$, positive, β_3 must be negative, making the female curve's slope $\beta_1 + \beta_2'$ negative. This rotates F_3 to F_4 , shifting the $(B_p - B)$ pay premium into a $(B - D)$ pay gap. Figure 3 helps explain how Ivy League female presidents' 25% pay premium (Table 2) led to a 144% salary gap (Table 7, Model 2).

11. Conclusion

This study examines gender-based salary disparities among university presidents and the impact of endowments. Findings show that female salaries rise with endowments, while male salaries do not, revealing asymmetries in pay-for-performance. Beyond endowments, salaries follow economies of scale—rising, then falling with campus size—highlighting resource efficiency. Diminishing returns to experience suggests a shift toward performance-driven pay. Future research should expand the dataset and apply machine learning to enhance generalisability. This will deepen insights into gender pay gaps and inform strategies for equity in academic leadership.

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Lived Experience of Victims of Human Trafficking for Sex Work in India: Liminality Within Rehabilitation Process

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Abstract: The paper focuses on the lived experience of female victims of human trafficking in the sex industry in India, analysing the phenomenon through the lens of liminality. The research combines the obtained data together with the theoretical concepts of liminality through which the daily reality of survivors living in Rehabilitation centre with focus on their transformative period and liminality is depicted. The study is based on field research conducted in 2022 and 2023 in Mumbai and Delhi in selected NGOs and its rehabilitation centres and adjacent RLAs. The submitted contribution is based on research for a dissertation within the framework of doctoral studies.

Keywords: Liminality, Sex Work, Human Trafficking, Intersectionality, Reintegration, India

1. Introduction

The presented research aims to describe and explain the lived experience of liminality among women who became victims of human trafficking for sex work in India, as part of the process of adaptation and acculturation after rescue. The critical period from rescue – i.e., from the voluntary or forced departure from the Red Light Area (RLA; urban districts consisting of brothels) – through their entire stay at an NGO undergoing rehabilitation, and finally to their departure from this organization leading to financial and social independence, is examined in the research.

This period was chosen deliberately because it is a time frame in which the participants find themselves in a very specific situation. They are no longer part of their old life in the RLA (physical, economic and social relations are completely interrupted), and at the same time they are not yet part of the "new" society they are expected to join. This period is characterized by limbo, which is accompanied by uncertainty, unclear plans, and changing circumstances, which is typical for refugees or groups going through the reintegration process. During this time, women may find themselves in a transitional stage or in a state of liminality (Turner, 1969; Gennep, 1960). The research focuses on the analysis of the experiences of victims of human trafficking and recognition of experienced layers of liminality – spatial, legal and social. Special focus is given to the shift and reconstruction of identity within this process. The research combines the obtained data with theoretical concepts of liminality, which define the daily reality of survivors living in rehabilitation centres, with a focus on their transformative period and how liminality is depicted.

2. Methodology

The research uses qualitative research methods which makes it possible to focus on the experiences within these reintegration processes and on how social reality is created for a single individual (Denzin & Lincoln, 2005, p. 10). In this regard, qualitative research is a great choice for highlighting and giving importance to the participants' own experiences, since research focused on marginal groups mostly uses a quantitative frame. The research goal and the questions that I have chosen bear certain specificity, which is why I decided to combine two research designs: ethnographic and biographical. I chose ethnographic design because it allows me, as a researcher, to become more integrated in the field and participate in various events and activities. For this type of research, in-depth interviews, specifically semi-structured interviews that allow for cognitive flexibility, and participant observation were chosen as the most appropriate techniques.

Field Research took place in 2022 and 2023 in Rehabilitation Centres for Victims of Human Trafficking in India and adjacent Red Light Areas. In Mumbai, a collaboration was established with one NGO, and the research project focused on the RLAs in Ghatkopar and Sonapur. In Delhi the collaboration involved just one NGO, and the selected RLA was GB Road. Two different NGOs with different rehabilitation programs and in different cities were purposefully selected to ensure a more varied sample and to identify possible differences.

3. Socio-economical Background of Human Trafficking

In today's world, human trafficking can be considered one of the most widespread and serious forms of endangering human rights, which is not only a "third world" problem, as it is sometimes mistakenly stated, but

is already part of the grey economy worldwide. The International Labor Organization (ILO) states that the most registered cases are in the Pacific-Asian region, which is closely followed by Africa. Despite all international and domestic efforts to reduce this criminal activity, human trafficking remains one of the most profitable illegal businesses (Mishra, 2013a). The International Labor Organization reports that more than 21 million people worldwide are currently victims of human trafficking and various forms of exploitation (ILO, 2014). The ILO further states that in 2014, the annual revenue of human trafficking as a criminal activity was estimated at 150 billion USD (ILO, 2014), making it second only to the arms trade. Of the total number of victims of human trafficking, only 22% are trafficked within the sex industry, yet all their profits amount to 66% of all human trafficking profit (Organisation for Security and Co-operation in Europe, 2011). Women thus remain the largest group within sex trafficking, which demonstrates how this criminal act is a gendered crime that exploits the social and economic poverty as well as the vulnerability of women (GAATW, 2020).

3.1 Human Trafficking in India

Asia, especially India, is key country for the sex industry (including sex tourism and sex trafficking), generating immense profits for individuals and entities in the grey economy (pimps, brothels, agencies, etc.) (Huda, 2006). It is estimated that 1 million people become victims of human trafficking in India every year, with domestic trafficking accounting for 90% of this number and only about 10% of victims being smuggled across international borders (Hameed et al 2010, 1 -2). Of this total number, the sex industry employs almost 2 million sex workers, with at least 20% being minors. However, a major caveat is that it is very difficult to present clear numbers and statistics due to insufficient resources to trace and record all victims.

India's fast-growing sex industry occurs due to cheap labour, low wages, enabled child labour and the shrewdness of traffickers to lure women into lucrative job offers. In Indian culture, especially in rural areas, there is a deeply entrenched patriarchy that promotes gender discrimination. Women have diminished access to resources in terms of rights, employment, finance or education thus become more vulnerable to exploitation and human trafficking (Shakya, 2009; Ray, 2008). Human trafficking is largely impacted by migration associated with changes in the labour market or political issues, occurring when women or possibly children from India's periphery and neighbouring countries are forced to migrate in search of livelihood. The best way to understand the situation of human trafficking in the sex industry in India is to view it through an intersectional perspective: as a complex phenomenon involving several different layers and factors that intertwine with each other. Together, these individual layers help shape "structural vulnerability", which conditions the predetermined position of women within the social structure and their susceptibility to exploitation. Such interrelatedness of factors is the starting point for gender-based structural violence which is rooted in cultural understanding of gender, hierarchy, and stigmatization within Indian society.

3.2 Vulnerability Towards Human Trafficking

The following section frames three main groups of intersection factors causing vulnerability towards human trafficking: 1) gender-based violence and discrimination, 2) cultural practices, and 3) socio-economic oppression.

Long-term observance of traditions across generations leads to the creation of a mindset ingrained in the social structure that subjects women to increased levels of vulnerability and violence. Gender discrimination in economic, cultural, and legal terms are happening because of the intersecting vulnerabilities, such as class, caste, ethnicity, religion, economic rank, marital status etc. (Dey & Orton, 2016), through which women are defined.

Violence against women might arise when the relationship is built on the basis of male authority-female submission, where men have the exclusive right of control and authority over women, and this authority is rooted in cultural practices and values (Gangoli, 2007). It is precisely cultural practices and traditions such as family structure, male child preference and subordinacy of women that are the most common origin of violence against women, much more often than the governmental organization of society (Rammonhan, 2004; Vlassoff, 2013; Ray, 2008). Male dominance might lead to cutting off women from resources and access to education. This, along with other barriers that women face in the educational process, increases their vulnerability, reduces financial and social independence, and keeps them socially and formally in thrall to the male household member (Shakya, 2009; Ray, 2008). The biggest barriers in education are faced by girls mainly due to the already described traditional concept of "male child preference", when sending a daughter to school is perceived as a "waste" of resources (Sharma, 2014, p. 13). Thus, gender discrimination in education increases women's vulnerability to poverty, reduces their level of financial stability, and diminishes their social independence. Barriers to basic education originates with a lack of access to higher or professional education, which results in

inequality in the labour market for men and women, and subsequently in the lack of opportunities for financial earnings for women. The resulting economic instability, lack of security, and non-suitable circumstances for women in the labour process and the market fosters a feminization of poverty which leads women into trap of exploitation and trafficking (Ray, 2008). Family dysfunction is also listed as one of the factors contributing to vulnerability to HT, especially within young women and children (Frederick & Basnyat, 2010, p. 13), along with the dowry system (Maitra 2008) and the caste system.

Disadvantaged access to education, capital and working conditions is one of the signs of structural discrimination against women. It is important to look at women's economic poverty as an important factor driving women to enter the sex industry, as a force that keeps them in this system and makes it impossible for them to leave (Chattopadhyay & Mckay 2004). The vast majority of India's population lives below the poverty level, lacking basic necessities such as water, food and shelter. However, women are disproportionately impacted due to the unequal gender imbalance within society and the disparities between men and women in access to resources. Hierarchical positions and traditional gender roles in families make it impossible for women to attend school or learn a skill or trade that could ensure a regular income, either for themselves or for the whole family. Women who are denied access to resources, experience lack of economic opportunities, and experience exploitation through work process are more likely to end up entering (voluntarily or involuntarily) the sex industry.

4. Anti-trafficking Practices and Help

The anti-trafficking approach of governmental authorities and NGOs play a significant role in addressing vulnerability towards exploitation and combating human trafficking. The 3Rs model -- rescue, rehabilitation, reintegration -- used by governmental and non-governmental organizations outlines their connections and tasks. The NGO takes on a role in the reintegration and rehabilitation process and splits its activities into two streams. The first is working with victims of HT with a focus on formal and informal training of victims on financial and social empowerment of women and their families. The other stream is directed into resolving social stigma as an integral component of reintegration and rehabilitation through social and community work which aims to transform social attitudes related to sex work.

Non-profit organizations are usually divided into several separate parts: a Shelter Home (SH), Training Centre (TC), or Rehabilitation Centre (RC), which are sometimes combined with Training Centres. The main task of these cooperating centres is the rehabilitation and reintegration of victims back into society while the mutual cooperation of these centres helps to relieve victims of the psychological, physical and social consequences associated with trafficking. (Pandey et al., 2013; Pandey, 2021) The main goal of the NGO and the adjacent centres is to help victims of human trafficking and prepare them for reintegration back into society and creating a new life. Here, the focus is directly on targeting and solving the causes which lay at the very beginning of human trafficking – poverty, violence against women and gender discrimination.

5. Liminality

Liminality comes from the Latin word *limen* – threshold, which refers to a part of the door, which must be crossed and over-stepped to come from one place to another. The translation of this word fully captures its meaning as a space or status of transition. The first use in anthropology is attributed to Arnold van Gennep, who used the term for the first time in his seminar work *Rites of Passage* (1909), where he defined liminality in connection with the so-called rites of passage. In his concept, these are defined as "a transition from one social and magical-religious position to another" during which there is a change in the status of an individual, or his transition from one state to another, within society, while these rituals accompany every change of place, state, social position and age (Turner, 1969; Gennep 1960). Individual rituals then relate to the phases of human life and represent milestones such as: "birth, childhood, social adulthood, betrothal, marriage, wedding, pregnancy, fatherhood, initiation into religious societies and funerals" (Gennep, 1960). The structure of these rituals is then characterized by three stages, which must be characterized by each transitional ritual. The individual stages are then: pre-liminal, liminal (threshold) and post-liminal (Gennep, 1960).

Turner, who further elaborated this concept, sees the main meaning of the whole concept in the middle liminal phase, which he characterizes as a "halfway" place where persons are neither here nor there. As he explains within the anti-structure (liminal phase) individuals exist between two levels - the old and the new state, in which they find themselves completely without a given status that makes them socially, spatially, and often and legally invisible within the social structure -- respectively referred to as initiates or neophytes (Turner, 1969). As part of the transition, there is also a rebirth and disruption of their identity due to separation from social roles.

