



Proceedings of the **9th International Conference on** **Gender Research**

Hosted by Gdańsk University of Technology
Poland
7-8 May 2026



Wioleta Kucharska
Ewa Lechman
and Julita Wasilczuk

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**Proceedings of the
9th International Conference on
Gender Research**

**ICGR 2026
7-8 May 2026**

**Hosted by
Gdańsk University of Technology
Poland**

**Edited by
Wioleta Kucharska
Ewa Lechman
and Julita Wasilczuk**

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About the 9th International Conference on Gender Research, ICGR 2026

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 9th International Conference on Gender Research, 2026 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 2026 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 9th International Conference on Gender Research (ICGR 2026), hosted by Gdańsk University of Technology, Poland on 7-8 May 2026. The Conference Co-Chairs are Wioleta Kucharska, Ewa Lechman, and Julita Wasilczuk, from the Gdańsk University of Technology, Poland.

ICGR is a well-established event on the academic research calendar and now in its 9th year the key aim remains the opportunity for participants to share ideas and meet the people who hold them. The scope of papers will ensure an interesting two days. The subjects covered illustrate the wide range of topics that fall into this important and ever-growing area of research.

The opening keynote presentation is given by Bianka Siwińska, from Perspektywy Education Foundation, on the topic of *Transformative Experience of WOMEN in TECH SUMMIT*, and the second keynote presentation will be delivered by Dariusz Jemielniak, Kozminski University, Poland, *Gender and Technology: where No One has Gone Before*. The afternoon keynote presentation will be delivered by the second day of the conference will open with an address by Ewa Łojkowska, on *How we are Implementing an Inclusive Gender Equality Plan at University of Gdańsk* and Natasza Kosakowska-Berezecka on *Why and When do Everybody (all genders) Profit from Gender Equality?*

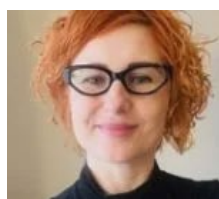
With an initial submission of 150 abstracts, after the double blind, peer review process there are 37 Academic research papers, 2 PhD research papers, 3 Masters Research papers, 2 Non-Academic papers and 2 work-in-progress papers published in these Conference Proceedings. These papers represent research from Armenia, Austria, Brazil, Canada, Catalonia, China, Finland, France, Germany, Greece, India, Ireland, Italy, Japan, Lithuania, Luxembourg, Malaysia, Mexico, Netherlands, Nigeria, Pakistan, Peru, Poland, Portugal, Singapore, Slovenia, South Africa, Spain, Türkiye, United Kingdom, and the United States.

We hope you enjoy the conference.

Wioleta Kucharska, Ewa Lechman, and Julita Wasilczuk
Gdańsk University of Technology
Poland
May 2026

Biographies of Chairs and Keynote Speakers

Conference Co- Chairs



Wioleta Kucharska is Associate Professor at the Faculty of Management and Economics of the Gdansk University of Technology, Fahrenheit Universities Union, Poland. Her research recently focuses on agile mindset, leadership, and gender studies. She is also deeply scientifically involved in tacit knowledge and company culture studies. She recently introduced the Knowledge, Learning, and Collaboration cultures synergy (the KLC approach) and proved its impact on organizational intelligence. Recently, she also discovered the double bias of the mistakes phenomenon (the DBM) impact on organizational intelligence and noted that it is firmly gender related. Along with scientific achievements, she has 12 years of intensive managerial experience. Therefore, her work, in addition to theoretical foundations, actively refers to management practice. She was awarded the Scholarship of the Polish Ministry of Higher Education for the Best Young Scientists (2022-2025). She gained recognition from Elsevier, Wiley, Emerald, and Taylor & Francis for her publishing and reviewing activities. Recently, she was distinguished among the world's TOP 2% SCIENTISTS in her field, according to Elsevier & Stanford University 2023 ranking released in 2024 (<https://topresearcherslist.com>). of the world's Top 2% Scientists in her field, according to the esteemed ranking released by Elsevier and Stanford University in 2023.



Ewa Lechman is a Professor of Economics, employed at Faculty of Management and Economics Gdańsk University of Technology / Fahrenheit Universities Union. Her research interests concentrate on economic development, digital technologies and technological progress, and its role in reshaping social and economic systems, as well as economics of network and innovative financial instruments. Serves as permanent referee in more than 35 highly ranked academic journals. In 2013 Emerald Literati Network Award for Excellence winner; in 2017-2019 nominated by Elsevier as outstanding reviewer. In several years her academic track records contributed to University's Elsevier Research Impact Leaders Award. Co-ordinated and participated in multiple research grants on digital technologies, social and economic development awarded by, inter alia, National Science Centre, CERGE-Global Development Network, National Bank of Poland, Stockholm Business School, United Nations for Development Program, EU-funds. An author and co-author of more than 120 papers and books. Serves as editor in Telecommunication Policy journal (Elsevier). A former Vice-Dean for development and PhD Program Director. Co-operated with ECSB, CEEMAN, BMDA, AMBA and Eurostat. Served on the Advisory Board of the Gdansk Business Club. Currently co-director of Doctoral School at Gdansk University of Technology.

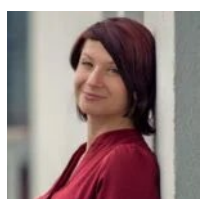


Julita Wasilczuk holds the associate professor of Entrepreneurship position at Gdańsk University of Technology / Fahrenheit Universities Union, Faculty of Management and Economics Poland. She is a member of international scientific associations: USASBE (in 2007-2008), since 2015: European Council of Small Business, where she serves as vice president for Poland. Since 2008, she has led the SEAS project (Survey on Entrepreneurial Attitudes of Students). She is a member of many scientific editorial boards of national and international journals, councils, and scientific committees of conferences. Author and co-author of more than 100 scientific publications, mainly in entrepreneurship (female entrepreneurship, Individual Entrepreneurial Orientation, non-productive entrepreneurship). She is a former Dean of the Faculty of Management and Economics in the terms of office: 2012-2016 and 2016-2020. Organiser and chairperson of the ENTIME international conference scientific council, which is organised frequently at the Faculty of Management.

Keynote Speakers



Dariusz Jemielniak is a Full Professor and head of the Management in Networked and Digital Environments (MINDS) department, Kozminski University, and faculty associate at Berkman-Klein Center for Internet and Society, Harvard University. He serves as a vice president of the Polish Academy of Sciences and on the board of the EIT (European Institute of Innovation and Technology). He conducted research at Cornell University, the University of California, Berkeley, and MIT, resulting in numerous prestigious publications on technology development-related topics, including the strategic application of AI in business and education, the Collaborative Society, disinformation, AI bias, and many others. He is an enthusiast for ethics and equality. He has recently published a comprehensive analysis of the Gender Gap in all academic fields over time, which will form the basis of his speech. Apart from his excellence in science, he is famous as a fantastic speaker. Please don't miss the opportunity to meet him in Gdańsk!

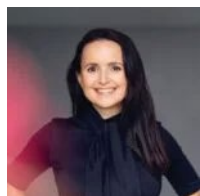


Natasza Kosakowska-Berezecka is a Full Professor and Head of the Division of Cross-Cultural and Gender Psychology and co-head of the Protest Lab at the University of Gdańsk (Poland). Her primary area of research focuses on cultural cues that foster gender equality within societies worldwide. She also conducts research on the backlash against communal men and the universality of precarious manhood. Her work has been published in leading journals such as *Social Psychological and Personality Science*, *European Journal of Social Psychology*, *Psychology of Men and Masculinities*, and *Journal of Cross-Cultural Psychology*. Currently she is a Principal Investigator in two international projects: Towards Gender Harmony, in which more than 160 scholars from 62 countries have built a global consortium that collected data from over 30,000 participants across six continents to analyze contemporary understandings of masculinity and femininity (<https://towardsgenderharmony.ug.edu.pl>) and EQUAMAN – project investigating the relationship between masculine norms & adolescent and adult men's well-being. As a diversity & inclusion expert, she co-authored the Integrative Model for Migrants for the City of Gdańsk, Poland. In 2017, her research and scientific accomplishments have been acknowledged "as of unique value for social innovations, forward thinking in building diversity within business" by the jury of the Success Written with a Lipstick – competition awarding Polish women for their merits in building an innovative environment in different areas of business. In 2022, she was nominated as one of the most influential people in the Pomeranian region for her scientific contributions in the field of gender equality.



Ewa Łojkowska is a full professor since 2001, Head of Department of Plant Protection and Biotechnology, Intercollegiate Faculty of Biotechnology University of Gdansk & Medical University of Gdańsk, since 1994. Dean of Intercollegiate Faculty of Biotechnology UG & MUG, 2005-2012; vice-Dean 1996- 2002. Principal investigator in 12 international and 27 national grants, supervisor of 22 finished PhD theses. Ewa has been involved in several EU projects: EU FP 5 Centre of Excellence in Bio-safety and Molecular Biomedicine (BIOMOBIL, 2003-2006), Co-organizer and partner of the ERA-NET EUPHRESCO Project on Pectinolytic Plant Pathogenic Bacteria (from 2005-), Co-coordinator of EU FP7 Molecular biotechnology for healthy life – Biotech solutions bringing health to living organisms and environment supported by mass spec-focused research platform (MOBI4HEALTH 2013-2016), Polish coordinator of the EU Horizon2020 project Modifying institution by developing Gender Equality Plans (MINDtheGEPs 2021-2024), EC Expert and panel evaluator in 5FP, 6FP and 7FP and HORIZON 2020. President of the Committee of Biotechnology Polish Academy of Sciences (from 2020-2023 and 2024-2007), President of Polish Jury for the Award L'Oreal UNESCO for Women in Science (from 2005 -); President of the Professor Wacław Szybalski Foundation (from 2008 -) and Head of the University of Gdansk Senate Commission for Responsible Sciences (from 2019-).r. 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.



Bianka Siwińska, PhD – a scientist, activist, and manager, is the President of the Perspektywy Education Foundation which is dedicated to supporting women in new technologies. She is the creator of the Perspektywy Women in Tech Summit – the largest event for women in STEM in Europe and Asia, with 10,000 participants annually. It is international climate-positive event supporting equity, inclusiveness and the overall collaboration. “What’s the most powerful tool in tech? And so enjoyable to use? Collaboration. The most beautiful things are built with it, aren’t they? Collaboration fosters mentorship, knowledge sharing, and inclusive spaces where everyone can thrive. It transforms personal ambition into collective IMPACT. “The Power of Collaboration” – the motto of Summit 2025 – envisions a future where every idea is valued, women are empowered to lead and excel, and the boundaries of technology are redefined. Collaboration brings JOY and MEANING. It makes your place in the world truly worthwhile. Let’s make it happen. You & ME” – Bianka says <https://womenintechsummit.pl/>

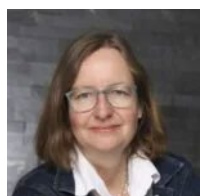
Mini-Track Chairs



Dr Frances Hamilton is an Associate Professor at the University of Reading Law School where she researches and teaches around the area of Gender Sexuality and the Law. She has a particular interest in tackling gender pay gaps and in this respect acted as lead editor in a recent book Hamilton, F. and Griffiths, E., eds. (2023) The evolution of the gender pay gap: a comparative perspective. Routledge.



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. 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.



Dr. Sílvia Donoso López is a gender expert at the Institut de Ciències del Mar (ICM/CSIC) in Barcelona. She holds a PhD in Social Anthropology and a master’s degree in Gender and Equality Policies. She has extensive experience as a consultant on gender issues, and formulating and supervising public policies on equality. Among her main research interests, the integration of the gender dimension into research content (STEM).



Isabel Palomo-Domínguez holds a PhD in Communication from the University of Seville, distinguished with the Extraordinary Doctorate Award. She is an Associate Professor and senior researcher at Mykolas Romeris University, leading the “Post-digital Storytelling in favour of Gender Equality” (PSGENEQ) project. She is also Vice President of the Association of Spanish Scientists in the Baltics (ACEBaltic).



María Gracia Puga, is a Lawyer and DEI Consultant at the Barcelona Supercomputing Center. She holds a Master’s Degree in Gender Studies and Citizenship, with a special mention in Public Policies. Since 2014, she has been working towards integrating gender mainstreaming into public policies, particularly through an intersectional approach. Among her main research interests, is the design and implementation of measures and strategies against gender-based violence in research environments.

Rūta Tamošiūnaitė holds a doctorate in Management, she is a faculty member at the Institute of Communication, Mykolas Romeris University. Rūta is a member of the International Communication Association (ICA), a leading academic association for communication research. Her research focus: technology-mediated communication.

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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.

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Inside and Beyond the Capital: Latent Profiles of Gay Men in Peru

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Abstract: Research on sexual minority health in Peru has largely focused on the capital city, overlooking how geographic inequalities shape heterogeneity among gay men living outside Lima. This study addresses this gap by comparing latent sociodemographic and risk-related profiles of gay men residing in Lima and in Peru's inland regions, where structural constraints and social exclusion may operate differently. Using data from the 2017 First Virtual Survey for LGBTIQ+ People in Peru, we analyze two subsamples: gay men living in inland regions (n=657) and those residing in Lima (n=1,528). The study applies a two-stage unsupervised analytical framework across both settings. Behavioral, social, and structural indicators are summarized through dimensionality reduction techniques, followed by the evaluation of multiple clustering algorithms. Optimal solutions are selected based on internal validity metrics, and feature relevance is examined using Random Forest-based importance measures to support interpretability while preserving cross-regional comparability. Results reveal marked differences in both the number and composition of latent profiles across geographic contexts. In inland regions, the optimal solution identifies two clusters primarily differentiated by age and employment status, with secondary differences in access to STI/HIV information and health services. In contrast, the Lima subsample yields three distinct clusters, indicating greater internal heterogeneity. The largest Lima cluster is dominated by young adults with lower employment levels and higher prevalence of mental health problems and suicidal ideation, while older clusters display greater socioeconomic stability and lower psychosocial vulnerability. From a gender research perspective, these findings demonstrate that sexual minority inequalities are shaped less by individual risk behaviors than by gendered structural and spatial contexts. Geographic location influences not only levels of vulnerability but also the internal configuration of risk and protection among gay men in Peru. The study underscores the need for territorially differentiated research and interventions that move beyond capital-centered and behavior-focused frameworks.

Keywords: Unsupervised learning, Dimensionality reduction, Clustering, Regional inequality, Gay men, Peru

1. Introduction

Research on sexual minority health consistently shows that gay men experience disproportionate burdens in mental health, sexual and reproductive health, and social well-being compared to heterosexual populations (Frost and Svensson, 2018). These inequalities are largely driven by stigma, discrimination, and structural exclusion operating across multiple social levels (Hatzenbuehler, 2016). Yet, particularly in low- and middle-income countries, much of the literature has treated gay men as a relatively homogeneous group, focusing on isolated behavioral risks while neglecting the social and geographic contexts through which vulnerability is produced (Goldhammer and Mayer, 2011).

In Latin America, and especially in Peru, evidence on the health and social conditions of gay men remains limited and uneven (Abdo, 2020). Research has focused primarily on Lima, where greater visibility of sexual minorities and stronger institutional and civil society infrastructure facilitate data collection (INEI, 2017; Más Igualdad Perú, 2021). While these studies have yielded important insights into sexual behavior, HIV prevention, and mental health, their capital-centered focus may obscure the experiences of gay men living outside Lima, where social norms, institutional capacity, and access to resources often differ substantially (Romani et al., 2021). Consequently, geographic inequalities within the country remain insufficiently examined (Perez-Brumer et al., 2013).

Peru is characterized by marked regional disparities in economic development, health services, and social inclusion (Jaramillo, 2024). Inland regions often combine weaker health systems, fewer culturally competent services, and more conservative social environments, potentially intensifying stigma and limiting access to prevention and care for sexual minorities (Suppes et al., 2021). At the same time, vulnerability cannot be assumed to manifest uniformly across regions. Differences in age structure, employment opportunities, and migration trajectories may generate distinct configurations of risk and protection among gay men in Lima and inland areas (Perez-Brumer et al., 2013).

Despite these dynamics, few studies have examined whether the internal organization of gay men's social and health profiles varies by geographic context within Peru. Findings from Lima-based samples are often implicitly treated as generalizable, potentially obscuring important intra-group differences (Jaramillo, 2024). Recent

advances in unsupervised learning provide tools to address this gap by identifying latent, multidimensional profiles without imposing predefined categories (Scheer et al., 2021).

Building on this approach, the present study examines sociodemographic and risk-related profiles of gay men in Peru, comparing Lima and inland regions using data from the 2017 First Virtual Survey for LGBTIQ+ People in Peru. By applying a two-stage unsupervised analytical strategy separately in each context, the study shows how geography shapes not only levels of vulnerability but also the internal organization of risk and protection, contributing to a more context-sensitive understanding of sexual minority health and to gender research on the intersections of sexuality, age, and place.

2. Theoretical Framing

This study assumes that gay men are not a homogeneous population and that vulnerability and protection emerge from specific configurations of social, demographic, and contextual factors (Carnes, 2016). Rather than conceptualizing risk as isolated behaviors, the framework emphasizes how multiple dimensions combine to produce differentiated profiles shaped by place, age, and access to resources (Halkitis et al., 2015).

Geographic context is central to this approach. In Peru, resources relevant to sexual minority health are concentrated in Lima, while inland regions often face more limited health infrastructure, employment opportunities, and access to preventive information (Jaramillo, 2024). These conditions are treated as structuring forces that shape how risk-related characteristics cluster within populations, influencing both overall vulnerability and the internal composition of latent profiles among gay men (Hatzenbuehler, 2016; Hill et al., 2025). Age and socioeconomic position further condition these patterns. Employment, access to information, and engagement with health services vary across the life course, generating distinct trajectories of risk and stability (Fredriksen-Goldsen et al., 2017). These trajectories are mediated by geographic context, as regional environments shape opportunities for integration, information, and care (Lewis, 2009).

Analytically, the study adopts a configuration-based perspective, using dimensionality reduction and clustering techniques to capture vulnerability as the co-occurrence of social, behavioral, and structural factors within specific contexts, rather than as isolated determinants or fixed categories (Blondeel et al., 2021; Scheer et al., 2021).

3. Methodology

3.1 Study Sample

This study uses data from the 2017 First Virtual Survey for LGBTIQ+ People in Peru, a nationwide online survey conducted by the National Institute of Statistics and Informatics (INEI) across all 24 departments and the Constitutional Province of Callao (INEI, 2017). The survey was designed to collect information on sociodemographic characteristics, health conditions, sexual behaviors, discrimination experiences, and access to services among sexual and gender minorities. The analytic sample was restricted to respondents who self-identified as gay men. To enable geographic comparison, the data were divided into two subsamples based on place of residence: individuals living in inland regions of Peru and those residing in Lima, the capital of Peru. After data cleaning and filtering for complete cases on all selected variables, the final sample consisted of 657 gay men living in inland regions and 1,528 gay men residing in Lima.

3.2 Analytical Strategy

The study employs a two-stage unsupervised analytical framework designed to identify latent profiles without imposing predefined risk categories. Given the exploratory nature of the research question and the absence of established typologies of vulnerability among gay men across geographic contexts in Peru, an unsupervised learning approach was considered appropriate. Unlike supervised or regression-based models that require predefined outcomes or fixed categories, unsupervised methods allow patterns to emerge inductively from the data. This is particularly relevant where heterogeneity is expected but its internal structure remains unclear, and where a priori classifications may obscure meaningful configurations of social, structural, and behavioral characteristics. By identifying latent profiles without prespecifying risk groups or isolating single variables, the approach aligns with configuration-based and intersectional perspectives, enabling a more context-sensitive analysis of how vulnerability and protection are jointly organized across territorial settings.

In the first stage, dimensionality reduction techniques (including Principal Component Analysis [PCA], t-distributed Stochastic Neighbor Embedding [t-SNE], Isometric Mapping [Isomap], Uniform Manifold Approximation and Projection [UMAP], and Locally Linear Embedding [LLE]) were used to summarize the

information contained in the original set of variables into a smaller number of dimensions. This step serves to reduce noise, address redundancy among correlated indicators, and facilitate the identification of underlying structure in the data. Importantly, dimensionality reduction does not eliminate information but reorganizes it into a more compact representation that preserves the most relevant patterns.

In the second stage, clustering algorithms (including K-means, K-means++, hierarchical clustering, and a hybrid hierarchical–K-means approach) were applied to identify groups of individuals with similar profiles. To ensure robustness, clustering was performed both on the reduced representations and on the original high-dimensional data. This allowed for a direct comparison of solutions and helped assess whether dimensionality reduction improved cluster quality and interpretability. Across both stages, multiple configurations were tested, varying the number of clusters from two to ten.

3.3 Model Evaluation and Selection

Cluster solutions were evaluated using three complementary internal validation metrics: the Silhouette coefficient, the Calinski–Harabasz index, and the Davies–Bouldin index. Each metric captures a different aspect of clustering quality. The Silhouette coefficient reflects how well observations fit within their assigned clusters relative to others, the Calinski–Harabasz index assesses the balance between within-cluster compactness and between-cluster separation, and the Davies–Bouldin index measures cluster similarity, with lower values indicating better separation.

To avoid reliance on a single indicator, all metrics were normalized to a common scale and combined into an aggregated performance score. The normalized Silhouette and Calinski–Harabasz values were averaged together with the inverse of the Davies–Bouldin index, ensuring that higher aggregated scores consistently represented better-performing solutions. The optimal clustering configuration for each subsample was selected as the one that maximized this aggregated score across all tested combinations.

3.4 Cluster Characterization and Interpretation

Once the optimal clustering solution was identified, clusters were characterized by examining the distribution of all study variables across groups. Furthermore, chi-square tests of independence were conducted for each variable, comparing their distributions across clusters within each subsample. To further support interpretability, a feature importance analysis was conducted using a one-versus-rest strategy. In this approach, each cluster is compared against all others to identify the variables that most strongly differentiate it from the rest of the sample.

4. Results and Discussion

4.1 Univariate Analysis

The univariate analysis, as shown in Table 1, reveals both shared patterns and notable contrasts between gay men living in inland regions and those residing in Lima.

Table 1: Characteristics of gay men in inland regions and Lima

Variable	Label	Gay inland inhabitants		Gay inhabitants in Lima	
		n	%	n	%
Health insurance	Yes	447	68	1164	76.2
	No	210	32	364	23.8
Infectious disease history	No	438	66.7	880	57.6
	Yes	219	33.3	648	42.4
Mental health problems	No	383	58.3	956	62.6
	Yes	274	41.7	572	37.4
Condom use	Yes	599	91.2	1393	91.2
	No	58	8.8	135	8.8
Orientation expression	No	389	59.2	836	54.7
	Yes	268	40.8	692	45.3

Variable	Label	Gay inland inhabitants		Gay inhabitants in Lima	
		n	%	n	%
Employment	Yes	398	60.6	1013	66.3
	No	259	39.4	515	33.7
Sex work	No	527	80.2	1357	88.8
	Yes	130	19.8	171	11.2
Health assistance	Yes	545	83	1379	90.2
	No	112	17	149	9.8
Age	18–24	288	43.8	667	43.7
	25–29	269	40.9	517	33.8
	30–34	64	9.7	236	15.4
	35+	36	5.5	108	7.1
Discrimination	Yes	526	80.1	1232	80.6
	No	131	19.9	296	19.4
Education level	Higher education	334	50.8	842	55.1
	Secondary education	308	46.9	677	44.3
	Primary education	11	1.7	8	0.5
	No education	4	0.6	1	0.1
STI/HIV information	Yes	510	77.6	1285	84.1
	No	147	22.4	243	15.9
Number of sexual partners	None	392	59.7	894	58.5
	One	250	38.1	620	40.6
	More than one	15	2.3	14	0.9
Ethnicity	Mixed	567	86.3	1395	91.3
	Indigenous	66	10	69	4.5
	White	24	3.7	64	4.2
Sexual violence	No	529	80.5	1237	81
	Yes	128	19.5	291	19
Suicide ideation	No	357	54.3	933	61.1
	Yes	300	45.7	595	38.9
Psychological support	No	418	63.6	918	60.1
	Yes	239	36.4	610	39.9
Substance abuse	No	474	72.1	1134	74.2
	Yes	183	27.9	394	25.8

4.2 Framework Experiments

Each dimensionality reduction technique evaluated in Stage 1 involved its own set of parameters, which were systematically combined with the clustering algorithms and configurations assessed in Stage 2. By exploring all relevant combinations of dimensionality reduction methods, clustering algorithms, and numbers of clusters, the analytical framework generated a large set of candidate solutions. In total, 13,716 clustering experiments were conducted for the subsample of gay men living in inland regions, while 13,680 experiments were performed for the subsample residing in Lima.

Comparison of Clustering Techniques through Dimensionality Reduction

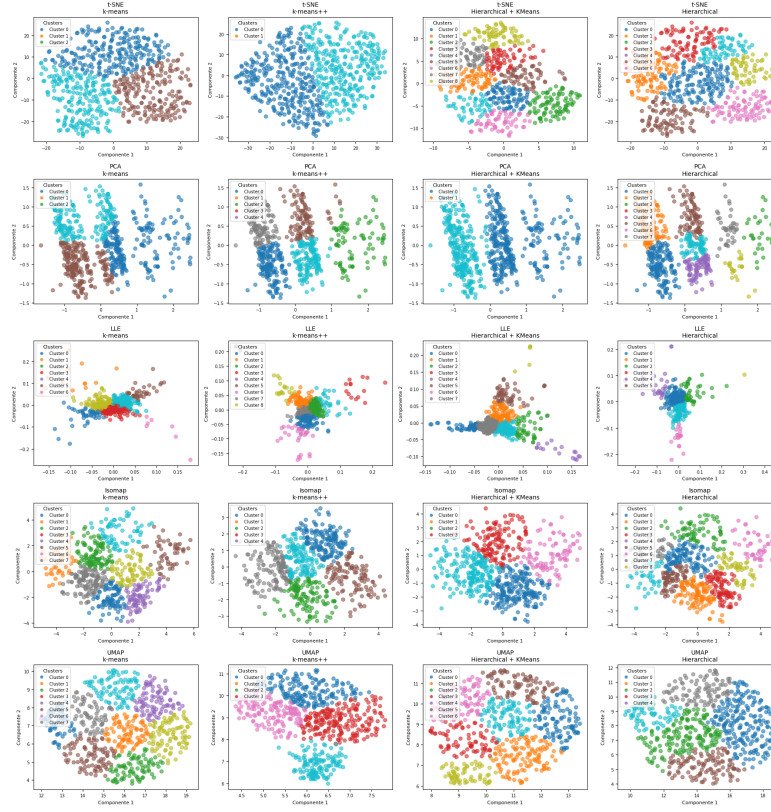


Figure 1: Visualization of a subset of experiments

In that sense, Figure 1 shows visualizations of a subset of experiments using the specified dimensionality reduction and clustering techniques. Linear methods such as PCA tend to produce more overlapping groupings, whereas non-linear approaches like UMAP, t-SNE, and Isomap reveal more compact and visually separable clusters. Moreover, to assess the relative performance of different parameter combinations, aggregated scores from all experiments were calculated. The top 5 configurations are shown in Table 2.

Table 2: Top-ranked tested configurations

		Stage 1: Reduction		Stage 2: Clustering		Metrics Evaluation			
	Rank	Technique	Dimension	Method	k	Silhouette	Calinski-Harabasz	Davies-Bouldin	Final Score
Lima	1	UMAP	3	Hierarchical + KMeans	3	1	1	1	1
	2	UMAP	2	KMeans ++	3	1	1	1	1
	3	UMAP	2	KMeans	3	1	1	1	1
	4	UMAP	3	Hierarchical	3	1	1	0.998	0.99933
	5	UMAP	3	KMeans ++	3	0.987	0.991	0.992	0.99030
Inland	1	UMAP	2	Hierarchical	2	1	1	1	1
	2	UMAP	3	Hierarchical + KMeans	2	1	1	1	1
	3	Isomap	2	Hierarchical + KMeans	4	1	1	0.996	0.99873
	4	Isomap	2	Hierarchical + KMeans	2	1	1	0.996	0.99873
	5	Isomap	2	Hierarchical + KMeans	2	1	1	0.996	0.99873

For the Lima subsample, the highest-ranked configurations consistently identified a three-cluster solution, with UMAP emerging as the dominant dimensionality reduction technique across top-performing models. In inland regions, optimal configurations consistently favored a two-cluster structure, with UMAP and Isomap yielding the strongest performance. Figure 2 displays the optimal clustering configurations identified for each subsample: for gay men living in inland regions, UMAP with a two-dimensional representation combined with

hierarchical clustering and a two-cluster solution; and for gay men residing in Lima, UMAP with a three-dimensional representation combined with a hybrid hierarchical–K-means approach yielding three clusters.

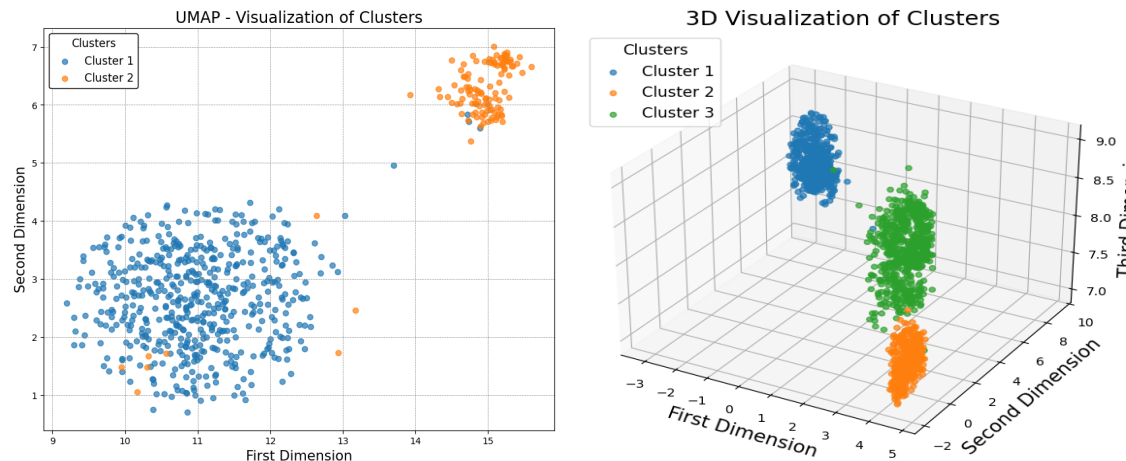


Figure 2: Distribution of optimal clusters for (left to right): (a) inland and (b) main city gay inhabitants

4.3 Clustering Results

Table 3 illustrates each identified cluster's risk behavior and socio-demographic profiles for the study sample.

Table 3: Characteristics across clusters among gay men

		Inland			Lima			
		Clusters		χ^2	Clusters			χ^2
Variables	Labels	C1 (n = 536)	C2 (n = 121)	p-value	C1 (n = 541)	C2 (n = 357)	C3 (n = 630)	p-value
Health insurance	Yes	182 (34%)	28 (23%)	< 0.01	159 (29%)	74 (21%)	131 (21%)	< 0.01
	No	354 (66%)	93 (77%)		382 (71%)	283 (79%)	499 (79%)	
Infectious disease history	No	361 (67%)	77 (64%)	< 0.01	344 (64%)	204 (57%)	332 (53%)	< 0.01
	Yes	175 (33%)	44 (36%)		197 (36%)	153 (43%)	298 (47%)	
Mental health problems	No	308 (57%)	75 (62%)	< 0.01	276 (51%)	269 (75%)	411 (65%)	< 0.01
	Yes	228 (43%)	46 (38%)		265 (49%)	88 (25%)	219 (35%)	
Condom use	Yes	45 (8%)	13 (11%)	< 0.01	49 (9%)	35 (10%)	51 (8%)	< 0.01
	No	491 (92%)	108 (89%)		492 (91%)	322 (90%)	579 (92%)	
Orientation expression	No	326 (61%)	63 (52%)	< 0.01	300 (55%)	190 (53%)	346 (55%)	< 0.01
	Yes	210 (39%)	58 (48%)		241 (45%)	167 (47%)	284 (45%)	
Employment	Yes	226 (42%)	33 (27%)	< 0.01	291 (54%)	75 (21%)	149 (24%)	< 0.01
	No	310 (58%)	88 (73%)		250 (46%)	282 (79%)	481 (76%)	
Sex work	No	434 (81%)	93 (77%)	< 0.01	466 (86%)	322 (90%)	569 (90%)	< 0.01
	Yes	102 (19%)	28 (23%)		75 (14%)	35 (10%)	61 (10%)	
Health assistance	Yes	94 (18%)	18 (15%)	< 0.01	83 (15%)	17 (5%)	49 (8%)	< 0.01
	No	442 (82%)	103 (85%)		458 (85%)	340 (95%)	581 (92%)	
Age	18–24	288 (54%)	0 (0%)	< 0.01	500 (92%)	0 (0%)	17 (3%)	< 0.01
	25–29	243 (45%)	26 (21%)		41 (8%)	26 (7%)	600 (95%)	
	30–34	5 (1%)	59 (49%)		0 (0%)	223 (62%)	13 (2%)	
	35+	0 (0%)	36 (30%)		0 (0%)	108 (30%)	0 (0%)	
Discrimination	Yes	106 (20%)	25 (21%)	< 0.01	95 (18%)	94 (26%)	107 (17%)	< 0.01
	No	430 (80%)	96 (79%)		446 (82%)	263 (74%)	523 (83%)	

		Inland			Lima			
		Clusters		X ²	Clusters			X ²
Variables	Labels	C1 (n = 536)	C2 (n = 121)	p-value	C1 (n = 541)	C2 (n = 357)	C3 (n = 630)	p-value
Education level	Higher education	3 (1%)	1 (1%)	< 0.01	1 (0%)	0 (0%)	0 (0%)	< 0.01
	Secondary education	8 (1%)	3 (2%)		6 (1%)	2 (1%)	0 (0%)	
	Primary education	289 (54%)	45 (37%)		390 (72%)	97 (27%)	190 (30%)	
	No education	236 (44%)	72 (60%)		144 (27%)	258 (72%)	440 (70%)	
STI/HIV information	Yes	130 (24%)	17 (14%)	< 0.01	110 (20%)	39 (11%)	94 (15%)	< 0.01
	No	406 (76%)	104 (86%)		431 (80%)	318 (89%)	536 (85%)	
Number of sexual partners	None	324 (60%)	68 (56%)	< 0.01	354 (65%)	180 (50%)	360 (57%)	< 0.01
	One	204 (38%)	46 (38%)		182 (34%)	173 (48%)	265 (42%)	
	More than one	8 (1%)	7 (6%)		5 (1%)	4 (1%)	5 (1%)	
Ethnicity	Mixed	57 (11%)	9 (7%)	< 0.01	18 (3%)	11 (3%)	35 (6%)	< 0.01
	Indigenous	462 (86%)	105 (87%)		500 (92%)	332 (93%)	563 (89%)	
	White	17 (3%)	7 (6%)		23 (4%)	14 (4%)	32 (5%)	
Sexual violence	No	428 (80%)	101 (83%)	< 0.01	438 (81%)	281 (79%)	518 (82%)	< 0.01
	Yes	108 (20%)	20 (17%)		103 (19%)	76 (21%)	112 (18%)	
Suicide ideation	No	284 (53%)	73 (60%)	< 0.01	293 (54%)	243 (68%)	397 (63%)	< 0.01
	Yes	252 (47%)	48 (40%)		248 (46%)	114 (32%)	233 (37%)	
Psychological support	No	341 (64%)	77 (64%)	< 0.01	330 (61%)	215 (60%)	373 (59%)	< 0.01
	Yes	195 (36%)	44 (36%)		211 (39%)	142 (40%)	257 (41%)	
Substance abuse	No	390 (73%)	84 (69%)	< 0.01	408 (75%)	272 (76%)	454 (72%)	< 0.01
	Yes	146 (27%)	37 (31%)		133 (25%)	85 (24%)	176 (28%)	

Among gay men living in inland regions, the clustering solution reveals a relatively simple structure composed of two uneven groups. The larger cluster consists mainly of younger, economically active individuals with greater access to STI/HIV information and health services, while the smaller cluster is older, less likely to be employed, and faces more limited access to health information and care. In Lima, the clustering solution identifies greater internal heterogeneity, with three distinct profiles. The largest cluster is dominated by young adults and characterized by elevated levels of mental health problems and suicidal ideation, alongside lower employment rates, despite high access to condom use and STI/HIV information. A second cluster comprises older, socioeconomically stable individuals with higher employment and substantially better mental health outcomes. The third cluster occupies an intermediate position, combining moderate employment levels with persistent mental health challenges and higher reported histories of infectious disease. Moreover, the feature importance scores, presented in Figures 3 and 4, were calculated by developing a Random Forest model for each identified cluster. Variables are ordered by importance from top to bottom.