Thus, the main feature is the re-evaluation and challenging of social structure and its rules until they are temporarily interrupted. In *Betwixt and Between* (1967), Turner states that in the process of the liminal phase, neophytes are stripped of their social status, all bonds and characteristics, and as part of this they are stripped of their values, norms, feelings, techniques and habits within which they were used to behave, think and feel (Ibid., 105). The liminal phase does not only disrupt the structure but offers a distance from the given structure and thus the possibility to analyse and evaluate relationships, features, and possible change.

6. Liminality Within Human Trafficking

The participants in this study began the journey of liminality by "rite" (Turner, 1969) separation and entering a rehabilitation centre. One of the conditioning characteristics for the selection of participants was voluntary departure from the RLA and entry into the rehabilitation program. The symbolic abandonment of the old life is primarily accompanied by a change in physical and social space in which we can observe signs of experienced liminality. The victims of HT who entered NGO and became beneficiaries, have strictly controlled physical and social contact with the world outside the centre, as well as strictly controlled contact with people and activities associated with their old life in RLA, while still not having access to the new world and the surrounding society into which they are supposed to incorporate. Beneficiaries are thus trapped in many layers of liminality which can be called structural liminality, such as spatial, social, psychological and legal liminality.

6.1 Legal Liminality

Structural liminality is caused, among other things, by their categorization within legal law. Victims of human trafficking who are placed in reintegration centres are labelled as beneficiaries or survivors, but they do not have the status of "full-fledged" citizens, just as they are no longer who they were before entering the centre. They are marked as something different, separating them from the rest of society. Victims thus become a special category, which holds a special place within the law and within the framework of humanitarian aid. Victims of human trafficking who are without social and economic capital find themselves in an even more ambiguous position, thereby worsening their already vulnerable position and worsening the process of acculturation (Bales, 1999). Victims who still haven't found their place and haven't been fully incorporated into the surrounding society are in a state of liminality. They have been labelled "survivors" or "victims" of human trafficking are officially separated from the rest of society and placed in a special group, thereby being trapped in a distinct legal structure. The life of victims is reduced to "bare life", when they are stripped of their political and civic rights while they face a social exclusion. Since sex work is highly illegal in India many women face issues with police authorities, lack of governmental help, unwillingness of legal services, and unclear pathways to humanitarian help. Their legal liminality is created by experienced difficulties and a lack of clarity on legal status which increases their vulnerability not just in the public space, but also within the workplace.

6.2 Spatial Liminality

Landscapes of liminality have one characteristic in common, namely temporality, transition, and threshold (Turner, 1969). Liminal spaces are created and maintained in spaces on the border of illegality and as such takes place on no-place characterized by temporality and shifting spatial relations such as airports, hotels, containers etc. (Andrews, Roberts, 2012). Rehabilitation centres thus represent a physical and symbolic mark of liminality. Beneficiaries are inhabiting a threshold where they have status as beneficiaries yet lack official recognition by government; they receive shelter, yet don't have a permanent home; they've given up their old identity yet haven't created a new one. They exist on the line of visibility and invisibility, which they must cross to gain official recognition by government and society in order to create a new identity. Very similar findings are presented in research focusing on refugees (Danış et al., 2009; Abourahme, 2011; Vrečer, 2010), where the same function is represented by refugee centres when refugees are excluded from the majority society and "prepared" for life in a second or third country. In the same way, the beneficiaries are removed from the outside world and placed in the centre, which are often located in remote or secret places. The main characteristic of these centres is the prohibition of public entry, as well as limited contact of beneficiaries with the public. Beneficiaries are also subject to a number of rules, such as the assistance of employees in making major decisions, the limitation of financial resources, or assistance in case of need for medical assistance.

Such spaces where people reside for a long time with an uncertain time of departure, such as hotels, refugee's camps, and direct provisions (DP) embody a sense of liminality and 'permanent temporariness' for people living there of their situation for participants (Bailey et al., 2002; O'Reilly, 2018). Living under strict rules, being aware

of ephemerality, renouncing autonomy within a Shelter Home or a refugee camp is a daily reminder of existence in between (O'Reilly, 2018). Life in a shelter centre is akin to what is life in "Direct Provision" for refugees. O'Reilly argues that although residents are free to move, come, and go, they still have an obligation to share information about their whereabouts and movement within DP with management. The same conditions are set for beneficiaries within the Shelter Home. Although their stay is set on the principle of voluntariness and withdrawal from the reintegration program is possible at any time, for the duration of the stay the beneficiaries must renounce some of their rights and autonomy over daily activities. All movement within the centres are constantly monitored and it is not possible to leave arbitrarily (only after permission and often in the presence of someone from staff), and daily activities are controlled. Mandatory adherence to rules, attendance, daily programs, and meal plans lead to lack of control over daily activities and decision making (O'Reilly, 2018). Beneficiaries are forced to share a bedroom, with not only overcrowding, but also unsatisfactory living conditions, where mothers share beds with children or sleep on the floor due to insufficient resources. Sharing personal spaces such as a bedroom or bathroom leads to a violation of autonomy, privacy and freedom over small everyday and intimate concerns (O'Reilly, 2018).

Temporality and time in general are an important factor influencing the perception of the feeling of in-between existence. The time spent in a Shelter home, the uncertainty of the outcome and the time of departure builds in insecurity and "permanent temporariness" (O'Reilly, 2018). Although beneficiaries can leave at any time and their departure is constantly kept in mind - the main goal and program of the rehabilitation centre is preparation for departure, beneficiaries may feel the feeling of being stuck, uncertainty, and lack of control over the time and manner of their departure (successful completion of the program).

6.3 NGO as a Waiting Room

Shelter home or Reintegration Centre is not only a formal placement for beneficiaries, but also a temporary "home" (Pandey, 2013; Pandey, 2021). As mentioned above, beneficiaries exist within the physical space of the NGO and the individual centres, so they are in the space of the liminal and therefore temporary. However, recent studies show that there is a danger that individuals can get stuck in these liminal phases. This situation can be compared to that experienced by migrants in a transit country. A similar situation occurs when analysing the limbo state in which refugees coming to Turkey seeking asylum are forced to apply for it in Turkey and then wait for acceptance, rejection, or get stuck in their current situation (Kutlu, 2002). Until their status is legally decided, they are forced to live in limbo, without appropriate legal or social status. This state can lead to passivity, frustration, a feeling of betrayal, or a tendency to "give up".

The fundamental difference between migrants in transit countries and beneficiaries in NGOs is mainly that staying in an NGO is basically voluntary and leaving it is always possible (if the woman's real options are omitted). A similarity can be found in the concept of an NGO as a "waiting room", when in some cases women lack the motivation and effective means to leave. This can happen especially if the NGO does not have fixed rules and a reintegration program to follow; most beneficiaries leave the rehabilitation process within one-three years, depending on personal circumstances. On the other hand, one investigated NGO in Delhi did not provide such strong barriers and did not motivate its beneficiaries to leave early. On the contrary, many of them stayed in the NGO for three years or more. While they planned to leave in the future, they lacked any practical plan or time frame. Lack of practical help, blurred departure time frame, and inability to plan a clear program led to passivity and a sense of loss of control. This condition prevents departure, successfully building one's own life outside the walls of the NGO, and reintegration. On the contrary, it can lead to the creation and internalization of an identity as a survivor and beneficiary of an NGO, which makes departure emotionally and personally difficult.

6.4 Identity Negotiation

One of the other consequences of the existence "in between" is the questioning of one's identity during the transition through the rehabilitation centre to the final destination. Identity is socially, historically, politically, and culturally constructed within the community (Weber, 1998), which evolves over time based on our surroundings (Whitty, 2002; Pasupathi et al., 2007). This identity is evolving through the constant reinterpretation of past and current experiences and their positioning and adaptation to the future self (Whitty, 2002; Pasupathi et al., 2007). Turner (1969) argues that the liminal phase is seen as a space-time characterized by anonymity and uncertainty. This uncertainty of identity is typical for individuals going through a transition (liminal phase) such as victims of human trafficking, migrants, or war veterans (Alkhaled et. al., 2021; Danis et. al, 2009; Demers, 2013; Stenger, 2024). The trauma associated with the psychological and physical transitions that these groups of individuals experience cause a crisis of identity in searching and creating a new life (Acharya,

2016; Kristeva, 2002). Beneficiaries in this phase, for example migrants in a transit country, are not part of the social structure, on the contrary, they only inhabit a temporary space defined between two starting points - the RLA and the destination home. A change in the inhabited space indicates a necessary change in thinking about one's identity. Beneficiaries who, after leaving the RLA, leave their old life and its social structure are in the phase of searching or creating a new life, which is hindered by their placement in a liminal state requiring anonymity, which can result in an identity crisis (Kristeva, 2002). It comes from the friction between old and new identity and value system, between lost position in old social structure and denied position in new.

Alkhaled et al. (2021) in their research of coping mechanisms among Syrian women refugees recognized three main identity processes, such as recomposing conflicting memories, reclaiming existence and repositioning tradition. Some of them were recognized in the data, such as the processing of the traumatic past or the ability to reflect on the future self. Processing traumatic memories is one of the main points that appeared repeatedly in interviews with participants, and which is also an official part of the program of the Rehabilitation Centre. Participants who became victims of human trafficking and sex exploitation were exposed to emotional and physical violence and harassment for a significant part of their lives. As discussed above, many women leave a RLA suffer from numerous psychological consequences such as post-traumatic stress disorder, dissociative identity disorder, depression, anxiety or suicidal tendencies which is common among these women (Jones, 2014). Trauma processing and psychological help is thus an important part of identity negotiation work (Alkhaled et. al, 2021; Acharya, 2016). The research further revealed that involvement in education and training programs is an effective coping mechanism to help deal with the liminality and uncertainty associated with being in a rehabilitation centre. Learning a new skill guarantees a minimum financial income, which helps in negotiating one's own independence and in preparing for the future after leaving the NGO (Alkhaled, 2021). All of the aforementioned factors and processes together greatly influence the formation of a new identity across beneficiaries.

7. Conclusion

The aim of the presented paper was to explore and explain the experience of liminality within women who became victims of human trafficking for sex work in India, as part of the rehabilitation process after rescue. Research focused on a specific time frame – the rehabilitation process -- which frames the time from the departure from the Red Light Area, through the stay in an NGO and participation in its rehabilitation process, to the departure from this organization and eventual financial and social independence.

The research has shown that victims of human trafficking in the rehabilitation process experience a liminal state that describes their position as an "in between" state, the process of transition between the old state and the new. This process of physical and social transition can be compared to "rites of passage", when not only the old position in the social structure is destroyed, but incorporation into the new society has not yet taken place. They are not resettled nor integrated socially or economically. On the contrary, they are stuck in the liminal space in the social structure.

Findings underline a connection between the theoretical concept of liminality and the daily challenges connected to the rehabilitation process. Individual types of liminality were revealed and explained - spatial, social, psychological, legal - which are a lived experience of survivors. Life within walls of Rehabilitation centre/NGO is marked by temporality and shifting circumstances. Individuals are forced to give up their independence and a considerable part of their rights by submitting to the observance of strict rules, which conditions are a direct consequence of life on the threshold. They also are experiencing liminality through their social status. They have status as beneficiaries yet lack official recognition by government. They receive shelter yet don't have a permanent residence. This occurs while they face social stigmatization connected to their past as sex workers. The circumstances described also have an impact on the negotiation and reconstruction of the identity of survivors, who have to face structural obstacles, including uncertainty and lack of solid foundations for independence. The elimination of these barriers would help stabilize aspirations for reintegration and reconstruction of living conditions.