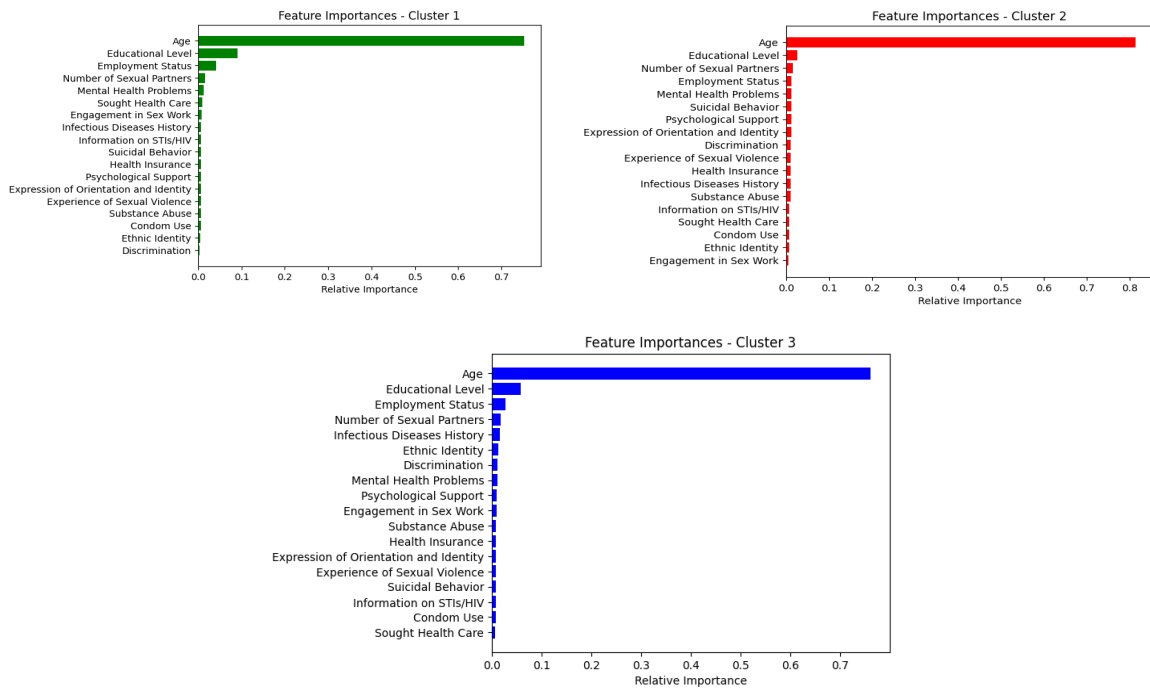


Figure 3: Variable importance plots for main city inhabitants' clusters

Among gay men living in Lima, age emerged as the most influential variable across all three clusters in the Random Forest feature importance analysis, underscoring its central role in differentiating profiles within the urban context. In Cluster 1, age dominates, with employment status and educational level contributing at a secondary level. Cluster 2 is even more clearly structured by age, with minimal influence from other variables, suggesting a profile largely defined by life stage. In Cluster 3, age remains the primary driver, while employment status and educational level show slightly greater relevance, indicating a closer interaction between age and socioeconomic positioning. Across clusters, behavioral and psychosocial factors such as mental health problems, substance use, discrimination, and sexual violence exhibit consistently low importance, reflecting that cluster differentiation is driven primarily by age-related and socioeconomic dimensions rather than risk behaviors.

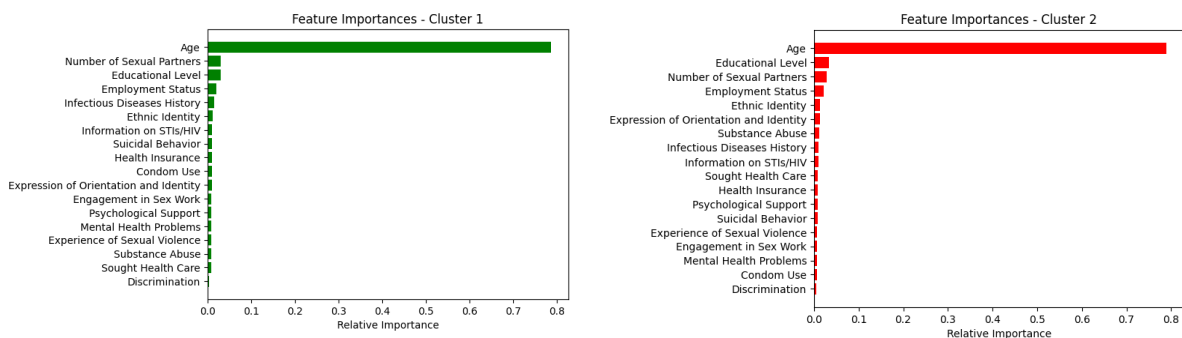


Figure 4: Variable importance plots for inland inhabitants' clusters

Regarding gay inland inhabitants, in both clusters, age emerged as the most influential variable in the Random Forest model, indicating its central role in differentiating risk behaviors and access to resources. Cluster 1 is characterized by a larger share of individuals with stable employment, higher access to STI/HIV information, and a greater proportion reporting multiple sexual partners. In contrast, Cluster 2 is composed mainly of younger participants, with a higher representation of those under 25 years old, fewer sexual partners overall, and lower levels of access to STI/HIV information. Although variables like educational level, number of sexual partners, and employment status also contributed moderately to cluster differentiation, most other factors, such as mental health issues, substance abuse, and discrimination, had relatively lower importance.

Geographic context emerges in this study as a key factor shaping not only levels of vulnerability among gay men in Peru but also the ways in which sociodemographic, behavioral, and psychosocial dimensions are

internally configured (Hatzenbuehler, 2016). The concentration of resources, services, and visibility in Lima appears to generate greater internal differentiation, producing distinct life-stage-based profiles in which younger gay men experience heightened psychosocial vulnerability despite relatively high access to preventive information (Krueger et al., 2016). This pattern aligns with broader evidence linking early adulthood, labor market precarity, and minority stress to adverse mental health outcomes among sexual minorities (Fredriksen-Goldsen et al., 2017). In contrast, the simpler and more polarized structure observed in inland regions suggests that structural constraints related to employment, access to health services, and information availability may play a more dominant role in shaping vulnerability, limiting the range of distinct configurations that emerge (Jaramillo, 2024). Across both contexts, age consistently functions as a central organizing axis, reinforcing the relevance of life-course perspectives for understanding sexual minority health (Carnes, 2016). Importantly, the limited role of behavioral and psychosocial variables in differentiating clusters, as indicated by feature importance analyses, suggests that vulnerability among gay men in Peru may be driven less by individual risk behaviors than by broader structural and socioeconomic conditions (Hatzenbuehler, 2016). These findings support calls to move beyond behavior-centered and capital-focused frameworks and to adopt more context-sensitive approaches that account for how place, age, and structural position interact to shape lived experiences among sexual minorities (Abdo, 2020).

4.3.1 Implications for gender research: Sexuality, place, and structural inequality

Beyond identifying latent profiles, the results contribute to gender research by showing that vulnerability among gay men is socially and spatially produced rather than primarily behavior-driven. Differences in clustering structures between Lima and inland regions indicate that geographic context operates as a gendered social structure, shaping both access to resources and internal organization of risk.

In Lima, greater institutional density, sexual minority visibility, and labor market segmentation generate differentiated life-course trajectories. The presence of a large cluster of young gay men with elevated mental health problems and suicidal ideation, despite high levels of HIV/STI information and condom use, reveals a gendered paradox: informational access alone does not ensure psychosocial well-being under conditions of structural precarity and minority stress. Conversely, inland regions display a more polarized and less differentiated clustering structure. Vulnerability is primarily organized around structural constraints related to employment and access to health services and information, suggesting that weaker institutional environments limit the range of social positions available to gay men and reinforce divides between protected and structurally marginalized groups.

Across both contexts, behavioral indicators play a secondary role in profile differentiation, while age, employment, and access to institutional resources emerge as the main organizing features. This challenges behavior-centered paradigms in sexual minority health research and supports structural and intersectional approaches that frame vulnerability as a product of gendered social positioning within specific territorial contexts.

5. Conclusion

This study shows that gay men in Peru are not a homogeneous population and that geographic context decisively shapes patterns of vulnerability and protection. Unsupervised analyses conducted separately for Lima and inland regions reveal differences not only in overall conditions but also in the internal structure of heterogeneity.

In inland regions, vulnerability is organized in a relatively simple and polarized manner, largely shaped by age, employment status, and unequal access to health information and services. Lima, by contrast, displays greater complexity, with profiles reflecting more diverse life-course trajectories. Within this setting, younger gay men emerge as particularly vulnerable, marked by weak labor market integration and elevated mental health problems and suicidal ideation despite broad access to preventive information. Across both contexts, age consistently operates as a central axis of differentiation, highlighting the importance of life-course dynamics. From a gender research perspective, these findings underscore that sexual minority inequalities cannot be understood without attention to spatial and structural contexts. Policies targeting gay men in Peru should therefore be territorially differentiated and sensitive to life-course processes, moving beyond behavior-centered approaches. Gender-sensitive public health and social policies must explicitly account for how place and structural exclusion shape lived experiences.

As the analysis is based on a nationwide online survey, potential selection biases related to unequal internet access should be acknowledged. Despite its broad geographic reach, the survey may underrepresent gay men with limited digital connectivity, particularly in inland regions where infrastructural inequalities are more pronounced. As a result, the identified clusters likely reflect the experiences of individuals who are more connected to online networks and information channels. The profiles should be interpreted as context-specific configurations within the surveyed population rather than as fully generalisable representations of all gay men in each region. Nonetheless, the comparative design remains informative for examining how heterogeneity is structured under different territorial conditions.

Ethics declaration: Ethical clearance wasn't required for the research.

AI declaration: No AI tools were used in the creation of this paper.

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Intersectional Gender Equality for the Structural Transformation of Research Organizations

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Abstract: Evolving from Gender Equality Plans (GEP) to inclusive Gender Equality Plans (iGEP) requires the incorporation of an intersectional approach capable of addressing complex and structural inequalities, attending not only to formal equality but also to the power relations that shape experiences within scientific organizations. Intersectionality, as an analytical and political framework, recognizes that gender does not operate in isolation but rather interacts with other social categories - such as ethnicity, class, age, disability or sexual orientation- producing overlapping and interdependent systems of discrimination and disadvantage. In Research Performing Organizations (RPOs), there is often a tension between the scarcity of systematic intersectional data – often caused by personal data protection policies – and the need for evidence to inform institutional policies and practices. However, these constraints cannot obviate persistent inequalities, even in environments that may seem homogeneous. Drawing on the experience of the Institute of Marine Science, this paper presents the various efforts made to obtain intersectional data and evidence of staff perceptions and experiences of discrimination and privilege related to their specific identities. The findings reveal diverse forms of exclusion, as well as dynamics of power, privilege and resistance that continue to shape organisational culture and affect the participation, recognition and career trajectories of specific groups. Addressing intersectional disadvantage requires both methodological sensitivity and ethical accountability. The paper highlights the contextual nature of intersectionalities, repositions marginalised voices within institutional analysis, and reflects on the positionality of those leading the process. It recognises the limits of perspectives and imaginaries constructed from outside marginalised groups, emphasising the importance of reflexivity and validation. The results of this process, shared and collectively validated within the institution, provide the foundation for the formulation of a GEP+ reinforcing its legitimacy and institutional relevance. The iGEP articulates inclusive policies aimed not only at addressing discrimination and inequalities, but at fostering deep and sustainable structural and cultural transformation. Through this comprehensive and intersectional approach, the iGEP advances substantive equality within the ICM, moving beyond compliance towards structural change, enhanced inclusion, and the recognition of diverse identities and lived experiences across the organisation.

Keywords: Intersectionality, Inclusion, Gender equality, Positionality, Research performing organizations (RPO), Inclusive gender equality plan (iGEP)

1. Introduction

In recent years, academic debates on gender equality in Research Performing Organisations (RPOs) have underscored the limitations of approaches focused solely on the gender gap and formal regulatory compliance. While Gender Equality Plans (GEPs) have played a key role in institutionalising gender equality, growing scholarship argues that they remain insufficient to address the complexity of inequalities (Clavero and Galligan, 2021). Evidence indicates that dynamics of exclusion and privilege do not operate in isolation, but through the interaction of multiple dimensions of social differentiation.

The transition from GEPs to inclusive Gender Equality Plans (iGEPs) therefore requires the integration of an intersectional approach capable of addressing structural and complex inequalities, moving beyond formal equality to engage with the power relations shaping experiences within research organisations. This shift implies moving from single-category interventions towards structural approaches that challenge institutional norms, evaluation cultures, and power dynamics that reproduce inequality (Beeckmans, Zannoni and Van Laer, 2025).

This paper presents the process undertaken by the Institut de Ciències del Mar (ICM) to collect data and evidence on staff experiences of discrimination and privilege in relation to their identities, with the aim of informing the design of an iGEP.

The paper is structured in four sections. Following this introduction, Section 2 briefly outlines the shift from GEPs to iGEPs in RPOs. Section 3 presents data collection strategies – with a focus on the results of a perception survey- and discusses the development of the GEP+ as a strategic tool for institutional transformation towards substantive and inclusive gender equality. Section 4 concludes the paper.

2. From Gender Equality Plans (GEPs) to Inclusive Gender Equality Plans (iGEPs) in RPOs

Over the past decade, GEPs have become a central policy instrument for advancing gender equality in RPOs. During this period, their focus has undergone significant evolution: whereas early GEPs largely prioritised achieving representative gender balance –by increasing women’s participation and addressing vertical

segregation—, the persistence of gender segregation and the continued underrepresentation of women in leadership and decision-making positions (Reuben, Sapienza, and Zingales, 2014), have underscored the limitations of formal equality approaches and the need for deeper cultural and structural transformation (Benschop and Verloo, 2011). The move towards more inclusive iGEPs has been driven by growing recognition that gender inequalities are neither homogeneous nor experienced uniformly, as the factors shaping women's careers extend beyond gender alone. Organizational structures and processes are not neutral but are embedded with interconnected practices that systematically produce and sustain inequalities across multiple axes of difference (Acker, 2026).

The concept of intersectionality was introduced by Crenshaw (1989) to capture the complexity of workplace discrimination experienced by Black women, which cannot be adequately understood through a single-axis framework as it arises at the intersection of race and gender. Since its introduction, the concept has been extended beyond gender and race to encompass other social dimensions (*Figure 1*). Despite its diverse understandings and applications, intersectionality can be understood as a paradigm, theory, methodology, and critical analytical tool that examines how multiple social dimensions intersect to shape identity, and how these unique identities interact with context-specific systems of privilege and oppression —such as racism, sexism, and classism— to produce compounded forms of discrimination, oppression and privilege (Collins, 2019; Beeckmans, Zanoni and Van Laer, 2025).

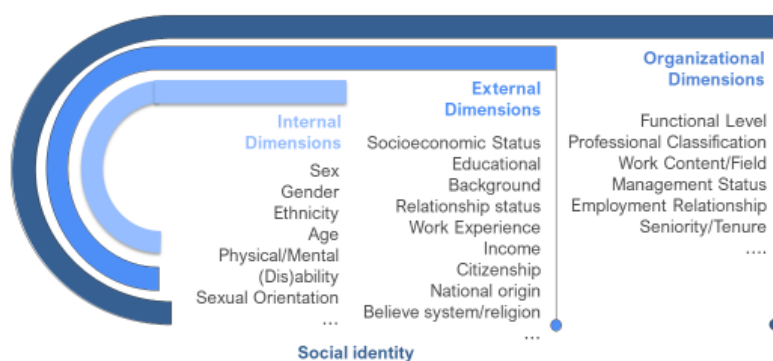


Figure 1: Identity dimensions

These categories are socially constructed and dynamic, rather than fixed attributes. Individuals may simultaneously experience marginalisation and privilege across different axes of identity depending on the context. Positionality complements intersectionality by emphasising how individuals' social locations shape not only their identities but also how they relate to others, how they are perceived and the degree of agency or vulnerability they hold within specific contexts. Positionality is neither fixed nor individual; rather, it is relational and contextual. Reflexivity involves self-awareness of positionality, interrogation of power and privilege, to identify personal biases and avoid reproducing dominant perspectives (Collins, 2019).

In the context of RPOs, intersectionality provides both an analytical tool and a normative orientation. From an analytical standpoint, it enables the identification of complex and overlapping forms of disadvantage that remain invisible in single-axis approaches, acknowledging that inequalities are neither homogeneous nor uniformly experienced, nor should they be treated separately or additively, while also drawing attention to the cross-cutting forces of privilege and oppression that shape academic career. From a normative standpoint, it calls for structural change that addresses power imbalances embedded in governance systems and organizational cultures.

Thus, intersectionality, by centring power, privilege, contextuality and relationality, provides the conceptual foundation for inclusive iGEPs. Fostering substantive equality, institutional justice and genuine inclusion within RPOs require challenging the institutional norms, power relations and evaluation systems that reproduce inequality. Consequently, inequality must be analysed as context-dependent and embedded within institutional structures (Shields, 2008). Whereas each organization constitutes a unique ecosystem, structural transformation must be thoughtful and specific to each context, employing tailored strategies to address unique institutional challenges (Wroblewski and Palmen, 2022).

Applying an intersectional approach enables the identification of measures that are more effective and context-sensitive in addressing the diverse needs and lived realities of marginalised and disadvantaged groups. Rather than privileging specific subgroups or treating inequalities as isolated phenomena, this perspective adopts a

holistic lens that recognises the cumulative and interacting effects of multiple axes of inequality - in the context of RPOs, organizational dimensions have a key influence (*Figure 1*). In this framework, inclusion extends beyond the mere diversification of representation. It entails the creation of structural conditions that ensure vulnerable and excluded groups can exercise meaningful participation, gain equitable access to decision-making processes, and attain institutional authority. In doing so, RPOs move from symbolic inclusion towards substantive equality grounded in redistribution of power and institutional transformation.

However, it cannot be ignored that these processes will face obstacles, ranging from a lack of data to identify and monitor compound forms of inequality and institutional and policy fragmentation in addressing inequalities through one-dimensional categories (Beeckmans, Zanoni and Van Laer, 2025), to barriers to change and covert forms of resistance —such as “non-performative commitment” where equality is rhetorically endorsed but not effectively implemented (Ahmed, S., 2008)—. Moving toward inclusive equality also means addressing barriers and resistance.

It is important to underline that the implementation of intersectionality in RPOs through iGEP has been driven by robust regulatory frameworks at both European and, particularly in Spain, national levels. At the European level, iGEPs are supported by binding legislation, strategic communications, programme conditionalities and evolving policy agendas that frame intersectionality as both a normative principle and a practical requirement in research and innovation (R&I) governance. Inclusive gender equality lies at the core of the EU’s vision for structural transformation within RPOs and the European Research Area (ERA), while Horizon Europe makes the existence of a GEP an eligibility criterion for RPO funding.

In Spain, this trajectory is reinforced by *Organic Law 3/2007 on the Effective Equality of Women and Men*, which establishes GEPs as a key policy instrument, and by *Law 14/2011 on Science, Technology and Innovation* (revised in 2022), which strengthens the role of GEPs in RPOs and mandates the integration of an intersectional perspective in equality policies as well as in research and knowledge transfer activities.

3. Institut de Ciències del Mar: Intersectionality in Action

The ICM — the largest marine research institute of the Spain’s leading public scientific institution, Spanish National Research Council (CSIC) —drew up its first Gender Equality Plan (2021–2024) as part of the LeTSGEPs project (Horizon 2020), in accordance with the requirements of the European Commission and Spanish legislation on gender equality. Following the implementation of this GEP, a key challenge emerged: moving beyond a gender-focused framework toward a broader, more inclusive, and intersectional approach through the development of an iGEP, while consolidating and deepening the institutional transformations already achieved. This transition from GEP to iGEP is grounded in two key process: the collection and analysis of intersectional data, and the design of the iGEP.

3.1 Intersectional Analysis: Looking for Data

At present, the ICM workforce comprises 404 staff members, 55.2% women and 44.8% men. Research staff (senior and postdoctoral researchers and PhD students) represent 54.4% of the workforce (n=220), with marked gender differences across categories: women account for 33.7% of senior researchers, 50% of postdoctoral researchers, and 69.2% of PhD students. Technical research staff (62.9%) and support and administrative staff (61.5%) are likewise feminised (*Figure 2*).

Regarding employment status, 30% are civil servants, 10% hold permanent labour contracts, and 60% are on labour contracts. Age distribution is relatively balanced across broad age groups (20–26%), except for those over 60 (10%). International staff make up 17.6% of the workforce, with approximately 65% from other EU countries, 21% from Latin America, and 8.5% from Asia. Three staff members have a formally recognised disability.

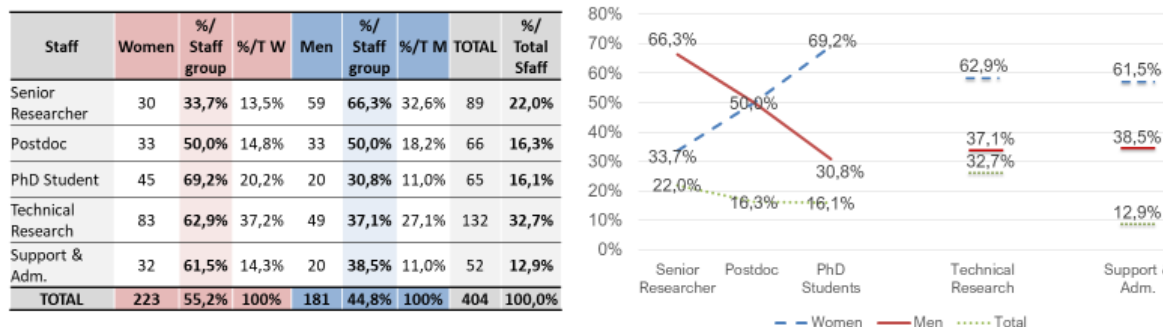


Figure 2: Staff distribution by classification groups

At the institutional level, although the range of individual data has gradually expanded, a tension persists between the protection of personal data and the need for evidence to inform the design of inclusive institutional policies and practices. In seemingly homogeneous environment, the lack of disaggregated data contributes to the invisibility of certain identities and limits the capacity to respond to persistent inequalities. Nevertheless, data alone cannot capture the lived experiences of discrimination faced by individuals with multiple and intersectional identities, which give rise to complex and layered forms of disadvantage.

The Equality and Diversity Task Force (EDTF) monitored the implementation of the GEP by collecting both qualitative and quantitative data through a comprehensive mixed-methods approach, complemented by a final evaluation of the GEP's outcomes. However, from an intersectional perspective, several limitations were identified. These include insufficient attention to certain groups—given that measures were largely focused on research staff—the top-down design of some actions, which did not fully address the needs of target groups in terms of content and implementation conditions, and the rollout of initiatives without adequately considering participation constraints faced by specific groups (e.g., due to job roles or group membership). Consequently, the benefits of the GEP were not distributed equally across all individuals and groups.

To broaden perspectives and strengthen the evidence base for the iGEP, a multidimensional assessment has been conducted addressing interrelated structural, organisational, cultural, and individual dimensions. This approach has combined research methods, including expert-moderated focus groups, self-reflective focus groups, interviews, and an institutional perception survey). Among the various data collection processes, the survey stands out not only for the volume of data gathered, but also for the discussions it generated. Launched with the aim of identifying staff perceptions and experiences regarding equality, diversity, and inclusion from an intersectional perspective, it was structured into four main sections: institutional performance, organisational culture, individual staff behaviours, and personal experience. It comprised 30 questions, many of which were multiple-choice and/or allowed respondents to provide additional specifications based on the selected options.

Participation in the survey was anonymous and voluntary, although efforts were made to make it mandatory. A total of 130 people responded (95% confidence level, 7% margin of error), 63% women (n=82), 35% men (n=45), and 2% (n=3) who did not specify their gender. Participation rates varied across age groups, professional categories, and employment status, likely resulting in the overrepresentation or underrepresentation of some groups relative to their institutional weight.

Even taking these considerations into account, the results provided ample evidence on which to base the design of the iGEP. In terms of institutional performance, the ICM scored 7.1/10 for actively promoting equality and inclusion (6.7 among women, 7.8 among men), but 6/10 regarding the adequacy of resources and initiatives supporting diverse groups (rising to 8/10 for gender equality initiatives). However, 60.8% of respondents perceive inequality in treatment and opportunities among staff, and 80.2% attribute this to at least one social or organisational factor, most commonly *professional category/group* (74.3%), *sex/gender* (41.8%) and *age* (22.9%). Other dimensions, including *nationality/origin* (12.4%), *ethnic background* (11.4%), *disability* (9.5%) and *sexual diversity* (5.7%), were mentioned less frequently, but remain significant relative to their representation within the ICM.

Related to these perceptions, half of the respondents (52.3%) reported having experienced institutional unequal treatment or discrimination, most often linked —frequently in overlapping ways— to *professional category/group* (78.8%), *sex/gender* (28.2%) and/or *age* (18.8%). Notably, clear gender differences emerge, *sex/gender* is reported by 35% of women compared to 8.3% of men, and *age* by 23.3% of women versus 8.3%

of men. These experiences span multiple domains, particularly, *professional promotion* (46,9%), *lack of visibility and recognition* (45,9%), *restricted access to positions of responsibility or decision-making* (43,9%), *remuneration* (36,7%), with some gender variation (see Figure 3).

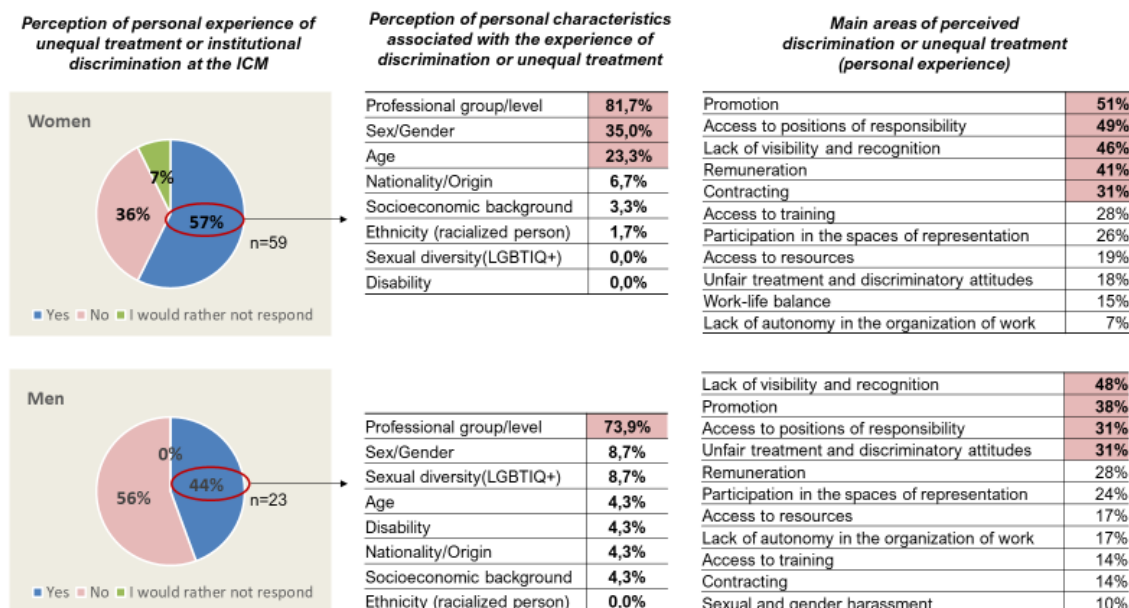


Figure 3: Perceptions about personal experience

Perceptions regarding ICM staff commitment to equality and inclusion reveals a mixed picture. Whilst half of respondents (48.5%) believe that *the majority* of staff are committed, 23.8% think that only *half* are, and 10% believe it is *a minority*. Significant differences are also observed between different groups: whilst the perception that *the majority* are committed reaches 70% among senior research staff, it drops to 29% among PhD students, and whilst it stands at 64.4% among men, it falls to 40.2% among women.

This perception is consistent with the fact that 63.8% of respondents affirm have witnessed discriminatory attitudes or hostile behaviours on the part of staff (almost 70% of women and 53% of men), directed at people from the specific *category/professional group* (77.5%), *sex/gender* (64%) and/or *age groups* (31.5%), followed, some way behind, by the *sexual diversity community* (12.4%). The expressions observed cover a very broad spectrum and reflect a wide range of experiences: *invisibility/lack of recognition* (53.9%), *unequal treatment* (51.7%), *paternalism* (47.2%) and *belittlement* (46,1%). Additional manifestations include *derogatory comments* (30.3%) and *sexist, racist or classist jokes* (36%). *Sexual harassment* is reported by 4.5% of respondents, although its low prevalence does not diminish its seriousness.

In this context, 85% of respondents identified at least one factor that limit inclusiveness, with *classism* emerging as the most prominent (65.7%), followed by *resistance to change* (52,8%), *power dynamics* (51.9%), *strong hierarchical structures* (49,1%), *unconscious gender bias* (47.2%) and *prejudice and stereotypes* (44.4%). It is worth noting here the differences in perception by gender regarding *unconscious gender bias* (women, 54.2%; men, 27.8%; others, 66.7%); and, by professional group/category, the disparity in perception regarding *classism*, reported by 73.3% of support staff compared with 45.5% of senior research staff.

Respondents rated their sense of belonging to the ICM at 7.2 out of 10. This value varies moderately by sex (7 among women, 7.5 among men, and 6.7 among those who did not report their sex), but more pronounced across professional category/groups, ranging from 8.1 among senior research staff (staff with greater decision-making power and job stability) to 6.4 among PhD students, likely reflecting contractual precarity and career uncertainty. The sense of belonging is shaped by structural (power distribution, cohesion, inclusion) and relational factors (communication, support, recognition). Among those who identify some factors (n=116), *unequal power dynamics* and *excessive individualism* (both of them, 45.7%), emerge as the main constraint, followed by *lack of support* and *meaningful participation* (both of them, 25%), *communication problems* (24.1%), and the *absence of shared goals and values* (23.3%) (see Figure 4).

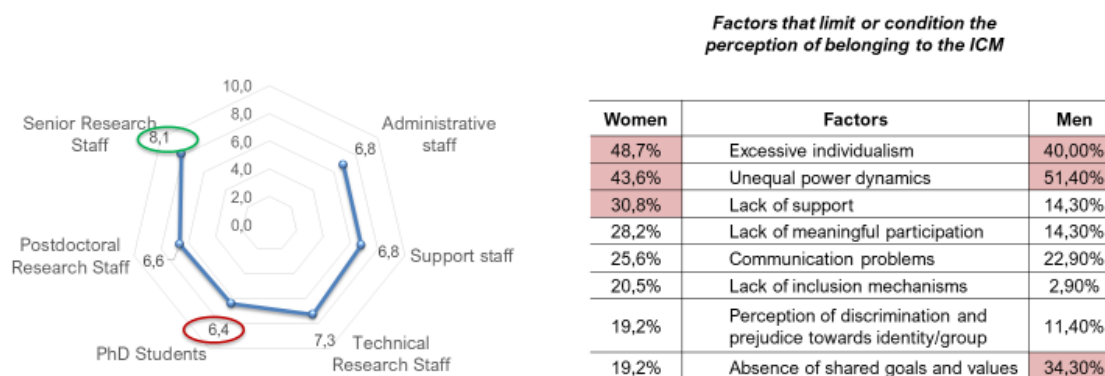


Figure 4. Sense of belonging

In light of this context, there is broad consensus on priority measures to foster a more egalitarian and inclusive institution, building on and reinforcing the previous GEP. *Awareness-raising* is the most frequently cited action (68.6%), reflecting the need to advance cultural change and address unconscious biases, stereotypes, and prejudices. *Enhancing visibility* (61%) and *expanding participation in decision-making* (50%) point to demands for greater representation and more inclusive governance. *Training* (45.8%), *targeted measures for specific groups* (40.7%), and *mentoring initiatives* (22%) further highlight the importance of capacity-building in addressing persistent inequalities.

These results are consistent with previous analyses. Progress and resistance to change coexist within an organisation still undergoing structural transformation, confirming that scientific institutions are not neutral spaces: institutional routines, informal norms, and dominant discourses continue to reproduce power hierarchies, even within seemingly cohesive and homogeneous context.

Recurrently, reference is made to classism as a structural factor that positions individuals in differentiated status hierarchies, distinguishing between those who participate in the production of knowledge —research staff— and those who remain at its periphery —support and administrative staff, and even technical research staff—, thereby generating inequalities that shape, among other aspects, access to resources, recognition, and participation. Discrimination related to dimensions such as disability, ethnic origin (racialised status), or nationality/origin is primarily identified by those affected, yet often remains invisible to others. This asymmetry highlights both the importance of amplifying minority voices and the persistent invisibility of their experiences within dominant frameworks. Moreover, such invisibility may sometimes be strategic, when individuals weigh the disadvantages associated with disclosing certain aspects of their identity.

Thus, complex and overlapping forms of disadvantage emerge, with experiences of discrimination that are neither uniform nor equally perceived. By contrast, the self-perception of privilege remains limited.

In all data collection processes, the internal roles held by the Deputy Director of Equality and Diversity and the Gender Officer —a senior researcher and a support staff member respectively, both members of the Equality and Diversity Task Force (EDTF) and participants in different decision-making bodies— combined complementary institutional positions with different degrees of influence. This positioning enabled them to navigate between institutional neutrality and situated empathy, facilitating a more nuanced interpretation of experiences of discrimination and privilege within the ICM (Collins and McNulty, 2020). Equally important was the availability of interlocutors for dialogue, as institutional action has been just as crucial to progress as the mobilisation of groups and individual action.

The capacity to identify discrimination, raise awareness, articulate demands, and push for action appears to depend largely on the level of organisation and leadership within each group. Smaller groups far removed from positions of power, face greater difficulties in being recognised and heard. In this context, creating alternative spaces for dialogue is crucial. These spaces enable the articulation of lived experiences, counteract invisibilización, and foster recognition. Making inequalities visible is a key step in challenging their normalisation and advancing claims for recognition and justice.

Collectively shared and validated, these findings provide a foundation for the co-design of the iGEP, reinforcing its legitimacy and institutional relevance. They support informed decision-making to address and reverse identified situations, enabling the prioritisation of key intervention areas and the design of targeted measures

tackling underlying causes. Moreover, the data establish baseline values for indicators to monitor and assess progress over time.

3.2 GEP+ Design: From Formal Equality to Structural Transformation

In response to this complexity, the ICM has developed a 360° Equality Strategy that articulates policies to foster a working environment where all individuals feel valued, supported, respected, and included, while recognising the diversity of identities and trajectories within the organisation. This strategy includes, among other instruments, the iGEP, the LGBTBI+ Plan, and additional inclusion measures targeting specific groups (such as persons with disabilities). These instruments are coherently embedded within the institutional framework and reinforced through their articulation with initiatives led by diverse groups, as well as through individual engagement.

Evolving from a GEP to an iGEP represents a significant challenge. Unlike the first GEP, which focused primarily on research staff, the iGEP broadens its scope to encompass all staff at the ICM. However, adopting an intersectional approach does not imply that the iGEP can address every individual circumstance or eliminate all barriers. Rather, it acknowledges existing limitations, seeks to ensure that institutional practices do not create new obstacles, and actively advances towards substantive and inclusive equality.

Within this framework, the iGEP is conceived as a comprehensive and tailored instrument providing a strategic institutional roadmap. It is structured around eight areas of intervention, each linked to specific objectives and outcomes, and operationalised through seventeen interrelated measures conceived as mutually reinforcing components for structural change. Particular attention has been given to areas where the most significant challenges have been identified, as well as to structural factors of discrimination that cut across all interventions, such as classism; while also addressing the demands and needs of different groups—responding to expectations raised throughout the process—and incorporating measures proposed during the consultation and co-creation phases (Figure 5).

In response to the identified challenges, the iGEP adopts a dual approach: cross-cutting measures to ensure equality and inclusion across all staff—so that no action, directly or indirectly, leaves anyone behind—and targeted interventions (including quotas) to address specific situations of inequality and discrimination. Measures respond both to practical needs (immediate improvements in working conditions) and to strategic needs aimed at transforming power relations and addressing both discrimination and privilege. Through this integrated architecture, the iGEP seeks to advance coherent and sustainable transformation at both the institutional level (norms, procedures, and accountability mechanisms) and the organisational culture level (shared norms, dominant imaginaries, and informal practices), while placing the recognition of diverse identities and lived experiences at the centre and promoting targeted actions at both individual and collective levels.