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Art and Activism... Challenging the Manosphere: Changing Perspectives on Relationships From a Boys and Young Men's Perspective

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Abstract: Teaching relationship education (RSE) can be a challenge in schools, and teachers in England are being encouraged to challenge "incel" culture and misogyny through the relationship, sex and health education (RSHE) curriculum within schools (Adams et al 2023). One in six boys aged six to 15 in the UK have heard of Andrew Tate, a social media influencer and self-styled "king of toxic masculinity", and 23% of boys aged 13-15 have a positive image of him (YouGov, 2023). Educational policy recommendations around Prevent and surveillance are designed to counteract boys' and young men being radicalised into the 'manosphere'. However, there's limited research how effective this is (Stahl, et al 2022), and how able teachers are to raise questions about toxic masculinity within a school environment. Between 2012 -2020 we delivered relationship education in schools in Greater Merseyside, UK. This paper presents findings from three all boys schools, working with 72 boys aged 14-15 on a domestic violence and abuse (DVA) prevention project, after the project the boys delivered school assemblies on health and unhealthy relationships to 550 of their peers. The paper presents a case study based on our experiences of using arts and drama to deliver workshop sessions that challenged negative gendered perspectives of relationships. We gathered rich qualitative data during the project which enabled us to explore and understand how the boys' perceived gender and relationships. We argue arts-based methods can be an effective form of activism to engage boys and young men in discussions of masculinities, relationships, consent and gendered violence. Art enabled the boys and young men to express themselves through creative methods, and workshops explored issues around consent, clothing, and victim blaming, domestic abuse, football related violence, and male rape. We explored the role social media plays in reinforcing, and challenging, negative gender stereotypes and future relationships. It demonstrates the value of the arts as a tool for exploring the social world, especially sensitive topics such as domestic abuse and relationship education.

Keywords/Phrases: Arts-based Methods, Relationship Education, Boys, Masculinity, Domestic Abuse

1. Introduction

This paper is based on a relationship education research project delivered in schools in Greater Merseyside, UK, between 2012-2019. The project was funded by Children in Need, LJMU and Tender Acting Against Abuse., Over the eight years of the project we worked in 24 state schools, including four Special Educational Needs and Disabilities (SEND) schools. We delivered in six of the schools more than once with a total of 34 relationship education deliveries in total. A total of 912 pupils participated in relationship education workshops over a period of 10 hours, either in two days, or weekly over a period of 10 weeks. A total number of 3,293 pupils watched an assembly on relationship education delivered by the participating pupils. Additionally, relationship education training was delivered to 559 school staff across the schools to offer a whole school approach to the project and to support pupils' learning. The paper presents a case study of work in three boys' schools between 2013-2015, with 72 boys aged 14-15, the participants also delivered relationship education assemblies in school to 550 of their peers. It shares our reflections of using creative methods as a tool engagement and how art as activism enabled the boys we worked with to address issues around masculinities, relationships, consent and gendered violence (figure 1). We explored how social media plays a part in reinforcing, and challenging, negative gender stereotypes and future relationships. The research question asks how arts-based methods can be used as a tool for activism and to explore boys and young men's attitudes to gender and masculinity.

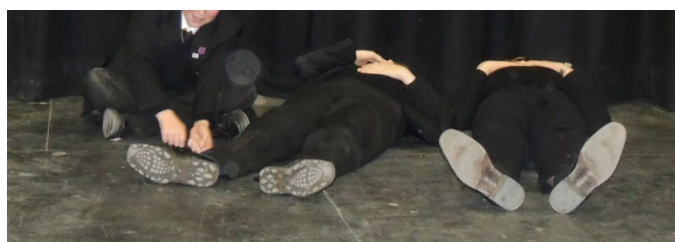


Figure 1: using the arts as role play, School P, 2015, image ©Porter

2. The Manosphere, Masculinities and Teaching Relationship and Sex Education (RSE) in Schools

There is growing concern in UK about influence of ‘the manosphere’ and toxic/harmful masculinities in schools (Thomas, 2024), highlighted by the recent Netflix series *Adolescence* (Barantini, et al 2025). It has been proposed by the Department of Education that teachers in the UK should counteract the rise of the incel movement and the dangers of misogyny through teaching about healthy relationships (Adams et al, 2021, Bubula & Kwai, 2023). Teachers are also asked to monitor students seen as at risk of incel behaviour, linked to the Prevent counter terrorism strategy. (SchoolsWeek, 2024).

This paper reports on a healthy relationship education and domestic abuse programme delivered in schools in Greater Merseyside, UK. It presents findings from three all boys schools and reflects on our experiences of using arts and drama to deliver workshop sessions that challenged negative gendered perspectives of relationships and of masculinities. We argue arts-based methods (ABM) can be an effective form of activism to engage boys and young men in discussions of masculinities, relationships, consent, gendered violence and the ‘manosphere’.

Debates around a ‘crisis of masculinity’ have been present for many years (e.g. Faludi, 1999). Kimmel and Davis argued in 2011 that young men ‘are coming to age in an era with no road maps, no blueprints, and no primers to tell them what a man is or how to become one’ (Kimmel & Davis, 2011, p. 13). However, whilst having some continuities with previous moral panics around masculinities and anti-feminism, the manosphere takes a different form, and incel culture challenges Connell and Messerschmidt (2005) concept of hegemonic masculinity and the stereotype of the assertive, physically/economically powerful and dominant man, replacing it with a discourse of inferiority, victimhood and a ‘beta masculinity’ (Ging, 2017). The manosphere is a network of online men’s communities against the empowerment of women and who promote anti-feminist and sexist beliefs and the normalisation and the reinforcement of misogyny, sexism and rape culture (Solea et al, 2023:311) and has links to white supremacy and far right movements and ideology.

Relationship and Sex Education (RSE) is compulsory in all UK primary and secondary schools since September 2020, with an increase in disclosures of sexual abuse in schools making this particularly urgent and relevant issue. An Ofsted Report (2021) found high levels of sexual harassment, abuse and violence in schools (including online, nearly 90% of girls, and 50% of boys, had been sent explicit pictures or videos). 1 in 3 women will experience intimate partner violence (WHO). Research shows young people aged 16-24 are at most at risk of relationship violence, with 25% of girls and 18% of boys aged 13-17 years old experiencing physical abuse and 75% girls and 50% boys reporting emotional partner abuse (Home Office, 2019). There is widespread acceptance that RSE “contributes to reducing relationship violence by helping children to recognise situations that are unhealthy, abusive or harmful” (Long, 2024:27). The new RSE curriculum covers topics such as consent, ‘sexting’, and calls for high-quality training for teachers.

The project took place before the new RSE compulsory curriculum but nevertheless has valuable lessons and good practice to share as it addresses issues of healthy and unhealthy relationships, domestic violence and abuse, consent and online abuse. We worked with pupils and staff in 24 schools across Merseyside (table one) with all genders, however this paper focuses on the work in three single sex Boys schools. The project aimed to educate and challenge harmful and toxic masculinities through engaging boys and young men in discussions of gender violence and abuse in a safe and non-judgmental environment, using art and drama to enable them to express themselves.

2.1 Social Media and Gender Norms and Incel Culture

Young people are the main consumers of social media, with Instagram and TikTok cited as the main source of news and information for 12-15 years olds (Ofcom, 2023). Research shows social media has a significant impact on young people’s identity development, and on gendered beliefs (Aron-Ramspott, et al, 2024, Baym, 2018). Social media sites can both reproduce problematic gender stereotypes, but can also be a platform for resistance and change. Whilst studies are not conclusive, there is concern about the influence misogynistic online content on gender norms among adolescent boys. Studies show that misogynistic content is widely available to teenagers and harmful content not always removed, and that the use of social media can be associated with some aspects of sexist attitudes, body image concerns, and a desire to conform to stereotypical gender norms (Koester & Marcus, 2024).

There is growing concern in schools about the role of social media and fake news in radicalising boys and young men into incel culture through influencers such as Andrew Tate and Jordan Peterson. Once a niche on forums

such as 4chan, 8kun, and reddit, incel culture is gaining traction on mainstream social media platforms such as Facebook, X (formerly Twitter), YouTube and TikTok. Research shows one in six boys aged six to 15 in the UK have heard of Andrew Tate, a social media influencer and self-styled "king of toxic masculinity", who has been charged with rape, human trafficking and forming an organised crime group to sexually exploit women. 23% of boys surveyed aged 13-15 stated they had a positive image of Tate, with 17% of boys agreeing with his views on masculinity and what it means to be a man (YouGov, 2023). In this context there are calls for a strategy for engaging with boys and young men in primary and secondary schools on the topics of sexual harassment and gender-based violence (GBV) (Women and Equalities Committee 2023) and a need for schools, along with families, to educate young people in safe and responsible use of social media.

3. Arts Based Methods and Activism in Schools

Activism involves merging art and politics and the roles of artist, academic and activist (Jordan, 2016). Feminist activism has long been used to challenge, expose, and educate about, GBV, and can contest the harmful gender norms that underpin GBV and promote new ones (Jiménez Thomas 2023). Using art based and creative methods in schools can enable pupils to think about difficult topics and generate new understandings of themselves and their identities.

Arts-Based Methods (ABM) is *any social research or human inquiry that adapts the tenets of the creative arts as a part of the methodology. So, the arts may be used during data collection, analysis, interpretation and/or dissemination* (Jones & Leavy, 2014 cited in Jones, K. 2017). There is evidence that using creative approaches, such as arts or drama, are effective as part of DA intervention/prevention projects (Hester and Lilley, 2014; Sander-McDonagh et al., 2016). [Stanley et al. \(2015\)](#) in their evidence synthesis on prevention programmes in the UK, argue that drama-based interventions are highly valued, and using dramatic approaches can create emotional intensity and contribute to what can be understood as “authenticity,” making interventions and key messages more “real” for young people. School-based interventions can be an important way to raise awareness and prevent GBV amongst young people. There is increasing recognition of the need for whole school approaches to prevent GBV from happening in the first place and equip school staff to feel more confident supporting pupils affected by GBV.

4. The Project

The project focused on violence prevention, looking at what constitutes healthy and unhealthy relationships. Workshops were based on funder prerequisites, ethical guidelines, schools' staff and pupils' preferences. Creative arts-based methods (ABM) were used deliver workshops, using drawing, poster making, spoken word, poetry, rap, drama, and role play to teach about healthy and unhealthy relationships, and domestic abuse. The pupils produced rich qualitative data which they could keep, or offer up for the research, the data presented in this paper is in the form of artwork, drawings and posters. We also delivered the project to boys in mixed sex and Special Educational Needs and Disabilities (SEND) schools, but the data cannot be isolated for the purpose of this paper. ABM was adopted to maximise the impact of relationship education with the pupils, but also to enable the research team to gather rich qualitative data. ABM were instrumental tools to deliver the workshops, using the arts, drawing, drama, poetry, singing, and role play all enabled the pupils to learn in a creative way whilst creating arts-based data. Creative methodologies, using drama and role-play, art, song and poetry, enabled the pupils to gain the confidence to express themselves in front of their peers. The lead author, as an artist and academic used her skills to engage the participants using a variety of arts-based methods to understand their views on healthy and unhealthy relationships. The project emphasised the value of implementing creative and art-based approaches to improve the effectiveness of relationship education and prevent relationship abuse. (Porter & Standing 2024).

Table 1: Schools type and delivery

School	Gender	Pupil Age	Type of School	Times Visited	Year of Delivery
A	Girls	14-15	Mainstream State	1	2013
B	Mixed	14-15	Mainstream State	1	2013
C	Girls	14-15	Catholic	1	2013
D	Mixed	14-15	SEND	1	2013

School	Gender	Pupil Age	Type of School	Times Visited	Year of Delivery
E	Mixed	14-15	Mainstream State	1	2014
F	Boys	14-15	Mainstream State	1	2014
G	Mixed	13-15	Mainstream State	3	2013/17/19
H	Girls	14-15	Catholic	1	2013
I	Mixed	14-15	Mainstream State	1	2014
J	Mixed	14-15	Catholic	1	2014
K	Mixed	13-15	Catholic	2	2014/18
L	Girls	14-15	Catholic	1	2014
M	Boys	14-15	Church of England	1	2015
N	Mixed	14-15	Mainstream State	1	2015
O	Mixed	14-15	Mainstream State	3	2015/17/19
P	Boys	14-15	Catholic	1	2015
Q	Mixed	14-15	Mainstream State	1	2015
R	Mixed	13-15	Jewish	2	2015/17
S	Mixed	14-15	Mainstream	1	2015
T	Mixed	13-19	Catholic, SEND	2	2015/19
U	Mixed	15-16	Mainstream State	2	2015/16
V	Mixed	13-15	Catholic	2	2017/18
W	Mixed	13-15	SEND	1	2019
X	Mixed	13-15	SEND	1	2019

5. Ethical Considerations

Ethics were granted by Middlesex University and amended by LJMU. The original funder Tender sought a gendered based model for delivery. The research team consisted of a project manager and facilitator, an academic/artist, plus undergraduate students from their university. The students changed each year (except for one) and were trained in relationship education and domestic abuse prevention. The project ended abruptly with the Covid Pandemic and subsequent lockdowns in 2020. The research team were all white cis women. The intention was to recruit male students at LJMU to support the project and be present within the school delivery. It was unfortunate that no male students undertook this opportunity, which makes one consider the role men think they have in relationship education, and in challenging GBV and dominant narratives of masculinity. Students who worked on project became active in engaging with the pupils throughout the workshops but also the experience enabled them with their own university research and experience. (Figure 2).



Figure 2: LJMU student working with pupils in School F, 2015, image ©Porter

6. Findings

Inviting the pupils to use the arts to engage with the project opened an opportunity for pupils to express their creativity in a variety of ways. ABM can open up spaces to talk about sensitive or difficult issues such as GBV and toxic masculinities. This was achieved by inviting pupils to create scenarios that connect to personal experience, but which also provide opportunities for understanding, debate and action for change. ABM have the potential

to help boys and young men to better understand the diverse forms of masculinities and identities. (Stahl et al 2022: 372). Art allowed pupils to be open and honest with their opinions and to feel able to draw a picture than use words to describe relationships. For example, Figure 3 is a drawing from a boys school of a what a healthy relationship looks like:



Figure 3: healthy relationship drawing: School P, 2015, image ©Porter

It was clearly labelled by participants as: *loving boyfriend/girlfriend, respect, no arguments, loved, happy, talking, laughing, smiling and love*. In contrast, figure 4 shows an unhealthy and violent relationship. The image is clearly gendered, with the gun pointing at a woman with a bruised eye, bleeding nose and eyes downcast. The third person set aside by a clear line somehow is as important in this scenario without a description one can only image the imbalance of power between the three figures drawn.

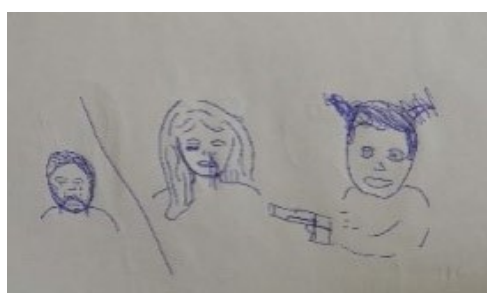


Figure 4: unhealthy relationship, School F, 2015, image ©Porter

Using art enabled pupils to gain confidence to express themselves and to explore the gendered power imbalance in relationships. (Porter & Standing 2024) This confidence of expression can also be evidenced in Figure 4 one boys interpretation of a healthy and unhealthy relationship. The very nature of the methods used created diversity in the data created and collected as pupils responded with creative confidence. Pupils would discuss the drawing and how it related to gender-based abuse. Figure 5 illustrates threatening behaviour: *if you ever tell anyone I will murder you, I will kill your cat*, with the commentary following *this world would be a better place without violence or threats and threats are wrong why do we make them when most of the time we don't mean them*.



Figure 5: Threats poster: School P, 2015, image ©Porter

Using ABM meant pupils were able to take the lead as creators of their own material to explore GBV and healthy/unhealthy relationships with creative confidence. Once the pupils had discussed the pictures of abuse that they had drawn they were then invited to create scenes about these pictures. The pupils eagerly engaged in role play to make the picture come to life to further explain how unhealthy relationships can be developed. The pupils undertook the role play (figure 6) with confidence between each scene we would discuss where we had seen the early warning signs of abuse in a relationship. These role plays were used not only to their peers but to year group assemblies, sharing their knowledge with a wider audience. The pupils became agents of change transferring their new knowledge.



Figure 6: role play scenario: School P, 2015, image ©Porter

7. Addressing Masculinities

In the early stages of the project, we challenged the norms regarding toxic masculinity expressed on social media (Porter & Standing 2020). This arose from a request from pupils who at the time were captivated by the UK reality TV show Love Island and the social media debates around it. By recreating scenes for the show in role play, including those of 'ghosting' and emotional abuse, pupils began to discuss the views of masculinity present in the show. These were not just negative portrayals, but also positive images of men's friendship and 'bromance', albeit within a heteronormative framework (Porter & Standing 2018).

Other activities addressed rape myths and victim blaming through issues such as clothing and dress. After watching the video 'Spiralling' about coercive control, a male pupil said the clothes the girl was wearing in the video wasn't acceptable. This started a discussion about clothing and dress. We looked at magazine cut-outs of men and women in various types of clothing and discussed who the pupils thought were dressed 'appropriately' and who wasn't and why. Pupils made a collage and other images (figure 7) whilst discussing gendered dress codes, victim blaming and issues of consent. In the end the pupils understood that everyone has the right to wear whatever they want, and nobody asks to be raped.



Figure 7: Do you like my outfit? No, you slag, poster, unknown pupil gender age 14, School G, 2017, image ©Porter

Pupils also asked about male rape and how can it happen, different aspects of this were discussed. Pupils were confident to say that a man can be raped by another man and explored the issue of male violence on men more generally. They also asked about a recent incident of a man being raped by a woman, which involved non-consensual penetration through drugs. The issue of men as victims of domestic abuse (DA) was also raised. It is estimated 1.4 million women and 751,000 men aged 16 years and over experienced DA in the last year (ONS,2023). Pupils asked why statistics were lower for men, and began to unpick issues around masculinity as pupils stated men would be more embarrassed to admit they were victims. This led on to a discussion about where boys and men can go to talk about being affected by DA, and how gendered power relations and dominate

views of masculinity can prevent men getting support. We offered signposting for both in and out of school support.

Another issue raised in boy's schools was that of Football Related Violence. Using statistics to show that levels of DA levels rise during major tournaments like the Euro's or World Cup (BBC, 2024) pupils discussed why they think this happens. They used words like 'stress' and 'women nagging', demonstrating how myths around DA were already informing their views. Through discussions we explored how football is in itself is not a cause of DA, but abusers are. Football, and sport in general, played a large role in the schools with worked in, and was a useful tool to explore masculinities and 'toxic masculinity' is widespread in men's football, and how this can be challenged (McInnes, 2023).

ABM were instrumental in developing the understanding of the young people about relationships, raising awareness, and changing attitudes to masculinities and DA, as one pupil commented *It is* (DA from a man to a woman) *more serious than I expected* (Male,14). Pupils can be active agents of change with the capacity to educate and influence their peers, both pupils and staff can act as role models, to model healthy relationships and positive masculinities.

8. Discussion and Areas for Further Research

We found of poor knowledge about DA among pupils, and the normalisation of myths about sexual and gender-based violence. There is a need for more research into changing gender identities and masculinities and more discussion in schools about boys and men and masculinities.

In order to explore and discuss masculinities and healthy relationships, a new approach to RSE is needed. Teachers are often reluctant/ ill-equipped to teach RSE, especially when it involves inviting boys and young men to confront their behaviour and gender privilege (Westcott et al 2023). Boys and young men can feel unfairly blamed when discussing toxic and harmful masculinities. They may also not recognise abuse perpetrated against them, or that they perpetrate toward others, as abuse because of normalised masculinity narratives and practices (Ging et al, 2024, Setty et al, 2024).

Young people cannot just be told what is and is not acceptable; they need to explore why, and what they should and should not do. Often boys and young men are simply told their behaviour is wrong, but not given the tools to understand why, or to challenge and change it. RSE needs to show how toxic masculinities can be challenged and to model, and celebrate, positive forms of masculinities and relationships. RSE needs to teach young people the skills to negotiate sexual and intimate relationships and create a safe and inclusive learning environment where young people may get things wrong but can develop and learn under the guidance of adults and their peers (Setty et al 2024). Our project enabled young people to do this through using ABM to express themselves in a safe and non-judgemental space.

Masculinities are complex and contextual, and boys and young men can be, or can feel, excluded from dominant discourses of masculinities and gendered power structures. Gendered violence prevention work has often assumed a homogenously heterosexual male audience and failed to explore the experiences of queer pupils and those who don't 'fit' dominant expressions of masculinity. It is important to note that most boys and young men reject incel culture and the manosphere, however in order to tackle misogyny it's vital to work with boys and young men to include them as part of the solution, and to highlight how toxic masculinities also harm boys and young men. Schools need to:

- Model and teach the skills and relations of respect, negotiation and compromise rather than deploying the 'deadly habits' of 'punishing, threatening, complaining, criticising or nagging'
- Seek to understand where boys are coming from and what is important to them
- Listen to and acknowledge boys' pictures of themselves and explore with them why they are thinking, acting and feeling in particular ways
- Explore the emotional pleasures and costs associated with different ideas and expectations of masculinity in different contexts and different relations/relationships
- Identify and challenge harmful and restrictive masculinities
- Explore and promote acceptance about diverse ways of being male especially those that are peaceful, inclusive and non-violent (adapted from Keddle & Mills, 2007, in Stahl et al 2022)

9. Conclusion



Figure 8: assembly: School M, 2015, image ©Porter

The project enabled participants to challenge the normalisation of violence and abuse in relationships that is often portrayed in popular culture and social media (Porter & Standing 2024). We also aimed to challenge negative gender stereotypes and invite pupils to reevaluate their understandings of relationship abuse and masculinities using arts to understand the social world. Art as activism via ABM's is a powerful tool to open discussions and challenge taken for granted understandings of gender and power. The boys and young men we worked with were able to address and challenge gender stereotypes and in turn openly discuss masculinity in a safe environment. They were able to take their work to the wider school community, (figure 8) and forward into the society that they live in. As one staff member commented: *I understand that the project not only empowers pupils but that it also has wider impacts across the school as the pupils are advocates who share their knowledge to their peers. The health and wellbeing of pupils has an integral relationship with their learning. Healthier pupils make for happy well-balanced members of society. The project provides signposting from health perspectives as well as empowering pupils to make healthier lifestyle choices.* (Local Authority School Improvement Officer, 2015)

The limitations of the project include the narrow geographical region, due to funding the project was limited to Greater Merseyside UK. The project was delivered before RSE was compulsory in the UK and before the mainstreaming of the manosphere had such a large influence in schools. Although the project not directly address incel culture, findings showed valuable lessons for how to talk about GBV and masculinities with boys and young men. More research is needed into the impact of incel culture in schools and ways in which this can be challenged. Whilst this paper has focused on the UK, it is a global issue of concern, for example in Australia the Respectful Relationships Education Program in Victoria concentrates on gender justice pedagogy and challenging harmful/toxic masculinities (Stahl et al 2022).

The research demonstrated the value of the arts as a tool for exploring the social world, especially sensitive topics such as domestic abuse, toxic masculinities and relationship and sex education. Arts based methods are a useful tool to teach sensitive subjects (Porter & Standing 2024) they allow for a person-centred approach to learning whilst enabling the researcher to gather rich qualitative data.