Numerous measures will be accompanied by ex-ante and ex-post impact assessments to ensure that implementation conditions and eligibility criteria are not exclusionary and do not generate unintended gaps. Where necessary, quotas will be established for traditionally underrepresented groups, recognising that these groups are not homogeneous and that discrimination often emerges through the intersection of multiple identities—such as gender, professional group, and age—rather than along a single axis.

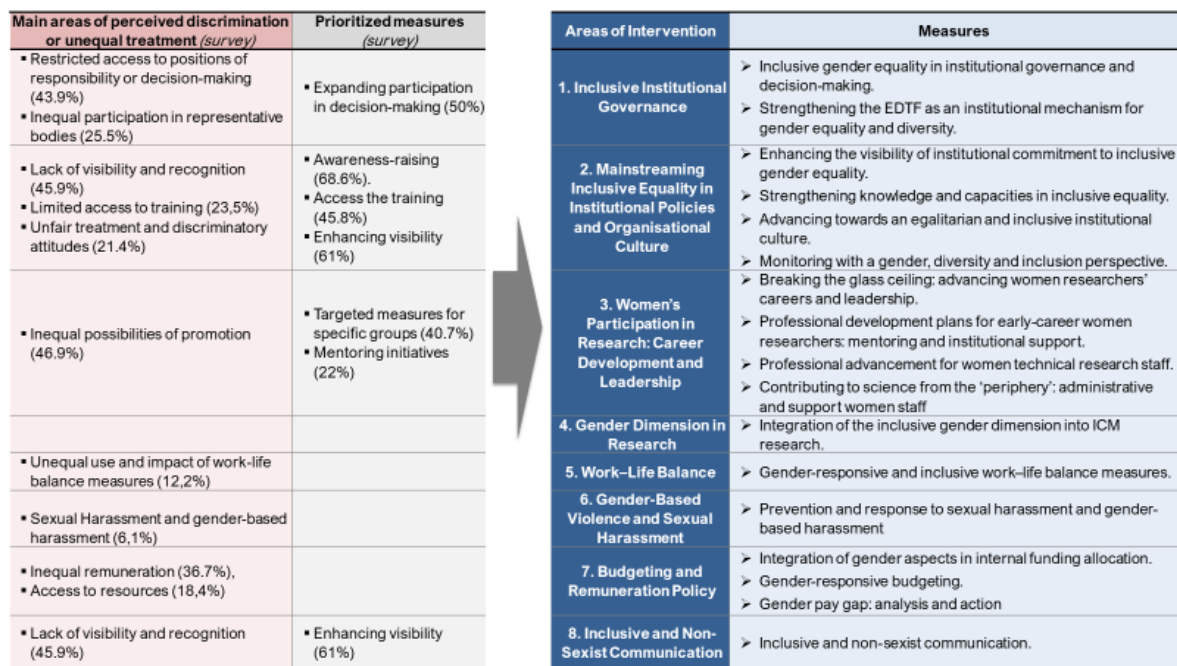


Figure 5: iGEP: From challenges to answers

With this iGEP, inclusive gender equality is embedded within the institutional structure and strategy, functioning both as a catalyst for accelerated transformation and as a lever for organisational resilience and competitiveness. Its articulation with the other instruments reinforces the 360º Equality Strategy.

The iGEP is, necessarily, conceived as a living and dynamic document, adaptable to evolving institutional context and staff integration. To support this adaptability, it incorporates a monitoring and evaluation system (M&ES) designed as a continuous and cross-cutting process to assess progress toward its objectives and expected outcomes, while ensuring quality and accountability.

4. Concluding Discussion

The experience of the ICM provides a useful lens through which to examine the transition from a GEP to an iGEP framework. Rather than constituting a simple broadening of scope, this shift can be understood as a qualitative transformation in how inequality is conceptualised and addressed within research-performing organisations (RPOs). From an intersectional perspective, gender is no longer treated as an isolated axis, but as operating through mutually constitutive relations with other dimensions of social differentiation. Inequalities thus appear as relational and structural phenomena, rather than additive ones. This analytical framework enables institutions to identify patterns of discrimination and privilege that remain obscured in single-axis approaches, thereby enhancing their interpretive capacity.

In this regard, the ICM experience suggests that embedding intersectionality within RPOs entails not only the adoption of new tools, but also the reconfiguration of institutional practices, organisational epistemologies, and governance mechanisms. Building on this case, several analytical dimensions can be identified as central to the effective integration of an intersectional approach.

First, the production of institutional knowledge through intersectional data systems emerges as a key element. Incorporating multiple identity dimensions into data collection makes it possible to capture complex and overlapping forms of inequality. However, this practice raises significant ethical challenges, particularly in relation to individuals' reluctance to disclose sensitive information due to fears of stigma or professional repercussions. Trust-building is therefore essential, grounded in transparency, confidentiality, anonymisation, and participatory validation processes. At the same time, limited data availability should not be invoked to justify inaction; rather, it calls for a careful balance between evidence generation and data protection.

Second, an intersectional approach requires questioning assumptions of group homogeneity and foregrounding the perspectives of those whose experiences of inequality are often marginalised. This involves not only creating formal and informal spaces for listening, but also ensuring meaningful participation in problem definition and solution design. Such processes also demand reflexivity regarding the positionality of those leading the analysis,

recognising the limits of perspectives shaped outside marginalised groups and linking awareness of privilege to accountability.

Third, the distinction between practical and strategic needs provides further analytical depth. While practical measures address immediate inequalities, strategic interventions seek to transform the structural foundations of subordination. This entails revising evaluation cultures, challenging androcentric or ableist assumptions about productivity, and redefining merit beyond narrow metrics. At a cultural level, it also involves interrogating dominant imaginaries of excellence, leadership, and scientific authority.

Moreover, institutional transformation depends significantly on the mobilisation of agents of change and the development of internal alliances. In the case of the ICM, structures such as the Equality, Diversity and Inclusion Task Force (EDTF) and the Deputy Vice-Direction for Equality and Diversity have played an important role. However, inclusive leadership extends beyond representation to encompass practices, decision-making processes, and cultural influence capable of challenging implicit norms about who belongs in science. Ensuring coherence among different equality and diversity instruments is equally important to avoid fragmented or competing policies and to foster synergies.

At the same time, institutional change processes are often accompanied by forms of resistance, both explicit and implicit. These may take the form of dilution, bureaucratisation, or symbolic compliance. Sustained attention to such dynamics is necessary to prevent “equality fatigue” and to maintain organisational engagement over time. Transparent expectation management and well-designed participatory processes are also critical for preserving legitimacy.

Finally, the governance of an iGEP informed by intersectionality should be understood as an ongoing and adaptive process. Continuous evaluation—combining qualitative and quantitative indicators—enables institutions to respond to evolving staff dynamics and external conditions. Such flexibility allows for the assessment of whether measures effectively reach the most marginalised groups and supports the adjustment of strategies accordingly. Embedding intersectionality within an iGEP thus strengthens both analytical depth and institutional legitimacy.

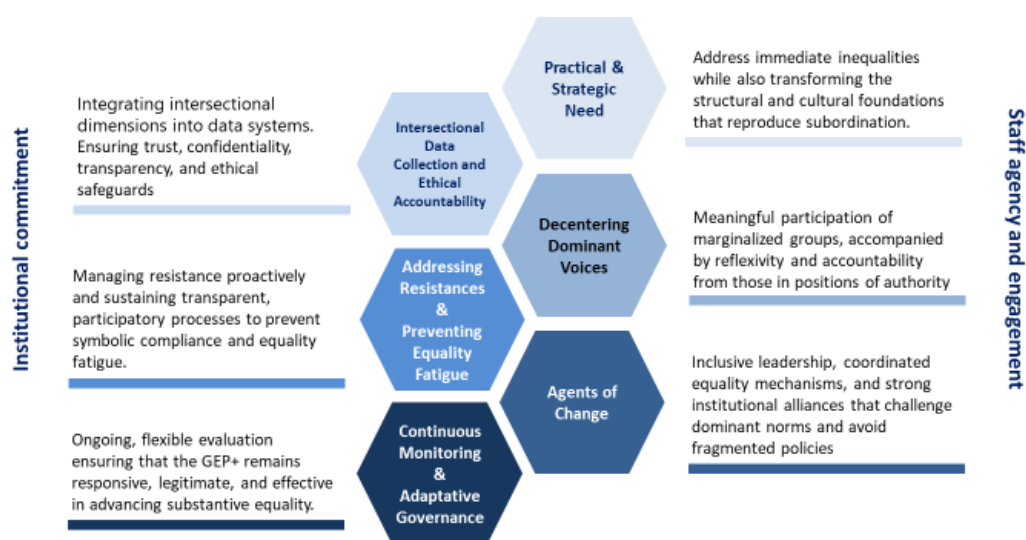


Figure 6: Strategies for embedding intersectionality in an RPO

In sum, the challenge is to design policies that respond appropriately to both the majority and minority groups and different individuals. The implementation of iGEP cannot be reduced to formal compliance, but rather involves advancing deeper structural and cultural transformations. The success, however, ultimately depends on sustained institutional commitment and the active engagement of staff, which shape both their feasibility and their transformative potential.

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Global Gender Differences in Access to Technology Support

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Abstract: Women in low- and middle-income countries remain less likely than men to own mobile phones and use mobile internet. Further, when they do have access to devices, enabling factors such as training, affordability, safety, and social support remain limited. As a result, this gender imbalance can cost the Global South over 500 billion dollars in GDP over the next five years. Our study moves beyond the common first-level access metrics (e.g. access to technology) and also focuses on examining second-level digital divides (e.g. access to technology support). We investigate gender differences in: (1) internet access and, (2) satisfaction with local technology support, across 27 countries. We analysed survey data from 2,740 respondents, collected through the 2023 C20 Grassroots Survey. We examined whether the gender disparities in technology access and support exist across national contexts and global regions, and how these patterns vary by demographic factors. We used mixed-effects regression models which control for country-level baseline differences, age, and educational attainment. The findings showed variations at the country level, wherein some countries had men reporting better internet access, and some the exact opposite. Although at the global level, with all countries combined, gender differences arose neither in internet access nor in technology support, but on disaggregating by region, we uncovered few divergences. In the Global South, women reported lower satisfaction with technology support than men, despite having similar levels of internet access. No gender differences in satisfaction with technology support were observed in the Global North, with women even reporting slightly better internet access than men. However, our strictest analyses found no gender differences in neither internet access nor satisfaction with technology support. Our findings support that the gender digital divide is not a homogenous phenomenon, that it appears differently in different places. Ground reality of women includes many intersecting constraints such as unpaid care burdens, mobility restrictions, and social norms that restrict their technology use. Without giving corresponding technology support, women would remain disadvantaged, preserving the gender gap. Access to technology should come along with culturally responsive training and support systems considering women's real-life challenges. Policymakers must recognize that bridging the second-level digital divide would require investments in social infrastructure along with the digital infrastructure.

Keywords: Gender digital divide, Technology support, Global South, Digital inclusion, Development policy

1. Introduction

Despite sustained global investments and policy efforts to close the gender digital divide, gender gaps in technology access and support persist in low- and middle-income countries. Women remain 8% less likely than men to own mobile phones, with only 83% having access to one (GSMA, 2024). This issue is exacerbated by the fact that device ownership alone does not guarantee equitable use. Even when women gain access to devices, enabling conditions, such as tailored training, affordability, safety, and social support, remain insufficient (Antonio and Tuffley, 2014; Acilar and Sæbø, 2023; UNESCO, 2024). Consequently, women remain 15% less likely than men to use mobile internet, leaving 265 million fewer women online. Among those who do use it, women engage with narrower ranges of activities than men, even among daily users (GSMA, 2024). Beyond access, gender disparities also emerge in how individuals mobilize technological support. Empirical studies from both high- and low-income contexts show that women are more likely to rely on intimate social connections for technical advice, whereas men more frequently draw on impersonal online resources such as forums or specialist pages (Coopamootoo et al., 2023; Wei et al., 2023). These gendered help-seeking patterns shape the quality, scope, and sustainability of digital engagement (Leach & Turner, 2015). The cumulative impact of these access and usage gaps is substantial: low- and middle-income countries are projected to lose over \$500 billion in GDP over the next five years (Global Digital Inclusion Partnership, 2024).

This gap reveals a critical flaw in how digital equality has been pursued: investments have prioritized infrastructure over the supportive conditions necessary for usage. The deficiency has been pointed out by recent theoretical work, which distinguishes between first-level and second-level digital divides. First-level divides concern physical access to devices and networks, while second-level divides involve digital skills, usage patterns, and outcomes (Hargittai, 2002; Van Deursen and Van Dijk, 2019). Research shows that bridging first-level gaps does not eliminate second-level disparities. Importantly, these gender disparities persist even after accounting for socioeconomic status, education, and geography, suggesting that gender operates as an independent axis of digital inequality rather than merely reflecting broader structural disadvantage (David et al., 2022; Joshi et al., 2019). Intersectional analyses further reveal that standard access metrics can mask deep capability gaps, particularly among women of lower socioeconomic status who face compounded vulnerabilities (Zheng and Walsham, 2021).

What accounts for the second-level digital divide? The literature focuses on capacity development, economic and cultural barriers. Existing training programs often fail to account for women's real-life constraints, such as unpaid care burdens, lower baseline literacy, and mobility limitations (World Bank, 2024). Empirical studies further document lower ICT self-confidence among female learners and teachers across diverse educational settings, even when objective skill levels do not substantially differ (Seng et al., 2014), reinforcing the importance of psychological and contextual factors in shaping second-level divides. Social and economic inequalities – education, income, urban residence – explain much of this gap across diverse contexts, including in Bangladesh, Brazil, Chile, Ghana, and the Philippines (Rashid, 2016; Hilbert, 2011). Cultural barriers also remain important. Women may technically have access to shared household devices but face restrictions on when and how they use devices, and experience technology as shared rather than personal resources (UN Women, 2024). Ethnographic evidence from Bangladesh shows that empowerment emerges not from access alone, but from peer networks and deliberate framing of women as technology users (Sarker et al., 2021). Confidence gaps, time poverty, safety concerns, and age-related differences in engagement with formal support systems further inhibit meaningful use (Acilar and Sæbø, 2023; Clifton et al., 2020; OECD, 2024).

Empirical research increasingly confirms that second-level divides persist even when basic access is achieved. Cross-national evidence shows that girls report lower levels of computer access at home across countries, even when controlling for socioeconomic background (Ercikan et al., 2018). Across seven low- and middle-income countries, women were 12–14% less likely than men to use mobile phones for internet access, finance, or entertainment, even after accounting for income, education, and geography (David et al., 2022). Moreover, as overall connectivity increases, gender disparities shift toward differences in digital proficiency and usage breadth. Women engage in narrower online activities and remain underrepresented in advanced digital skills and content creation (Damiani et al., 2023; Kashyap et al., 2020). Emerging evidence further suggests that gender differences extend beyond access and skills to the structure of technological support itself. Women are more likely to rely on intimate social connections for technical advice, while men more frequently draw on impersonal online resources (Coopamootoo et al., 2023; Wei et al., 2023). Female learners consistently report lower ICT self-confidence in training environments (Seng et al., 2014), and older women in particular demonstrate reluctance to engage with formal digital support systems (Clifton et al., 2020). These patterns indicate that the gender digital divide is embedded not only in infrastructure and skills, but also in the social ecology of support.

The present study advances the literature in two key ways. First, it provides an examination of gender disparities in technology access as a multidimensional construct, integrating material access with intersecting social constraints. While existing research often focuses on single-country analyses or isolated indicators, comparative evidence – particularly from underrepresented Global South contexts – remains limited. Second, the study extends prior work by examining disparities in access to local technology support. Whereas much of the literature emphasizes training programs or structural barriers, less attention has been paid to how individuals experience and evaluate the availability of support. By conceptualizing technology support as a broad metric capturing both availability and perceived adequacy, this study offers a novel lens on the social ecology of the second-level digital divide. Using data from 27 countries, we conduct a comparative analysis of gender differences in access to technology and technology support. Specifically, we ask: (RQ1) to what extent do gender disparities in technology access persist across national and regional contexts?; (RQ2) to what extent do gender differences in satisfaction with technology support persist across contexts?; and how do these disparities vary by (RQ3a) age and (RQ3b) education?

2. Methods

2.1 Participants and Procedure

The data used for the analysis were obtained from the C20 Grassroots Survey (Ustenko et al., 2025; Fakkkel et al., 2026). The survey was commissioned by the G20 in 2023 and conducted between February and March. It was carried out by an international consortium of university-based researchers using self-report questionnaires and semi-structured interviews. Participants were recruited through non-random, network-based snowballing, with the help of local academic partners in each country. For example, through university, community, and professional networks, as well as personal and social media channels. Our design prioritized inclusiveness and cross-national coverage over perfect probabilistic representativeness, which seemed appropriate for our research question(s). The full study consisted of 3,066 respondents from 51 countries. Due to the non-centralized nature of this research project, comparable to the European Social Survey and the Gallup World Poll, no official ethics approval could be obtained from an Institutional Human Ethics Committee (IHEC). However, all international ethics guidelines were adhered to, including obtaining informed consent, providing personal contact details, and a debriefing.

The final sample consisted of participants from 27 countries ($n = 2,740$), which were further categorized as either part of the 'Global North' or the 'Global South.' The 'Global North' included Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, Slovenia, South Korea, Spain, Sweden, Switzerland, the UK, and the US. The 'Global South' included Brazil, Bulgaria, China, Hungary, Mauritius, Mexico, and Russia.

The original demographics comprised participants who identified as females (68.3%), males (31.1%), or with a non-disclosed gender identity (0.7%). Due to power limitations, the study was restricted to participants who identified as either male or female. The participants were restricted to 18 years and above to compare results across countries. The youngest respondents were from China (38.7 years) while the oldest participants came from Sweden (61.4 years). More than half of the respondents held a university degree (56.6%), while others had a vocational education degree (22.9%) had completed secondary education (16.5%) or had only primary education (2.5%).

2.2 Measures

Internet Access. Participants were asked "Do you have access to the Internet?", answering on a Likert-scale ranging from 1 ("Never") to 5 ("Always"). For our analyses, internet access was used as a continuous variable.

Technology Support. Participants were asked to rate the service of computer/digital/technology assistance available in their community, on a 4-point Likert-scale from 1 ("Poor") to 4 ("Excellent"). For our analyses, access and satisfaction with local technology support was used as a continuous variable.

Gender. Participants were asked to indicate their gender as female, male, or other/prefer not to answer.

Age. Participants provided their age in response to the question "How old are you?".

Country. Participants reported their country of residence in an open-ended answer field.

Level of Education. Participants were asked "What is the level of your education?", to which they selected the most appropriate answer from 11 options (e.g., "secondary school graduate" or "trade certificate" or "Master's degree"). For power purposes, answers were clustered into "university degree" or "non-university degree" to be used as a dichotomous variable in our analyses.

2.3 Strategy of Analysis

The study adopted a quantitative methodology to investigate global gender differences in access to technology and satisfaction with technology support. Analyses were conducted in R. Respondents who were under 18 years of age, from countries that did not meet the sample size criterion, or who had non-binary or missing gender responses were excluded from the analyses.

Overall means and standard deviations were calculated for internet access and technology support. To address RQ1 and RQ2, independent samples *t*-tests were used to compare mean scores between men and women. Gender differences were first examined at the overall sample level and then explored across individual countries. An initial *t*-test assessed gender differences across the full sample of 27 countries, followed by separate *t*-tests for the Global North and Global South to examine regional variation. Country-level

comparisons were also conducted to assess gender differences in internet access and technology support for each country.

For a more comprehensive analysis, mixed-effects regression models were employed to examine the effects of gender, region, age, and education on global gender differences in internet access and technology support (RQ3a & RQ3b). Model diagnostics included checks for convergence, singularity, and random-effects stability; assessment of residuals and residual-versus-fitted plots; QQ-plots and Shapiro-Wilk tests, evaluation of intraclass correlations (ICCs) and marginal and conditional R^2 statistics; and assessment of multicollinearity using fixed-effect correlations and LM-based variance inflation factors (VIFs). This study was reported in accordance with the AXIS guidelines for cross-sectional studies (Downes et al., 2016).

3. Results

3.1 Descriptive Gender Differences by Country

In our sample as a whole, participants reported having almost always access to internet ($M = 4.78$, $SD = 0.62$), but only fair satisfaction with local technology support ($M = 2.95$, $SD = 1.35$). In the sample as a whole, no gender differences are observed in access to internet nor in access to technology support.

Across countries, considerable variation was observed. For example, men in Canada report having better internet access than women, whereas in Hungary and Spain women report having better access to internet than men. In Mexico and South Korea, men report higher satisfaction with technology support than women – while all other countries report similar satisfaction between the two genders. On the country-level, there appears to be considerable variation between countries with no clear patterns in gender differences.

Table 1: Gender differences in access to internet and access to tech support per country

Country	N_{male}	N_{female}	Gender differences in Access to Internet ^a	Gender differences in Access to Tech Support ^a
Australia	34	98	-0.08	0.06
Austria	28	36	0.08	0.26
Belgium	27	65	-0.23	0.30
Brazil	30	31	0.00	0.33
Bulgaria	34	55	-0.06	0.39
Canada	15	59	0.10	-0.11
China	31	86	0.01	0.39
Denmark	17	32	0.06	0.05
Finland	8	26	0.00	-0.96
France	64	155	-0.06	0.35
Germany	43	88	-0.10	-0.05
Greece	35	133	0.04	-0.02
Hungary	15	28	-0.73	0.08
Ireland	39	71	0.14	-0.19
Israel	30	73	0.00	-0.25
Italy	32	63	-0.18	-0.04

Country	N _{male}	N _{female}	Gender differences in Access to Internet ^a	Gender differences in Access to Tech Support ^a
Japan	28	69	-0.16	0.26
Mauritius	42	39	-0.08	-0.17
Mexico	71	97	-0.14	0.36*
Netherlands	19	75	0.04	-0.33
Slovenia	8	22	0.00	0.27
South Korea	37	61	-0.10	0.84**
Spain	21	51	-0.78	-0.11
Sweden	18	34	-0.08	-0.18
Switzerland	12	41	-0.08	0.35
United Kingdom	44	60	0.06	0.12
United States	51	179	0.04	-0.34

^aCalculated as mean score of men minus mean score of women, with a positive score indicating that men > women and a negative score indicating that women > men.

Note. Countries categorized as Global South are highlighted in grey. Countries with significant gender differences are highlighted in bold.

3.2 Descriptive Gender Differences by Region

When separating by region (i.e., Global North vs. Global South), some findings seem to emerge. In both the Global North and Global South, women no longer lag behind men in internet access (RQ1). In fact, women in the Global North report better access to internet than men – though the effect is small. Regarding access to technology support (RQ2), we find that women report poorer satisfaction than men in the Global South – but not in the Global North.

Table 2: In the Global South, women report poorer access to technology support than men – despite similar access to internet

Region	Gender	N	Access to Internet	t-value	Access to Tech Support	t-value
Global North	female	1574	4.85		2.98	
	male	659	4.78	2.43*	3.04	1.01
Global South	female	311	4.61		2.73	
	male	196	4.56	0.60	3.02	2.92**

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

3.3 Mixed-effects Estimates of Gender Differences by Region

In our final, most comprehensive analysis, we (1) controlled for country-level baseline differences in internet access and technology support, (2) included age as a covariate, and (3) controlled for educational attainment. The mixed-effects models revealed several consistent main effects (Table 3).

For internet access, participants in the Global North reported substantially better access than those in the Global South, and individuals with higher educational attainment and younger age reported better access. No overall gender difference emerged once covariates and country-level variation were accounted for.

For technology support, men reported slightly higher satisfaction than women on average, and respondents in the Global North again reported higher satisfaction than those in the Global South. Education showed a small positive association, whereas age was not a meaningful predictor.

Importantly, the interaction between gender and region was non-significant for both outcomes. This indicates that, after controlling for country, age, and education, gender differences in internet access and technology support do not differ reliably between the Global North and Global South, even though descriptive patterns suggested some regional contrasts.

As a sensitivity analysis, we reran our analyses including 41 participants from the African continent – who were originally excluded due to lack of power and lack of theoretical clustering – as members of the Global South ($n = 548$). Findings were identical, but slightly stronger regional differences (e.g., the trend significant regional differences in tech support were now significant). It thus appears that among our African participants, gender differences in internet access and tech support may be more pronounced, though this conclusion would be limited due to the small, heterogenous nature of the African subsample.

Table 3: Parameter estimates and standard errors for all predictors, including the interaction effect of gender and region, on internet access and tech support

Predictor	Internet Access	Tech Support
Intercept	4.80 (0.07) ***	2.68 (0.19) ***
Gender [male]	-0.03 (0.05)	0.26 (0.12) *
Region [Global North]	0.23 (0.06) ***	0.35 (0.19) †
Age	-0.01 (0.00) ***	-0.00 (0.00)
Educational attainment [university]	0.15 (0.02) ***	0.08 (0.05)
Gender*Region	-0.05 (0.06)	-0.20 (0.14)

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

A comprehensive set of diagnostics was conducted for both mixed-effects models, including checks for convergence, singularity, and random-effects stability; inspection of residual distributions and residual-versus-fitted plots; QQ-plots and Shapiro–Wilk tests on subsampled residuals; evaluation of intraclass correlations (ICCs) and variance components; marginal and conditional R^2 statistics; and approximate assessments of multicollinearity using fixed-effect correlations and LM-based VIFs. Both models converged cleanly, showed no signs of singularity, and demonstrated modest but meaningful between-country variance. Residual diagnostics indicated acceptable model fit given the ordinal nature of the outcomes, with no evidence of problematic heteroscedasticity or influential outliers. Fixed-effect correlations and parameter standard errors suggested no concerning multicollinearity. Overall, all diagnostics indicated that the models were well-specified and that the reported estimates can be interpreted with confidence.

4. Discussion

4.1 Theoretical Implications

This study contributes to the growing literature challenging the traditional, access-centred conception of the digital divide. Early definitions treated the divide primarily as a binary – who had access to devices and internet infrastructure versus who did not (OECD, 2001). This framing catalysed significant investments in infrastructure and device distribution globally. However, our findings reaffirm that connectivity alone does not guarantee meaningful digital participation. This aligns with theoretical critiques of access-based metrics that obscure deeper inequalities in support, skills, and agency (Van Deursen and Van Dijk, 2019; Zheng and Walsham, 2021).

At the same time, we expand the body of knowledge by showing that lack of access to technology support is one of the ways the second-level digital divide is manifested in the Global South. While overall gender gaps are not significant at the global level, disaggregating by region suggests some disparities. National and regional policies, sociocultural norms, and institutional capacity fundamentally shape the extent to which digital access translates into meaningful use.

4.2 Practical Implications

Our findings reinforce the value of gender-intentional design in digital inclusion policies. As shown in prior work, countries like Indonesia and India have implemented successful multi-dimensional interventions such as community-based digital literacy programs that directly address the constraints faced by women (Gattorno et al., 2022; Gogoi et al., 2025). These policies focus not only on physical access but also on tailoring support to women's schedules, mobility, and safety needs, while positioning them as digital leaders within their communities. These interventions reflect a key insight confirmed by our data: access to ethnological support is an important dimension of digital inequality in the Global South. Policymakers must therefore invest in social infrastructure alongside digital infrastructure, recognizing that empowerment depends on the surrounding ecosystem as much as on the device or network.

4.3 Strengths, Limitations, and Directions for Future Research

A major strength of this study lies in its comparative scope. By including 27 countries and explicitly separating Global North and Global South contexts, we are able to detect patterns that would remain invisible in aggregate data. The distinction between access and support, often blurred in digital divide research, is made analytically clear and empirically salient. Additionally, our dual focus on access and technology support aligns with calls for better disaggregation, distinguishing not only between who has access but how meaningfully they can use it (Global Digital Inclusion Partnership, 2024; GSMA, 2024).

However, the study also has limitations. The reliance on self-reported measures of technology access and satisfaction with tech support may introduce bias, particularly across cultural contexts where norms about expressing dissatisfaction differ. Another limitation relates to the educational composition of the sample. Slightly more than half of respondents reported having a university-level education, which may reflect the tendency of digitally administered surveys to reach relatively more educated participants. This limitation is in line with larger international studies, especially those that also incorporate countries where comprehensive research structures are still lacking in some ways (e.g., Global South countries), or those studies that exclusively recruit undergraduate students. Because higher educational attainment is often associated with greater digital access and confidence, this may lead to conservative estimates of gender disparities in the broader population. The presence of gender differences in technology support even in a relatively higher educated sample suggests that such gender differences may be even larger among less advantaged groups, who lack such an attenuating buffer. Future studies could aim to replicate these findings using nationally representative samples or targeted recruitment among lower-education groups. It is also recommended to systematically track non-response (and attrition for longitudinal designs).

Furthermore, future research should explore causal pathways. While our cross-sectional data highlights disparities, it does not allow us to test how access to support affects outcomes such as income, employment, or empowerment. Longitudinal or experimental designs could help establish these links and identify which kinds of technology support most effectively close gender gaps in technology use.

This study reaffirms that digital gender equality requires more than access: it requires support, safety, skills, and sociocultural legitimacy. In the Global North, access gaps are closing, but in the Global South, gaps in support continue to marginalize women from the digital economy. As global actors pursue inclusive digital transformation, nuanced, regionally grounded, and gender-intentional strategies will be critical. Bridging the second-level digital divide is not only a matter of equity but of unlocking transformative potential for half the world's population.

5. Conclusion

Throughout our research we have found that gender gaps are neither universal nor consistent across contexts; instead, structural inequalities ranging from the household to national level are main influences and predictors of digital access and support in regard to gender. This suggests that universal narratives of a "global gender divide" oversimplify a far more complex digital landscape.

These findings carry important implications for gender equality and development policy. Efforts should move beyond device distribution and prioritize the enabling conditions that make access meaningful such as affordable connectivity, culturally responsive training, and readily available technological support.

Future research should advance this work by examining causal pathways between structural inequalities, gender norms, and digital capability. Finally, there is a lack of longitudinal studies, especially those that explore

intersectional factors such as class, rurality, and age and how these influence the patterns of digital inequality that remain hidden in aggregate analyses.

Ethics Declaration: Due to the non-centralized nature of this research project, no official ethics approval could be obtained from an IHEC. However, all international ethics guidelines were adhered to, including obtaining informed consent, providing personal contact details, and a debriefing.

AI Declaration: AI tools were used to support drafting, restructuring, and editing of sections of this manuscript. All analyses, interpretations, and final decisions were made by the authors.

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Conflict Resolution Style and Psychological Gender-Based Violence in Karnataka, India

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Abstract: Gender-based violence remains a pervasive public health challenge in India, with one in three women reporting some form of violence (National Family Health Survey-5, 2021). Addressing intimate partner violence is central to global development agendas, including Sustainable Development Goal 5, which calls for the elimination of all forms of violence against women and girls. Rates are particularly high in rural areas where gender norms, economic dependency, and limited institutional support constrain women's agency in marital conflict. While structural and cultural determinants of gender-based violence have been widely studied, far less is known about how everyday conflict resolution behaviors within intimate partnerships may reinforce or reduce psychological violence. This pilot study examined the association between women's conflict resolution styles and psychological gender-based violence in rural Karnataka as preparatory groundwork for a larger community intervention. Forty-two married women participating in local self-help groups completed structured interviews assessing four conflict resolution styles – problem solving, engagement, compliance, and withdrawal – along with psychological violence, mood symptoms, financial stress, and husbands' alcohol use. Consistent with socio-ecological and feminist theories, conflict styles reflecting low power and relational disengagement were most strongly linked to psychological violence. Women who reported complying during conflict (e.g., yielding quickly, suppressing their perspective) or withdrawing (e.g., remaining silent, disengaging) experienced higher levels of psychological aggression. Engagement behaviors (e.g., escalating or becoming angry) showed a weaker and nonsignificant association. In contrast, constructive problem solving was not related to lower psychological violence, suggesting that cooperative strategies may have limited protective value when embedded within broader structural inequalities and gendered power dynamics. Contextual vulnerabilities provided additional nuance. Financial worries and mood difficulties, although prevalent, were not significantly associated with psychological violence, indicating that emotional or economic strain alone may not predict risk in this small sample. Husbands' alcohol use showed expected directional patterns: daily consumption was linked to higher psychological violence, while occasional use showed a modest inverse association. These findings align with prior research identifying alcohol as a catalyst for escalation and highlight its relevance for future intervention components. Reporting of physical violence was rare, underscoring ongoing challenges in disclosure and the need to revisit sampling strategies, interviewer training, and culturally sensitive framing before scaling up. Overall, the pilot study demonstrates that conflict disengagement – rather than overt aggression – is most strongly associated with women's exposure to psychological violence. These results support an intervention model that integrates conflict-resolution skill building with community-level norm change, institutional responsiveness, and targeted modules on alcohol use and emotional regulation. Insights from this pilot directly inform the design, sequencing, and theoretical grounding of the forthcoming multi-level intervention aimed at reducing gender-based violence in rural Karnataka.

Keywords: Gender-based violence, Conflict resolution, Rural women, Empowerment

1. Introduction

On average, 1 in 3 women in India have experienced gender-based violence (National Family Health Survey-5, 2021), showing minimal decline over the last two decades despite extensive investments in legal reform, community education, and public health interventions (Devries, 2013). Various risk factors reinforce each other. For example, economic scarcity and reliance on male income increase dependency and constrain women's agency in conflict situations (Jewkes, Levin, and Penn-Kekana, 2010); traditional and conservative gender norms continue to normalize male authority, women's subordination, and marital obedience (Jayachandran, 2021); and shame, stigma, and fear of social backlash make reporting violence highly costly, especially in collectivist, family-centered communities (Koenig et al., 2006). Furthermore, weak institutional support – including poor police responsiveness, distrust in legal systems, and lack of accessible services – further discourages help seeking (Kalra et al., 2025). Other, family-level risk factors include patriarchal beliefs, coercive control and jealousy,

communication difficulties, low emotional regulation, and dysfunctional conflict strategies as predictors of situational violence (Dorling, Onifade, and Brown, 2024). These findings emphasize that gender-based violence is not merely interpersonal but rooted in socio-structural constraints that form an ecosystem in which violence is both normalized and difficult to escape (Galtung, 1969; Dodi, 2019).

Positive conflict resolution behaviors have the potential to reshape family dynamics, provide empowerment and autonomy, and give social legitimization for (legal) support – while negative conflict behaviors on the individual level contribute to escalation and isolation. Avoidant conflict resolution – withdrawal, silence, ignoring concerns – is especially risky, producing lose-lose outcomes and hindering early de-escalation. Research shows that both psychological aggression and verbal conflict often precede physical violence (Ali 2020). Couples reporting verbal conflict are much more likely to experience subsequent physical aggression, and both very low and very high conflict frequency increase risk (Namer et al., 2024). Chronic frustration, psychological aggression, and misinterpretation of intentions can accumulate, increasing the likelihood that conflicts escalate into physical aggression (Layne 2014). Furthermore, non-adherence to prescribed gender roles – such as cooking or roaming around – was commonly cited by women as reasons for experiencing violence, especially in combination with alcohol use by husbands (IWWAGE and Ministry of Rural Development, 2022). At the same time, applying conventional conflict resolution approaches to gender-based violence is therefore considered problematic, as it overlooks the inherent power imbalance and often pressures women into reconciliation rather than safety (Jülich et al., 2024).

Taken together, existing research demonstrates that the persistence of gender-based and marital violence in India cannot be explained by individual behavior alone. Instead, it emerges from the interaction of structural inequality, cultural legitimization of coercion, and everyday conflict dynamics within intimate relationships. These intertwined mechanisms create a need for interventions that target behavior, relationships, and social norms simultaneously.

2. Previous Research

Reviews consistently show that the evidence base for gender-based violence prevention remains limited, with little consensus on effective strategies and very few interventions demonstrating sustained reductions in violence (Bott, Morrison, and Elsberg, 2005). Methodological weaknesses further constrain the field: many evaluations rely on small samples (Jewkes, 2014), lack basic rigor in design and measurement (Bott, Morrison, and Elsberg, 2005), or provide incomplete reporting on theoretical frameworks, sampling procedures, intervention components, and outcome measures (Mittal and Singh, 2020). These weaknesses make it difficult to compare interventions or identify best practices. Even major global assessments note the paucity of proven strategies. For example, a World Health Organization review found no interventions with established effectiveness for preventing sexual violence in any setting (Spangaro et al., 2013).

Few studies examine pathways at the individual, relational, or community level or identify contextual factors that shape effectiveness (Stern et al., 2020). Scholars argue that research must measure community norms and sustainable behavior rather than narrow shifts in individual attitudes, and that mental health – both as a driver and consequence of violence – remains insufficiently integrated into prevention models (e.g., Tol et al., 2019). Evaluation efforts also disproportionately focus on secondary and tertiary prevention, with far fewer rigorous studies of primary prevention strategies aimed at shifting gender norms or mobilizing communities (Kirk et al., 2017).