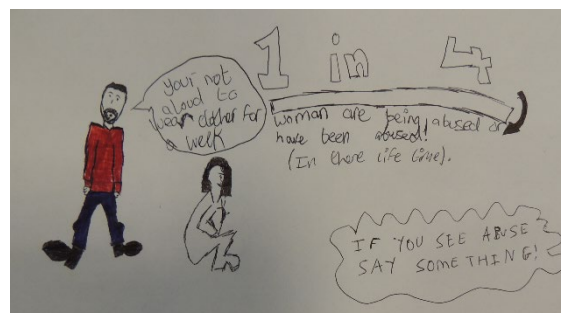


Figure 9: Statistics poster: school I, pupils age 14-15, School P, 2015, image ©Porter

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Exploring Gender-Specific Spatial Dynamics in Philippine Higher-Education Classrooms

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Abstract: Over the past 50 years, higher education in the Philippines has seen many changes, from gender mainstreaming in policymaking to improving room setups and teaching methods. While governing bodies establish standards on school design, it mostly satisfies the physiological and safety needs of the student. Hence, despite the advancements from the changes, issues like the reversal of the gender gap and rising costs in higher education have emerged. These issues are mostly addressed separately due to the limited research intersecting gender, and architecture, specifically the basic spaces in higher education-built environment. The main objective of this exploratory study is to research the gender and space dynamics in higher education-built environments in the Philippines. Data were collected through an exploratory approach, beginning with semi-structured interviews and generalized using ANOVA and frequency on the survey result. The analysis revealed that males are much more comfortable than females in occupying space and that they have preconceived notions on how to situate themselves in a room, whereas females situate themselves based on the information they have gathered in the room. Furthermore, the study revealed that a more apparent spatial placement develops when the category expands from sex to gender-specific which affects design consideration factors such as sightlines and proxemics. For instance, males tend to sit on the edge and towards the back of the room, females tend to sit in the middle and towards the front, and gay tends to occupy the centre of the room. The findings suggest that sex, as a categorical variable, highlights biological differences in design requirements. However, gender, in the social context, disrupts stereotypes, as expressions and preferences may not align with norms. Therefore, design should consider these dimensional differences and varying expectations to develop a learning environment that supports users' psychological safety and enhances learning capacity.

Keywords: Architecture, Gender, Higher Education

1. Introduction

Gender mainstreaming, the principal approach to achieving gender equality, has been applied to different institutions of society through, but not limited to, building and upgrading educational facilities that are child, disability, and gender-sensitive, via the provision of safe, non-violent, and inclusive learning environment, is seen as a target of progress, most especially to females (Issues and Women, 2002; 'Reference Material for Gender Mainstreaming in Education Sector', 2023; *UNSDG | Gender Mainstreaming*, no date). Historically, gendered segregated education and curriculum were part of Philippine education ('Industrial Education in the Philippines', 1912). This changed when gender mainstreaming was introduced resulted in the defuncting of single-sex education in state-run institutions, and most private, combining all genders in one generic classroom with the same curriculum and minimal directives or standards on how the rooms are designed. Regulations on Philippine classroom design for higher education are mandated by the Commission on Higher Education (CHED), to which minimum standards are based on the program's memorandums. However, closer inspection of the mandates, from different programs, shows a typical minimum classroom design standard, a 9 by 7 m room, which frequently mostly satisfies the physiological and safety needs of users. Thus, foregoing the next tier of needs from Maslow's Hierarchy of Needs.

The current landscape of the Philippines' higher education shows that the gender mainstreaming approach resulted in a reversal of roles where males are now facing the gender gaps as they lag behind females (Paqueo and Orbeta, 2019). It is noted that the contrast in gender performance can be attributed to the differences in male and female cognitive and motivational functions. This has been academically observed on many occasions, as seen from the studies of different learning style theories and pedagogy, and classroom psychosocial environments that are then applied as researchers aim to improve the quality of education (Coffield *et al.*, 2004). However, gender in architecture is frequently associated with a dichotomy of characteristics. From the metaphorical association of design elements (Bondi, 1992; Lico, 2001) to Hannah Rozenberg's work building without bias, a quantification of linguistic association by gender units (GU) where gender neutrality of space can be achieved by achieving 0 net of GU based on the spatial elements and its descriptive qualities. Gender in architecture is not only in the form of gender-segregated spaces but rather it is transcendental.

The rapid changes from the 4th Industrial Revolution-Society 4.0 brought insight into the widening inequality as we live in a state of volatility, uncertainty complexity, and ambiguity, and still, there is the looming idea of Society

5.0 where technologies and developments are grounded in humanistic principles (Nakanishi, 2019; Yao, 2019). Academic institutions in the front of the VUCA World have been adapting to changes such as variations of learning modality, demands on gender equity, and increasing rapid technological advancement. In keeping abreast with the demands, CHED's additional approach to gender mainstreaming was made through the implementation of CHED Memorandum No. 01 Series of 2015 which establishes policies and guidelines on Gender and Development (GAD) in Higher Education, where colleges and universities have created their own GAD offices where changes are mainly made in social policies while physical alteration of spaces is seen in the conversion of gender-segregated toilet to gender neutral toilet.

Addressing gender gap issues in architecture has been through the introduction of inclusive spaces. Yet, the approach to gender inclusivity often resulted in gender neutral approach which has been debated as the exploitation of spaces, where the perpetrators are reportedly to be from the minority group, are recorded (Barnett, Nesbit and Sorrentino, 2018). Gender-neutral space often leads to gender blindness as it frequently focuses on providing the function without considering the specific needs or priorities of a gender. Hence, the departure from gender neutrality to gender-responsive spaces is now being promoted. The concept of gender-responsive space revolves around the ability to recognize gender issues and different perceptions arising from different social locations and provide solutions that will be equitable for everyone. Studies from van Hek et al. (2018) discussed gender differences in school climate with focus on social events or activities; Ferreira et al. (2011) and King (2016) discussed the gender differences in motivational factor with focus on social relationships; and Figueroa et al. (2016) discussed geographical spatial analysis on the relationship between academic achievements and school facilities, it is notable how the social science field and spatial structure are discussed separately (Gregory and Urry, 1985). The present challenges in designing gender-responsive spaces, most especially in higher education learning environments, are due to scarcity of the studies on the area of gendered socio-spatial relationships associated with higher education performance as studies are delineated either in the social context as seen from studies of (van Hek, Kraaykamp and Pelzer, 2018) or in spatial context as seen from studies of Marshalsey (2020) and Park & Choi (2014).

Grounding the concept of gender-responsive design means understanding the different levels of needs and desires of an individual so that collected data can inform and transform approaches to designing campus facilities. Moser (1993, as cited by Lång 2010; Odbert et al. 2020) established two approaches to introspecting gender audit and analysis of planning – the practical and strategic gender needs. This allows informed auditing and analysis of space that will support not only the norms of societal behaviour with spaces but also the desired assistance and feel of an environment, giving equity to everyone. Application of Moser's approaches requires understanding human needs. Zheng, Heath, and Guo (2022) transformed Maslow's five levels of the hierarchy of needs by conceptualizing it in the context of architecture. Their work established 3 dimensions of needs with 2 subcategories each – The basic need (physiological and safety), the advanced need (socializing and esteem), and the challenging need (Historical Culture and Hybrid culture). As academic institutions are adapting to continuous social changes and fast transition of digital and technological advancements, universities are spending more to upgrade facilities which has directly influenced the increasing cost of education (Stevenson, 2006; *The Rising Cost of Higher Education. APPA Thought Leaders 2013*, 2013). Hence, it is important to examine which features/markings/attributes in the learning environment have a significant impact on students that may be updated.

2. Methodology and Procedures

The research used a mixed-method approach through an exploratory-sequential method triangulated design to investigate the relationship of gender analysis to the learning environment. The initial step of the study will be conducted through qualitative analysis, focus group discussion and individual interviews, to establish the parameters and questionnaires to be used for quantitative analysis. The quantitative analysis will be done through surveying which will allow to contextualize the general responses/findings.

The respondent of this study involves students from a higher education institution in the Philippines. Purposive sampling is done for the respondents for qualitative methods wherein the respondents must be enrolled students in a higher education institution within Philippines, must disclose biological sex and gender identity and must be of legal age. At least 12 students and 9 faculty took part through focus group discussions and individual interviews. All of them signed declaration and data privacy consent form allowing the researcher the use of collected information. Participants for the quantitative survey are derived from a sampling size of university students. The survey collection will be stratified by biological sex and gender identity to ensure

representation for a nonprobability sample selection. Target accumulated valid survey is 381 participants for a confidence level of 95% and for a margin of error of 5%.

For the qualitative, the participants will be provided with a nameplate and a flip book which they will be using during the focus group discussion. Predetermined questions for the qualitative are designed to inquire student and faculty perception and preferences of their learning environment, and to understand the features that may affect their comfort, motivation, engagement, and productivity.

Instrument for quantitative analysis was crafted after the result of qualitative revealed common denominator for genders is that their behaviour is based on their level of comfortableness in a space. This section of qualitative analysis discusses the results and analysis of this research. The survey question uses a photo-elicitation method allowing the participants to gauge their level of comfortableness through images and closed questions to find preferences on seating location and common difficulties met. The survey form consists of 38 questions including the acceptance of usage of data and general information such as their age, biological gender, and gender identity. The survey itself is divided into 4 sections: General Information, The Classroom Environment, Computer Laboratory Environment, Hallway, Mini Library, and Canteen Set-up. 400 valid survey forms are accounted for from 420 answered forms. The questions were primarily distributed via scanning of QR code inside university premises, where 360 successfully answered the link, and via survey printed handouts, where only 40 out of 60 forms are valid due to errors in answering.

3. Result and Analysis

3.1 Qualitative Data Result

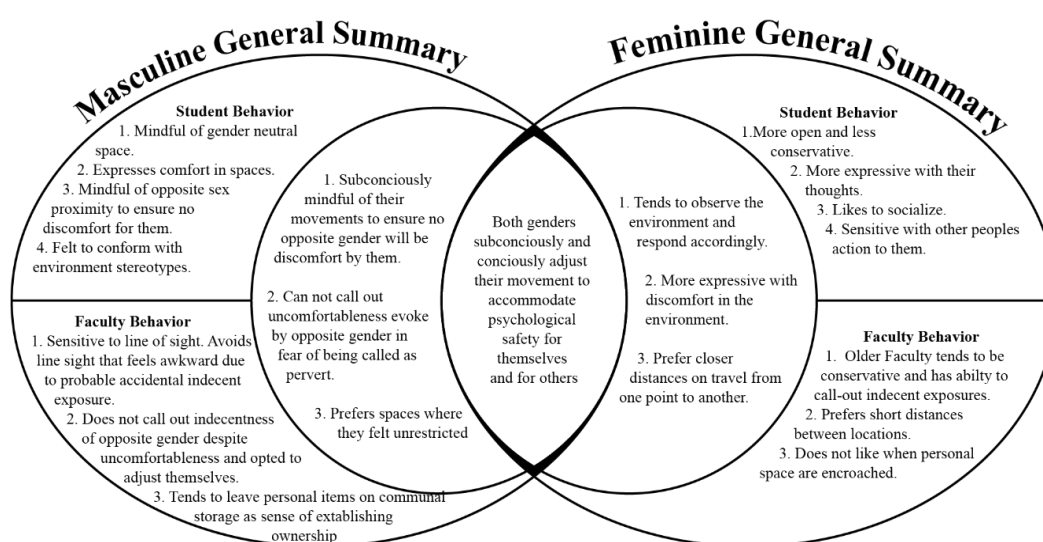


Figure 1: Masculine and Feminine General Summary

Coded, categorized and themed information shows that faculty and students ensure that their comfort is not compromised especially their personal space. The main difference between biological sex is that males have established expected behaviour over the space while female tends to observe and react to what they experience in the environment. In summary, as seen in, Figure-1, both student and faculty are attuned to their environments wherein they act accordingly. The main difference is that males have preconceived actions based on the stereotypes of the space. An example that can be highlighted is the manner they move in tight spaces as they avoid accidental contact/s or accidental view/s with the opposite sex that may lead to being accused. This action is similar to Pain's (2001) finding where men are mostly subjected to exclusion due to being perceived as a threat based on the stereotypical perception of gender.

3.2 Qualitative Data Result

Of 400 valid respondents, the sex distribution is 256 (64%) female and 144 (36%) males. On the other hand, when the basis is gender identity, the respondents are as follows: 201 (50.25%) female, 113 (28.25%) male, and 86 (21.50%) non-binaries. Among the non-binary, 52 (13%) are bisexual, 17 (4.25%) are gay, 4 (1%) are lesbian, 4 (1%) are pansexual, 7 (1.75%) are queer, and 2 (0.50%) are transgender. The unpredictability surrounding the

disclosure of gender identity led to a significant margin of error. As a result, comparative results between gender identity and biological sex are used in statistical information and frequency patterns.

The first section, general information, provides the categorical groupings and overall ambiance preference. In Figure-2, participants answered a 10-point scale determining the degree of professional (0-point) or casual (10-point) ambiance. The graph shows that male participants opt to have a casual ambiance as compared to females.

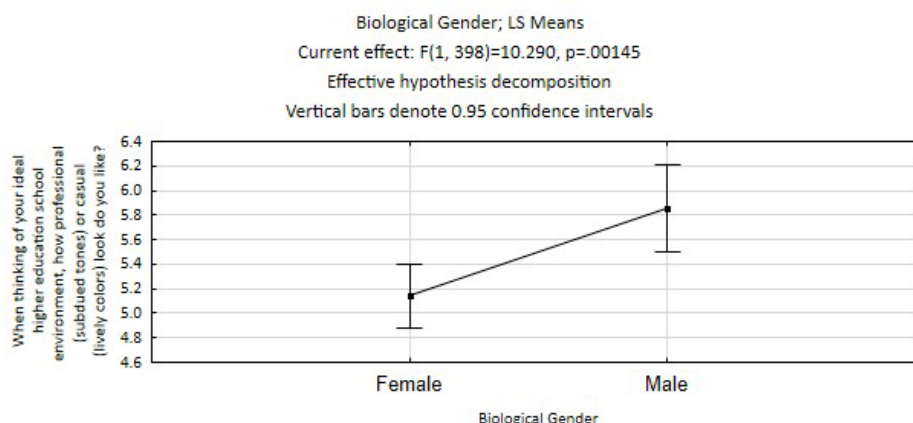


Figure 2: Degree of preference between professional to casual ambiance of school environment.

Further co-relating this finding with frequencies from gender identity as seen in Table-1, female respondents lean toward professional looking while male respondent leans toward casual looking. Non-binary genders tend to lie in the middle of the spectrum between professional looks and casual looks.

Table 1: Sex and gender identity frequency on ambiance preference of the school environment

Female	Male	← Sex - Gender →			Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender
256	144	Rating	Remarks	No. of Respondents	113	201	17	4	52	4	7	2
1.56%	3.47%	0	Very Professional	9	4.42%	1.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1.17%	0.69%	1		4	0.00%	1.00%	0.00%	0.00%	1.92%	25.00%	0.00%	0.00%
3.91%	2.78%	2	Professional	14	3.54%	3.98%	0.00%	0.00%	3.85%	0.00%	0.00%	0.00%
11.72%	7.64%	3		41	5.31%	10.95%	11.76%	25.00%	13.46%	0.00%	42.86%	0.00%
14.45%	7.64%	4	Balanced Blended	48	7.96%	17.41%	11.76%	0.00%	1.92%	25.00%	0.00%	0.00%
34.77%	28.47%	5		130	29.20%	33.83%	23.53%	50.00%	36.54%	50.00%	14.29%	50.00%
12.11%	9.03%	6	Casual	44	7.08%	10.45%	29.41%	0.00%	15.38%	0.00%	28.57%	0.00%
7.42%	16.67%	7		43	16.81%	6.97%	11.76%	0.00%	13.46%	0.00%	14.29%	0.00%
7.03%	9.72%	8	Very Casual	32	9.73%	8.46%	5.88%	0.00%	5.77%	0.00%	0.00%	0.00%
1.17%	4.17%	9		9	5.31%	1.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4.69%	9.72%	10		26	10.62%	3.48%	5.88%	25.00%	7.69%	0.00%	0.00%	50.00%

The second section of the survey focuses on the classroom environment. Based on the frequency, see Table-2, the top 2 challenges faced by students in traditional armchair setup rooms have been the sleepy ambiance and uncomfortable seat, while the next third difficulty differs for sex and genders. On sex, female difficulties stem from visual sight lines while male on audio resonance. Non-binary individuals often experience a range of challenges that, while distinct, share similarities with the issues faced by those categorized by sex.

Table 2: Frequency of Challenges in Traditional Classroom

Female	Male	← Sex - Gender →	Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender
		Top 3 Difficulties in Traditional Classroom								
12.89%	13.61%	Arm chair is uncomfortable	13.58%	12.69%	15.56%	16.67%	16.26%	8.33%	14.29%	0.00%
11.78%	13.95%	I can't hear the speaker	15.23%	12.19%	15.56%	8.33%	11.38%	8.33%	9.52%	16.67%
13.11%	10.88%	I can't properly see the board/instructor/student	11.93%	12.44%	8.89%	8.33%	17.89%	16.67%	23.81%	16.67%
7.11%	3.40%	My personal space is being disturbed	3.70%	6.97%	2.22%	0.00%	4.07%	8.33%	4.76%	0.00%
11.11%	10.20%	Outside noise is transferred inside the	10.29%	11.69%	11.11%	16.67%	8.94%	16.67%	0.00%	16.67%
9.11%	11.56%	Poor lighting	9.88%	9.20%	6.67%	8.33%	7.32%	16.67%	4.76%	16.67%
7.56%	7.82%	Seats are always in disarray	7.00%	6.97%	8.89%	16.67%	6.50%	0.00%	9.52%	16.67%
16.67%	17.69%	Sleepy ambiance	17.28%	16.92%	17.78%	25.00%	18.70%	16.67%	23.81%	16.67%
10.67%	10.88%	Space is too tight	11.11%	10.95%	13.33%	0.00%	8.94%	8.33%	9.52%	0.00%

In Figure-3, male participants generally exhibit greater comfort in any classroom setup compared to female participants. Both sexes show a significant increase in comfort with flexible individual table setups. However,

male comfort decreases when armchair room setup is enlarged, resulting in nearly equal comfort levels for both sexes.

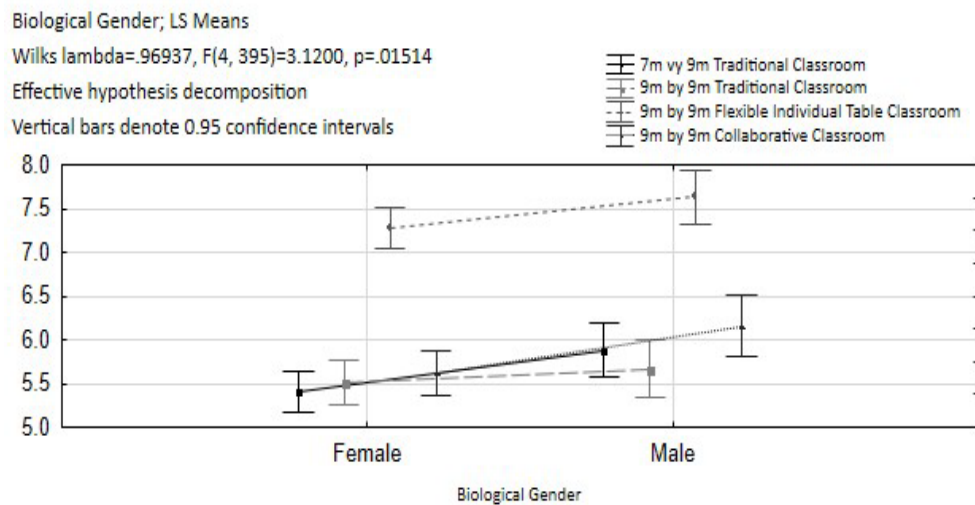


Figure 3: Comfortableness of Different Classroom Set-up

Regarding classroom wall color accents, both female and male participants, across categories of sex and gender, feel more focused and comfortable with single accent walls, as demonstrated in Tables-4 and 5. However, there is a notable decrease in comfort with single accent walls as the frequency of comfort levels evens out between double accent and monotone walls. Non-binary participants exhibit similar focus levels to binary genders but find double accent walls more comforting.

Table 3: Room Color frequency for they feel most comfortable.

Female	Male	← Sex - Gender →	Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender
		Classroom accent wall location they feel most comfortable								
25.39%	27.78%	Double Accent Wall Color	24.78%	22.89%	29.41%	75.00%	34.62%	0.00%	57.14%	50.00%
10.55%	13.89%	Half Wall Accent Color	12.39%	10.95%	23.53%	25.00%	7.69%	25.00%	0.00%	50.00%
21.88%	25.00%	Monotone Wall Color	24.78%	22.89%	23.53%	0.00%	23.08%	25.00%	14.29%	0.00%
42.19%	33.33%	Single Accent Wall Color	38.05%	43.28%	23.53%	0.00%	34.62%	50.00%	28.57%	0.00%

Table 4: Room Color frequency for they feel most focused.

Female	Male	← Sex - Gender →	Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender
		Classroom accent wall location they feel most focused								
16.41%	19.44%	Double Accent Wall Color	15.04%	15.42%	35.29%	50.00%	23.08%	25.00%	14.29%	0.00%
6.25%	8.33%	Half Wall Accent Color	6.19%	6.47%	17.65%	0.00%	5.77%	50.00%	0.00%	0.00%
8.98%	9.03%	Monotone Wall Color	9.73%	9.45%	5.88%	0.00%	9.62%	0.00%	0.00%	0.00%
68.36%	63.19%	Single Accent Wall Color	69.03%	68.66%	41.18%	50.00%	61.54%	25.00%	85.71%	100.00%

On room positioning, there is a noticeable discrepancy between sex and gender. Initially, as shown in Table-5, consideration based on sex indicates that both female and male participants prefer seats in zone 4. However, this preference changes when consideration shifts from sex to gender. Male and queer participants opt for zone 3 window-side seats, while female participants and bisexuals prefer the zone 4 middle seats at the window side. Although more participants are needed to justify an emerging seating pattern, it is observed that lesbians prefer zone 8 door-side seats, while gay-identified participants choose the opposite side cluster nearer to the door but in the centre in zone 7. Transgender-identified participants prefer seats nearer to exits, and pansexual-identified participants tend to avoid the line of sight from the instructor's table.