Community-level approaches work by shifting collective norms that legitimize violence, such as through school-based conflict resolution training or participatory gender norm change initiatives (Delaney, 2023). These models can shift attitudes and sometimes reduce violence at scale, but their success depends heavily on local commitment, sustained resources, and effective institutional convergence. Culturally specific programs in India – including self-help groups, women’s unions, and panchayat-level bodies – build solidarity and challenge patriarchal norms but face major constraints due to police inaction, stigma, and pressure to reconcile, leaving most women without reliable pathways to support (Kalra et al., 2025).

Few interventions explicitly target conflict resolution behaviors, despite extensive evidence linking dysfunctional conflict patterns to the escalation of violence. Conflict behaviors are often treated as secondary components rather than primary mechanisms of change, and most evaluations do not examine whether improvements in conflict behavior enhance women’s safety or access to community protection. There is almost no empirical work from India directly testing whether constructive conflict behaviors – such as non-aggressive responses or cooperative problem-solving – reduce marital violence or support early detection of risk. Given the persistence

of gender-based violence, the modest effects of many interventions, and the central role of relational conflict in escalation processes, conflict resolution remains an underexamined but potentially powerful behavioral pathway for prevention.

The current study precedes a larger intervention. It is therefore exploratory in nature, providing us with pilot data, guided by three central questions: (RQ1) Which conflict resolution styles are most commonly used by participants?; (RQ2) How are conflict behaviors associated with psychological violence?; (RQ3) How do contextual vulnerabilities – financial stress, mood difficulties, and alcohol consumption – relate to these conflict processes?

Based on existing research, we expected conflict engagement and withdrawal to be positively associated with higher psychological violence, and constructive problem solving to be positively associated with lower psychological violence. We also anticipated that financial adversity, emotional distress, and spouse alcohol use would be positively associated with more aggressive or avoidant conflict patterns. Rather than testing hypotheses decisively, the purpose was to identify the most relevant behavioral and contextual mechanisms to target in the upcoming, large-scale intervention. Insights from this pilot will inform the design of our training modules, guide the prioritization of conflict resolution skills within the broader self-help groups action plans, and help ensure that the full-scale project addresses both interpersonal and structural drivers of violence in a culturally grounded and systemically coherent way.

3. Research Methodology

The present study forms the groundwork for a large, multi-level community intervention that our team is advancing in partnership with Self-Help Groups (SHGs), Gram Panchayat institutions, and Gender Forums across rural Karnataka. Drawing on the AWESOME systems framework (Gressel et al., 2020), the planned intervention aims to strengthen institutional responses to violence, expand the capacity of SHG networks, and shift local gender norms through participatory, community-led training.

A total of 42 married women participated in the pilot study. Participants were recruited from rural villages already engaged with the university's ongoing SHG and social-empowerment initiatives, which provided established community connections and facilitated access. All participants identified as women and were currently living with their husbands. The mean age of the sample was 41.9 years ($SD = 14.9$), reflecting a broad adult age range typical of SHG membership in the region. Participants interviewed in person by trained staff members and university students familiar with the local languages and cultural context. Each interview lasted approximately one hour and consisted of a structured questionnaire assessing conflict resolution behaviors, psychological violence, mood symptoms, financial stress, and spouse alcohol use. Participation was voluntary, and all women were informed about the purpose of the study, confidentiality practices, and their right to withdraw at any time. Written informed consent was obtained from all participants, and no financial compensation was provided. The pilot enabled us to explore the feasibility of the survey and intended intervention.

Psychological violence was assessed using a six-item self-report scale. Participants indicated how frequently they experienced psychologically aggressive behaviors from their spouse (e.g., *"He humiliates me"*, *"He threatens me verbally"*) on a 1–5 scale ("never" to "very often"). A mean score was computed, with higher values indicating greater psychological violence. Internal consistency was good ($\alpha = .80$). Conflict resolution behaviors were measured using 20 self-report items adapted from the Conflict Resolution Style Inventory (CRSI; Kurdek, 1994). Items were rated on a 1–5 scale ("never" to "very often"). Four subscales were created by averaging 5 corresponding items each: Problem Solving reflects constructive, cooperative strategies (e.g., *"We discuss differences constructively"*); Engagement reflects hostile and emotionally escalated responses (e.g., *"I explode and get out of control"*; *"I throw insults"*); Compliance reflects submissive or yielding conflict behavior (e.g., *"I give in with little attempt to present my side"*); and Withdrawal reflects behavioral disengagement during conflicts (e.g., *"I remain silent for long periods"*; *"I withdraw and act distant"*). Higher scores represent more such conflict behaviors. All subscales had good internal consistency (between $\alpha = 0.75$ and $\alpha = 0.85$). Two items measuring depressive symptoms and two items measuring anxiety symptoms (e.g., *"I feel sad or down"*, *"I feel anxious or tense"*) were rated 0 (Not at all) to 3 (Nearly every day). Due to high correlation ($r = .72$), items were combined into a composite Mood Issues measure. Internal consistency of the four items was good (Cronbach's $\alpha = .80$). Participants were also asked about their financial worries and of their spouse, using four items (e.g., *"I often worry about money"*, *"I have little control over my finances"*). Items were rated on a 1–5 scale and averaged, with higher scores indicating more financial worries. Internal consistency of both scales was good (Cronbach's $\alpha = .85$).

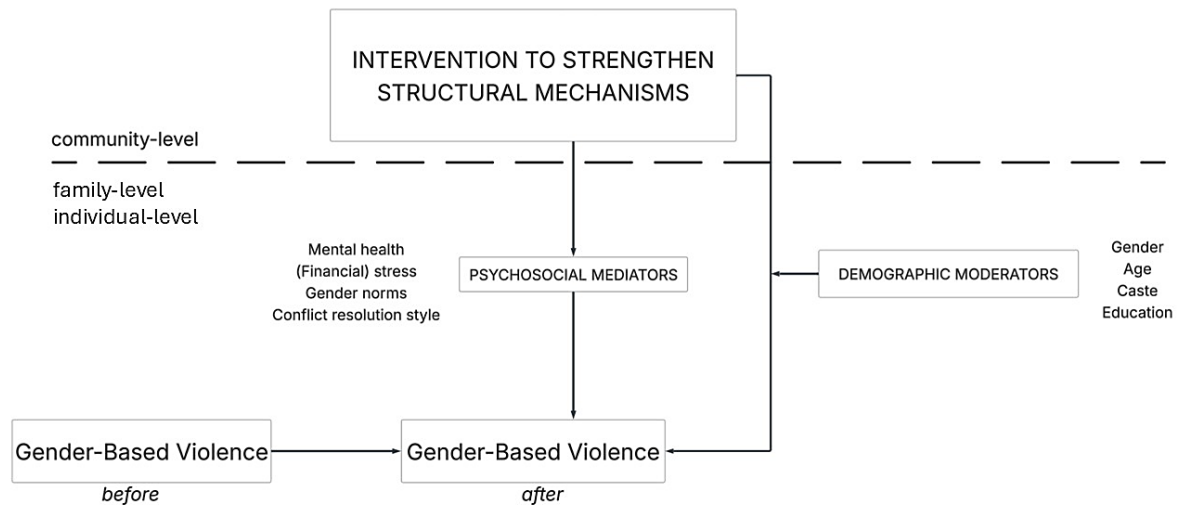


Figure 1: Overview of main intervention's targeted mechanisms

Alcohol use by the husband was measured using a single self-report item indicating how many days per month the spouse consumes alcohol. Responses were categorical, reflecting frequency of monthly use (e.g., “never,” “1–3 days,” “weekly,” “daily”). Higher categories indicate heavier alcohol involvement.

4. Results and Discussion

Across the four conflict resolution styles (Table 1), Problem Solving showed the highest mean ($M = 5.70$, $SD = 2.53$), indicating that constructive, solution-oriented behaviors were used relatively frequently by participants (RQ1). Compliance ($M = 4.71$, $SD = 2.72$) and Withdrawal ($M = 3.59$, $SD = 2.59$) were used with moderate frequency, whereas Engagement, reflecting hostile or aggressive escalation, showed the lowest mean levels ($M = 2.96$, $SD = 2.34$). Item-level distributions showed substantial variability across individuals, with the highest endorsement found for “finding mutually acceptable alternatives” and lower endorsement for overtly aggressive behaviors such as personal attacks or insults. Psychological violence levels varied widely ($M = 2.65$, $SD = 1.93$), suggesting heterogeneity in women’s current relational experiences.

As expected (RQ2), destructive conflict styles were positively associated with psychological violence (Table 2). Compliance showed the strongest association ($p = .53$, $p < .001$), followed by Withdrawal ($p = .40$, $p < .05$) and Engagement ($p = .20$, ns). These patterns indicate that women who reported more frequent yielding, avoidance, and emotional withdrawal also reported higher psychological violence. In contrast, Problem Solving was not significantly associated with psychological violence ($p = -.06$), suggesting that constructive behaviors may be used by many women regardless of violence exposure, or that protective effects may not be detectable in this small, exploratory sample.

For RQ3, we examined associations between conflict behaviors and contextual vulnerabilities. Mood Issues were positively associated with Engagement ($p = .31$) but not with other conflict styles, suggesting that emotional distress may relate specifically to aggressive or dysregulated conflict responses. Financial Worries showed small associations with Compliance ($p = .20$) but were otherwise weakly related to conflict behaviors. Spouse’s Financial Worries showed a moderate positive association with Compliance ($p = .20$) and Engagement ($p = .15$), and, as expected, were strongly correlated with women’s own financial stress ($p = .51$, $p < .001$). Husband alcohol consumption, though not part of the correlation matrix, showed a descriptive trend in expected directions: women reporting more frequent monthly alcohol use by husbands tended to report higher psychological violence and greater use of Engagement and Compliance behaviors.

Table 1: Descriptive statistics of variables of interest. All means rescored on a scale from 1-10 for ease of interpretation (except Age)

Variable	Mean	SD	Distribution
Age	41.85	14.88	
Psychological Violence	2.65	1.93	
Problem Solving	5.70	2.53	
Engagement	2.96	2.34	
Compliance	4.71	2.72	
Withdrawal	3.59	2.59	
Mood Issues	4.02	3.06	
Financial Worries	6.49	2.29	
Spouse's Financial Worries	5.29	2.68	

Table 2: Spearman correlation matrix

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Age									
2. Psychological Violence	-0.16								
3. Problem Solving	-0.20	-0.06							
4. Engagement	0.12	0.20	0.17						
5. Compliance	-0.14	0.53***	0.20	0.50***					
6. Withdrawal	0.12	0.40*	-0.19	0.47**	0.50***				
7. Mood Issues	0.19	-0.18	-0.01	0.31	0.11	0.16			
8. Fin. Worries	0.17	0.07	-0.11	0.11	0.20	-0.02	-0.02		
9. Fin. Worries Spouse	-0.01	-0.08	-0.03	0.15	0.20	0.04	0.17	0.51***	

* $p < .05$, ** $p < .01$, *** $p < .001$

The findings of this pilot study reinforce theoretical models that conceptualize gender-based and marital violence as emerging from the interplay of relational conflict patterns, structural inequalities, and culturally sanctioned norms of male authority. Compliance and withdrawal – low-power, self-silencing conflict strategies – showed the strongest associations with psychological violence, aligning with research demonstrating that avoidant conflict patterns foster escalation and hinder early de-escalation (Dorling, Onifade, and Browne, 2024). These behaviors are also consistent with Galtung's (1969) framework of cultural and structural violence, in which women's conflict disengagement reflects adaptations to patriarchal norms, economic dependency, and anticipated social backlash. The limited protective value of constructive problem solving further supports feminist critiques that relational skills alone are insufficient when power imbalances and cultural constraints remain unaddressed (Jülich et al., 2024). Interventions must therefore be grounded not only in communication theory but also in broader socio-ecological and feminist perspectives, targeting both interpersonal behaviors and the institutional context in which they occur. These theoretical insights directly shape the design of the forthcoming intervention: addressing withdrawal and compliance as core behavioral mechanisms, strengthening women's perceived legitimacy when expressing needs or setting boundaries, and ensuring that constructive behaviors are supported by responsive community institutions.

Training modules in the upcoming community intervention should therefore prioritize reducing self-silencing, shutdown, and fear-based yielding, integrating emotional-regulation strategies and behavioral rehearsal to help women remain engaged safely during conflict. Also, because constructive behaviors alone did not predict lower psychological violence, the intervention must operate at multiple levels. Women's conflict behaviors are only as effective as the institutional environment that surrounds them. This underscores the importance of

strengthening community-level action plans, referral pathways, and convergence across multiple stakeholders to provide adequate support and protection. Last, contextual vulnerabilities – financial strain, mood difficulties, and alcohol use by husbands – showed patterns consistent with prior literature, supporting the inclusion of livelihood-sensitive and emotional-regulation components. Given the known role of alcohol in conflict escalation, modules involving men and boys should incorporate norms around alcohol use, authority, and conflict handling.

5. Conclusion

This exploratory pilot study examined conflict resolution behaviors, psychological violence, and contextual vulnerabilities among rural married women in Karnataka as foundational work for a forthcoming community-level intervention. The findings underscore that withdrawal and compliance – forms of conflict disengagement shaped by structural and cultural constraints – are closely tied to psychological violence, whereas constructive problem solving alone does not offer protection when power imbalances and institutional limitations remain unaddressed. Contextual factors such as financial strain, mood difficulties, and husbands' alcohol use showed patterns consistent with socio-ecological theories and highlight the need for integrated, multi-level approaches.

Beyond mapping behavioral mechanisms, the pilot revealed important implementation insights regarding measurement refinement, interviewer training, and disclosure barriers, all of which will enhance the rigor and feasibility of the full-scale intervention. Overall, the results point to the necessity of combining interpersonal skill building with strengthened village institutions and male engagement efforts. These insights directly inform the upcoming intervention's design and provide a theoretically grounded, culturally responsive pathway for reducing gender-based and marital violence in rural India.

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Ethics Declaration: This pilot study involved voluntary, interview-based data collection with adult participants and was conducted in accordance with institutional and community guidelines. No formal ethical clearance was required for this preliminary exploratory work. All participants provided informed consent prior to participation.

AI Declaration: AI tools were used to support drafting, restructuring, and editing of sections of this manuscript. All analyses, interpretations, and final decisions were made by the authors.

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From Stereotypes to Strategy: Addressing Gender Bias in AI-Powered Marketing

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Abstract: Gender stereotyping and discrimination have long been embedded in advertising and marketing practices. Although progress has been made, it remains slow and uneven. As artificial intelligence (AI) becomes increasingly central to marketing, optimizing workflows and personalizing content, it also introduces new ethical risks. Algorithmic bias can reinforce existing social stereotypes and systematically disadvantage marginalized groups. This study investigates how marketing professionals perceive bias in AI applications and the strategies they employ to mitigate it. Drawing on qualitative expert interviews with communications managers from agencies and companies, our findings reveal a wide spectrum of awareness: while some view bias primarily as a reputational risk, others recognize it as a profound social issue. Inclusive communication is understood both as a moral obligation and a strategic choice yet often lacks institutional support or systematic evaluation mechanisms. Our analysis highlights that bias is not solely a technical flaw in data or models but can be structurally embedded in creative processes. Interviewees identify team diversity, collaborative feedback loops, critical prompting, and institutionalized spaces for reflection as key practices for fostering inclusivity. However, constraints such as limited time, budget, and organizational commitment frequently hinder consistent implementation. We argue that bias management must be integrated into a broader, ethically reflective marketing strategy. Only through the deliberate convergence of technical, creative, and ethical competencies can AI be harnessed to promote socially responsible and inclusive marketing.

Keywords: Artificial intelligence (AI), Gender bias, Marketing ethics, Communication, Expert interviews

1. Introduction - AI in Marketing Between Efficiency and Ethics

Gender stereotypes have long shaped marketing practices, influencing how products are presented and to whom they are targeted. With the rise of artificial intelligence (AI), these dynamics are not disappearing. Instead, they are being reconfigured and, in some cases, amplified. Understanding how gendered patterns persist or evolve in algorithmic systems is therefore crucial for assessing both the opportunities and risks of AI-driven marketing.

Marketing is at a historic turning point: artificial intelligence (AI) is fundamentally reshaping strategies, creative processes, and audience communication (Haleem et al, 2022, p. 120). Algorithms, once limited to data analysis and automation, now influence not only who sees which content but also how reality is constructed through images, language, and narratives. While efficiency gains make AI systems highly attractive from an economic perspective, they also introduce significant risks.

Central among these risks are algorithmic biases that reproduce gender stereotypes, reinforce existing inequalities, and systematically disadvantage marginalized groups (Turner Lee et al, 2019). This is because AI identifies patterns in data but lacks understanding of the people and motivations behind them (Kozinets and Gretzel, 2021, p. 157). Unlike human judgment errors, AI-related biases are amplified by the scalability of digital systems and remain largely invisible in everyday marketing. Algorithmic outputs are often perceived as “neutral” or “objective,” while the social and technical conditions shaping them go unexamined.

Strategy development with AI therefore takes place within a kind of a “black box” where marketing professionals are excluded from key stages and risk losing influence over decision making. This raises a critical question: how do agencies and companies navigate the tension between efficiency and social responsibility? Marketing in the age of AI must not only leverage technological innovations effectively, but also address fairness, representativeness, and justice—because marketing content constructs normative realities and influences their persistence or transformation (Flowers, 2019).

This study takes these issues as its starting point. It explores how practitioners perceive bias in AI-supported marketing, what strategies exist to identify and mitigate it, and where structural barriers persist. The aim is to bridge the gap between technology-driven optimization and critical reflection in everyday practice, offering guidance for responsible, diversity-sensitive marketing in the era of algorithmic systems.

2. Causes and Social Relevance of Biased Algorithmic Marketing Decisions

Bias refers to a systematic distortion in decisions or outcomes that is not based on objectively justified differences (Turner Lee et al, 2019). In marketing practice, this can manifest in the over- or underrepresentation of certain groups, cultural misinterpretations, language preferences, or the reproduction of social stereotypes (Fui-Hoon Nah et al, 2023). When gender stereotypes enter this equation, they shape how products are marketed and to whom, often reinforcing traditional roles and expectations. In AI-driven systems, such distortions typically stem from three main causes:

- **Human biases:** Stereotypes and social prejudices are deeply embedded in social structures (Kuck, 2023). If these implicit assumptions are reflected in datasets or algorithm design, AI systems can adopt and even amplify them (Turner Lee, 2018, p. 255). This creates self-reinforcing feedback loops. For example, if women are historically targeted for household products and click on such ads more frequently, algorithms will continue to prioritize these ads for women, perpetuating gendered consumption patterns. Other user groups may remain invisible (Turner Lee et al, 2019).
- **Incomplete or unbalanced training data:** A lack of representativeness in training datasets is another key issue (Jain et al, 2023). If certain demographic groups, such as women in leadership roles, are underrepresented, algorithms replicate these gaps in decision-making. This problem is often compounded by limited diversity in development teams and insufficient transparency about data origins (Zhou et al, 2023, p. 2).
- **Unreflective use of proxy variables:** Even when sensitive attributes like gender are excluded to ensure fairness, algorithms may rely on proxy variables to infer group membership (Angwin and Parris, 2016). For instance, height, weight or purchasing behavior can indirectly signal gender, influencing ad targeting and reinforcing stereotypes.

Currently, AI's largest application in marketing lies in operational implementation, particularly in advertising and sales (SRH Berlin University of Applied Sciences, 2023). Automated content creation plays an increasingly central role (Chui et al, 2023), with generative AI widely used for text and image production. Given that marketing content shapes consumer perceptions and norms, AI-driven outputs have significant social impact (Zhou et al, 2023, p. 10). Research has repeatedly demonstrated biases in these systems (Rivas and Zhao, 2023, p. 378; Wach et al, 2023, p. 12). For example, facial recognition technologies exhibit higher accuracy for men and lighter skin tones, while error rates peak for Black women (Buolamwini and Gebru, 2018, p. 3). Generative AI, widely used in marketing, also reflects bias. For example, prompts such as "happy family" often produce images of white families (Bianchi et al., 2022, p. 1495), and professional roles like surgeon or nurse are frequently gender-coded.

Biases extend beyond content creation to ad placement. For instance, automated ad delivery can perpetuate discrimination (Varsha, 2023, p. 4). Turner Lee et al (2019) found exploitative credit card offers disproportionately targeted at African American consumers, while Hao (2021) showed Facebook job ads skewed by gender with technical roles favoring men. Even distribution policies reveal structural bias. Amazon's exclusion of certain neighborhoods from same-day Prime delivery, based on profitability metrics, disproportionately affected socioeconomically disadvantaged, predominantly Black areas (Ingold and Soper, 2016). These examples illustrate how AI in marketing can unintentionally disadvantage specific groups, including women, without explicit intent to discriminate. Addressing these biases is essential—not only ethically but also legally and reputationally (Turner Lee et al, 2019). Companies must ensure AI-supported decisions are inclusive and fair (Rivas and Zhao, 2023, p. 379).

Because marketers rarely influence algorithmic architecture directly (Kozinets and Gretzel, 2021, p. 159), they must critically assess outputs and implement safeguards. Conventional algorithms allow bias detection through comparative testing across groups (Turner Lee et al, 2019). But generative AI poses greater challenges, as outputs lack an objectively correct benchmark (Zhou et al, 2023). Instead, practitioners must identify patterns that signal bias, particularly gendered representations, while recognizing that biased outputs themselves reinforce stereotypes.

Against this backdrop, key questions arise: How do marketing practitioners perceive these challenges? To what extent are they aware of algorithmic bias, especially gender-related distortions? What strategies exist to identify and mitigate such biases, and what barriers hinder implementation? This study seeks to illuminate these underexplored aspects from the perspective of marketing professionals.

3. Methodology

A qualitative research design was chosen to explore how marketing professionals perceive and address AI-related distortions, with particular attention to gender bias. This exploratory approach enabled in-depth insights into subjective interpretation patterns, experiences, and strategies.

The empirical basis consists of eleven guided, semi-structured expert interviews with marketing and media managers, including content creators, strategy specialists, and representatives of communications agencies (see Table 1).

Table 1: Anonymized overview of the experts surveyed

Expert 1	Freelance Art Director and AI-Artist
Expert 2	Senior Art Director, Visual and Conceptual Artist
Expert 3	Managing Director, Publishing and New Media Communication Design, Professor of Media Design
Expert 4	Innovation and Motion Designer Lecturer for Audiovisual Media, Motion Design Analytics, and VFX/CGI/Compositing
Expert 5	Managing Director PR and communications agency
Expert 6	Creative Director and Organizational Consultant
Expert 7	Owner and Graphic Designer Advertising Agency
Expert 8	Owner of graphic design agency
Expert 9	Senior Art Director Graphic design agency
Expert 10	Executive Manager Event Agency
Expert 11	Executive Manager Event Agency

Participants were selected through purposive sampling. Selection criteria included practical experience with AI and strategic or operational responsibility for data-driven communication decisions within their organization.

Interviews were conducted via video conference between October and December 2024, lasting 45 to 60 minutes each. All sessions were recorded and transcribed with participants' consent. The interview guide covered four thematic areas:

1. Understanding, experiences, and handling of bias in marketing communications
2. Use and implementation of AI technologies
3. Perceptions and practices in addressing AI-related biases
4. Strategies for identifying and reducing bias (with and without AI)

Data analysis followed Mayring's (2022) qualitative content analysis. Coding was iterative and theory-driven: initial categories were derived from research questions and literature, then refined inductively during analysis. To enhance interpretive rigor, interim evaluations were discussed within the research team until consensus was reached. Quality criteria included transparency, interrater reliability (sample checks), and systematic reference to original quotes. The key findings and implications are presented in the following chapter.

4. Results

4.1 Attitudes Toward Gender Bias and Diversity-sensitive Communication

The interviews revealed varying levels of awareness regarding bias in marketing. Not all experts were familiar with the term; some admitted needing clarification. Those who understood it correctly described bias as a distortion rooted in habitual perceptions that are unconsciously treated as "standard" (Expert 1). However, this reflective view was rare. Most respondents associated bias primarily with inclusive communication practices, and gender, along with gendered language, was the first and most frequently mentioned topic. It also emerged as the most controversial.

Several experts emphasized the importance of representing gender diversity in marketing content. For some, inclusive communication was seen as a moral and social obligation as well as a strategic necessity: "In this fast-paced, highly globalized world and with the rapid exchange of communication between brands and consumers, you can no longer afford not to act ethically. Consumers demand it. [...] As agencies, we are at the forefront of this very process of creation. We must always ask ourselves what we are causing and how much power we have"

(Expert 5). Others expressed skepticism, viewing gender-sensitive communication as excessive or performative: "People have just become so hypersensitive in recent years and now perceive everything as an affront or a personal insult" (Expert 7).

Between these positions, a pragmatic stance emerged. Some practitioners warned against tokenism or unrealistic portrayals: "That perverts the issue again [...] if it's really the token black person or something like that. One should not overshoot the mark or portray an overly diverse ideal world" (Expert 1).

Interestingly, several respondents argued that marketing should reflect the perceived reality of the target group, even if that reality lacks diversity. For example: "A small contracting business doesn't see itself represented when two of the four people are women and one is dark-skinned; that doesn't fit" (Expert 8).

In further discussion, many experts noted an East-West divide, an urban-rural divide, and an age divide. Diversity-conscious communication, including gender sensitivity, was considered more important in western Germany, in large cities, and among younger people: "If you live in the city, you are confronted with this issue, you deal with it, you think about it. Those who live in rural areas don't think about it, and schools don't communicate these issues" (Expert 11). "We are different in the east than in the west when it comes to such issues. But I also know agency colleagues who are based in the west, where this is a huge topic" (Expert 7).

All respondents confirmed that topics such as bias and diversity are gaining importance in the communications industry, though not all viewed this positively. Some questioned whether inclusive communication is inherently valuable, perceiving it instead as a strategic positioning tool: "I think it always depends on the extent to which worldview should be conveyed in one's attitude" (Expert 9).

Overall, gender bias was recognized as a relevant issue, but opinions diverged on whether addressing it is an ethical imperative, a marketing trend, or a strategic choice. While some see diversity as essential for brand credibility and consumer trust, others fear alienating traditional audiences or creating artificial representations.

4.2 Dealing with Bias and Best Practices for Avoiding it

The interviews revealed a range of approaches to addressing bias in marketing processes. Several structural factors influence how agencies handle the issue. Creative scope often depends on the type of service provided and client specifications: "In PR, we are perhaps a little behind the people who actually run the campaigns" (Expert 5). "At the end of the day, [the client] pays the piper, as the saying goes. So, they decide what gets played" (Expert 11). In some cases, client restrictions were even cited as reasons for excluding diversity considerations altogether. At the same time, respondents noted that clients often fail to embody the diversity messages they promote: "You often encounter clients who put diversity at the forefront of their marketing message only, but that's not diversity. The marketing message is created faster than reality can catch up" (Expert 11).

Time pressure and budget constraints were frequently mentioned as barriers: "You have to put everything into context, and you're not paid to spend eight hours on it, but rather one minute" (Expert 10). Despite these limitations, many agencies increasingly see themselves as consultants rather than mere service providers: "As agencies, we are a creative spearhead. We are not just hired to take work off the client's hands. Our job is also consultancy and other ways of thinking that corporations or medium-sized companies often don't have due to their day-to-day business" (Expert 5).

Most respondents acknowledged that bias inevitably influences creative work: "That's always the case in the creative process" (Expert 11). "My bias, shaped by my experiences, upbringing, and view of the world, inevitably influences my work" (Expert 2). At the same time, strategies for dealing with bias ranged from avoidance to proactive inclusion.

But despite growing sensitivity, systematic guidelines remain rare: "There are no systematic discussions or guidelines on how to deal with bias consciously" (Expert 4). Experts identified reflexivity as a key strategy: "I trust my expertise and know-how, based on the situations I have been through" (Expert 5). Internal team exchange was highlighted as a best practice: "That's why it's usually not just one person doing it, but the whole team" (Expert 11). However, some respondents warned against overly aggressive diversity messaging, which can trigger resistance: "This always leads to people developing a guilt/shame complex, which then leads either to withdrawal or to going on the offensive. Then you no longer have an exchange, but only a clash of opinions" (Expert 6).

4.3 AI Usage

All experts surveyed had prior experience using AI tools, whether for research, writing, translation, image generation and enhancement, or even voice synthesis for events. AI was primarily valued for generating ideas and inspiration rather than producing finished content. Respondents consistently described AI-generated communication as overly polished and standardized, often lacking individuality or cultural nuance: "I actually deleted a third of it [...] because it was just meaningless filler, nothing more" (Expert 7). Beyond stylistic concerns, respondents questioned AI's ability to replicate expertise acquired through years of professional experience: "AI saves you from wading through the mud. Instead of wading through three meters of mud, you only have to wade through one meter. But you still have to wade through it, because otherwise you have no idea, otherwise you're not an expert" (Expert 5). This belief in the irreplaceable value of human expertise was deeply rooted. Many practitioners expressed doubts that non-experts could produce high-quality communication using AI alone. Excessive reliance on AI was perceived as a threat to professional identity: "My claim is actually that the basic idea is mine. Otherwise, I would feel stupid at some point. You have nothing to be proud of if you don't create anything yourself anymore" (Expert 7). Despite these reservations, AI was widely appreciated for its efficiency benefits: "But this way, you can deliver much higher quality work in less time [...] Everyone is happy, and in the end, the customer pays less" (Expert 7).

4.4 Recognition of Gender Bias in AI Outputs

Biased AI results were occasionally noticed by respondents, but typically only upon closer inspection and without deeper reflection. For example, one interviewee initially accepted the stereotypical image of a "young, slim, pretty, blonde, white woman" (Expert 10) as completely natural, only later realizing its problematic nature. This illustrates how hegemonic ideals such as whiteness, youth, and beauty often go unchallenged in automated content creation.

Some respondents even expressed discomfort with diverse representations, perceiving them as artificial or restrictive. This suggests that inclusive communication is still considered optional rather than standard in many contexts: "Let's say you have a job to create a setting for a German company where the people involved are primarily white, light-skinned people. [...] There are databases that, of course, always and forever depict multiracial groups. [...] With all due respect for freedom and against distortion, that can sometimes rub you the wrong way" (Expert 8).

4.5 Strategies for Preventing Gender Bias in AI-assisted Workflows

AI is widely valued for its ability to generate ideas quickly, and it is often used by individuals working alone. This solitary workflow increases the risk that stereotypical suggestions such as gendered portrayals slip into the process unnoticed. To counter this, respondents emphasized the importance of a second phase in which drafts are brought "into the room" and critically reviewed with colleagues and clients: "Creative work is never done by a single person. It always has to be a process, and multiple perspectives always have to be brought to the table" (Expert 10). Teamwork and the comparison of diverse perspectives were consistently described as the most effective bias filters.

For such exchanges to work, a culture of trust is essential. When team members feel secure, they are more likely to question their own assumptions and accept counterarguments. Managers should therefore actively create spaces for open dialogue through regular retrospectives, feedback sessions, and clearly articulated values to make bias visible before it shapes the final product: "You really have to sit down and look at what we've experienced and why things happened the way they did. Why did they go so wrong or so right? What could have been different? You really have to ask yourself these questions and figure it out together" (Expert 6).

Another key strategy is demystifying technology by framing AI as a neutral tool rather than an autonomous decision-maker: "AI is a tool, a machine. [...] The error always lies with the prompt" (Expert 1). This perspective shifts responsibility back to the human operator. If diversity, including gender representation, is desired, it must be explicitly formulated in the prompt. Clear guidelines on gender, age, and cultural background can reduce stereotypical outputs from the outset. While precise prompting does not replace human review, it significantly lowers the risk of bias entering the creative process.

4.6 Expectations for the Future

In the agencies surveyed, generative AI is already firmly integrated into the early stages of the process: it supports ideation, pitch development, and initial conceptual drafts. However, its output is still considered inferior for final products and is routinely curated or redesigned by humans. Despite these limitations, experts

agree that system performance will continue to improve. Future applications will require models to be fine-tuned to customer-specific brand identities, communication guidelines, and organizational values: "But if there's a bot behind it that's really well briefed on your customer or your own company, then those things will start to churn out really awesome texts" (Expert 5). This outlook highlights a shift toward co-creative human-machine interaction. Respondents anticipate that specialized AI professionals will become part of agency ecosystems: "We won't be able to do everything ourselves; that will never work. It's not a one-man show with computer support" (Expert 11). Instead of purchasing fewer external services, agencies will restructure their outsourcing: "We have to recognize that a new profession or activity is emerging that is different. There will be experts in creating AI-generated images" (Expert 5).

However, as agencies delegate more tasks to AI, human feedback loops shrink. This increases the need for individual self-reflection, as collective correction mechanisms become less effective: "You have to challenge everything you get out of it, again and again" (Expert 10).

For gender-sensitive communication, this means practitioners must consciously examine their own assumptions and biases, especially when automated outputs risk reinforcing stereotypical norms. The future of AI-assisted marketing will depend not only on technical refinement but also on the ethical and reflective capacities of those who use it.

5. Discussion

From a cognitive psychology perspective, perception is never neutral; it follows learned heuristics and culturally shared norms. In marketing practice, this "cognitive shortcut" manifests in seemingly self-evident imagery (young, white, slim), in gender-specific language, or in stereotypical associations of milieus and consumer needs. Yet the experts surveyed primarily focus on visible output ("Do we represent everyone?") rather than the unconscious processes shaping that output. This narrows awareness from an epistemic level to a purely production-technical one.

Attitudes toward bias span a broad spectrum: from outright rejection ("hypersensitivity") to pragmatic balancing acts to explicit ethical commitment. Contextual differences (East-West, urban-rural, generational) further reinforce these divergences. Almost all respondents cite "inner attitude," education, and life experience as their compass against bias. Reflective self-examination, whether spontaneous ("gut feeling") or methodical ("design thinking loop"), is considered essential for minimizing bias. However, this personalization has an ambivalent effect: while it underscores professional autonomy, it shifts responsibility from systems to individuals. A lack of diversity checks is interpreted as a personal competence gap rather than an organizational shortcoming. This creates structural blind spots: selective attention exists, but formal mechanisms are largely absent. Without institutional safeguards, there is a risk of a vicious circle in which those who overlook certain groups do not even notice their own blind spots.

The communicative power imbalance persists: bodies and realities that are not shown in media and marketing remain invisible. At the same time, clients fear that overly diverse "ideal worlds" may appear moralistic or artificial. This tension between representation ethics and market logic often results in tokenism—diversity as a compulsory exercise that provokes resistance when not embedded in brand and organizational context.

Artificial intelligence amplifies these dynamics. Even the choice of words in a prompt creates semantic spaces; language structures reality before the first image appears. The link between reflection and prompt design becomes clear: only those aware of their own cultural assumptions can brief AI to generate diverse and realistic outputs. Because models rely on historical datasets, they replicate existing distortions while reducing human control, especially under time and budget pressure. This creates a triple risk constellation: black-box logic, diminished collective reflection, and acute efficiency demands.

Structured team exchange remains the most effective antidote: design thinking sprints, peer reviews, and multi-eyes principles ensure multi-perspectivity even under tight deadlines. Inclusion is more likely to succeed when it emerges from voluntary, dialogical processes rather than prescriptive mandates; reactions to AI-driven diversity efforts range from skepticism to resistance. The first step is to frame inclusive communication as enrichment rather than restriction. Bias awareness must remain voluntary, but organizations should provide explicit frameworks (time, budget, and tools) to support it. These findings echo Turner Lee et al (2019), who advocate for team diversity and cultural sensitivity in decision-making.

There is no simple solution because bias is inherent in the creative process, with or without AI. What is needed is a combined approach: awareness-raising, space for reflection, formalized procedures, and new skill profiles

such as prompt engineers or AI ethics consultants who align ethical and economic goals. Only the integrated combination of individual self-assessment, precise prompting, institutional safeguards, and collaborative review loops can prevent efficiency gains from reinforcing stereotypes or creating new forms of tokenism. Bias is systemic; addressing it requires interdisciplinary, process-oriented strategies and remains a central challenge for research, education, and practice development.

6. Recommendations for Action

To effectively mitigate the risks outlined above, agencies should begin by implementing an awareness program that addresses both the cognitive and technical dimensions of bias. Short training sessions can clarify what bias means (psychologically, culturally, and algorithmically) while introducing the basics of critical prompting. The goal is to establish a shared vocabulary and a minimum level of sensitivity among all project participants. This knowledge base should inform the development of a code of ethics that anchors practical tools such as briefing checklists (including gender and diversity criteria), structured review loops, and periodic audits. In this way, bias management becomes an organizational responsibility rather than an individual burden.