Table 5: Preferred Seat in standard classroom based on Biological Sex and Gender Identity

Female	Male	Room Layout	Gender	Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender
256	144		Zone	113	201	17	4	52	4	7	2
7.42%	7.64%		Zone 1	7.96%	6.97%	5.88%	25.00%	9.62%	25.00%	0.00%	0.00%
15.23%	10.42%		Zone 2	11.50%	12.94%	5.88%	25.00%	19.23%	0.00%	14.29%	50.00%
16.02%	14.58%		Zone 3	15.04%	15.42%	23.53%	0.00%	11.54%	0.00%	57.14%	0.00%
19.53%	15.97%		Zone 4	13.27%	20.40%	17.65%	0.00%	21.15%	25.00%	28.57%	0.00%
5.08%	6.94%		Zone 5	7.08%	5.47%	5.88%	0.00%	5.77%	0.00%	0.00%	0.00%
4.69%	7.64%		Zone 6	7.96%	5.47%	5.88%	0.00%	3.85%	0.00%	0.00%	0.00%
12.89%	11.81%		Zone 7	8.85%	14.43%	29.41%	0.00%	9.62%	25.00%	0.00%	0.00%
11.33%	9.03%		Zone 8	11.50%	10.95%	0.00%	50.00%	9.62%	0.00%	0.00%	0.00%
3.13%	6.25%		Zone 9	6.19%	1.99%	5.88%	0.00%	7.69%	25.00%	0.00%	0.00%
4.69%	9.72%		Zone 10	10.62%	5.97%	0.00%	0.00%	1.92%	0.00%	0.00%	50.00%

Table 6: Preferred Seat on Collaborative Set-up based on Biological Sex and Gender Identity

Female	Male	Room Layout	Gender	Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender
256	144		Zone	113	201	17	4	52	4	7	2
5.86%	6.94%		Table 1	5.31%	3.98%	5.88%	25.00%	15.38%	0.00%	0.00%	50.00%
14.84%	9.03%		Table 2	10.62%	14.93%	0.00%	0.00%	11.54%	50.00%	14.29%	0.00%
19.92%	16.67%		Table 3	17.70%	19.40%	5.88%	25.00%	23.08%	0.00%	28.57%	0.00%
21.88%	22.22%		Table 4	18.58%	24.88%	35.29%	0.00%	11.54%	25.00%	57.14%	0.00%
10.55%	13.89%		Table 5	13.27%	11.94%	23.53%	0.00%	7.69%	0.00%	0.00%	0.00%
19.14%	12.50%		Table 6	15.04%	18.91%	5.88%	50.00%	15.38%	25.00%	0.00%	0.00%
4.30%	6.25%		Table 7	7.08%	2.99%	5.88%	0.00%	9.62%	0.00%	0.00%	0.00%
3.52%	12.50%		Table 8	12.39%	2.99%	17.65%	0.00%	5.77%	0.00%	0.00%	50.00%

The third section of the survey form is about their preferences for a computer library. Frequently, students' set-up in the traditional computer library is facing each other where the table length is parallel to the long side of the room. Results for both sexes, see Table-7, show challenges with visual sights as top issue followed by sleepy ambiance in computer laboratories. The third challenge for male is that space is too tight while female have difficulty in audio resonance. These difficulties are also echoed when category is shifted to gender.

Table 7: Frequency of Challenges in Traditional Computer Laboratory

Female	Male	← Sex - Gender →	Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender
17.71%	14.81%	Top 3 Difficulties in Traditional Computer Laboratory								
23.18%	19.21%	I can't hear the speaker	15.63%	17.25%	9.80%	25.00%	19.23%	16.67%	9.52%	16.67%
3.65%	5.79%	I can't properly see the board/instructor/student	18.29%	23.05%	21.57%	25.00%	23.72%	16.67%	33.33%	0.00%
4.04%	3.01%	My personal space is being disturbed	5.90%	2.99%	5.88%	0.00%	7.05%	8.33%	0.00%	0.00%
5.99%	9.26%	Outside noise is transferred inside the classroom	2.95%	4.48%	1.96%	0.00%	3.21%	0.00%	0.00%	16.67%
3.52%	4.40%	Poor lighting	10.91%	6.63%	1.96%	16.67%	3.21%	8.33%	0.00%	0.00%
17.19%	16.90%	Seats are always in disarray	4.13%	3.65%	3.92%	0.00%	3.85%	0.00%	4.76%	16.67%
16.02%	16.90%	Sleepy ambiance	16.81%	17.25%	23.53%	16.67%	13.46%	16.67%	23.81%	33.33%
8.72%	9.72%	Space is too tight	16.81%	16.09%	17.65%	8.33%	17.31%	16.67%	14.29%	0.00%
		Table height is uncomfortable especially in long hours	8.55%	8.62%	13.73%	8.33%	8.97%	16.67%	14.29%	16.67%

Similarly, with classroom set-ups, male participants tend to be more comfortable in the space than female participants. Figure-4 shows that front-facing computer laboratory set-up is preferred by both genders while collaborative set-up is least likely. Size adjustment has seen a small improvement in comfort levels for both genders.

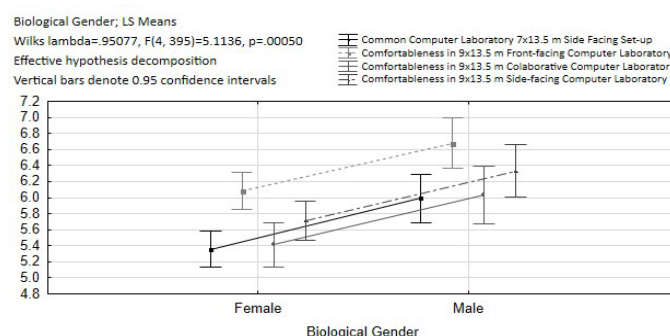


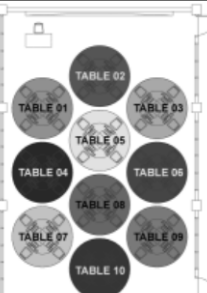
Figure 4: Comfortableness of Different Computer Laboratory Set-up

Likewise, with the classroom environment, participants were also asked to find their preferred seat inside facing computer laboratory and collaborative computer laboratory. Consideration based on sexes appears male prefers seating in zone 4 and table 03 as seen in Table-8 and 9 respectively which is also like male-identified individuals. Similarly female, both on gender and sex, appear to be dispersed in three different zones with highest preference on zone 2 and table 03. On non-binary gender, emerging pattern exist for gays as they tend to sit at the center similarly with other room set-up.

Table 8: Standard Computer Laboratory Set-up preferred seat based on Sex and Gender Identity

Female	Male	← Sex - Gender →		Male	Female	Lesbian	Gay	Bisexual	Pansexual	Queer	Transgender
		Plan	Seating Zone								
15.23%	13.89%		Zone 1	12.39%	13.93%	50.00%	23.53%	13.46%	25.00%	28.57%	50.00%
25.00%	20.14%		Zone 2	22.12%	25.87%	0.00%	5.88%	25.00%	25.00%	14.29%	0.00%
23.44%	19.44%		Zone 3	15.93%	24.38%	0.00%	35.29%	25.00%	0.00%	28.57%	0.00%
21.09%	27.08%		Zone 4	27.43%	21.89%	50.00%	35.29%	17.31%	0.00%	14.29%	0.00%
8.20%	7.64%		Zone 5	8.85%	6.97%	0.00%	0.00%	11.54%	0.00%	14.29%	50.00%
7.03%	11.81%		Zone 6	13.27%	6.97%	0.00%	0.00%	7.69%	50.00%	0.00%	0.00%

Table 9: Collaborative Computer Laboratory Set-up preferred seat based on Sex and Gender Identity

Female	Male	← Sex - Gender →		Male	Female	Lesbian	Gay	Bisexual	Pansexual	Queer	Transgender
		Plan	Seating Zone								
12.50%	11.81%		Table 01	11.50%	11.94%	0.00%	11.76%	15.38%	25.00%	14.29%	0.00%
11.33%	4.17%		Table 02	5.31%	10.45%	25.00%	5.88%	7.69%	25.00%	14.29%	0.00%
28.52%	20.14%		Table 03	19.47%	28.36%	25.00%	11.76%	28.85%	25.00%	42.86%	50.00%
14.06%	10.42%		Table 04	9.73%	14.93%	50.00%	11.76%	11.54%	0.00%	0.00%	0.00%
10.16%	20.14%		Table 05	15.93%	11.94%	0.00%	41.18%	9.62%	0.00%	0.00%	50.00%
6.25%	11.11%		Table 06	12.39%	6.47%	0.00%	11.76%	5.77%	0.00%	0.00%	0.00%
4.69%	4.86%		Table 07	6.19%	4.48%	0.00%	0.00%	3.85%	0.00%	14.29%	0.00%
5.86%	6.94%		Table 08	7.08%	4.98%	0.00%	5.88%	9.62%	0.00%	14.29%	0.00%
4.69%	4.17%		Table 09	4.42%	4.98%	0.00%	0.00%	3.85%	25.00%	0.00%	0.00%
1.95%	6.25%		Table 10	7.96%	1.49%	0.00%	0.00%	3.85%	0.00%	0.00%	0.00%

The third section of the survey form deals with the mini-library, hallways, and canteen. When the space to be considered is a mini library, male respondents are also more comfortable than female respondents as seen on Figure-5. Their preference in seat choice shows the occupation of the larger table as compared to the female spatial choice of single seats along the window.

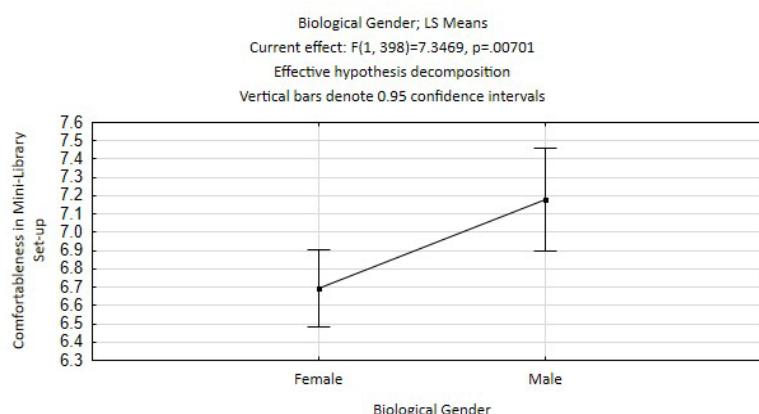
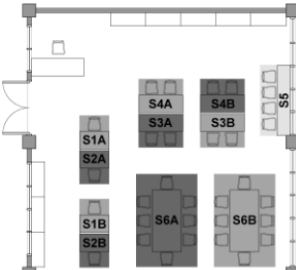


Figure 5: Comfortableness in mini library based on Biological Sex

When consideration for seating preference is based on gender identity, see Table-10, males still opt for the largest table near the window seat followed by a single seat farthest from entry. Female preferences are in 3 areas notably with varying numbers of seats such as from large group tables to window side seats to individual

chairs. For non-binary genders, all except pansexual has established likeness to group table near the window side while having alternative preference for single seats. Notably, none of the non-binary genders chose the seat where they were turned back from group seats.

Table 10: Seating Preferences in Mini Library based on Biological Sex and Gender Identity

Female	Male	← Sex - Gender →		Male	Female	Gay	Lesbian	Bisexual	Pansexual	Queer	Transgender	
256	144	Room Layout		Table	113	201	17	4	52	4	7	2
3.52%	6.25%			S1A	6.19%	3.48%	11.76%	25.00%	1.92%	0.00%	0.00%	0.00%
5.08%	4.17%			S1B	3.54%	5.47%	5.88%	0.00%	5.77%	0.00%	0.00%	0.00%
2.73%	4.17%			S2A	4.42%	2.49%	5.88%	0.00%	1.92%	0.00%	0.00%	50.00%
17.97%	15.28%			S2B	17.70%	18.41%	5.88%	0.00%	15.38%	0.00%	28.57%	0.00%
5.86%	4.17%			S3A	4.42%	6.47%	0.00%	0.00%	3.85%	25.00%	0.00%	0.00%
4.30%	5.56%			S3B	7.08%	5.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2.73%	3.47%			S4A	4.42%	2.49%	0.00%	0.00%	1.92%	25.00%	0.00%	0.00%
7.03%	6.94%			S4B	7.08%	6.97%	5.88%	0.00%	9.62%	0.00%	0.00%	0.00%
22.66%	13.19%			S5	13.27%	21.39%	5.88%	0.00%	25.00%	50.00%	42.86%	0.00%
8.20%	13.19%			S6A	9.73%	6.97%	23.53%	25.00%	19.23%	0.00%	0.00%	0.00%
19.92%	23.61%			S6B	22.12%	20.40%	35.29%	50.00%	15.38%	0.00%	28.57%	50.00%

On the result of survey for hallway, as seen on Figure-6, it shows that male participants are more comfortable than females in hallways. Furthermore, both sexes opted for bench seats with no partitions when asked to choose hallway set-ups.

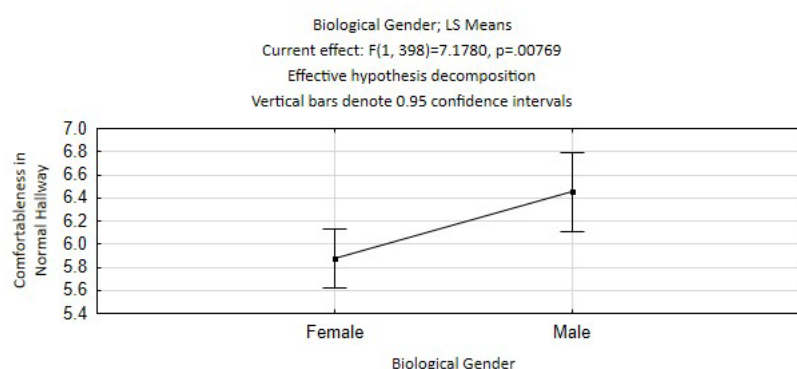


Figure 6: Comfortableness in Hallway based on Biological Sex

Finally, based on the result of the survey for the level of comfortableness in different canteen setups, the male still has a higher degree of comfortableness than females, but the margin is closer when the set-up is round tables. However, the result is insignificant due to its p-value of .126.

The qualitative survey result reveals that biological males in nature are more naturally comfortable than females with mean margins ranging from .1 (non-preferred set-up) to .7 (preferred set-up). Furthermore, despite the need to increase the survey count if the parameter will be on gender identity, there is a developing pattern associated with preference of seating location from response frequency.

3.3 Integration of Qualitative and Quantitative Data

Given the collected results from the qualitative data and quantitative data gathering, the following are key findings of the research.

- *Male comfortableness in spaces:* During the qualitative inquiry, all biological male participants described their environment as comfortable. This aligns with the statistical survey results, where males felt more comfortable than females, with mean comfort levels above 6.0 on a 0 to 10 scale. Male seating preferences were more dispersed compared to gay participants, who preferred center seats. Notably, there was a dip in comfort when bench seats in the canteen were replaced with round tables. These findings align with Rozenberg's Gender Units, as benches have higher masculinity GU compared to round tables.
- *Preference for flexibility in movements:* Survey data shows that both biological genders prefer classroom setups with flexible furniture. This aligns with recorded responses highlighting the inconvenience of armchairs, which limit movement and are non-inclusive for left-handed individuals.

While students favor collaborative setups qualitatively, they show a stronger preference for flexible furnishings and improved orientation.

- *Room Positioning:* While qualitative data highlights the importance of comfort, quantitative survey results reveal differences in spatial positioning preferences. Biological sex shows slight preference characteristics, but gender identity offers clearer behavioral contrasts. For example, female participants tend to position themselves from the middle to the front of the room, male-identified participants have a well-distributed seating preference with some partiality towards the window side and back, and gay participants prefer the center of the room. Notably, in the mini library, non-binary individuals avoid seats where they must turn their back on large group seating.
- *Difficulty in sight lines and auditory resonance:* Both qualitative and quantitative data show visual sight line difficulties for students and faculty. This may be due to body build differences, with males generally being larger than females. Most students prefer seats beyond the first row, likely because the front row is too close to the board, making it difficult to view, and later rows offer a more comfortable view despite possible obstruction. Additionally, cramped room sizes hinder personal adjustments.
- *Ambiance of professionalism vs casualism:* In qualitative inquiry, respondents described their university as unrestrictive and open, indicating a sense of "freedom." This supports male respondents' preference for a more casual school environment. Conversely, female respondents preferred a professional ambiance. This difference in perception may explain why males generally feel more comfortable than females, as they perceive the space as less restrictive.

4. Conclusion

The current design and standards of higher education in classrooms, computer laboratories, hallways, cafeterias, and libraries are deemed more comfortable by males while tolerable by females creating a sense of inequality or insensitiveness to some classroom design. Spatial standards are seen as too tight by both genders limiting their movements and creating difficulty in having an interactive approach to pedagogy. This limitation in movements tends to make students passive in their seats despite preferring socialization as a means of learning through a collaborative approach to maintain their and other's spatial comfort. Furthermore, a developing behavioural spatial positioning difference between biological sex and gender identity can be observed which is a significant consideration for users' proxemics and sightlines as the distance between information sources affects learning efficiency. The conscious decision of male students to sit farther away may contribute to the reversal in the gender gap in education as cognitive load theory suggests that increased physical or psychological distance from the information requires more mental effort limiting learning capacity.

Thus, gender as the categorical variable reminds us that, gender in a biological sense has established differences in dimensional requirements in design but gender differences in social context disrupt the stereotypical presumption as expression and preference may not be aligned with the norms. Hence, it is important to design addressing the difference in dimensional scope with expectations that vary based on social anomaly to support the psychological safety of the user.

5. Recommendation

Aligned with the study's conclusion, future research can be replicated and further explored in experimental and exploratory contexts. For replication studies, focus on the robustness of the instrument to enhance validity, particularly in sample size selection and generalizability. Targeted selection of students' gender identity, especially non-binary genders, is recommended to strengthen and generalize the developing pattern of gendered positioning in learning spaces. Experimental research could simulate adjusted room designs to assess their impact on physiological, safety, social, and self-esteem needs, potentially improving design standards for higher education. Exploratory research should intersect gender responsiveness to spatial positioning with student performance and learning styles to validate the impact of built environment design interventions.

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Eyes Open: Black Women's Fight Against (In)visibilities

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Abstract: This paper explores Black women's professional journeys, focusing on the subtle racism they face, termed "sophisticated and everyday racism" and highlighting the significant impact of these experiences on their wellbeing. The study is grounded in critical Black feminism, which centres on the experiences of Black women and analyses their position in relation to broader social and political identities. The narratives reveal periods of anxiety, resistance, and the fear of invisibility, voicelessness, and rejection. By engaging with these stories, the paper aims to shed light on the systemic barriers that Black women face and the resilience they exhibit in navigating these challenges.

Keywords: Intersectionality, Identity, Stories

1. Introduction

This conceptual paper explores the professional experiences of Black women, focusing on the subtle forms of racism they encounter in the workplace. It critiques the notion of a post-racist society and highlights the persistence of racism in new forms. Drawing on empirical research collected over more than a decade, the study uses biographical narratives from Black women across several countries, including the UK, Pakistan, Brazil, and Ireland. These narratives serve to explore the intersectionality of racism, sexism, and classism, and their impact on the lived experiences of Black women.

Storytelling as an approach to data collection is central to this research, providing a platform for Black women to share their experiences and lessen the trauma of discrimination (Miller, 2017). The narratives reveal periods of anxiety, resistance, and the fear of invisibility, voicelessness, and rejection. By engaging with these stories, the paper aims to shed light on the systemic barriers that Black women face and the resilience they exhibit in navigating these challenges.

The study is grounded in critical Black feminism, which centres on the experiences of Black women and analyses their position in relation to broader social and political identities. This theoretical framework is essential to underpin our understanding of the unique challenges faced by Black women. Historically, they have been excluded from both mainstream feminism and Black liberation movements due to their intersecting identities (Collins, 2022; Hall et al., 2012).

The findings of this study reveal the pervasive and multifaceted nature of discrimination faced by Black women in the workplace. The discussion analyses the profound implications of these findings, exploring the broader context and suggesting ways to address these challenges.

2. Intersectionality and its Impact

The concept of intersectionality (Crenshaw, 2022) is crucial to understanding the unique experiences of Black women. Intersectionality acknowledges that individuals can face multiple forms of discrimination simultaneously, such as racism, sexism, and classism. For Black women, these intersecting identities intensify the impact of discrimination, making their experiences more damaging than those of white women (who do not encounter racism) or Black men (who do not encounter sexism). This study highlights how these intersecting forms of discrimination manifest themselves in the workplace, affecting Black women's career progression, mental health, and overall wellbeing.

2.1 Sophisticated Racism

Sophisticated racism (Showunmi & Tomlin, 2022), identified in this study, refers to subtle and often unconscious forms of discrimination that are masked by seemingly benevolent actions. This type of racism is particularly insidious because it is difficult to identify and address. For example, Black women may be initially welcomed into a workplace but later face microaggressions and systemic barriers that hinder their advancement. The "pet to threat" phenomenon (Thomas et al., 2013) exemplifies this, where Black women are initially supported but later perceived as threats when they aspire to leadership roles. This sophisticated racism perpetuates inequality and reinforces the status quo.

2.2 Historical Context

The historical exclusion of Black women from the workplace has long-term effects that continue to influence their current experiences. The legacy of slavery, colonialism, and segregation has shaped societal attitudes towards Black women, often relegating them to lower-status roles (Syed & Ali, 2011). It is essential to understand this historical context to enable us to address contemporary issues. Findings suggest that the historical marginalization of Black women contributes to the persistence of their struggles in the workplace, including the lack of support and recognition for their contributions (Collins & Bilge, 2020; Moorosi, 2021).

2.3 Mental Health and Wellbeing

The significant impact of workplace discrimination on Black women's mental health and wellbeing emerges from the data. The constant need to navigate a hostile work environment, coupled with the pressure to conform to white-dominated cultural norms, leads to stress, anxiety, and burnout (Hall et al., 2012). The narratives reveal that Black women often suffer in silence, unable to express their frustrations for fear of being labelled as aggressive or unprofessional. This emotional burden is often exacerbated by the lack of adequate support systems within organisations. Repeated experiences of hostility can erode the self-belief of some Black women, so that even if they do receive support, they distrust the beneficence and potential efficacy of any efforts to encourage their advancement (Burgis, 2009).

2.4 The Role of White Women

The study also highlights the role of white women in perpetuating discrimination against Black women (DiAngelo, 2022). While white women have made significant strides in achieving gender equality, their experiences and privileges often differ vastly from those of Black women. The concept of "White Women Syndrome" (WWS) (Showunmi & Tomlin, 2022) describes how some white women may unconsciously or consciously engage in behaviours that undermine Black women's progress. This includes actions such as withholding support, engaging in microaggressions, and perpetuating stereotypes. It is crucial to address these behaviours if a workplace is to be truly inclusive.

2.5 Policy Implications

The findings of this study have important policy implications. Organisations need to implement policies that specifically address the unique challenges faced by Black women (Showunmi et al., 2016). This includes creating mentoring and support networks, providing training on intersectionality and sophisticated racism, and ensuring that diversity and inclusion initiatives take account of the reality of Black women's experiences. Policies should also focus on creating a supportive work environment that recognizes and values the contributions of Black women.

2.6 Recommendations for Future Research

Further research is needed to explore the experiences of Black women in different sectors and regions. Comparative studies can provide insights into how various cultural and organisational contexts influence the experiences of Black women (Pheterson, 1986). Longitudinal studies can also establish the long-term impact of workplace discrimination on Black women's career trajectories and mental health. Engaging with Black women in the research process is essential to ensure that their voices are heard and their experiences accurately represented.

3. Conclusion

This study sheds light on the complex and multifaceted nature of the discrimination faced by Black women in the workplace. We can begin to address the systemic barriers that hinder their progress by understanding the subtlety of sophisticated racism and appreciating how intersectionality shapes their experiences.

The implications of this research are far-reaching. For policymakers, it highlights the need for targeted policies that address the unique challenges faced by Black women. For employers, it underscores the importance of creating supportive networks and providing training on intersectionality and sophisticated racism. For researchers, it underlines the importance of exploring new avenues in different sectors and regions.

While this study provides valuable insights, it is not without limitations. The focus on biographical narratives means that the findings are based on personal experiences, which may not be generalisable to all Black women. Future research should consider larger, more diverse samples and explore the long-term impact of workplace discrimination on Black women's career trajectories and mental health.

Based on the findings, several recommendations can be made. Organisations should implement policies that specifically address the needs of Black women, create mentoring and support networks, and increase awareness and training on issues of racism, sexism, and intersectionality. These steps are crucial if workplaces are to become more inclusive and equitable.

In conclusion, equality for Black women in the workplace has yet to be achieved. By acknowledging and addressing the systemic barriers they face, we can create environments where their contributions are valued, and their potential is fully realized. The conversation on racial trauma and its impact is just beginning, and it is imperative that senior leaders, board members, and human resources departments take action to support Black women. Further research is needed to continue exploring these issues and to promote our understanding of inequality in the workplace.

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