A simple but effective measure is the dual-control principle: every AI-generated design should be reviewed by at least two reviewers with different technical backgrounds and two with different cultural perspectives. This “2 + 2 rule” ensures multi-perspectivity even under time pressure. To prevent reflection from being sacrificed for efficiency, agencies should allocate fixed time and budget buffers for retrospectives, external input, and corrective measures. Creating communication spaces outside of project work, such as regular feedback rounds and open forums, combined with diverse teams fosters a culture where bias can be openly discussed and addressed.

Transparency is another key pillar. Every published content should disclose whether and which AI tools were used. Systematic documentation, including the tool, core prompt, and parameters, serves internally as a learning archive and externally as a signal of trust. Taken together, awareness building, institutional guidelines, diverse review loops, scheduled reflection time, and disclosure form a practical framework that enables efficiency gains without reinforcing stereotypes or creating tokenistic representations.

These recommendations align with the principle of human-in-the-loop: responsibility remains with humans, ensuring clear ethical accountability. Ultimately, preventing gender bias in AI-assisted marketing requires a combination of education, structural safeguards, and collaborative processes, not only to protect against distortions but to actively promote inclusive and authentic communication.

7. Conclusion and Outlook

This article demonstrates that bias in AI-supported marketing is not a marginal technical issue but a profound ethical, strategic, and organizational challenge. Distortions arise less from technology itself than from socially entrenched patterns of perception, insufficient space for reflection, and a lack of institutional safeguards.

The topic is particularly relevant at the intersection of creativity, efficiency, and responsibility: marketing professionals act not only as producers of economic messages but also as co-creators of cultural representation. This dual role creates a responsibility both for content design and for the selection, management, and control of algorithmic systems.

Effective bias management requires an integrative approach that combines individual awareness, collaborative processes, and organizational frameworks. Ethical reflection must be deliberately embedded in technology-supported creative workflows to ensure that AI's potential is harnessed without reinforcing gender stereotypes or other social biases. Innovative marketing in the age of AI will not be measured solely by technological performance but by its ability to deliver ethically informed, inclusive design.

Looking ahead, this calls for interdisciplinary strategies: structured team exchange, formalized review loops, and new professional roles such as prompt engineers and AI ethics consultants. These measures can help balance efficiency gains with cultural sensitivity. Bias is systemic; addressing it demands continuous research, education, and practice development—making it a central field for future work in marketing and communication.

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A Competency Framework for Teachers to Support Gender-Fair and Inclusive Teaching

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Abstract: This paper presents the development of a competency framework aimed at supporting gender-fair and inclusive teaching. Drawing on research on educational justice, gender bias, and intersectionality, fairness is conceptualised as a multidimensional professional competence encompassing distributive, procedural, and interactional justice. The framework was developed through an iterative process combining literature review and collaborative work with researchers, teacher educators, teachers, and policy makers from several European countries. Initially structured around five domains of teachers' work, it was subsequently expanded to include four additional domains addressing professional learning, institutional context, societal awareness, and external partnerships. By articulating fairness across classroom practices and broader educational environments, the framework provides a structured basis for research, teacher education, and the development of assessment tools grounded in authentic professional situations.

Keywords: Gender fairness, Inclusive teaching, Teacher competences, Competency framework, Equity in education

1. Introduction

Gender equality is a central objective of contemporary education systems, yet research consistently shows that gender bias persists in everyday teaching practices. From early schooling onwards, teachers' expectations, interactions, and feedback can reproduce gendered norms and contribute to unequal learning experiences and educational trajectories, particularly in domains such as STEM (Sadker, 2009). International reports confirm that these inequalities are not merely individual but are embedded in classroom practices and school cultures (e.g. Evagorou et al., 2024). Large-scale studies highlight persistent gender gaps in confidence, participation, and aspirations, pointing to the role of teaching practices in shaping pupils' perceptions of what is possible or appropriate for them (OECD, 2019; United Nations Educational Scientific and Cultural Organization, 2021). As a result, promoting gender-fair education requires more than formal equality; it calls for teachers' active engagement in recognising and counteracting stereotypes and power relations in daily professional situations.

Research further shows that gender bias in teaching is often implicit and situational, emerging in moments that require professional judgment rather than the application of explicit rules (Doyle et al., 2024; Gillborn, 2015). Feminist and intersectional perspectives emphasise that gender intersects with other dimensions such as socio-economic background, migration, disability, or gender identity, producing complex and differentiated forms of inequality in educational contexts (Bešić, 2020; Crenshaw, 1989). Despite broad agreement on the importance of gender-fair and inclusive teaching, there is still limited consensus on how the corresponding professional competences should be defined, structured, and operationalised. Existing approaches often focus on attitudes or general principles, without capturing how teachers mobilise knowledge, skills, and dispositions in concrete classroom situations (Banks & McGee Banks, 2019; Darling-Hammond, 2017). Addressing this gap, the present study proposes a competency framework for teachers and teacher educators that conceptualises gender-fair and inclusive teaching as a multidimensional professional competence, providing a structured basis for research, professional learning, and the development of assessment tools grounded in fair educational practice.

1.1 Fairness and Justice in Education

Fairness and justice are foundational principles of high-quality education systems, shaping not only how learning opportunities are distributed but also how students experience learning. Educational justice extends beyond equal access and encompasses equity in teaching practices, curriculum content, assessment procedures, and students' broader learning environments (Gewirtz & Cribb, 2002). A large body of research shows that structural and instructional inequities can influence students' academic outcomes, self-concept, and long-term opportunities, particularly for learners from marginalized backgrounds (Ladson-Billings, 2006).

Contemporary perspectives emphasize that fairness in education cannot be understood solely through distributive models—concerned with how resources and opportunities are allocated—but must also address relational and recognitional dimensions of justice, which focus on how individuals and groups are valued, respected, and included in educational processes. Studies have documented how biases in teaching, curricula, and assessment can reproduce systemic inequalities related to gender, socio-economic background, race/ethnicity, disability, or migration status (Gillborn, 2015). These disparities highlight the need for educational practices that actively challenge exclusionary norms and promote inclusive, identity-affirming learning environments.

1.2 Gender Bias and Intersectionality in Teaching

Gender bias remains a persistent challenge in education, shaping how teachers perceive students and distribute learning opportunities. A substantial body of research shows that teachers may hold implicit gendered beliefs about students' abilities, participation, or behaviour, often without conscious intent (Bian et al., 2017). These biases influence instructional decisions such as the types of questions asked, the feedback provided, and the expectations communicated, thereby reinforcing gendered patterns of confidence, performance, and identity development, particularly in STEM subjects (Tomasetto et al., 2011; Wang & Degol, 2017). For instance, girls are more likely to receive process-oriented praise, while boys more often receive ability-focused feedback, subtly shaping perceptions of competence and potential.

However, considering gender in isolation risks oversimplifying students' experiences. Intersectionality, first articulated by Crenshaw (1989), highlights how gender intersects with other social categories such as ethnicity, socioeconomic status, migration background, disability, or language to structure educational opportunities and constraints. Educational research consistently shows that students located at the intersection of multiple marginalized identities are more exposed to bias, stereotyping, and exclusion (Burgess et al., 2012; Gillborn, 2015). In classroom practice, intersectional gender bias may appear through unequal expectations, biased interpretations of behaviour, limited representations in teaching materials, or the absence of diverse scientific role models (Becker & Nilsson, 2021; Evagorou et al., 2024; Gilliam, 2016). Such mechanisms affect not only academic outcomes but also students' sense of belonging, motivation, and identity construction in science education (Avraamidou, 2022; Hazari et al., 2010).

Adopting an intersectional perspective therefore shifts the focus from treating "boys and girls equally" to intentionally designing learning environments in which all learners can participate meaningfully, develop positive identities, and thrive. In this sense, intersectional gender-aware teaching contributes both to the improvement of everyday pedagogical practices and to broader goals of equity, inclusion, and social justice in education.

1.3 Teacher Competences for Equitable and Inclusive Education

Research across teacher education consistently highlights that developing equitable and inclusive learning environments requires a broad set of professional competences. According to Darling-Hammond et al (2017), effective teacher development involves equipping educators with the capacity to adopt reflective, research-informed practices that attend to issues of equity and diversity. In a complementary perspective, Darling-Hammond (2017) shows that the most successful international teacher education systems explicitly cultivate teachers' ability to respond to social inequalities through pedagogical judgment, professional autonomy, and ethical engagement.

Recent empirical studies focus more specifically on defining and measuring the competences associated with inclusive practice. Vantieghem et al (2023), for example, propose a structure in which inclusive competence comprises interconnected dimensions of knowledge, attitudes, and skills, closely aligned with the Knowledge Skills Abilities (KSA) model. This model conceptualises teacher competence as the integration of what teachers know about diversity and learning, how they enact this knowledge in practice, and how they regulate their own beliefs and dispositions. Complementing this perspective, Gülsün et al. (2023) demonstrate that teachers' attitudes toward inclusion and their sense of self-efficacy play a central role in shaping their day-to-day classroom behaviours, suggesting that dispositions are inseparable from professional competence.

Further evidence underscores the importance of emotional and relational dimensions. In a systematic review, Calandri et al. (2025) identify emotional competence as a foundational component of inclusive teaching, arguing that teachers' capacity to regulate emotions, show empathy, and build supportive relationships is essential for creating equitable classrooms. These findings resonate with broader policy analyses. Varsik and Gorochovskij (2023) stress that intersectional perspectives are increasingly necessary within education systems, as students'

experiences are shaped by overlapping markers such as gender, socio-economic background, disability, and migration status. This perspective aligns with research in inclusive education showing that single-category approaches to inequality are insufficient. As Bešić (2020) argues, intersectionality offers a valuable conceptual framework for understanding how multiple identities interact to produce distinct forms of marginalisation, and for guiding teachers toward practices that respond to this complexity.

1.4 Problem Statement

Although existing research underscores the importance of developing teachers' knowledge, skills, and dispositions for gender-fair and inclusive education, there is still limited consensus on how these competences should be formally defined, structured, and assessed. Current approaches often address isolated dimensions of inclusion, without offering a coherent framework that captures the complexity of teachers' professional judgment in diverse classroom situations. This gap makes it difficult to support teacher learning in a systematic way and to evaluate how educators navigate situations involving bias, diversity, or intersecting forms of disadvantage. These limitations call for the development of a clear competency framework that operationalises the KSA components relevant to equitable teaching. Responding to this need, the present study proposes to define a structured competency framework.

2. Methodology

2.1 Step 1. Initial Construction of the Competency Framework

The initial competency framework was developed through a collaborative process involving researchers, teacher educators, and experienced school teachers from several European countries, including Cyprus, France, Italy, and Luxembourg, who were all members of the Erasmus+ FIT project. This project focuses on promoting fair and inclusive teaching practices, particularly in STEM education, by supporting teachers in identifying and addressing biases in their everyday professional activities. Bringing together complementary expertise in educational research, teacher training, and classroom practice ensured that the early framework reflected both theoretical perspectives on fairness and the realities of diverse school contexts.

The construction process followed an iterative qualitative methodology. Participants first reviewed international literature on fairness, inclusion, and teacher professionalism to identify central concepts and recurring dimensions. In a series of working sessions, they compared interpretations of these concepts, aligned terminology, and analysed examples of fairness-related challenges encountered in different educational systems. This process helped delineate the main areas in which fairness emerges in teachers' work and guided the operationalisation of these areas into professional competences.

Draft competence statements and preliminary behavioural indicators were formulated through group discussion and refined across successive iterations. The resulting version was collectively reviewed to ensure conceptual clarity, internal coherence, and applicability across countries. This initial framework formed the basis for the subsequent refinement phase involving policy makers and teacher trainers.

2.2 Step 2. Refinement Through two Focus Groups with Policy Makers and Teacher Trainers

To complement the initial construction phase, two online focus groups were conducted using an identical facilitation protocol: one involving nine teacher trainers and another involving ten policy makers. The purpose of these workshops was to further examine the structure and formulation of the preliminary competency framework by collecting additional expert insights from professionals engaged in teacher education and policy development.

Each focus group followed a 90-minute structured sequence of activities facilitated through the MIRO collaborative platform. After providing informed consent, participants engaged in an initial ice-breaking task in which they identified key notions associated with gender bias in teaching, helping to anchor the discussion in their professional experiences. They were then presented with the five preliminary competency domains developed in Step 1 and invited to review and prioritise them. A voting activity enabled participants to indicate which domains they perceived as most central to preventing gender bias in education.

In a subsequent phase, participants were encouraged to propose additions or adjustments to the existing domains. The workshop design allowed them to contribute freely using digital sticky notes, organise emerging ideas visually, and discuss potential refinements. Finally, participants completed an activity aimed at identifying concrete behaviours or abilities associated with each domain. All contributions were collected within MIRO, anonymised, and exported for qualitative analysis in accordance with GDPR requirements. Following Creswell's

approach (2007), the data from the two groups were combined because their perspectives converged and separating them would not enhance the analytic interpretation. This choice was made for reasons of clarity, analytical consistency, and to avoid overinterpreting variations that were not central to the purpose of the study. The synthesis presented below thus reflects the combined insights of both expert groups.

3. Results

3.1 Initial Structure of the Competency Framework

The expert discussions led to the articulation of five domains that structure the initial competency framework (see Figure 1). Each domain captures a specific dimension of fairness in teaching and is defined through a set of concrete competencies describing the knowledge, skills, and behaviours expected from teachers.

- The **Preparation** domain (12 competencies) focuses on the anticipatory aspects of fair teaching. It includes competencies such as designing lessons that avoid stereotypical representations and selecting examples or materials that support diverse learners. This domain highlights fairness as something that begins before classroom interaction.
- The **Teaching** domain (9 competencies) concerns the dynamics of classroom life. Competencies in this area emphasise equitable participation, balanced communication, and the capacity to respond appropriately to biased comments or exclusionary behaviours. For example, teachers are expected to distribute attention fairly among pupils and to structure group work in ways that avoid reinforcing gendered or cultural divisions.
- The **Assessment** domain (4 competencies) addresses fairness in evaluating pupils' work. Competencies include using transparent and objective criteria, being aware of the potential influence of stereotypes on performance, and providing feedback that supports all learners. These elements reflect the experts' view that assessment practices play a central role in either mitigating or amplifying inequalities.
- The **Awareness and Counselling** domain (10 competencies) refers to teachers' guidance roles and their interactions with pupils and families. Associated competencies include supporting pupils' aspirations without reinforcing gendered or cultural expectations and recognising how identity factors shape pupils' experiences. Teachers are expected to adopt a non-judgmental, supportive posture in their relational work.
- Finally, the **School Life** domain (7 competencies) extends fairness to the wider school environment. It includes competencies such as contributing to an inclusive climate, managing conflicts to prevent discrimination, and collaborating with colleagues to ensure consistent, equitable practices across the school. This domain underscores that fairness is also embedded in institutional routines and collective responsibility.

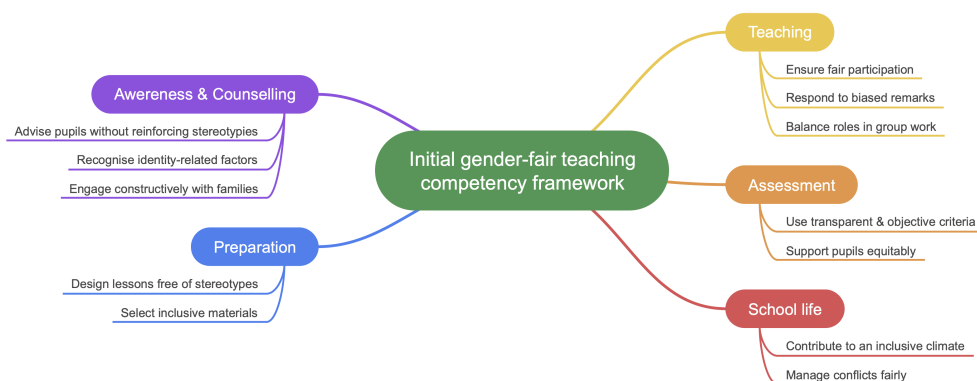


Figure 1: Overview of the initial competency framework for teachers to support gender-fair and inclusive practices

3.2 Contributions from the Focus Groups

3.2.1 *New competency domains identified through the focus groups*

Across both focus groups, participants acknowledged the relevance of the five pre-existing competency domains (Preparation, Teaching, Assessment, Counselling & Awareness, School Life), but they unanimously stressed that these domains do not fully capture the breadth of competences required to support gender-fair and inclusive teaching. Several additional domains emerged, reflecting systemic, organisational, and societal dimensions that shape teachers' capacity to prevent gender bias.

The first domain concerns **school leadership and institutional support**. Participants emphasised that teachers' individual efforts are constrained or enabled by the school's organisational culture. They highlighted the need for school leaders who are knowledgeable about gender equity, capable of monitoring discriminatory practices, and able to implement whole-school strategies (e.g., data-driven evaluation of gender policies, partnerships with local authorities or NGOs). This domain extends the focus of "School life" toward a more structural understanding of fairness as dependent on institutional governance.

A second domain relates to **teachers' initial and continuing training**, including exposure to gender studies, feminist and intersectional pedagogies, and reflective practice. Participants insisted that fairness-oriented teaching requires specific theoretical grounding, such as understanding stereotype threat, expectancy-value models, or intersectional mechanisms of discrimination. They further noted that knowledge must go hand in hand with practical training in diverse teaching methods, collaborative lesson planning, and tools for self-assessment.

A third domain concerns the **ability to engage with broader societal issues** affecting learners. Participants argued that teachers need to understand how inequalities are produced and reproduced outside school, and how these dynamics influence pupils' aspirations, self-confidence, and sense of belonging (e.g., awareness of gender-based violence, discriminatory public spaces, media stereotypes). This extends fairness from classroom practice to a holistic understanding of pupils' lived experiences.

Finally, a transversal domain emerged around **external partnerships and networks**. Participants noted the importance of collaborating with civil society organisations, universities, local authorities, and role models to offer pupils concrete exposure to inclusive scientific careers and to diversify their horizons, particularly for girls and minority groups in STEAM.

These new domains complement the original framework by situating fairness not only in classroom interactions and pedagogical design, but also in teachers' professional environment, their ongoing learning, and the social ecosystems in which education takes place.

3.2.2 *New abilities added within the five original domains*

Within **Preparation**, participants emphasised the ability to select and design inclusive teaching materials, ensuring that examples, textbooks, and resources do not reproduce gender or intersectional stereotypes. This includes critically reviewing materials, supplementing biased content, and integrating diverse perspectives into curricula. They also stressed the need to anticipate stereotype threat when designing tasks, adapting instructions or contexts to avoid disadvantaging particular groups.

In **Teaching**, new abilities highlight classroom management and interactional fairness. These include the ability to monitor and balance participation (e.g., equal speaking time, rotation of roles), use non-gendered language, and intervene promptly in discriminatory incidents. Participants also insisted on designing lessons that actively engage diverse learning styles and offer equitable opportunities for participation.

Within **Assessment**, participants added abilities such as constructing gender-neutral assessments, avoiding biased feedback patterns, and adapting evaluation conditions to reduce anxiety or stereotype threat. They also stressed the importance of using objective criteria and systematically checking for unintended differential impacts on learners.

For **Counselling & Awareness**, new abilities included communicating with families about gender stereotypes and their effects, supporting pupils' self-efficacy (e.g., explaining multiple predictors of success), and offering guidance free from gendered expectations. Participants also emphasised the necessity of being available for discussion, recognising pupils' emotions, and rebuilding self-confidence when needed.

Finally, in **School life**, participants stressed conflict management skills, the creation of safe and respectful learning environments, and the ability to intervene in cases of bullying or exclusion. They also highlighted the importance of ensuring gender equity in all school spaces (e.g., playgrounds, corridors) and extracurricular activities, as well as contributing to whole-school initiatives addressing violence or discrimination.

3.2.3 Abilities associated with the new domains

For the domain of **school leadership and institutional support**, abilities include advocating for gender-equity policies, using data to monitor progress, and organising school-wide professional development. Teachers also stressed the ability to identify and collaborate with school leaders committed to gender equity.

In the domain of **teacher education and professional learning**, abilities include engaging in continuous reflective practice, identifying one's own biases, updating knowledge on gender and intersectionality, and applying research-informed pedagogical approaches (e.g., lesson studies, collaborative planning).

For the domain concerning **societal and intersectional awareness**, participants emphasised abilities such as recognising intersecting forms of discrimination, understanding socio-cultural dynamics influencing pupils' aspirations, and addressing sensitive issues (gender identity, racism, violence) with accuracy and empathy.

Finally, regarding **external partnerships**, abilities include identifying relevant organisations, integrating role models into lessons, organising outreach activities, and maintaining communication channels with external actors to support inclusive educational pathways.

3.3 Overall Structure of the Expanded Competency Framework

Building on these insights, we propose an expanded competency framework that retains the five original domains but enriches them with 1. additional abilities identified by teacher trainers and policy makers, and 2. four new overarching domains that reflect structural, organisational, and societal dimensions of fair teaching. The revised framework thus captures both the micro-level practices implemented within the classroom and the macro-level conditions that support or hinder gender equity in education.

The updated structure consists of nine domains:

- **Preparation:** designing learning environments that anticipate diverse needs and actively counter stereotypes, including the selection of inclusive resources and the prevention of stereotype threat.
- **Teaching:** managing classroom interactions in equitable ways, ensuring balanced participation, responding constructively to biased remarks, and integrating diverse representations and role models.
- **Assessment:** designing transparent, gender-neutral assessments; monitoring feedback patterns; and adapting evaluation conditions to promote equity and reduce anxiety or differential treatment.
- **Counselling & Awareness:** supporting pupils' aspirations without reinforcing stereotypes, rebuilding self-confidence when needed, engaging families constructively, and addressing identity-related issues (e.g., gender identity, intersecting inequalities).
- **School Life:** contributing to a safe, inclusive school climate, managing conflicts fairly, intervening in discrimination or bullying, and ensuring equity across shared spaces and extracurricular activities.
- **Professional Learning & Reflexivity** (new): engaging in continuous training on gender and intersectionality, identifying personal biases, and integrating research-based pedagogies into practice.
- **Institutional & Leadership Environment** (new): understanding how school governance, leadership commitment, data monitoring, and whole-school initiatives shape teachers' capacity to promote fairness; collaborating with school leaders to implement gender-equity policies.
- **Societal & Intersectional Awareness** (new): recognising how societal inequalities and intersecting forms of discrimination influence pupils' experiences, analysing stereotypes and media messages, and addressing sensitive issues (e.g., gender-based violence, racism) in informed and age-appropriate ways.
- **External Partnerships & Networks** (new): collaborating with external actors (NGOs, universities, local authorities, diverse role models), organising awareness activities, and supporting pupils' engagement with inclusive academic and professional pathways.



Figure 2: Overview of the expanded competency framework for teachers to support gender-fair and inclusive practices

These domains articulate a more holistic view of gender-fair teaching. They recognise that fairness is not only enacted in the classroom but also supported by teachers' professional development, institutional structures, and the wider socio-cultural environment. This updated framework therefore provides a more comprehensive and operational basis for both the refinement of the SJT and the development of future teacher training programmes (see Figure 2).

4. Discussion

Several domains identified in the framework echo existing conceptualisations of inclusive teacher competence. Vantieghem et al. (2023) highlight that teachers' knowledge, beliefs and actions jointly shape their ability to create equitable learning environments, a view that aligns with the domains of Preparation, Teaching, Assessment, Counselling and School Life. These domains articulate how teachers anticipate diverse needs, manage interactions in fair ways, design equitable assessments and support pupils' aspirations without reinforcing stereotypes. By specifying these areas and linking them to concrete behavioural indicators, the framework translates broad notions of fairness into actionable components of professional practice.

The findings also confirm that inclusive and gender-fair teaching relies strongly on dispositions and relational competences. Research shows that attitudes towards inclusion and teachers' self-efficacy influence how they engage with diverse learners (Gülsün et al., 2023). Emotional and relational competences, such as empathy and the ability to build trust, are also central, as noted by Calandri et al. (2025). These insights are reflected in the

competences associated with guidance, emotional support, and the maintenance of a safe and non-discriminatory school climate. The framework therefore, expands the definition of teacher competence by integrating dimensions that extend beyond cognitive or technical expertise.

A key contribution of the study lies in the four additional domains introduced by policy makers and teacher trainers: Professional Learning and Reflexivity, Institutional and Leadership Environment, Societal and Intersectional Awareness, and External Partnerships and Networks. Their inclusion is consistent with literature in multicultural and diversity education, which stresses that equitable teaching depends on institutional culture and structural conditions as much as individual practices (Banks & McGee Banks, 2019). These domains align the framework with perspectives that view gender equity not only as a classroom issue but also as a systemic one shaped by leadership commitment, organisational norms and collaboration with external actors.

Embedding intersectional awareness within the framework is also in line with research that emphasises the need to understand how gender interacts with other identity markers, such as socioeconomic status, migration background or disability (Varsik & Gorochovskij, 2023; Bešić, 2020). Participants underscored that teachers must be able to interpret pupils' experiences in light of wider societal norms, media representations and issues such as gender-based violence. In doing so, the framework bridges the literature on inclusive education with scholarship specifically focused on gender fairness.

The study naturally presents some limitations. The framework was developed with experts from a restricted number of European countries and within projects focused specifically on gender and STEM. Further research should explore its relevance in other cultural and disciplinary contexts and examine its empirical structure. Quantitative validation and studies linking the domains to observable teaching practices or student outcomes would provide important next steps, in line with existing work on measuring inclusive competence (Vantieghem et al., 2023).

5. Conclusion

This study aimed to develop and refine a competency framework that supports teachers in promoting gender-fair and inclusive teaching. By combining prior literature with the insights of researchers, teacher educators and policy makers, the framework clarifies how gender fairness is enacted across different dimensions of teachers' work. It therefore contributes to ongoing discussions on how the Knowledge Skills Abilities (KSA) model can be applied to inclusion and gender equity in education.

Beyond its conceptual contribution, the framework has practical implications for teacher education. Its structure provides a basis for designing professional learning programmes that intentionally address gender-fair competences at different stages of teachers' careers. This is coherent with evidence showing that effective professional development needs to be sustained, practice-oriented and grounded in research (Darling-Hammond et al., 2017). The framework can support the development of assessment tools that reflect authentic professional situations and help teachers analyse their reasoning and decision-making. The study also offers a foundation for further dialogue and collective learning among teachers, school leaders and policy makers committed to advancing gender fairness in education.

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Ethics Declaration: The research reported in this paper did not require formal ethical clearance. The study involved adult participants (teachers and educational experts) who took part on a voluntary basis. No sensitive personal data were collected, and all responses were gathered anonymously, in compliance with applicable data protection and GDPR regulations. Participants were informed about the purpose of the study and their right to withdraw at any time. The data were used exclusively for research purposes.

AI Declaration: An AI-based language model (ChatGPT 5.2, OpenAI) was used during the preparation of this manuscript exclusively for language-related support, including spelling correction and the reformulation of selected sentences to improve clarity and readability in English. The AI tool did not contribute to the development of the research design, data analysis, interpretation of results, or the generation of original

scientific content. All revisions were reviewed, validated, and integrated by the authors, who retain full responsibility for the content of the manuscript.

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Workplace Values, Knowledge Gaps and Gender: Explaining German Adolescents' Computer Science Career Choices

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Abstract: A persistent gender gap in computer science (CS) study choices and careers remains in Germany and internationally despite long-standing equality initiatives. Late adolescence is a key decision phase for academic and vocational pathways, making it critical to understand what drives young women and men toward or away from CS. This article reports findings from a 2024 survey of more than 800 German adolescents aged 15–20. The study examines gender differences in intentions to pursue CS across three domains: workplace values such as earnings or career prospects, perceptions of CS working conditions and potential structural barriers, and self-assessed knowledge of CS occupations. Findings show that young women and men have very similar expectations of their careers. Contrary to common stereotypes that men prioritise pay while women emphasize work–family balance, most value ratings are statistically similar with job security, career opportunities, and high salary at the top three positions. The exception is job security, which appears even more salient to young women. Comparing value profiles with perceived CS job characteristics indicates that adolescents of both genders rate CS consistently below their ideal job and that perceived female-specific barriers may further deter interest. These patterns are interpreted in the context of Germany's digital transformation—marked by a shortage of skilled CS professionals and the anticipated automation of white-collar work through artificial intelligence. These narratives frame CS as both opportunity-rich and volatile, shaping expectations about job security, career advancement, and work–life balance. The study also documents information asymmetries: young women report significantly lower knowledge of CS careers than young men, which may hinder informed choices and pose an additional barrier beyond differences in interests or values. These insights underscore the importance of targeted interventions that provide accessible, accurate career information, demystify CS work and pathways, and address perceived barriers faced by young women.

Keywords: Career choice, Computer science, Gender differences, Knowledge gaps, Workplace values, Career guidance

1. Introduction

Despite decades of initiatives promoting gender equality in Science, Technology, Engineering and Mathematics (STEM), a pronounced gender gap in computer science (CS) enrolment and career choices persists internationally (DESTATIS, 2025; World Economic Forum, 2025). In Germany, only 2% of women with a tertiary qualification hold a degree in computer science or ICT, compared to 7.1% among men (DESTATIS, 2025). Late adolescence is a crucial period for career decision-making, when young people choose academic or vocational pathways. PISA 2000 and 2022 data show technology remain highly attractive to boys (OECD, 2025): “*ICT professional*” is the most frequently mentioned career expectation among boys, but does not rank among girls’ top ten. Understanding why young people choose or reject CS is key to addressing gender disparities.

The study analyses data from a 2024 large-scale online survey of over 800 German adolescents. It examines gender differences in CS career intentions and investigates workplace values (e.g. earnings, prestige), perceptions of CS job conditions, and subjective knowledge of CS professions. It tests whether traditional value-based stereotypes persist by contrasting adolescents’ values with their assessments of CS jobs, including perceived structural barriers for women.

The paper is structured as follows. Section 2 presents the theoretical background on factors influencing career decisions, especially regarding CS professions. Section 3 introduces the methodology, including the research question, data collection, and analysis. Section 4 presents the results, which are discussed in Section 5. Section 6 concludes with key findings and directions for future research.

2. Career Decision-making Processes Concerning Computer Science and STEM Professions

This section establishes a theoretical foundation and examines factors influencing career decision-making in adolescents, focusing on gender differences and their impact on CS career intentions.

2.1 Understanding Gender Differences in Career Intentions

A substantial body of research has examined the persistent gender gap in CS and other STEM fields over the past decades. Much of this work is grounded in the Expectancy–Value Theory (Eccles and Wigfield, 2020), which provides a useful framework for understanding patterns in students’ career intentions. The theory helps explain why individuals choose certain academic and professional paths based on their perceived competence, interest, and the value they attach to these fields. Regarding career intentions in STEM fields, gender differences emerge as a particularly consistent pattern. For instance, Mahadeo, Hazari and Potvin (2020) investigated how students’ beliefs in their competence, interest in computing, and perceived recognition from others contribute to the formation of a computing identity, which in turn influences their intention to pursue a CS career. Male students demonstrated a significantly higher computing identity compared to female students, confirming gender disparities observed in earlier research.

Research in the context of the Expectancy–Value Theory examined further factors that influence students’ motivation and career intentions in CS. Family members and teachers play a central role by shaping students’ self-beliefs and expectations of success (Hess *et al.*, 2023). Many girls experienced subtle discouragement, such as lower confidence from teachers in their technical abilities. This resulted in them underestimating their own capabilities in STEM subjects. Likewise, the presence—or absence—of relatable role models can strongly affect students’ perceptions of belonging and the value they assign to a CS career (Steffen *et al.*, 2025). The persistent shortage of visible female CS role models therefore constitutes a barrier to increasing girls’ interest and participation in the field.

2.2 Workplace Values and Career Priorities

According to Expectancy–Value Theory, people pursue careers that match their values and expected success (Eccles and Wigfield, 2020). Within this framework, workplace values (or work values), can be understood as the specific expressions of these subjective task values in a career context. These values encompass the goals, rewards, and characteristics people deem important in their profession. A common distinction is intrinsic versus extrinsic values: extrinsic emphasize material or external benefits (e.g., income, prestige), whereas intrinsic denote intangible rewards (e.g., learning opportunities, flexible scheduling) (Busch, 2013). The *Zenjob Study 2024* gives an impression of adolescents’ workplace values (Gleyzer, 2024). It surveyed over 1,000 GenerationZ individuals in Germany (born 1997–2012). Top priorities were good salary and career opportunities. Honesty and open communication came in third, followed by opportunity for further training and professional development. Compared to the 2022 survey, work-life balance and flexibility remained central, and job security gained importance.

When assessing workplace values, gender differences often appear—whether reflecting genuine orientations or socialized stereotypes. Research suggests men more often prioritise extrinsic values, whereas women emphasise intrinsic or relational values (Busch, 2013). These priorities, including any gender differences, are not fixed: they shift with culture, economic conditions, and life stage – narrowing in more gender-equal, economically secure contexts, and widening in more traditional or constrained settings. Traditionally, CS is seen as highly technical and intellectually demanding, involving relatively solitary work (Cheryan, Master and Meltzoff, 2015), and offering strong career prospects and pay (Zhou and Shirazi, 2025). This image fosters a competitive, male-dominated, meritocratic culture that prioritises advancement and earnings over social interaction, creativity, and work–life balance (Thomas and Allen, 2006; Cheryan, Master and Meltzoff, 2015). Consequently, CS careers can appear attractive yet exclusionary, depending on how individuals align their personal values and expectations with these occupational images. Such gendered perceptions are mirrored in schools: in Germany, far more boys than girls choose CS as electives (Gesellschaft für Informatik, 2023).

2.3 Adolescents’ Sources of Information for Career Choices

As adolescents explore future careers, they draw on varied information sources and supports, yet many struggle. A 2022 representative Bertelsmann Stiftung survey of 14–20-year-olds in Germany found that only 25% felt sufficiently informed and confident, while 53% felt overwhelmed (Barlovic *et al.*, 2022). Although 56% indicated that they already had a fairly clear understanding of the occupation they wished to pursue, 9% felt poorly or not at all informed about it, and 7% had not yet considered a career. When seeking career advice, adolescents look to their families. The Bertelsmann Stiftung study found that nearly three quarters relied most on parents for career decisions. Schools and teachers were important for over half. Digital media is another key channel: almost half searched online for career information. In contrast, only about one third used the career counselling services provided by the German Federal Employment Agency (Barlovic *et al.*, 2022). The

OECD Report “The State of Global Teenage Preparation” stresses students’ active engagement in career-related experiences, such as job fairs and workplace visits, and especially gaining first-hand insights through part-time jobs, volunteering, or short-term internships (OECD, 2025).

3. Methodology

3.1 Study Design

This study reports findings from a nationwide study on German young adults’ career decisions, focusing on CS as a potential path. In June 2024, an online questionnaire was distributed to adolescents across all German federal states in cooperation with an established market research firm. This approach was chosen to deal with the differing regulations across states’ education systems. The selection of the market research firm was based on the firm’s existing market panel, which consisted of young adults in all federal states of Germany. Young adults under 18 need their parents’ written consent to join. The panel is ISO 20252 certified and adheres to strict ethical standards set by organizations such as the DGOF, ESOMAR, and ADM. The research was fully funded by the researchers’ higher education institution. The sample was limited to ages 15–20: those under 15 were excluded as they are likely in the early stages of career exploration, those over 20 as they are likely already committed to specific careers or study programmes. Participants completed a mixed-methods questionnaire containing structured and open-ended questions, with an average completion time of approximately 15 minutes. The questionnaire was pretested with adolescents to ensure item clarity and age-appropriateness.

3.2 Sample Composition

The research captured data from 822 young adults across Germany. This final sample size was established after implementing rigorous quality analysis procedures to ensure data integrity and validity. The gender distribution revealed a higher representation of female participants (506 individuals, constituting 61.6% of the sample) compared to male participants (315 individuals, representing 38.3%). Additionally, one participant (0.1%) identified as non-binary. Table 1 shows the participants’ demographic profile.

Table 1: Sample characteristics

Age	Female N (%)	Male N (%)	Non-binary N (%)	Total N (%)
15	37 (7.3%)	44 (14.0%)	0	81 (9.9%)
16	60 (11.9%)	53 (16.8%)	0	113 (13.8%)
17	84 (16.6 %)	58 (18.4%)	0	142 (17.3%)
18	133 (26.3%)	75 (23.8%)	0	208 (25.3%)
19	99 (19.6%)	37 (11.7%)	1 (100%)	136 (16.6%)
20	93 (18.4%)	48 (15.2%)	0	141 (17.2%)
Total	506 (100%)	315 (100%)	1 (100%)	822

The survey asked whether participants had chosen a career path and, if so, whether it was in CS. About 62.7% had decided. Among them, 32.8% planned to study CS. Undecided respondents rated their likelihood of considering CS: 37.7% said they could imagine a CS career. Overall, 43.9% of all respondents expressed interest in CS.

3.3 Research Questions and Approach Towards Data Analysis

To guide the study, the following overarching research question was defined and translated into an analytical approach (Figure 1) that is further elaborated through specific hypotheses below.

Research Question: How do adolescents’ workplace values, perceptions, and knowledge about CS-related professions differ by gender?

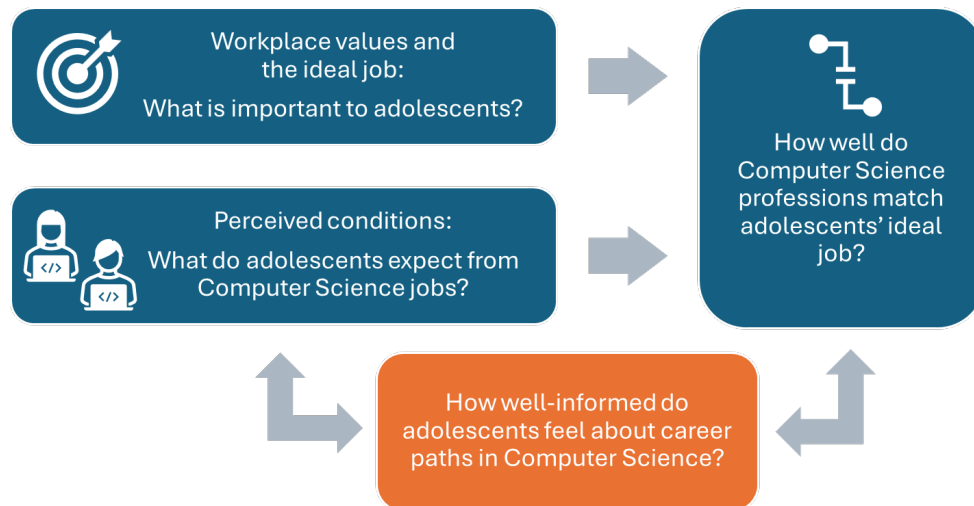


Figure 1: Approach towards data analysis

Step 1: Baseline comparison of workplace values. Participants' general workplace values are examined to identify adolescents' career priorities and contextualize perceptions of CS careers. As discussed in Section 2.2, the Zenjob Study 2024 surveyed GenZ job preferences. The adolescents in the present study are also GenZ (born 2004-2009). Since both studies were conducted in Germany in May/June 2024, similar priorities are expected for job security, salary, and career opportunities. Traditional gender stereotypes inform the following hypotheses:

H1a: Young men assign a higher importance to high salary than young women.

H1b: Young men assign a higher importance to high prestige than young women.

H1c: Young women assign a higher importance to balancing family and career than young men.

Step 2: Perceived CS job conditions. The analysis aims to clarify adolescents' expectations in CS careers. According to Section 2.2, CS careers are expected to be seen as offering strong prospects and high economic rewards. The analysis was systematically differentiated by gender, leading to the following hypothesis:

H2: Young men and young women differ in their perceptions of CS job conditions.

Step 3: Comparison of workplace values and perceived conditions in CS-related professions. Participants' workplace values (step 1) – their “ideal job” – were contrasted with their assessments of CS job conditions (step 2). This allows to show gaps or mismatches.

H3a: There is no difference in perception of adolescents' high salary for an ideal job than what they believe CS careers offer.

H3b: There is no difference in perception of adolescents' career opportunities for an ideal job than what they believe CS careers offer.

Step 4: Evaluation of Knowledge Gaps. The final step examines adolescents' self-assessed knowledge of CS professions. As many adolescents struggle with learning about career paths (Section 2.3), the same is expected for CS. Limited knowledge or a tendency to think in stereotypes increases the chance of inaccurate perceptions, so value–perception comparisons may reflect misconceptions rather than real incompatibilities. As discussed in Section 2, lower participation of young women in school CS electives restricts exposure. Hence, the following hypothesis is proposed:

H4: Young women report lower levels of subjective knowledge about CS careers compared to young men.

3.4 Limitations

The study has several limitations. First, age distribution differed by gender: among young women, those aged 15-16 were somewhat underrepresented; among young men, those aged 19-20 were slightly underrepresented. Second, the sole non-binary participant was excluded from gender-specific analyses. Third, despite coverage across all federal states, the sample cannot be considered fully representative of German students, so findings should be interpreted with caution. Furthermore, the workplace values assessed are

limited, omitting factors such as creativity, social impact, or teamwork. The analysis does not account for contextual factors, including variations in CS curricula, exposure to role models, or socioeconomic background, which may shape adolescents' workplace values and perceptions of CS jobs. Finally, the study does not compare adolescents' views of CS careers with other occupations.

4. Data Analysis

The steps of data analysis described above are now discussed in the next sections.

4.1 Adolescents' Workplace Values

Workplace values were measured using scales by Esch and Grosche (2011), Schreiner and Sjøberg (2019), and Thomas and Allen (2006). A 5-point Likert scale was used [1-strongly disagree; 5-strongly agree]. An independent samples *t*-test was used to analyse for gender differences. Figure 2 shows both groups rated all values highly, with means around 4 on a 5-point scale. Both genders put similar priorities: job security, career opportunities, and high salary are the top three positions, only the order differs, with young women ranking career opportunities higher than salary. These results align with the Zenjob Study 2024 (Gleyzer, 2024).

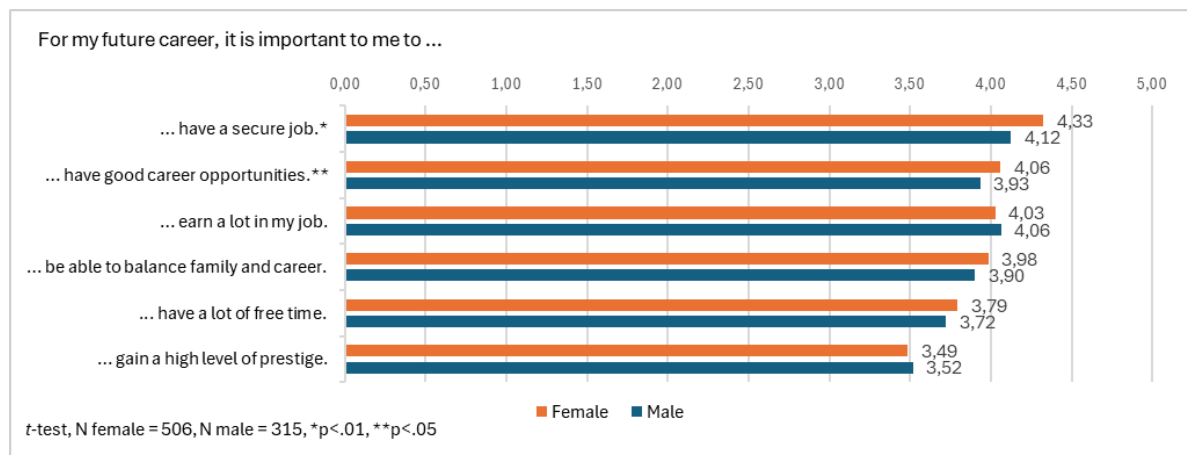


Figure 2: Mean workplace values

Regarding hypotheses H1a and H1b, young men rated high earnings ($M_m=4.06$, $SD_m=0.922$) and prestige ($M_m=3.52$, $SD_m=1.045$) slightly higher than young women did ($M_f=4.03$, $SD_f=0.954$ for high earnings, $M_f=3.49$, $SD_f=0.969$ for prestige). However, these differences were not statistically significant at $p<.05$. Therefore, H1a and H1b were rejected. The same applies to H1c: While young women considered the balance between family and career ($M_f=3.98$, $SD_f=1.019$) more important than men ($M_m=3.90$, $SD_m=0.997$) did, this difference was not statistically significant at $p<.05$. Although both genders gave the highest values to job security, young women ($M_f=4.33$, $SD_f=0.839$) rated job security significantly higher than young men ($M_m=4.12$, $SD_m=0.968$). This disparity is statistically significant ($t(595)=3.062$, $p=.002$) with a small effect size (Cohen's $d=0.227$), suggesting that women consider employment stability a slightly more important factor in their career aspirations. Moreover, young women valued career opportunities slightly higher than young men ($M_f=4.06$, $SD_f=0.898$; $M_m=3.93$, $SD_m=1.012$) with $t(606)=1.781$, $p=.038$ and a small effect size ($d=0.131$).

4.2 Adolescents' Perception of Occupational Conditions in Computer Science-related Professions

After analysing general workplace values, perceptions of CS careers are examined. Respondents rated the same characteristics as asked for in the part of the survey on workplace values. Again, a 5-point Likert scale was used. Additionally, potential difficulties for women in CS were assessed. Independent-samples *t*-tests were performed to analyse the differences. Figure 3 presents the mean ratings. Overall, young women and men rated most aspects positively (means>3), indicating moderately favourable views of CS careers. A closer look at the individual items reveals three main patterns.

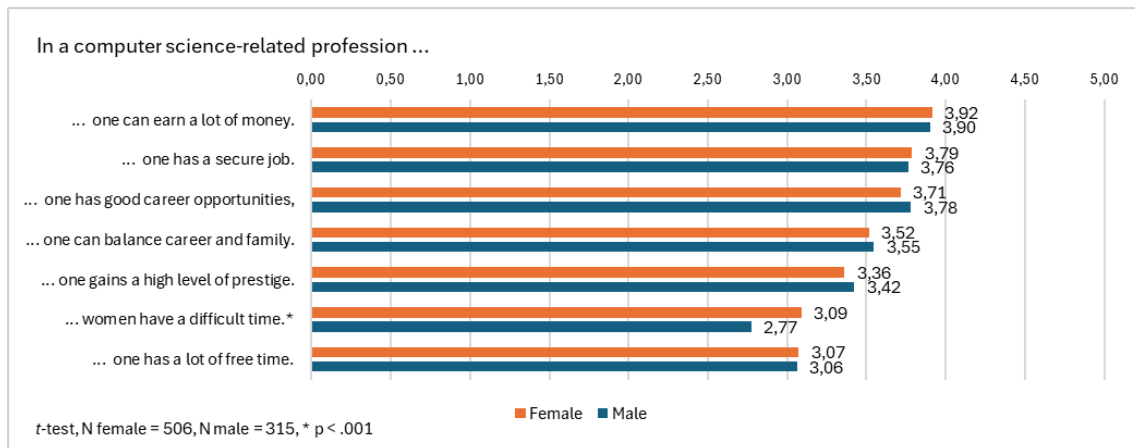


Figure 3: Mean perception of occupational conditions in CS professions by gender

First, both young women and men view career prospects in CS positively, agreeing that CS-related professions offer secure employment, good pay, and career opportunities. Mean values for these items ranged between 3.7 and 3.9 for both genders. Gender differences were not statistically significant at $p < .05$. Second, perceptions of prestige and work-life balance in CS careers were moderately positive (around 3.4 to 3.5), slightly lower than for the professional prospects. This suggests that, while adolescents see CS as a stable, respectable and financially attractive career path, they may perceive somewhat greater challenges in achieving an ideal work-life balance compared to other aspects of the job. Differences between genders were not significant at $p < .05$. Finally, agreement was lowest for the following statements. On average, respondents were neutral on whether CS jobs offer much free time, suggesting that they view these professions as demanding and time-intensive. The statement “women have a difficult time in CS professions” revealed the only significant gender difference: young women ($M_f = 3.09$, $SD_f = 1.141$) agreed more strongly than young men ($M_m = 2.77$, $SD_m = 1.096$), and ($t(819) = 3.921$, $p < .001$) with a small effect size ($d = 0.281$). This indicates a slightly greater awareness among female respondents of gender-related challenges in the field. Overall, H2 which postulated a gender difference is rejected.

4.3 Comparing Ideal Workplace Values and Perception of Computer Science

Now the results from steps 1 and 2 are compared to assess gaps between adolescents’ ideal job and their perception of CS jobs. Figure 5 shows the comparison with both genders consistently rating conditions in CS jobs lower than their ideal workplace. Paired-samples t -tests were conducted to analyse the differences.

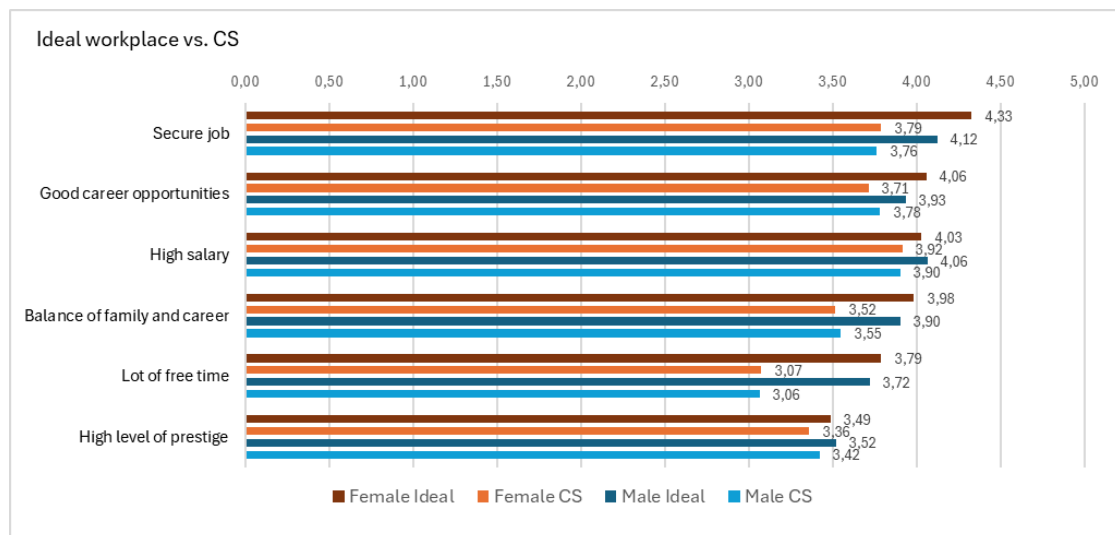


Figure 4: Gaps between ideal workplace and perceived CS job conditions

Both genders rated job security highly but saw CS as less secure. For young women, CS scored 0.54 points below their ideal; for young men the difference was 0.36 points. Both differences were significant ($p < .001$) and showed small to medium effect sizes ($d_f = 0.493$; $d_m = 0.341$). The gap is larger for young women, suggesting less

confidence that CS provides the stability they seek. Moreover, young women rated career opportunities in CS jobs 0.34 points below ideal, while young men perceived them as 0.15 points lower. For young women, this difference is statistically significant ($p=.000$) with a small to medium effect size ($d=0.308$). For young men, the difference is also significant ($p=.014$) with a small effect size ($d=0.139$). Therefore, hypothesis H3b (no difference in perceived opportunities) is rejected. Although CS is viewed as offering reasonably good career prospects, it falls short of adolescents' ideal.

For young women, the gap between their ideal job and CS jobs regarding salary was the smallest across all measured values, at 0.11 points. However, this difference remains significant ($p=0.024$) with a small effect size ($d=0.100$). For young men, the perceived gap is slightly larger, at 0.16 points and significant ($p=.004$) with a small effect size ($d=0.163$), too. Therefore, hypothesis H3a, which predicts no difference in these perceptions, is rejected. Furthermore, both young women and men perceive CS jobs as offering less family-career balance than their ideal. For young women, the CS rating is 0.47 points lower, a significant difference ($p=.000$) with a medium effect size ($d=0.401$). For young men, the gap is 0.36 points, likewise significant ($p=.000$) with a small to medium effect size ($d=0.319$). The larger gap for young women suggests they are less convinced that CS careers offer the desired work-family balance.

Compared with their ideal job, young women and men both view CS positions as offering noticeably less free time. Among young women, the CS rating falls 0.72 points below their ideal, a highly significant difference ($p=.000$) with a medium to large effect size ($d=0.616$). For young men, the shortfall is 0.66 points, also highly significant ($p=.000$) with a medium effect size ($d=0.623$). The slightly larger gap for young women suggests they view CS careers as particularly time-demanding. Regarding prestige, young women rate CS roles 0.13 points below their ideal, a difference that reaches statistical significance ($p=.022$) but is accompanied by only a small effect size ($d=0.102$). Among young men, the corresponding gap of 0.10 points is not significant ($p=.144$). Thus, a minor prestige gap appears for young women, whereas no comparable difference emerges among young men.

4.4 Adolescents' Subjective Knowledge of Computer Science Professions

Adolescents' perceived subjective knowledge about CS professions was assessed using the items shown in Figure 5, each measured, as the previous items, on a 5-point Likert scale. To examine gender differences, independent-samples t -tests were conducted.

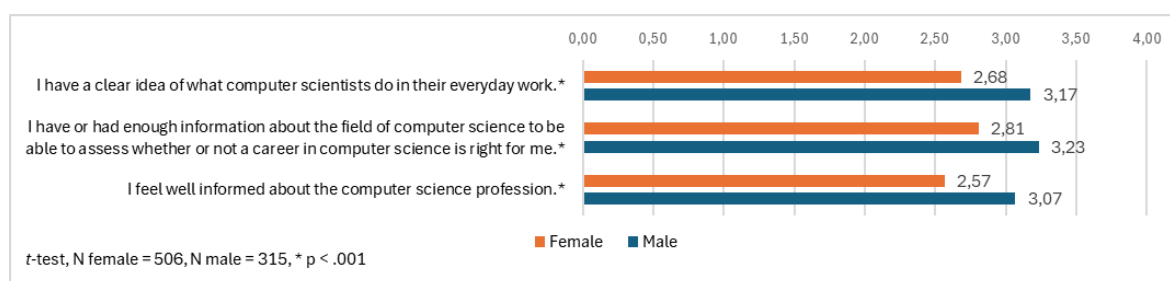


Figure 5: Perceived subjective knowledge of CS professions

Young men reported a significantly clearer idea of what computer scientists do in their everyday work ($M_m=3.17$, $SD_m=1.061$) than young women ($M_f=2.68$, $SD_f=0.943$), $t(819)=-6.907$, $p<.001$, with a medium effect size ($d=-0.50$). With the scale midpoint at 3, young men were around the midpoint, indicating moderate clarity, whereas young women were below it, indicating that they generally do not feel they understand the daily work of computer scientists. Young men also reported having significantly more information to evaluate whether a career in computer science suits them ($M_m=3.23$, $SD_m=1.081$) than young women ($M_f=2.81$, $SD_f=1.061$), $t(819)=-5.45$, $p<.001$, $d=-0.391$. Finally, young men felt significantly better informed about the CS profession overall ($M_m=3.07$, $SD_m=1.081$) than young women ($M_f=2.57$, $SD_f=1.081$), $t(819)=-6.647$, $p<.001$, with a medium effect size ($d=-0.477$). On average, young men were near the midpoint, suggesting a moderate level of perceived information, whereas young women fell clearly below 3, indicating they do not feel well informed. Across all three items, young women reported significantly lower subjective knowledge than young men at $p<.001$, confirming H4 which postulated a gender gap.

5. Discussion

Young women and men reported similar priorities regarding job security, career opportunities, and high earnings, consistent with the Zenjob Study 2024 (Gleyzer, 2024). Job security ranked highest for both groups,

with young women rating it significantly higher. These patterns reflect Germany's economic situation in mid-2024, following the 2022/2023 energy crisis and high inflation. Ongoing global uncertainties, including the war in Ukraine, reinforced concerns about stability, making job security and reliable income particularly salient. Young women's stronger focus on job security may relate to gender inequalities in the German labour market: women earn less on average (World Economic Forum, 2025), work part-time more often (DESTATIS, 2025), and face more career interruptions (e.g., parental leave or caregiving), heightening the importance of stable employment.

Both genders generally rated CS job conditions below their ideal workplace. Consistent with Zhou and Shirazi (2025), adolescents perceive CS careers as stable, prestigious, and well paid, yet expect difficulties in achieving work–life balance, echoing Thomas and Allen (2006). Amid Germany's STEM skilled-labour shortage and the IT sector's importance (Germany Trade & Invest, 2025), interested adolescents may be especially open to positive portrayals of CS careers.

At the same time, public debates about AI-driven automation and the future need for programmers may heighten concerns about job security (Nigar *et al.*, 2025). These mixed signals with CS as both a future-oriented field and one undergoing rapid transformation likely shape adolescents' perceptions. Within this context, adolescents tend to see CS careers as time-intensive and less compatible with their preferred lifestyle. Accordingly, free time showed the largest gap, possibly influenced by portrayals of start-up-style tech companies (Cheryan, Master and Meltzoff, 2015) as demanding workplaces with heavy workloads, tight deadlines and constant pressure to innovate.

The survey asked whether participants believe women face difficulties in CS professions. Even moderate perceptions of gender-related challenges may deter interest in CS, as such expectations can become self-reinforcing. If girls anticipate barriers or social discomfort, these perceptions alone, regardless of actual experiences, may discourage them from considering CS as a viable option. This aligns with research on stereotypes in CS and engineering cultures (Cheryan, Master and Meltzoff, 2015). To prevent these perceptions from becoming barriers, career guidance should be gender-sensitive, counter stereotypes, provide realistic information about working conditions, and offer approachable role models (Cheryan *et al.*, 2015; Steffen *et al.*, 2025). This is particularly important given adolescents' limited knowledge of CS careers, especially among young women, confirming earlier findings (Barlovic *et al.*, 2022).

As Barlovic *et al.* (2022) show, parents play a key role in adolescents' career choices. With approximately 1.4 million people employed in CS roles according to the studies consolidated by German Trade & Invest (2025)—a relatively small proportion of the population—many parents likely have limited knowledge of CS professions. Schools offer little support as well: in 2024, only 24 % of lower secondary school students had mandatory CS classes (Gesellschaft für Informatik, 2023), leaving many adolescents without meaningful exposure to CS or its career options. Given these gaps, career guidance should raise general awareness of CS among all adolescents and their parents, not only those already interested. Young women report significantly lower levels of information than young men, reflecting either an actual knowledge gap or lower confidence in assessing their knowledge. They choose CS less frequently as a school subject or extracurricular activity (Gesellschaft für Informatik, 2023), reducing opportunities to acquire CS-related knowledge. At the same time, prior research indicates that women often report lower self-confidence in male-stereotyped domains such as CS (Hess *et al.*, 2023).

6. Conclusion

The study provides large-scale, quantitative evidence from more than 800 German adolescents on their workplace values and their perceptions of CS careers. Overall, adolescents of both genders viewed CS professions as stable and financially attractive, yet also as relatively demanding in terms of workload. Across all groups, perceived conditions in CS jobs consistently fell short of their ideal expectations. The results reveal persistent misconceptions and unequal access to information, particularly among young women, creating systematic barriers to considering CS as a viable career path. Future research should investigate the origins of these gaps to distinguish between perceptions that reflect real conditions in CS jobs and those that arise from missing information or inaccurate communication and stereotypes. Comparing adolescents' perceptions with the experiences of CS professionals would be useful, as would qualitative approaches, such as interviews, to explore how these views develop. Examining how adolescents evaluate CS relative to other appealing careers could also clarify whether the gaps are CS-specific or part of broader patterns. Such insights would support more targeted and effective career guidance in CS.

Ethics Declaration: The study presented received full ethical approval from the institutional ethics committee of the authors' institution. Participation was voluntary and anonymous, and informed consent was obtained from all participants prior to data collection.

AI Declaration: AI tools (ChatGPT-5, DeepL) were used for language editing and improving clarity. The authors confirm that all intellectual content, interpretation, and conclusions were developed by the authors and that AI outputs were reviewed and edited by the authors for accuracy and appropriateness. AI tools (ChatGPT-5, PerplexityAI) were also used to expand literature search terms, suggest related keywords, and identify candidate publications. All searches were validated through academic databases, all inclusion/exclusion decisions were made by the authors. AI was neither used for statistical analysis nor figure/table generation.

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Reinforcing Confidence? Gender Gaps in Entrepreneurial Self-Efficacy in Finland

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Abstract: Entrepreneurial self-efficacy (ESE) - the belief in one's ability to perform entrepreneurial tasks - is a well-established predictor of entrepreneurial entry, persistence, and outcomes (Chen et al., 1998; Zhao et al., 2005; Newman et al., 2019). A large body of research shows systematic gender gaps in ESE, with women consistently reporting lower entrepreneurial confidence than men (Wilson et al., 2007; Shinnar et al., 2012). Yet most evidence comes from Anglo-American contexts, while Nordic welfare states such as Finland, globally recognized for gender equality, remain understudied. Moreover, although ESE is often treated as an antecedent of entrepreneurial behavior, fewer studies examine how entrepreneurial experience itself may reinforce ESE, potentially creating a self-reinforcing cycle that disadvantages women. This study addresses these gaps by analyzing data from the 2025 Finnish Global Entrepreneurship Monitor (GEM) Adult Population Survey (N = 2,050). We investigate how gender, age, household size, income, role model exposure, and business ownership predict ESE, and whether ownership mediates gender differences. Multinomial logistic regression results show that gender, age, role model exposure, and business ownership significantly predict ESE, while household size and income do not. Women are markedly less likely than men to report moderate (OR = 0.38, $p < .001$) or strong (OR = 0.67, $p < .001$) self-efficacy. Business ownership is the strongest predictor: owners are over three times more likely to report moderate ESE and more than eleven times more likely to report strong ESE compared to non-owners ($p < .001$). Bootstrapped mediation analysis further demonstrates that ownership partially mediates the gender gap: men are more likely to own businesses, and this experience significantly strengthens self-efficacy. While ESE clearly influences entrepreneurial entry, our findings also highlight the reverse pathway: entrepreneurial experience reinforces ESE (Markman et al., 2002). By situating Finland in global debates on gender and entrepreneurship, this study contributes new evidence from a high-equality context and underscores the dynamic interplay between self-belief and entrepreneurial experience. The results suggest that policy measures enabling women to gain entrepreneurial exposure early, even through small-scale or low-risk ventures, could help break the cycle in which lower ESE reduces entrepreneurial engagement and lack of experience further suppresses confidence.

Keywords: Entrepreneurial self-efficacy, Gender gap, Entrepreneurship, Global entrepreneurship monitor

1. Introduction

Entrepreneurial self-efficacy (ESE) refers to an individual's belief in their ability to perform the tasks necessary for starting and managing a business. It is widely recognized as a central psychological construct in entrepreneurship research (Chen et al., 1998; Zhao et al., 2005; Newman et al., 2019). High levels of ESE are consistently linked to entrepreneurial entry, persistence, and success. Understanding ESE is therefore critical for explaining who becomes an entrepreneur and why some individuals are more likely to pursue and sustain entrepreneurial activity than others.

Despite its theoretical and empirical importance, previous research has repeatedly documented gender differences in entrepreneurial self-efficacy. Women tend to report lower confidence in their entrepreneurial abilities compared to men (Wilson et al., 2007; Shinnar et al., 2012). This finding has been replicated across diverse national contexts and remains one of the most robust patterns in the field. However, the majority of studies have been conducted in Anglo-American settings, while Nordic welfare states, which are globally recognized for their high levels of gender equality, remain relatively underexplored. Examining gendered patterns of ESE in Finland therefore provides a valuable opportunity to assess whether psychological gender gaps persist in a context characterized by strong institutional support and egalitarian values.

In addition, existing research has primarily treated ESE as an antecedent of entrepreneurial behavior. While individuals with high self-efficacy are more likely to engage in entrepreneurship, fewer studies have examined the reverse relationship: how entrepreneurial experience may, in turn, enhance ESE. This feedback mechanism could create a self-reinforcing cycle, where men's greater participation in entrepreneurship further strengthens their self-belief, while women's limited access to entrepreneurial experience sustains lower confidence (Markman et al., 2002).

The purpose of this study is to investigate how gender and related individual-level factors influence entrepreneurial self-efficacy in Finland and to examine whether business ownership mediates the relationship between gender and self-belief. Specifically, the study explores how age, household size, income, role model exposure, and current business ownership predict ESE levels, and whether differences in entrepreneurial experience account for part of the gender gap in self-efficacy.

By situating Finland within global debates on gender and entrepreneurship, this study contributes to a more nuanced understanding of how institutional equality interacts with individual-level psychological mechanisms. The findings provide empirical evidence on whether gender equality at the societal level is mirrored by equality in entrepreneurial confidence. From a policy perspective, the results highlight the importance of creating opportunities for women to gain entrepreneurial experience through mentoring, training, and low-risk venture programs, thereby helping to reduce persistent disparities in entrepreneurial self-efficacy and participation.

2. Theoretical Framework and Hypotheses Development

Although entrepreneurial self-efficacy (ESE) is a domain-specific belief, it does not form in a social vacuum. Social role expectations and gender stereotypes about what an entrepreneur looks like or how they behave shape the way in which women and men interpret their own skills and chances of success. Prior studies show that the entrepreneurial role is stereotypically associated with masculine traits such as assertiveness and risk-taking, and that these stereotypes dampen women's entrepreneurial intentions (Gupta et al., 2009; Díaz-García & Jiménez-Moreno, 2010; Jennings and Brush, 2013). ESE research echoes this. Studies of adolescents, students, and adults find that women often report lower ESE than men, and that these differences are associated with weaker entrepreneurial career intentions (Wilson et al., 2007; Newman et al., 2019; Langowitz and Minniti, 2007; Koellinger et al., 2013). Meta-analytic evidence further indicates that self-efficacy is a predictor of entrepreneurial outcomes (Miao et al., 2017; Glosenberg et al., 2022), which makes understanding gendered patterns in ESE all the more important.

Beyond psychological and cultural explanations, gender differences in entrepreneurial self-efficacy are also shaped by economic constraints. Thébaud (2010) shows that women's entry into entrepreneurship is more sensitive to financial risk and potential income loss, reflecting gendered differences in economic security. These asymmetric risk conditions can discourage entrepreneurial engagement and influence how women assess their entrepreneurial capability, thereby indirectly shaping self-efficacy. Such constraints may be further reinforced by gendered evaluation practices among financial gatekeepers, which can limit women's access to external finance and, in turn, their opportunities to accumulate entrepreneurial experience (Carter et al., 2007).

At the country level, Finland is high on global gender-equality indices, ranking second in the Global Gender Gap Report (World Economic Forum, 2025), and offers strong institutional support for entrepreneurship. Yet, GEM-based analyses show a persistent gender gap in entrepreneurial activity: women are less likely than men have entrepreneurial intentions and report lower perceived entrepreneurial skills (Saarela et al., 2024). These findings are in line with broader cross-national evidence that gender gaps in perceived entrepreneurial skills and confidence remain considerable even in advanced, equality-oriented economies (Koellinger et al., 2013). Taken together, prior research suggests that gendered ideas about entrepreneurship and persistent differences in perceived abilities translate into systematically lower ESE among women, even in contexts where equality is relatively high and formal barriers relatively low. We therefore hypothesize:

H1. Women report significantly lower entrepreneurial self-efficacy (ESE) than men, even within an equality-oriented context such as Finland.

Social cognitive theory posits that self-efficacy develops through mastery experiences, i.e., successful performance of relevant tasks, as well as vicarious learning, social persuasion, and the interpretation of affective states, all of which affect the objectives, effort, and persistence of individuals (Bandura, 1997). In the entrepreneurial domain, owning and actively managing a business provides rich opportunities for mastery experiences: entrepreneurs identify business opportunities, mobilize resources, acquire customers, and cope with uncertainty. Handling entrepreneurial challenges in practice gives individuals concrete evidence that they can, in fact, handle such challenges, thereby strengthening ESE. Empirical studies support this mechanism. Zhao et al. (2005) show that previous entrepreneurial experience positively predicts ESE, which in turn mediates the relationship between experience and entrepreneurial intentions. Similarly, Chen et al. (1998) find that entrepreneurs score higher on ESE than managers, suggesting that the experience of starting and running a business is associated with stronger ESE. Also, a comprehensive systematic review by Newman et al. (2019) shows that entrepreneurial experience—whether captured as prior founding, self-employment, or similar role

exposure—is one of the most consistent antecedents of higher ESE, while more recent meta-analytic evidence confirms the robustness and relevance of ESE for entrepreneurial outcomes (Glosenberget al., 2022).

Current business ownership can be considered a particularly strong form of mastery experience: individuals who are presently running a business are continuously exposed to entrepreneurial tasks and feedback, which should reinforce their belief that they can successfully perform entrepreneurial roles. In line with this reasoning and prior studies, we hypothesize:

H2. Entrepreneurial experience, operationalized as current business ownership, positively predicts entrepreneurial self-efficacy.

Gender differences in ESE do not arise solely from internalized stereotypes. They are also shaped by gendered patterns of entrepreneurial activity. Cross-national studies show that women are less likely than men to be nascent entrepreneurs or business owners, and that this lower propensity is strongly associated with lower perceived entrepreneurial skills (Koellinger et al., 2013). Using GEM data for Finland, Saarela et al. (2024) similarly show a persistent gender gap in start-up intentions and perceived entrepreneurial skills, along with higher fear of failure among women. These findings suggest that in apparently egalitarian contexts, women's lower participation in entrepreneurship is coupled with lower self-assessed capability in the entrepreneurial domain.

Prior studies demonstrate that entrepreneurial experience and related learning opportunities influence entrepreneurial intentions largely by increasing ESE (Ciuchta & Finch, 2019; Zhao et al., 2005), and that the translation of experiential inputs, such as education, into ESE is gendered (Wilson et al., 2007; Shinnar et al., 2014). Recent work also finds that ESE mediates the effect of perceived public support on entrepreneurial intentions and that this indirect effect is stronger for women than for men (Ouni & Jarboui, 2025). Furthermore, evidence from a study by Demsey and Jennings (2014) suggests that prior successful entrepreneurial activity mediates the relationship between gender and ESE. Ciuchta and Finch (2019), however, argue that there is little to suggest that the impact of entrepreneurial experience on ESE should vary across genders. Indeed, their study confirms that ESE mediates the influence of experience on intentions but finds little difference between men and women. They further suggest that the "initial entrepreneurial experiences may be less likely to occur for females" (p. 8). Indeed, it is reasonable to expect that men's higher likelihood of owning and managing a business gives them more opportunities to accumulate mastery experiences in the entrepreneurial domain, thereby elevating their ESE. Women, by contrast, are less often business owners and therefore have fewer opportunities to build ESE through entrepreneurial experience.

In sum, existing mediation models have mostly cast ESE as the mediator between experience and entrepreneurial intentions. We propose that experience—operationalized as current business ownership—acts as a mediator between gender and ESE itself. That is, part of the observed gender difference in ESE may reflect differential access to the experiential building blocks of ESE that come with owning and running a business. Testing this mediation provides a way to examine how much of the gender gap in ESE can be attributed to unequal participation in entrepreneurship, over and above any direct effects of gendered norms or stereotypes. Hence, we hypothesize:

H3. Business ownership mediates the relationship between gender and entrepreneurial self-efficacy, so that men's greater likelihood of owning and managing a business partly explains their higher levels of self-belief.

3. Data and Method

3.1 Sample Description

The empirical analysis is based on individual-level data from the 2025 Finnish Global Entrepreneurship Monitor (GEM) Adult Population Survey (APS). The dataset includes 2,050 respondents aged 18–64 years, representing a demographically diverse and nationally balanced sample of the Finnish working-age population. The youngest respondents were 18 years old and the oldest 64. The age distribution was even, with the modal age groups in their early and mid-thirties ($M \approx 41$). Only four cases were missing due to refusal or "don't know" responses, indicating excellent data completeness.

The gender distribution was nearly equal: 915 women (49.6%) and 929 men (50.4%). In terms of household structure, 31.8% lived alone, 33.3% in two-person households, and 34.9% in households with three or more members. Respondents were classified into three household income terciles, representing the lowest, middle, and highest 33% of income earners. Approximately 33.0% were middle-income earners, 23.3% belonged to the

highest-income group, and the remainder to the lowest-income category. Exposure to entrepreneurial role models was relatively common: 53.5% of respondents personally knew at least one entrepreneur, while 46.5% did not. In terms of entrepreneurial activity, 12.7% reported owning and managing a business, whereas 87.3% did not.

3.2 Analytical Approach

All statistical analyses were conducted using IBM SPSS Statistics, version 30 and AMOS version 30. Two complementary analytical strategies were applied to examine how gender and business ownership predict entrepreneurial self-efficacy, while age, household size, income, and role model exposure were included as control variables. Entrepreneurial self-efficacy was measured with the item: “You personally have the knowledge, skill, and experience required to start a new business.” Responses were given on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). For further analysis, respondents were categorized into three groups indicating weak belief (ratings 1–2), moderate belief (rating 3), and strong belief (ratings 4–5).

First, a multinomial logistic regression was used to predict three ordered levels of entrepreneurial self-efficacy (weak, moderate, strong) based on the explanatory variables described above. The reference category for the dependent variable was “weak belief,” and income was entered as three terciles (lowest, middle, highest), with the highest tercile serving as the reference group. Odds ratios (ORs) and 95% confidence intervals (CIs) were reported to assess the magnitude and direction of associations. Listwise deletion was used to handle missing data, and statistical significance was set at $p < .05$.

Second, a bootstrapped mediation analysis was conducted to examine whether business ownership mediates the relationship between gender and entrepreneurial self-belief. Gender (0 = woman, 1 = man) served as the independent variable, business ownership (binary) as the mediator, and entrepreneurial self-efficacy (treated as a continuous indicator based on the five-point scale) as the dependent variable. The mediation model was estimated using structural equation modeling with AMOS, and bootstrapping with 5,000 resamples was applied to obtain bias-corrected confidence intervals for the indirect effect, ensuring robust estimates of mediation strength and reliability. Although entrepreneurial self-efficacy was measured with a single Likert-type item, it was treated as a continuous variable for the purposes of the mediation model, a common approach when the scale has multiple ordered response options and when bootstrapping is used to address non-normality.

The first two hypotheses (H1–H2) were tested using multinomial logistic regression, while H3 was examined through a bootstrapped mediation analysis. This combined strategy enables both the identification of significant predictors of entrepreneurial confidence and the exploration of the mechanisms through which gender influences self-efficacy via entrepreneurial experience.

4. Results

4.1 Multinomial Logistic Regression

The overall regression model provided a significant improvement over the intercept-only model, $\chi^2(16) = 339.36$, $p < .001$, with a Nagelkerke R^2 of .20, indicating a moderate amount of explained variance. Four predictors — gender, age, role model exposure, and business ownership — were statistically significant, whereas household size and income were not consistently significant predictors. Table 1 presents the results of the multinomial logistic regression predicting entrepreneurial self-efficacy (ESE), with “weak belief” as the reference category.

Table 1: Multinomial logistic regression predicting entrepreneurial self-efficacy (reference category = weak belief, $n = 918$)

Predictor	Comparison (DV)	B	SE	OR	95% CI for OR	<i>p</i>
Age (years)	Moderate vs. Weak	−0.021	0.007	0.98	[0.97, 0.99]	.002
	Strong vs. Weak	0.008	0.005	1.01	[1.00, 1.02]	.080
Gender (0=woman, 1=man)	Moderate vs. Weak	−0.813	0.173	0.44	[0.32, 0.62]	< .001
	Strong vs. Weak	−0.402	0.112	0.67	[0.54, 0.83]	< .001
Household size (ref. = three or more persons)	Moderate vs. Weak (one-person hh)	−0.067	0.229	0.94	[0.60, 1.47]	.772

Predictor	Comparison (DV)	B	SE	OR	95% CI for OR	p
	Moderate vs. Weak (two-person hh)	0.098	0.204	1.10	[0.74, 1.65]	.629
	Strong vs. Weak (one-person hh)	0.058	0.150	1.06	[0.79, 1.42]	.699
	Strong vs. Weak (two-person hh)	−0.211	0.137	0.81	[0.62, 1.06]	.124
Role model (knows entrepreneur)	Moderate vs. Weak	−0.327	0.176	0.72	[0.51, 1.02]	.062
	Strong vs. Weak	−0.681	0.117	0.51	[0.40, 0.64]	< .001
Income (mid vs. high)	Moderate vs. Weak	−0.269	0.134	0.76	[0.59, 0.99]	.045
	Strong vs. Weak	−0.388	0.160	0.68	[0.50, 0.93]	.015
Income (low vs. high)	Moderate vs. Weak	−0.064	0.202	0.94	[0.63, 1.40]	.753
	Strong vs. Weak	−0.099	0.243	0.91	[0.56, 1.46]	.684
Owns and manages business	Moderate vs. Weak	−1.137	0.315	0.32	[0.17, 0.60]	< .001
	Strong vs. Weak	−2.396	0.199	0.09	[0.06, 0.14]	< .001

Note. OR = odds ratio; CI = confidence interval. Nagelkerke $R^2 = .20$; Model $\chi^2(16) = 339.36$, $p < .001$.

Older individuals were less likely to report moderate entrepreneurial self-efficacy compared to younger respondents (OR = 0.98, $p = .002$), indicating a small but consistent negative association between age and moderate self-belief. Gender differences were also clear: women were significantly less likely than men to report either moderate (OR = 0.44, $p < .001$) or strong (OR = 0.67, $p < .001$) entrepreneurial self-efficacy. Knowing an entrepreneur personally increased the likelihood of strong ESE (OR = $1/0.51 \approx 1.96$, $p < .001$), confirming the positive role of role model exposure in strengthening entrepreneurial confidence. Business ownership was the strongest predictor in the model. Owners were over three times more likely to report moderate ESE (OR = $1/0.32 \approx 3.13$, $p < .001$) and more than eleven times more likely to report strong ESE (OR = $1/0.09 \approx 11.11$, $p < .001$) compared to non-owners. Household size did not show any significant relationship with ESE: respondents living alone, with two people, or with three or more persons reported similar confidence levels. Income terciles also showed mixed but generally weak associations; while middle-income respondents showed a slightly lower probability of high ESE, neither income nor household structure emerged as robust predictors of entrepreneurial self-belief.

4.2 Mediation Analysis: Gender, Business Ownership, and Entrepreneurial Self-Efficacy

To further understand the mechanisms behind the gender gap in entrepreneurial self-efficacy, a mediation analysis was conducted using structural equation modeling. The model examined whether business ownership functions as an intermediary pathway linking gender to entrepreneurial self-belief. A bootstrapping approach with 5,000 resamples was used to obtain bias-corrected confidence intervals for the indirect effect.

The results revealed a clear pattern of relationships. Men were significantly more likely than women to own and manage a business (path a: $\beta = 0.11$, 95% BC CI [0.07, 0.15]), indicating that entrepreneurial experience is unevenly distributed between genders. In turn, business ownership strongly predicted entrepreneurial self-belief (path b: $\beta = 0.39$, 95% BC CI [0.35, 0.43]), even when controlling for gender. Respondents with direct entrepreneurial experience consistently reported higher confidence in their entrepreneurial abilities.

The indirect (mediated) effect of gender on entrepreneurial self-efficacy through business ownership was positive and statistically significant ($\beta \approx 0.04$), with bias-corrected bootstrap confidence intervals that did not include zero. This indicates that part of the gender gap in entrepreneurial self-efficacy can be explained by differences in entrepreneurial experience.

At the same time, the direct effect of gender on entrepreneurial self-belief remained significant (path c: $\beta = 0.11$, 95% BC CI [0.07, 0.15]), demonstrating partial mediation. Men's greater likelihood of having entrepreneurial experience contributes to their higher self-assessed entrepreneurial capability, but other psychological or sociocultural mechanisms, such as confidence norms, perceived risk, or gendered role expectations, continue to shape how men and women evaluate their entrepreneurial competence.

The statistical analyses provided clear evidence in support of the study's three hypotheses.

H1, which predicted that women would report significantly lower entrepreneurial self-efficacy (ESE) than men, was supported. Women were consistently less likely than men to express confidence in their entrepreneurial abilities, even after controlling for demographic and background factors. This finding confirms that gender differences in entrepreneurial self-belief persist in Finland, despite the country's reputation as one of the most gender-equal societies in the world.

H2, which proposed that entrepreneurial experience, operationalized as current business ownership, positively predicts self-efficacy, also received strong empirical support. Individuals who owned and managed a business reported substantially higher levels of ESE than those without such experience. This result reinforces the theoretical argument that direct entrepreneurial engagement strengthens confidence through mastery and experiential learning.

H3 addressed the mediating role of business ownership in the relationship between gender and entrepreneurial self-efficacy. This hypothesis was also supported. The mediation analysis showed that part of the gender gap in ESE can be explained by differences in entrepreneurial experience: men were more likely to own and manage a business, and this experience was strongly associated with higher confidence. However, the mediation was only partial, suggesting that additional psychological, cultural, or social factors continue to influence gendered patterns of entrepreneurial self-efficacy.

Taken together, these results confirm the study's conceptual model. Gender remains an important factor shaping entrepreneurial confidence, but much of this difference operates through unequal access to entrepreneurial experience. While Finland's institutional equality provides a supportive environment, the findings indicate that experiential and psychological inequalities still play a key role in sustaining the gender gap in entrepreneurial self-efficacy.

5. Discussion and Conclusions

The results of this study provide new evidence on how gender and entrepreneurial experience shape entrepreneurial self-efficacy (ESE) in the Finnish context. Consistent with previous research (e.g., Wilson et al., 2007; Shinnar et al., 2012; Newman et al., 2019), women reported significantly lower levels of entrepreneurial self-efficacy than men, supporting H1. This finding indicates that gender differences in entrepreneurial confidence persist even in societies that are often portrayed as gender-equal. While Finland has long been recognized for its institutional commitment to equality, the labor market remains highly segregated by gender (Finnish Institute for Health and Welfare, 2023). Such structural divisions may limit opportunities for women to gain entrepreneurial experience and contribute to enduring disparities in self-perception and confidence. In this sense, formal equality does not automatically translate into psychological or experiential equality.

The strong positive relationship between entrepreneurial experience and self-efficacy, supporting H2, aligns with Bandura's (1997) social cognitive theory, which identifies mastery experiences as the primary source of self-efficacy. Individuals who own and manage a business reported markedly higher confidence in their entrepreneurial abilities, confirming that ESE is not a static personality trait but a dynamic construct that develops through learning and experience (Markman et al., 2002; Zhao et al., 2005). Importantly, this study contributes to a growing recognition that ESE can function not only as an antecedent of entrepreneurial behavior but also as its outcome. Entrepreneurial experience appears to reinforce self-belief, creating a self-reinforcing cycle in which those who engage in entrepreneurship build further confidence, while those who lack such experience, more often women, are less likely to develop strong entrepreneurial self-efficacy. This dynamic helps explain how gendered participation gaps can persist even in relatively egalitarian contexts.

The partial mediation effect found for H3 deepens this interpretation. Business ownership accounted for part of the gender difference in ESE, but not all of it. This suggests that while entrepreneurial experience strengthens self-belief, broader social and cultural mechanisms continue to shape gendered confidence. These may include gendered expectations, socialization processes, and differences in perceived risk tolerance or legitimacy (Gupta et al., 2009). The findings resonate with the concept of cumulative advantage (Minniti & Bygrave, 2001), where initial disparities in confidence and opportunity amplify over time, sustaining structural and psychological inequalities. Thus, gender gaps in ESE should be understood as emerging from the interaction between individual experience, social learning, and institutional context.

Taken together, the results show that Finland's institutional equality provides a supportive foundation, yet gendered structures and norms within work and entrepreneurship continue to influence confidence formation.

The Finnish labor market remains among the most segregated in Europe (Finnish Institute for Health and Welfare, 2023), and entrepreneurship tends to concentrate in gendered sectors. Such conditions shape who gains access to entrepreneurial experiences and how entrepreneurial capability is perceived. The persistence of gendered patterns in ESE underlines the need to move beyond structural measures of equality toward understanding the psychological and experiential dimensions of entrepreneurship.

From a policy perspective, these findings suggest that closing the gender gap in entrepreneurial confidence requires more than equal access to resources; it also requires equal access to experience. Initiatives that provide opportunities for women to gain direct entrepreneurial exposure through experiential learning, mentoring, and role model programs can help build the mastery experiences necessary to strengthen ESE. Supporting such pathways could mitigate the self-reinforcing cycle that currently disadvantages women and move toward more genuinely inclusive entrepreneurial ecosystems.

Ethics declaration: Ethical approval was not required for this study, as it used anonymized survey data.

AI declaration: Artificial intelligence tools were employed only for linguistic refinement, such as grammar editing and improving wording. All analyses, interpretations, and substantive contributions to the manuscript were produced by the authors.

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Strategic Planning as a Mediator of Gender Differences in Environmental Responsibility

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Abstract: This study examines whether strategic planning explains gender differences in environmental responsibility among owner-managers in small and medium-sized food sector enterprises. While prior research has produced mixed findings regarding gender and pro-environmental behavior, little is known about the managerial mechanisms through which such differences translate into firm-level sustainability practices. Drawing on survey data from 202 Finnish food sector SME owner-managers, the study employs hierarchical regression analysis and structural equation modelling with bias-corrected bootstrapping, controlling for firm size and entrepreneurial status. Initial regression results showed that men reported higher environmental responsibility than women ($M = 4.26$ vs. 3.72), but this effect became non-significant once strategic planning was included. In the SEM analysis, gender significantly predicted strategic planning ($B = -0.504$, $p = .011$), and strategic planning strongly predicted environmental responsibility ($B = 0.484$, $p < .001$). The indirect effect of gender on environmental responsibility through strategic planning was statistically significant (95% BC CI $[-0.475, -0.054]$), indicating full mediation. These findings suggest that gender differences in environmental responsibility are not primarily attitudinal but embedded in organizational decision-making systems. By identifying strategic planning as a mediating managerial capability, the study contributes to gender and sustainability research and highlights the importance of strengthening strategic capabilities to support environmentally responsible practices in SMEs.

Keywords: Environmental responsibility, Strategic planning, Gender, SME

1. Introduction

Entrepreneurship has long been embedded in a masculine discourse, emphasizing autonomy, competitiveness, and risk-taking as defining entrepreneurial traits (Ahl, 2006; Gupta et al., 2008). This gendered framing has shaped how entrepreneurship is perceived and practiced, often positioning men as the normative entrepreneurs and women as atypical or secondary actors (Jennings & Brush, 2013; Hamilton, 2014). Despite these biases, research increasingly highlights that women entrepreneurs demonstrate distinct orientations, particularly in relation to ethics, community engagement, and sustainability (Figueroa-Domecq et al., 2020; Barrachina Fernández et al., 2021; Kutlu & Ngoasong, 2023).

Prior research in environmental psychology and sustainability management has shown that gender may influence environmental attitudes and behaviors, with many studies suggesting that women exhibit stronger pro-environmental orientations (Zelezny et al., 2000; Hunter et al., 2004). However, findings remain mixed and context-dependent (Vicente-Molina et al., 2018). At the organizational level, these gendered orientations may manifest through managerial and strategic practices that shape how sustainability is enacted within firms.

In small and medium-sized enterprises (SMEs), environmental responsibility, defined as proactive efforts to manage and reduce environmental impacts, depends heavily on leadership orientation and managerial capabilities. One such capability is strategic planning (SP), a structured process through which firms set goals, allocate resources, and coordinate actions. Although the relevance of formal planning for small firms has been debated, a large body of research shows that SP enhances both financial and non-financial performance (George et al., 2019; Brinckmann et al., 2010), and supports systematic integration of sustainability goals into business strategy (Mazzarol et al., 2009; Smolka et al., 2018).

From this perspective, strategic planning may act as a mechanism linking individual-level attributes, such as gender, to organizational sustainability outcomes. Strategic orientation can drive proactive environmental practices (Aragón-Correa & Sharma, 2003; Engert et al., 2016), while firm characteristics, such as planning formality or size, can shape how strongly such values are translated into action (Hörisch et al., 2014). Thus, differences in environmental responsibility across genders may arise not only from attitudinal or value-based differences but also from variations in strategic management practices, suggesting that environmental responsibility is shaped not only by who entrepreneurs are but also by what they do.

Building on this literature, the present study integrates demographic and strategic variables into a unified framework to examine how gender and strategic planning jointly influence environmental responsibility among

Finnish SMEs in the food industry. Specifically, it explores whether gender differences in environmental responsibility are mediated or moderated by strategic planning. Unlike prior studies that focus primarily on gender differences in environmental attitudes, this study identifies a concrete managerial mechanism through which such differences are translated into organizational outcomes. By examining strategic planning as a mediating capability, it shifts the focus from individual values to managerial systems that structure sustainability-related decision-making. In doing so, the study adds value to gender and sustainability research by demonstrating how organizational processes can channel or neutralize gendered patterns in entrepreneurial behavior.

2. Theoretical Framework and Hypotheses Development

2.1 Entrepreneurship, Gender, and Sustainability

Entrepreneurs play a crucial role in advancing sustainability. Through their decisions, they influence not only economic growth but also environmental and social outcomes. Sustainable entrepreneurs are capable of integrating environmental considerations into their business strategies and of developing innovations that reduce ecological harm while maintaining competitiveness (Saari & Joensuu-Salo, 2019; Cohen & Winn, 2007; Shepherd & Patzelt, 2011). Thus, entrepreneurship has a significant potential to contribute to addressing pressing global challenges such as climate change and biodiversity loss (Stubbs, 2017).

Prior research on gender and entrepreneurship suggests that male and female leaders employ distinct managerial approaches, which in turn produce different outcomes (Wang et al., 2018). This is not surprising, given that entrepreneurship itself is not a gender-neutral activity. Decades of scholarship have shown that entrepreneurship has been historically framed within a masculine discourse, in which attributes such as aggressiveness, competitiveness, and risk-taking are valorized, while relational and community-oriented traits are undervalued (Gupta et al., 2008; Ahl, 2006; Hmieleski & Sheppard, 2019). Extending this line of inquiry, extensive research points to socialization processes as fundamental drivers of gender differences in leaders' backgrounds, managerial approaches, preferences, and behavioral tendencies (Ely & Padavic, 2007; Wood & Eagly, 2012; Fitzsimmons & Callan, 2016). These differences are not merely symbolic; they may shape how women and men allocate and manage human and financial resources in their firms and, consequently, the performance outcomes they realize (Hill, Upadhyay, & Beekun, 2015; Post & Byron, 2015; Wang et al., 2018). Such gendered expectations and patterns may therefore influence how men and women approach strategy, planning, and sustainability in their entrepreneurial activities.

Emerging studies on gender and sustainable entrepreneurship indicate that women entrepreneurs often express a higher concern for environmental and social issues (Barrachina Fernández et al., 2021) and utilize broader professional and social networks to address sustainability challenges (Otsios & Farooqi, 2017). This suggests that sustainable entrepreneurship might provide a space where traditional masculine norms are challenged. Yet, the empirical evidence remains limited, especially regarding how gender differences translate into concrete managerial processes such as strategic planning and their subsequent effects on firm-level sustainability performance.

2.2 Strategic Planning and its Broader Implications

Strategic planning (SP) has been a central topic in management research for decades (Wolf & Floyd, 2017). While earlier studies yielded mixed results regarding its effectiveness, most contemporary research provides strong support for its positive role in organizational performance (George et al., 2019; Brinckmann et al., 2010; Kraus et al., 2006). Meta-analytic findings indicate that SP enhances performance by providing structure, direction, and adaptability, rather than causing rigidity or inefficiency (George et al., 2019).

Recent scholarship also highlights that performance is a multidimensional construct, encompassing not only financial outcomes but also non-financial aspects such as innovation, employee well-being, and environmental responsibility (Amoo et al., 2023; Kennerley & Neely, 2003; Lämsiluoto et al., 2019). In dynamic environments, planning helps firms to anticipate change, coordinate actions, and allocate resources efficiently (Mazzarol et al., 2009; Meloche & Plank, 2006). Particularly in small and medium-sized enterprises (SMEs), where resources are limited, SP can strengthen learning and resilience by linking short-term actions with long-term goals (Smolka et al., 2018; Leitner & Guldenberg, 2010).

Although much of the SP literature has focused on financial performance, its potential influence extends to sustainability-oriented behavior. A well-developed planning process enables entrepreneurs to integrate environmental objectives into their business models, identify sustainability-related opportunities, and balance

economic and ecological priorities. Consequently, strategic planning can be seen as a managerial capability that facilitates proactive environmental responsibility.

2.3 Gender, Strategic Planning, and Environmental Responsibility

Drawing from the two literature streams above, gender differences in environmental responsibility may partly arise from underlying differences in strategic management orientation. If male entrepreneurs tend to adopt more formalized and systematic planning approaches than their female counterparts, this could explain why they report higher levels of environmental responsibility. At the same time, strategic planning may act as a mechanism that enables both men and women entrepreneurs to translate intentions into concrete, proactive sustainability actions.

Accordingly, this study proposes and tests the following hypotheses:

H1: Men report higher levels of environmental responsibility than women.

H2: Men report higher levels of strategic planning than women.

H3: Strategic planning is positively associated with environmental responsibility.

H4: Strategic planning mediates the relationship between gender and environmental responsibility, such that gender differences in environmental responsibility diminish when strategic planning is taken into account.

H5: The relationship between strategic planning and environmental responsibility is moderated by gender, such that the strength of the association differs between men and women.

Firm size and entrepreneurial status (solo entrepreneur vs. others) were included as control variables in all regression models to account for structural differences between firms.

3. Data and Method

3.1 Data Collection

The survey data was collected in 2024 from Finnish small and medium-sized enterprises (SMEs) operating in the food industry. An online questionnaire was distributed to all Finnish food industry firms identified through the Vainu database, which includes information on all limited liability companies in Finland. After data collection, large enterprises with at least 250 employees were excluded. The final response rate was around 10%, resulting in 202 responses from SME CEOs and owner-managers. Among the respondents, about 40% were women and 60% men. In terms of age, 22% were under 40 years old, 29% were aged 40–49, another 29% were between 50 and 59, and 21% were at least 60 years old. Regarding firm size, 35% were solo entrepreneurs, 24% employed 2–4 people, 15% had 5–9 employees, 9% employed 10–19 individuals, and 17% had at least 20 employees. Due to missing data on some variables, the structural equation modelling was conducted on 171 complete cases.

3.2 Variables

All measurement instruments were adapted from previously validated scales. Strategic planning (SP) was measured using four items from Posch and Garaus (2020), and environmental responsibility was measured using items from González-Benito and González-Benito (2005). A seven-point Likert scale was applied throughout (1 = strongly disagree or much worse than competitors; 7 = strongly agree or much better than competitors). The scale items were as follows:

Strategic planning

In our company we...

- ...have clear business goals.
- ...know what we need to do to reach our business goals.
- ...have a clear strategy for achieving our business goals
- ...have a clear plan how to implement our business model.

Environmental proactivity

Please evaluate to what extent the following statements related to environmental responsibility apply to your company's operations (1–7):

- We have clear goals and long-term plans for managing environmental impacts.
- We have established procedures for measuring and assessing our environmental impacts.
- We utilize environmental aspects in our marketing.
- We take environmental considerations into account when selecting subcontractors/suppliers.
- We replace environmentally harmful materials/components with environmentally friendly ones.
- We consider reusability and recyclability in our packaging design.
- We prefer environmentally friendly products/materials in our purchasing decisions.

Gender was coded as follows: woman = 0, man = 1, other = missing.

The reliability and dimensionality of the multi-item constructs were examined using Principal Axis Factoring (PAF) and Cronbach's alpha. Both the strategic planning (four items) and environmental responsibility (seven items) scales demonstrated a clear one-factor structure, supporting their unidimensionality. The extracted factors explained 76.9% and 64.2% of the total variance, respectively. All items loaded strongly on their respective factors (loadings ≥ 0.76), and the internal consistency of both scales was excellent, with Cronbach's alpha coefficients of 0.93 for each construct. These results confirm the strong reliability and construct validity of the measurement instruments.

4. Results

4.1 Linear Regression Analysis

As preliminary analyses, hierarchical linear regressions were conducted to examine the associations among gender, strategic planning, and environmental responsibility before estimating the structural mediation model. Descriptive statistics showed that men reported higher environmental responsibility ($M = 4.26$, $SD = 1.15$) than women ($M = 3.72$, $SD = 1.09$).

In the first regression model, gender significantly predicted environmental responsibility ($\beta = -0.182$, $p = .011$), indicating that men reported higher environmental responsibility than women. Adding entrepreneurial status (solo entrepreneur vs. others) did not improve model fit ($\Delta R^2 = 0.000$, $p = .797$). When strategic planning was entered in Model 3, the explanatory power increased substantially ($\Delta R^2 = .232$, $p < .001$). Strategic planning was a strong positive predictor of environmental responsibility ($\beta = 0.495$, $p < .001$), and the previously significant gender effect became nonsignificant ($\beta = -0.079$, $p = .226$), suggesting a potential mediating role of strategic planning. Finally, the interaction term between gender and strategic planning was tested, but it was not statistically significant ($\beta = -0.141$, $p = .521$), indicating that the strength of the relationship between strategic planning and environmental responsibility does not differ between men and women. The regression results are summarized in Table 1.

Table 1: Hierarchical Linear Regression Predicting Environmental Responsibility (SPSS results)

Predictor	Model 1 β (p)	Model 2 β (p)	Model 3 β (p)	Model 4 β (p)
Gender (0 = woman, 1 = man)	-0.182 (.011)*	-0.176 (.017)*	-0.079 (.226) ns	0.059 (.794) ns
Solo entrepreneur (0 = no, 1 = yes)	—	-0.019 (.797) ns	0.020 (.762) ns	0.019 (.763) ns
Strategic planning	—	—	0.495 (<.001)***	0.526 (<.001)***
Gender $\times$ Strategic planning	—	—	—	-0.141 (.521) ns
R^2	.033	.033	.265	.267
ΔR^2	.033	.000	.232	.002
Adj. R^2	.028	.023	.254	.251
F	6.651 (* $p = .011$)	3.343 (ns)	23.201 (*** $p < .001$)	17.451 (*** $p < .001$)
F Change	—	0.066 (ns)	60.854 (*** $p < .001$)	0.413 (ns)

Dependent variable: Environmental responsibility

Notes: Standardized β coefficients reported. Gender coded 0 = woman, 1 = man. ns = non-significant; * $p < .05$; *** $p < .001$.

4.2 Mediation Analysis

Using a structural equation model ($n=171$) estimated in AMOS with bias-corrected bootstrapping (5,000 resamples), we examined whether strategic planning mediates the relationship between gender and environmental responsibility while controlling for entrepreneurial status and firm size ($\ln$). Gender significantly predicted strategic planning ($B = -0.504$, $SE = 0.198$, $p = .011$; $\beta = -.185$), indicating that women reported lower levels of strategic planning than men. Strategic planning, in turn, was a strong and significant predictor of environmental responsibility ($B = 0.484$, $SE = 0.074$, $p < .001$; $\beta = .451$).

When strategic planning was included in the model, the direct effect of gender on environmental responsibility became nonsignificant ($B = -0.159$, $SE = 0.194$, $p = .414$; $\beta = -.054$). The bias-corrected bootstrap confidence interval for the indirect effect of gender on environmental responsibility through strategic planning was statistically significant (indirect effect = -0.244 , 95% BC CI $[-0.475, -0.054]$), demonstrating that the relationship is fully mediated by strategic planning (see Table 2).

These findings support the theoretical model, suggesting that gender differences in environmental responsibility are explained by differential engagement in strategic planning.

Table 2: Mediation of the Gender and Environmental Responsibility Relationship via Strategic Planning (AMOS results)

Step	Regression Path	Std. β	B (SE)	CR / z	p	Bootstrap 95% BC CI	Interpretation
1	Gender → Strategic planning	-.185	-0.504 (0.198)	-2.546	.011	$[-0.915, -0.108]$	Gender predicts SP
2	Strategic planning → Environmental responsibility	.451	0.484 (0.074)	6.551	< .001	$[0.309, 0.639]$	SP significant predictor
3	Gender → Environmental responsibility (direct effect, SP included)	-.054	-0.159 (0.194)	-0.817	.414	$[-0.552, 0.232]$	Direct effect nonsignificant
4	Indirect effect: Gender → SP → Environmental responsibility	-.083	-0.244 (bootstrapped)	—	.010	$[-0.475, -0.054]$	Full mediation supported

The empirical results provided mixed support for the proposed hypotheses. H1, which predicted that men would report higher levels of environmental responsibility than women, received initial support only in the bivariate stage. However, in the structural equation model estimated in AMOS, gender did not significantly predict environmental responsibility once strategic planning and controls were included ($B = -0.159$, $SE = 0.194$, $p = .414$; $\beta = -.054$). This indicates that gender differences in environmental responsibility are not direct but instead operate through strategic planning.

H2 proposed that men would exhibit higher levels of strategic planning than women. This hypothesis was supported: gender significantly predicted strategic planning ($B = -0.504$, $SE = 0.198$, $p = .011$; $\beta = -.185$), showing that women reported lower levels of strategic planning.

H3 stated that strategic planning would positively predict environmental responsibility. This hypothesis received strong support. In the AMOS model, strategic planning was a robust and highly significant predictor of environmental responsibility ($B = 0.484$, $SE = 0.074$, $p < .001$; $\beta = .451$).

H4 posited that strategic planning mediates the relationship between gender and environmental responsibility. This hypothesis was supported. When strategic planning was included in the model, the direct effect of gender on environmental responsibility became nonsignificant, whereas the indirect effect was statistically significant (indirect effect = -0.244 ; 95% BC CI $[-0.475, -0.054]$). The use of bias-corrected bootstrapping with 5000 resamples confirmed that strategic planning functions as a full mediator: gender influences environmental responsibility only through its effect on strategic planning.

Finally, H5, which proposed that gender moderates the relationship between strategic planning and environmental responsibility, was not supported. The interaction term was nonsignificant ($\beta = -0.141$, $p = .521$),

indicating that the positive association between strategic planning and environmental responsibility is equally strong for men and women.

Overall, the findings indicate that gender differences in environmental responsibility operate indirectly through strategic planning rather than directly influencing sustainability behavior. Strategic planning thus emerges as a key managerial capability that promotes environmentally responsible behavior across genders rather than amplifying or diminishing gender-based differences.

5. Discussion

This study set out to examine how gender influences environmental responsibility among SME owner-managers and whether strategic planning mediates or moderates this relationship. The findings provide important theoretical and practical insights into the interplay between gendered entrepreneurial orientations and managerial practices shaping sustainability in SMEs.

The results confirm that gender initially relates to environmental responsibility, with men reporting higher levels of environmentally responsible practices. This pattern contrasts with earlier studies suggesting that women exhibit stronger pro-environmental attitudes (Zelezny et al., 2000; Hunter et al., 2004) yet aligns with more recent evidence that gender effects on sustainability behavior are context-dependent and shaped by organizational and structural factors (Vicente-Molina et al., 2018). Furthermore, our findings suggest that gender differences observed at the attitudinal level do not necessarily translate directly into firm-level practices. Within the SME context, where formalized management processes may vary significantly, sustainability engagement appears to depend less on gendered values and more on the managerial systems through which such values are operationalized. We interpret this to mean that environmental responsibility in SMEs is shaped primarily by strategic formalization rather than by gender per se.

Consistent with the strategic management literature, strategic planning emerged as a robust predictor of environmental responsibility. This supports prior research identifying strategic orientation and planning as critical drivers of sustainability performance (Aragón-Correa & Sharma, 2003; Engert et al., 2016) and reinforces the notion that structured, long-term planning helps SMEs anticipate, coordinate, and embed sustainability goals (Brinckmann et al., 2010; George et al., 2019). Importantly, the mediating role of strategic planning extends this literature by demonstrating that planning is not only associated with sustainability outcomes but also explains how demographic differences are translated into organizational behavior. Thus, while men may be more likely to adopt formalized strategic processes, these processes themselves appear to enable environmentally proactive behavior across both genders.

The absence of a moderation effect suggests that strategic planning benefits both male- and female-led firms similarly, strengthening the idea that effective management systems can neutralize gendered disparities in sustainability engagement. This finding contributes to the debate on whether structural practices can mitigate the influence of socially constructed gender norms within entrepreneurship (Ahl, 2006; Hmieleski & Sheppard, 2019). Rather than reinforcing gendered patterns, strategic planning appears to function as an equalizing managerial capability, providing a shared institutional framework for environmental responsibility regardless of the entrepreneur's gender.

5.1 Theoretical Contributions and Practical Implications

This study makes several contributions to research on sustainable entrepreneurship and strategic management.

First, it bridges individual-level gender research and firm-level strategic management by showing how strategic planning mediates the relationship between gender and sustainability outcomes. While previous studies have emphasized gender differences in attitudes or motivations, this study demonstrates that such differences translate into organizational behavior through specific managerial mechanisms.

Second, it extends the strategic planning–performance literature by identifying environmental responsibility as a key non-financial outcome of strategic management in SMEs. This complements prior meta-analytic evidence linking planning to financial performance (George et al., 2019) by showing that strategic planning also supports broader sustainability objectives.

Third, the study advances feminist and organizational perspectives on entrepreneurship by illustrating that gendered behavior in sustainability is not fixed but contingent upon organizational context. Strategic planning acts as an institutional process that can either reproduce or counteract gendered patterns of management, offering a new lens for examining equality in sustainable business practices.

For practitioners and policymakers, the findings underscore the value of embedding strategic planning capabilities within SME support and training programs. Encouraging formalized goal setting, long-term sustainability planning and environmental performance monitoring could strengthen SMEs' contributions to the green transition. Importantly, gender-sensitive entrepreneurship policies should not only target attitudinal change but also promote access to strategic tools and resources that empower all entrepreneurs to manage sustainability systematically.

For practitioners and policymakers, the findings underscore the value of embedding strategic planning capabilities within SME support and training programs. By identifying strategic planning as a mediating managerial capability, the study provides a concrete lever for enhancing environmental responsibility in small firms. Rather than focusing solely on gender-based differences in environmental attitudes, entrepreneurship policies and advisory services should promote structured goal setting, long-term sustainability planning, and systematic environmental performance monitoring. Strengthening strategic capability development can serve as a scalable intervention that supports environmentally responsible practices across diverse entrepreneurial profiles and contributes to the broader green transition.

5.2 Limitations and Future Studies

As with all survey-based studies, the findings are limited by their cross-sectional nature and reliance on self-reported data. Longitudinal or qualitative research could further clarify how gendered managerial practices evolve over time and how strategic planning routines are institutionalized within SMEs. Future studies could also investigate other contextual variables, such as industry dynamics, ownership structure, or leadership experience, that may interact with gender and strategy in shaping sustainability outcomes.

Overall, the study provides empirical evidence that strategic planning mediates the relationship between gender and environmental responsibility in SMEs. Gender differences in sustainability engagement are thus not merely individual or attitudinal but embedded in organizational decision-making systems. By identifying strategic planning as a key managerial capability that converts sustainability intentions into concrete action, this research highlights the importance of integrating gender-sensitive and strategic perspectives in both sustainability theory and SME policy.

Ethics declaration: Ethical approval was not required for this study, as it used anonymized survey data.

AI declaration: Artificial intelligence tools were employed only for linguistic refinement, such as grammar editing and improving wording. All analyses, interpretations, and substantive contributions to the manuscript were produced by the authors.

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The Construction of Gender Identities in Greek Children's Graphic Novels

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Abstract: Graphic novels initially emerged as a genre primarily addressed to an adult audience, due to the complexity of their thematic content, extensive textuality, and sophisticated visual narration. However their growing popularity and increasing recognition as a form of high-quality reading have gradually facilitated their expansion into the field of children's publishing. Consequently children's graphic novels have become an established and distinct category within contemporary children's literature. Recent research highlights their potential to engage young readers through the dynamic interaction of image and text, while also supporting literacy development and reading motivation. Apart from their recreational value, graphic novels have been increasingly acknowledged for their pedagogical applications, leading to their incorporation into primary and secondary educational contexts. Similar to literature in general, graphic novels perform an important socializing function, contributing to children's understanding of themselves and the world around them, through identification with fictional characters. In this regard, the fiction that children read can strongly influence the development of their gender identities, as they often internalize gender roles and behaviors depicted in books as socially acceptable. This highlights the need for careful and critical analysis of how gender is represented in children's graphic novels. Building on the above discussion, the present study investigates gender representations in Greek children's graphic novels, focusing on the ways in which masculinity and femininity are constructed and conveyed. The analysis examines two recent works, *Stone* (2023) and *The Days When There Is No School* (2024), which were selected due to their contemporary publication and relevance within the field of children's graphic literature. A qualitative content analysis was applied in order to identify and interpret patterns of gender representation across textual and visual elements. The findings indicate that although both books reflect a contemporary aesthetic and a modern conceptualization of childhood—consistent with their recent publication—they nonetheless continue, at times, to reproduce implicit stereotypical gender representations. These results indicate the persistence of subtle gender norms even within recent and ostensibly progressive children's books.

Keywords: Graphic novel, Gender, Representation, Children's literature, Stereotypes

1. Graphic Novels for Children

Graphic novel is a relatively recent narrative form that has gained increasing popularity over the past decades. As a genre, it is difficult to be defined within rigid generic boundaries due to the fact that it constantly evolves, both in form and thematic scope. This fluidity is evident through the different terms that have been employed to describe these narratives. Funnies, comics and manga are only some of the terms referring to graphic narrations, with graphic novel emerging as the most widely accepted one in recent decades.

Gallo and Weiner (2004) argue that graphic novel combines verbal and visual modes which require from the reader to decode them at the same time in order to extract the full meaning of the story. Thus, through this simultaneous reading and viewing, graphic novel creates an experience relative to cinematic narration. Although it closely resembles comics in its use of structural features such as panels, frames and speech balloons, it differs in several notable aspects. Firstly, graphic novel typically presents a sequential narration developed at the length of a conventional book (Gorman, 2003). Secondly, it has the binding of a traditional book (Schwartz, 2006) and is commonly distributed through bookstores. Thirdly and most importantly, graphic novel presents a wide thematic range, including historical, social, political and biographical narratives, as well as adaptations of classic literature.

The engagement of the genre with serious and demanding themes such as war, exile and the holocaust, combined with extended narrative length and complex visual design have led graphic novels to be considered unsuitable reading material for children. In addition, the inclusion of sexual or violent scenes in certain occasions reinforced the classification of graphic novels as adult books (Goldsmith, 2010). However, the gradual acceptance of graphic novels as high-quality reading material combined with their growing popularity has led to their expansion within children's publishing. As a result children's graphic novels are now recognized as a distinct category within children's literature, characterized by specific formal and narrative features. While they retain the fundamental technical conventions of adult graphic novels, these books depict characters and storylines in a simpler manner. They tend to feature fewer and larger panels, a shorter overall length and more vivid and pleasant colors, typically found in illustrated children's books. Additionally, their thematic content is generally approachable to younger ages and relevant to children's experiences and interests (Weber, 2010).

Children's graphic novels are considered to be highly beneficial for young readers in different pedagogical aspects, while also promoting engagement with reading (Lopes, 2009). More specifically, graphic novels can assist early readers who have not yet mastered their reading skills, as these children rely heavily on visual cues to extract meaning (Kelley, 2010). Furthermore, the short texts and strong visual elements of graphic novels can function as a transitional medium, helping inexperienced readers move towards text-only books (Gorman, 2003). Graphic novels can also benefit older children, as research indicates that while reading these books, children employ their critical thinking and visual analysis skills in order to fully understand the narrative (Seglem and Witte, 2009). Additionally engagement with graphic novels, as with every fictional narrative, enhances reading skills (Pantaleo and Sipe, 2012) and cultivates empathy in children (Kidd and Castano, 2013). Moreover these books can be used in the classroom as a pedagogical tool, assisting children's understanding of challenging concepts and complex information (Jennings et al., 2014). In addition, when children read graphic novels, they are exposed to the illustrations' styles and aesthetic. This process familiarizes young readers with artistic forms, fostering an appreciation of art in general and through experience, gradually cultivates a more refined aesthetic judgement (Pantaleo, 2014).

2. Gender Socialization and Books

Like all narrative forms, the graphic novel conveys ideology, meaning the system of beliefs through which a society interprets and explains the world. These belief systems penetrate language and social practices, shaping behavior and shared social representations (McCallum and Stephens, 2011). However ideologies are not inherently positive. Their value can be assessed according to the social practices and behaviors they generate (Van Dijk, 2001). Therefore it is essential to examine the ideology of books, especially those addressed to children, as young readers are generally considered more susceptible to the influence of texts due to their limited experience and critical ability (Fitzpatrick and Kostina-Ritchey, 2013).

Despite their inexperience, children are found to be highly perceptive, which helps them absorb knowledge from their environment (Larson and Marsh, 2005). Through the stimuli to which they are exposed, they draw new information, incorporating it to previous knowledge, constantly forming new ideas (Elliker, 2005). Thus the texts and pictures of children's literature have the potential to influence children's attitudes and beliefs during these critical years of development (Kramer, 2001 · Alqahtani, 2024). Despite their recreational and educational functions, children's books influence young readers' socialization, as they provide models of socially accepted behaviors. More specifically, when children read or listen to a story they tend to identify with the fictional characters or situations, and through this identification they consider their own feelings and beliefs, during a period in which they are forming their identities (Mendoza and Reese, 2001). Essential part of this process is the formation of gender identity which is shaped through gender role socialization and has a significant influence on an individual's self-esteem (Salkind, 2002).

Bem's Gender Schema Theory suggests that children develop the ability to categorize themselves as female or male at an early age and gradually learn to behave in ways that align with socially defined gender norms (Bem, 1983). As they are encouraged to adopt behaviors and roles considered acceptable or desirable for their gender, children internalize cultural expectations, that in turn shape their sense of identity (Hamilton et al., 2006). Children's literature has been found to influence children's perceptions of gender and consequently the formation of their gender schemas, through the ideologies it expresses (Burr, 2003). More specifically, narratives depict gender behaviors, explicitly or implicitly implying what is appropriate for boys and girls, essentially teaching young readers gender roles (Taylor, 2003).

As research indicates, children's literature may affect children's beliefs, attitudes and even self-image, since fictional characters typically function as role models for the reader (Anderson and Hamilton, 2005). This influence may be either positive or negative depending on the gender ideologies conveyed through the narrative. For example books that represent progressive and diverse gender roles can foster empathy, support children's understanding of diversity, while also promote critical thinking and respect for every individual (Sun, 2014 · Gonçalves et al., 2025). On the contrary many children's books have been found to reproduce gender stereotypes through their storylines, language and pictures, transmitting biased notions about genders to young readers (Kittelberger, 2002 · Adam & Harper, 2023). For instance female characters are often depicted indoors, and engaged in caregiving activities, whereas male characters are more likely to be portrayed as working (Hamilton et al., 2006) or displaying aggressive behavior (Paynter, 2011). Such portrayals affect children negatively, as they convey outdated and limiting beliefs about gender. Since the 1970's when gender stereotypes in children's literature were first systematically identified (Weitzman, 1972), numerous studies have extensively analyzed children's books in relation with their gender ideology. However graphic novels for children have not

yet been examined to the same extent, mostly due to their relatively new emergence as a genre. On this basis children's graphic novels is essential to be also examined scholarly, as this narrative form reaches a large audience of young readers and therefore has the potential to play a significant role in shaping their attitudes and beliefs.

The present analysis aims to examine how gender is represented both in texts and pictures of Greek graphic novels for children, in order to determine whether these works convey contemporary ideologies or reproduce outdated ones. For this purpose two books have been selected for analysis: *Stone* (2023) and *The Days When There Is No School* (2024). Both works are explicitly characterized, published and promoted as graphic novels for children, while they are also the most recent publications of the genre in Greece. In order to unravel both the explicit and the implicit ideology of these books, qualitative content analysis was employed. This methodology was selected because it is considered the most effective one to objectively and scientifically examine ideologies within written, verbal or visual materials (Berelson, 1952), allowing the researcher to examine in depth messages that are conveyed through communication – in this case narratives – and unlock their meanings (Krippendorff, 2004).

3. Findings

The Days When There is no School [Οι Μέρρες που δεν Έχει Σχολείο] is a graphic novel which consists of one complete story and mostly addresses to primary school children (Asteriou, 2024).

Storyline: The narrative is minimalistic in terms of action as it does not feature great adventures, rather it focuses on conveying the atmosphere of a day at school without lesson. The story begins with Babis, one student who is not the protagonist but one student who likes to sleep. The reader dives in his dreams where he encounters hippos flying over candy mountains and singing fishes. The student finally wakes up really late and rushes to school. When he arrives there, he meets the rest of the children. At this point the narration's focus shifts away from Babis to encompass the whole class's experience of a snowy day. The children gather in the classroom in anticipation of the lesson. However the teacher's late arrival signals that this is not an ordinary school day. The students exchange rumors about extreme weather phenomena until the teacher arrives to inform them that due to heavy snowfall they are required to remain in the classroom until road conditions improve and their parents are able to collect them. As a result, children must spend several hours in the classroom without adult supervision or access to the internet. The students decide to amuse themselves through music, singing and dancing. By doing so, they become more familiar with one another, they recognize and express individual talents and they offer mutual support, strengthening their social bonds. Ultimately, as road conditions improve the teacher returns to the classroom and instructs the children to prepare and gather outside in order to be collected by their parents. During this time Babis falls asleep once again and dives into new imaginary adventures. The narrative concludes with the children departing happy and having gained new experiences, sharing the mutual feeling that the days when there is no school are the best.

Characters: The narrative does not feature a single protagonist, a fact that can be apparent from the paratextual elements of the story, such as the title of the book and the cover illustration, which depicts a group of children. In addition, narrative space and attention are equally distributed among the characters. Notably, prior to the main narration, the book devotes the first pages to introduce the child characters to the reader, presenting their names, their picture and their most defining traits. This paratextual material functions as framework for the narrative as the characteristics provided in these introductory pages are in alignment with the roles and behaviors the children later display within the plot. Of the fourteen characters featured in the story, the majority is depicted in ways that align with contemporary norms while also reproducing recognizable gender stereotypes.

More specifically, three out of the six girls of the class are characterized as beautiful. Penelope, Helen and Cloe are "the pretty girls of the class. They always smile and are in style" (p. 4). The fact that the only information provided about these female characters concerns their physical appearance suggests that their characterization is limited to superficial qualities. This narrative choice implicitly constructs beauty as a sufficient and defining trait for women and girls, excluding other, interesting dimensions of female personality. Furthermore the girls are depicted as attentive to their appearance and interested in contemporary fashion, reinforcing the association between femininity and vanity. As the narrative progresses, the boys of the class are depicted playing music while these girls are portrayed dancing in oriental moves and wearing oriental dance accessories over their clothes, elements also associated with female beauty and attractiveness. The absence of additional traits renders these female characters relatively flat, as their representation is confined in being attractive, fashionable and pleasant.

In addition to beauty, intelligence emerges as a notable trait in the depiction of gender. For example one male character, John, is described as “John is very smart but usually is bored in the classroom and for this he is doing mischiefs” (p.4), whereas a female character, Mara, “is the best student of the class. All children like her” (p.5). From these excerpts it is apparent that only the male character is explicitly identified as intelligent, while the same trait is implied for Mara. Furthermore John’s cleverness is coupled with noncompliance and mischievous behavior, while Mara’s intelligence is associated with organization and conformity to the rules. These contrasted representations reflect stereotypical notions according to which men are more frequently appraised for their intelligence. Additionally boys are more frequently characterized as naughty. For instance apart from John, Chris is also described as “a bit more mischievous than the others” (p.5). These two boys are the only characters of the narrative described with this trait, possibly suggesting that naughtiness is a male characteristic.

Another male character who aligns with conventional gender norms is Marcus, who “is a very cool guy. He likes rock music” (p.5). Marcus is also implied to be popular as three other boys are described to be friends with him, without any further information provided, suggesting that their social significance derives primarily from their association with him. Also, Marcus’s music preferences are typically considered masculine, particularly among “cool” teenage boys. The narrative appears to reproduce gendered biases by depicting most of the male characters engaging in producing music, while no female character is depicted playing an instrument. More specifically, Argyris, who is initially described as “lonely and shy” (p.5) later takes out his electric guitar and is transformed into a rockstar, playing and singing his own songs. Manos, Chris and Tasos follow his lead and accompany him with their instruments, drums, trumpet and percussion. By the end of the day the boys decide to form a music group. Within the narrative, musicality and instrumental performance are exclusively attributed to male characters, who are depicted as actively involved in artistic creation. On the contrary the female characters are presented admiring the male performances or dancing, an activity that traditionally and stereotypically is associated with femininity. Through these depictions the narrative portrays boys as more competent and knowledgeable than girls in relation to music.

Illustration: The illustrations of *The Days* do not overtly reproduce gender bias. More specifically, the pictures of the book employ a wide range of vivid colors that convey a pleasant and inviting atmosphere, aligned with most contemporary picture books for children. All characters are depicted wearing comfortable everyday clothes that children normally wear at school during the winter time like trousers, pullovers, scarves, gloves and beanies in different colors. However the range of colors used in the children’s clothing largely adheres to conventional gender associations. For example boys are mostly dressed in blue, green, red, brown and grey, while girls appear more flexible in their color choices like pink, purple, light blue, green, yellow and red. Additionally the visual depiction of the characters maintains a relative degree of homogeneity. All children are illustrated in the same stylistic manner, with no exaggerations on facial features, such as lips and eyelashes typically found in female depictions. This homogeneity contributes to a more egalitarian representation of the characters.

Stone [Στόουν] is a graphic novel which consists of six episodic stories and is primarily addressed to children in the early years of primary school (Aggelou & Sini, 2023).

Storyline: The narrative unfolds the story of a little male pebble who falls from the surface into the depths of the earth. After the fall, Stone regains consciousness in an unknown place hurt and with no recollection of what has happened to him. Luckily a male centipede named Touk, finds him and takes him under his protection. The first two episodes appear to be introductory. More specifically at the first episode Touk takes Stone to the doctor to attend his wounds and make sure the little pebble is well. At the second episode the two characters search the underground world to find a new home for Stone. The remaining episodes narrate the adventures of the two characters who explore this unknown underground world which is filled with colorful rocks, quicksand, rivers of lava and strange inhabitants. In search of his origins and what has happened to him, Stone embarks on adventurous journeys, navigating with humor through both dangerous and fascinating landscapes. The narrative concludes on a cliffhanger, implying there will be a sequence to Stone’s story.

Characters: *Stone* does not employ third-person narration, therefore there are no explicit descriptions of the characters’ appearance, personality or emotions. Such information is conveyed exclusively through pictures as well as the characters’ actions and dialogues. The main character of the narrative is Stone, a small male pebble who appears to be at the age of a young boy. Stone is likable and easygoing. From the narrative it can be inferred that he is an intelligent pebble as he quickly absorbs complex information about new environments and adapts to them. He also appears to be adventurous, exploring new places in every episode and brave, handling dangerous situations with remarkable calmness. Although he is in danger multiple times, he is depicted crying only twice. Firstly, when he wakes up underground with amnesia, unable to remember anything and secondly,

when a gigantic creature swallows him and captivates him in its dark stomach. However, on both occasions, his friend Touk consoles him and Stone quickly returns to his good mood, ready to find a solution. This depiction of a young 'boy' who occasionally cries aligns with contemporary approaches to masculinity in children's literature, as it challenges stereotypes that associate emotional expression with femininity.

The other main character of the narrative is Touk the centipede. Although Touk does not appear in the book's title or on its cover, like Stone, he is undoubtedly a co-protagonist of the story, since he is equally presented in illustrations and dialogues. Touk appears to be an experienced young adult of unspecified age, who takes on the role of guiding and assisting Stone. Although the two characters develop a close friendship, Touk's instructive and protective behavior often functions as that of a father figure. He is also adventurous and courageous, showing no fear despite the dangers that occur every time. Additionally he is passionate and occasionally angry, especially when someone attempts to mistreat him. Traits such as bravery, anger and adventurousness are typically associated with male representations in literature.

Some of the story's characters perform professions similar to real-life, conveying the atmosphere of an organized underground society. In the first episode, for instance, Touk takes Stone to the doctor to treat his wounds. Interestingly the community's doctor is a female spider, Tina. The choice of a female doctor is a positive representation, as previous research has shown that children's literature often depicts female characters as nurses rather than doctors (Karanikolaou, 2022). However Tina is portrayed as an incompetent doctor, lacking medical knowledge and offering no effective treatment for Stone. In the second episode Touk summons Bloup the plumper, to provide his services. Bloup is a short, male imaginary creature with a thick mustache. His depiction aligns with a stereotypical representation of his profession. Additionally Bloup is portrayed as highly competent. As Touk states: "he is the best plumper!" (p. 24).

Another male character who is presented in a clearly positive manner is Spark, a small flame. Stone accidentally encounters Spark and frees him from the box in which he is imprisoned. Later Spark bravely rescues Stone from an unjust captivity. Despite his courage Spark also stands out for his wit. As he explains to his new friends: the name Spark "does not refer to my appearance" but rather "to my cleverness!" (p.77). Naturally not all characters in the story are portrayed positively. The most negatively depicted character is the ant queen, Tiberiana. She steals the protagonists' personal belongings with the intention to eventually exchange them with food. Stone and Touk pursue her, escape her guards, imprisonment, engage in physical fight and eventually recover their belongings. In this episode Tiberiana is portrayed as greedy and arrogant, constituting a rather unpleasant female character.

Illustration: The illustrations in *Stone* do not overtly reproduce gender stereotypes. Both the landscapes and the characters are mostly depicted in earthy colors and cool tones. This choice of colors probably contributes to a more naturalistic representation of an underground environment, where natural light is absent. However it may also be linked to the fact that the main characters are male. More specifically, Stone is portrayed as a typical young boy. Despite being a little cubic stone, he wears a green jacket, a pair of blue shorts and red sneakers resembling Converse All Stars. Touk wears no clothes except a green pair of gloves, a purple hat and glasses. The female characters Tina and Tiberiana are distinguished by their short bobs and occasionally their full, colored lips. Additionally it is worth mentioning that during their adventures, Stone and Touk accidentally intrude into a house where a female ant is illustrated sweeping the floor while wearing an apron. This visual depiction is perhaps the only one that can be clearly linked with gender bias.

4. Discussion and Conclusions

Both analyzed books employ contemporary stylistic practices, approachable to both female and male child readers. With regard to their illustrations, genders are depicted in a relatively neutral manner. In *The Days*, boys and girls appear with similar features, body built and clothing, providing a more realistic depiction of childhood. Similarly in *Stone* the characters are animals and creatures of an underground world, distinguished primarily by their imaginary, gender neutral features. However, the full colored lips of the only two acting female characters, Tina and Tiberiana, are providing a rather confined representation of femininity, associated with stereotypical notions. Additionally, the female ant illustrated sweeping the floor while wearing an apron, constitutes a biased representation aligned with the sexist belief that domestic chores are women's responsibility.

Regarding their textual ideology, neither book explicitly expresses biased beliefs. However, both texts subtly reproduce stereotypical gender depictions. More specifically in *The Days*, beauty and preoccupation with appearance are attributed exclusively to female characters. Additionally girls are depicted as engaging only in dancing while most of the boys in the class are interested in music. The boys write songs, compose music and

play musical instruments while the text explicitly describes them as talented in those activities. Through this representation it is implied that boys are more knowledgeable and competent in music than girls, thus presenting a more interesting profile. By contrast the girls play a secondary part, framing the boys' performance with their dance. In *Stone*, the main characters are depicted as adventurous, brave and intelligent. Although these traits are desirable for protagonists, they are also aligned with traditional male representations in literature. Moreover, the seemingly progressive choice of portraying the story's doctor as female is undermined from her depiction as incompetent. In general both books avoid explicit references to sexist beliefs, however they appear to carefully stay within traditional gender frameworks, without challenging them through diverse or liberated representations.

Ethics Declaration: Ethical clearance was not required for the current analysis

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Gender Identities and Future Visions Across X and Y Generations: Experiences of Women Entrepreneurs

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Abstract: This study examines how generational values shape women entrepreneurs' discourses on entrepreneurship and the ways in which different age cohorts construct, negotiate and perform entrepreneurial identities within gendered social structures. Drawing on interviews with 24 women entrepreneurs from Generation X and Generation Y, the analysis explores how generational positioning influences narratives of agency, ambition and autonomy, as well as how women envision their entrepreneurial futures through five-year plans. The study conceptualises entrepreneurship as a discursive and identity-building space and employs a performative, relational view of gender to analyse how women articulate gender within a masculine-coded entrepreneurial field. Using the Appreciative Inquiry method, the study uncovers empowering dimensions of women's experiences while revealing generational differences in interpretations of growth and gender. Generation Y emphasise autonomy, flexibility and self-development yet describe these ideals ambivalently, whereas Generation X entrepreneurs frame growth more pragmatically, prioritising stability, continuity and manageable workloads. The findings demonstrate how shifting cultural norms and sociohistorical contexts shape women's entrepreneurial identities, highlighting the coexistence of post-feminist empowerment discourses with enduring gendered constraints and structural inequalities.

Keywords: Generation, Gender, Entrepreneurship, Growth orientation, Post-feminism

1. Introduction

Intergenerational differences play a significant role in shaping how women navigate the tensions between professional ambition and family life (Heath, 2016). Boomer women often fought to establish legitimacy in male-dominated workplaces and embodied the “supermom” ideal, striving to excel simultaneously in paid work and caregiving. In contrast, millennials—socialised in cultures that emphasise affirmation, flexibility and work–life integration (Myers and Sadaghiani, 2010)—tend to expect entrepreneurial opportunities that enable work and personal life to coexist more seamlessly. At the same time, wider cultural discourses position women's entrepreneurship as a privileged site of empowerment. Across news media, policy arenas and popular post-feminist debates, women are repeatedly depicted as turning to entrepreneurship in order to fulfil their potential and ultimately “have it all” (Meliou and Ozbilgin, 2023). Media circulates the promise of entrepreneurship as a ready-made solution to women's emancipation and a personalised strategy for managing work–life balance (Orgad, 2019; Villesèche et al., 2022; Meliou and Ozbilgin, 2023). These celebratory images are deeply embedded in post-feminist discourse, which selectively appropriates elements of feminist politics while simultaneously disavowing feminism as outdated or unnecessary (McRobbie, 2004; Gill, 2007). Examining women entrepreneurs' self-perceptions provides important insights into how entrepreneurial identities are formed and negotiated across Generations X and Y and how these identities shape business practices (Ensari, 2017).

This study conceptualises entrepreneurship as a discursive and identity-building space (Heizmann and Liu, 2022) and adopts a performative and relational understanding of gender (West and Zimmerman, 1987). From this perspective, we explore how women across generations articulate gender, agency and ambition within a masculine-coded entrepreneurial field (Marlow and Martinez Dy, 2018; Hytti et al., 2024), and how they negotiate post-feminist promises of freedom and self-realisation in their everyday entrepreneurial lives.

Against this backdrop, the study examines how generational values shape women entrepreneurs' discourses on entrepreneurship, and how different generations construct and negotiate entrepreneurial identities within gendered social structures. Drawing on interviews with 24 women entrepreneurs, the analysis explores how generational positioning influences narratives of agency, ambition, and autonomy. It also considers how women envision their entrepreneurial futures through five-year plans, highlighting generational differences in projected growth, stability and self-development.

The study is guided by the following research questions:

How do Generation X and Generation Y women entrepreneurs envision their entrepreneurial futures in their five-year plans, particularly in terms of growth and self-development?

How do Generation X and Generation Y women entrepreneurs construct and make sense of gender in their entrepreneurial lives?

2. Theoretical Framework

2.1 Generational Theory and Entrepreneurship

Generational theory suggests that people who are born and educated within the same historical period tend to develop similar habits and value orientations because they are shaped by comparable economic, technological, and sociocultural conditions (Twenge, 2014; Chen, 2010). As these conditions are continually changing, they give rise to distinct generational patterns of thinking and behaving (Mannheim, 1952). The literature indicates that Generation X entrepreneurs occupy a particular niche in the entrepreneurial field, demonstrating strong abilities in utilizing available resources (Arkorful et al., 2022) and showing a marked preference for independent problem-solving rather than collaborative work (Khor, 2017; Tulgan, 2000). Moreover, Generation X entrepreneurs are characterized by notable adaptability and resilience (Coupland, 1991), and they tend to combine conventional and innovative business practices (Schalk et al., 2010). Having come of age during economic downturns and an early phase of technological development, they often prioritize stability and display a relatively cautious attitude toward risk in their ventures (Light and Rosenstein, 1995), reflecting a pragmatic and enduringly resilient orientation.

Generation Y entrepreneurs are technologically proficient and motivated by social change, placing a strong emphasis on community involvement and collaboration (Eisenbeiss et al., 2015). Accordingly, they tend to favor inclusive and flexible business models, preferring horizontal organizational structures and prioritizing work–life balance (Mihalcea et al., 2012; Smith, 2010). Marked by strong multitasking skills, high self-confidence, and a desire for independence, they pursue flexible working arrangements and rapid career progression (Sessa et al., 2007).

2.2 Women Entrepreneurs and Business Growth

Research on entrepreneurship from a gender perspective shows that men and women do not begin from equal positions when business growth is considered (Crane, 2021; Martiarena, 2022). However, gender alone does not explain these differences; broader societal structures and institutional practices shape how entrepreneurship is enacted and how growth ambitions are formed (Belitski and Desai, 2021). Women-owned firms are often concentrated in sectors with lower profitability, meaning that growth potential is influenced by industry structure rather than gender per se (Amoroso and Link, 2018). Structural constraints such as limited access to financing further affect women-owned firms more severely than those owned by men, reinforcing gendered inequalities in the resources required for growth (Belitski and Desai, 2021).

Women entrepreneurs nonetheless demonstrate a strong capacity and willingness to pursue growth, but their decisions are typically more conditional and context sensitive. Bulanova (2011) shows that growth intentions emerge from both psychological appraisal and everyday realities: women assess the implications of growth holistically, considering workload, life stage, resource needs and implications for wellbeing. Growth is therefore not rejected but evaluated in terms of feasibility. Consequently, women often approach growth as a multidimensional process. They aim to expand their businesses while balancing financial objectives with non-economic priorities such as service quality, employee wellbeing and meaningful client relationships (Costin, 2011). This broader understanding of growth underscores that women's pathways to growth may differ from masculine-coded models but are no less strategic or ambitious.

2.3 Post-feminism and the Entrepreneurial Woman

Across media, policy discourse and popular post-feminist narratives, women's entrepreneurship is frequently portrayed as a personalised route to empowerment and as a means for women to "have it all"—successfully combining ambition, flexibility and family life (Meliou & Ozbilgin, 2023; Orgad, 2019). Such celebratory imagery is not neutral: these narratives draw on a broader post-feminist sensibility that selectively adopts elements of feminist politics while simultaneously framing feminism as outdated or no longer necessary (McRobbie, 2004; Gill, 2007). Central to this discourse is a neoliberal logic of individualism, which positions women as autonomous, self-managing agents responsible for overcoming any obstacles they encounter. Structural inequalities are reframed as personal challenges linked to confidence, attitude or resilience rather than to gendered power relations in the labour market (Gill, 2007; McRobbie, 2009).

Post-feminist representations depict women as inherently entrepreneurial, empowered and already liberated, naturalising neoliberal expectations of continuous self-improvement and self-surveillance (Sullivan & Delaney,

2017; Adamson & Kelan, 2019). Yet, as Adamson and Kelan (2019) show, this discourse does little to dismantle the material and organisational conditions that constrain women's advancement. The celebrated "heroic woman"—characterized by trust, control and courage—through which women are invited to believe that, by embodying these ideals, they can leap over or push through gendered barriers. This figure must perform tirelessly, maintain intense self-surveillance and continually make the "right" choices in order to succeed. In effect, gendered inequalities are reframed as obstacles that women can simply choose to overcome, provided they are sufficiently resilient, self-regulating and adaptable (Gill, 2007; Gill, Kelan and Scharff, 2017). Within this line of thinking, entrepreneurship becomes not a site of structural constraint, but a personalised route for women to secure their place in the workforce, ostensibly freed from gendered limitations (Meliou and Ozbilgin, 2023).

In sum, the literature suggests that entrepreneurship cannot be understood solely through individual traits but must be situated within broader generational, gendered, and discursive contexts. Generational theory highlights how cohorts such as Generation X and Y develop different orientations toward work, risk, and collaboration based on shared socio-economic experiences. At the same time, research on women's entrepreneurship demonstrates that growth trajectories are shaped by structural conditions, including sectoral segregation and unequal access to resources, rather than by gender alone. Post-feminist narratives further complicate this picture by promoting entrepreneurship as a route to empowerment while shifting attention away from persistent structural inequalities and reframing them as individual challenges. Together, these perspectives reveal the tension between individualised narratives of entrepreneurial success and the structural realities shaping women's entrepreneurial opportunities. This study therefore examines how these generational and post-feminist discourses intersect in women entrepreneurs' future visions of growth.

3. Methodology

This study adopts a qualitative research design based on interviews with 24 women entrepreneurs of different ages and business backgrounds. Some participants employed staff, while others operated as solo entrepreneurs. The interviews followed the Appreciative Inquiry (AI) method, which emphasises strengths, resources and future possibilities through collaborative dialogue. The AI process consists of four phases: (1) discovery, (2) dream, (3) design and (4) delivery (Cooperrider et al., 2003). AI was used primarily as an interview structure rather than an action research process, enabling participants to articulate both current realities and future-oriented visions.

The interviews included questions about entrepreneurial experiences, gender, and future aspirations. In the "dream" phase, participants were invited to imagine their business five years ahead, assuming that all desired developments had materialised. They described what success would look like, what had changed in their business, and how growth would affect their professional and personal life. Based on this scenario, each participant outlined a five-year plan specifying the steps required to achieve the imagined developments. Additional questions focused on the meaning of women's entrepreneurship and the role of gender in their entrepreneurial identity. The interviewees were asked, for example: "What does women's entrepreneurship mean to you?"

All interviews were recorded, transcribed verbatim and pseudonymised. Analysis followed an iterative, data-driven process supported by existing theoretical perspectives. Both researchers first reviewed the full dataset. Coding was divided between two researchers according to the two research questions, after which codes and excerpts were jointly discussed and refined. First-order codes were clustered into second-order categories, forming the basis for the findings presented in this paper.

4. Findings

4.1 Generation Y: A Future-oriented and Optimistic Growth Mindset

Across the interviews, Generation Y entrepreneurs frequently describe their growth plans in future-oriented and aspirational terms. Their visions of growth are framed through hopes and dreams, often elaborated through imagined scenarios of what their business could become. These plans tend to be ambitious, outlining trajectories such as the development of innovative services, international expansion, or even corporate acquisitions:

"We would also be international. We would have gotten from Finland to somewhere in Europe." (Cora)

Importantly, their aspirations extend beyond personal or firm-level success. Consistent with research indicating millennials' orientation toward social impact (Eisenbeiss et al., 2015), many respondents describe

entrepreneurial growth as a means of contributing to broader societal development. One hopes to stimulate local employment through business growth; another envisions gaining the capacity to influence national policy:

"We're dreaming of starting something that doesn't yet exist in Finland [...] And at the same time, we would have been able to develop our society in the right direction on this political level." (Mary)

For Generation Y, growth is deeply tied to entrepreneurial identity. It is not only a matter of expanding the business but also an expression of who they are and aspire to become as entrepreneurs. Growth is experienced as part of a professional calling and is aligned with the desire to build a business that reflects personal values and identity. Personal and business development are seen as mutually reinforcing: growth enables role transformation, often toward leadership and strategic development.

"Maybe it's more about supporting and sparring with the other consultants in the background. A bit of the actual substance work, but more about leading and developing my own company." (Erica)

Yet these future visions are not detached from everyday realities. Discussions about growth are closely intertwined with considerations of work–life balance. Respondents acknowledge that growth requires time and energy that may conflict with family life. At the same time, growth is also imagined as a path toward reduced workload and greater family time. Entrepreneurs thus navigate a constant balancing act between safeguarding family life and enabling business development. Flexibility emerges as central to Generation Y's vision of entrepreneurial life (Sessa et al., 2007):

"My own workload has probably decreased a bit so that I can invest more in children's hobbies. I've been able to hire employees [...] Through that, there would be more time for the family and the means to travel more." (Ava)

Overall, for Generation Y, growth is a future-oriented aspiration driven by ambition, identity, and a desire to influence both business and society. Growth is intertwined with personal development and shaped by an ongoing negotiation of work–family boundaries. While expansion requires sacrifice, it also promises long-term flexibility and fulfilment.

4.2 Generation X: An Expertise-based and Realistic Growth Mindset

In contrast to Generation Y, Generation X entrepreneurs describe growth through concrete and structured plans. Their strategies involve hiring employees, bringing in technical specialists, acquiring office space or opening new branches. Their language is straightforward and actionable, with less reliance on conditional phrasing or dream narratives. Instead, they present themselves as decisive agents of their entrepreneurial futures:

"[The company] has grown so that it now has a little bit less than 10 employees. It operates in Vaasa, Tampere, Jyväskylä and the Helsinki metropolitan area. [...] Growth, but in a nice, manageable way." (Tessa)

While Generation Y entrepreneurs often link business growth closely to the evolution of their entrepreneurial identity, Generation X entrepreneurs frame identity transformation through continuity and life-stage considerations. Growth is interpreted holistically and pragmatically (Costin, 2011; Bulanova, 2011), tied to maintaining stability, reducing workload, and sustaining well-being. Identity development is thus connected less to expansion and more to gradual withdrawal or transition as retirement approaches. Many have already reflected on succession or sale:

"I would hope that someone from my inner circle would get excited and take it on, like, 'hey, I'll continue this.' [...] I would want to have already stepped back a bit." (Dina)

Some Generation X entrepreneurs express clear modesty and even reluctance toward growth. Prioritising stability and cautious in their approach to risk (Light and Rosenstein, 1995), they often perceive the current business size as sufficient, and further expansion as burdensome. This tendency is not universal, as some do actively plan growth. However, unlike Generation Y, there is no comparable collective enthusiasm for expansion:

"This is my problem—I just can't really dream as big as I should. My dream is simply that this could stay just like it is [...] I would just hope that it would go on in a way that I can make a living from it. [...] Nothing bigger than that." (Cindy)

Despite a cautious stance toward growth, Generation X entrepreneurs demonstrate strong confidence in their professional expertise. Many express pride in the skills and authority they have developed over time and anticipate that this confidence will continue to grow:

"[In five years] I'll have become more confident. Age likely brings that confidence, along with an awareness of one's strengths and also one's weaknesses. I dare say that I am, after all, an expert in this field." (Riley)

This sense of professional maturity is accompanied by satisfaction with life balance. Many describe having reached a stable and fulfilling professional identity, one that no longer requires major transformation or ambitious expansion. In evaluating growth, they emphasise life context and overall workload (Bulanova, 2011):

"Perhaps for the first time, I am genuinely happy in my life; when I consider both my personal life and my working life, everything is now in balance." (Tessa)

For Generation X, then, growth represents a manageable extension of an established business rather than an aspirational leap. Plans focus on structural improvements, maintaining operations and preserving balance. Identity is rooted in accumulated expertise rather than expansion, and growth is weighed carefully against the desire for reduced responsibilities and the possibility of gradually stepping back.

4.3 Generation Y Women Entrepreneurs and the Construction of Gender

For Generation Y women entrepreneurs, femininity is constructed through three interconnected themes: (1) strength and capability; (2) the minimisation of gender in everyday entrepreneurial life; and (3) femininity as enabling autonomous leadership and self-directed agency.

The first theme frames femininity as strength, expressed through resilience, determination and the ability to "handle it all." One interviewee articulates this as a self-evident fact:

"For me, it's obvious that a woman can also be an entrepreneur." (Ann)

Others evoke a rhetoric of defiance, echoing post-feminist celebrations of personal willpower and self-reliance (Gill, Kelan and Scharff, 2017):

*"I see it as a kind of 'power woman' thing and maybe a bit of a middle finger to society... like f*ck it, I'll just do it myself." (Hannah)*

At times, femininity is constructed in contrast with men's capabilities, attributing women with distinctive strengths in multitasking and coordination:

"Men couldn't do this... we just have this ability to manage the whole picture... keep all the strings in our hands while doing the hands-on work. For me, women's entrepreneurship means that as a woman you can do exactly the same things as a man [...] when you're a woman entrepreneur, you're somehow more confident." (Ava)

Such narratives align with the post-feminist "having it all" discourse, which reframes structural inequalities as personal challenges to be overcome through resilience and ambition (Meliou and Ozbilgin, 2023; Orgad, 2019):

"A woman is independent, brave and free to do what she wants [...] the power comes from us." (Mary)

The second theme centres on the minimisation of gender. Here, respondents emphasise professionalism and competence rather than gender identity, consistent with post-feminist assumptions that equality has largely been achieved (McRobbie, 2004; Gill, 2007):

"It's a good question whether that distinction matters at all. Perhaps younger women now have a better situation in terms of equal parenting... I personally feel that we have progressed very far in that regard." (Audrey)

In this framing, gender is not denied but rendered peripheral—a stance that nonetheless reinforces neoliberal individualism by locating outcomes in personal character rather than structural inequality:

"Yeah, but I'm not sure... it's maybe more about one's own character, that there's just something like that in you." (Rachel)

The third theme emphasises autonomy, leadership and self-determination, aligning with neoliberal ideals of the self-managing entrepreneurial subject (Gill, 2007; McRobbie, 2009). Entrepreneurship is framed as a domain in which women can enact independence and craft meaningful work–life configurations:

"I want to show that it doesn't matter whether you're a man or a woman... people think it's either children or a career or entrepreneurship, but I want to show that you can have everything by doing entrepreneurship in your own way." (Ava)

Respondents frequently express a desire to act as role models who demonstrate women's equal capability:

"I hope I can somehow encourage that kind of courage to start a business... to help people understand that women can succeed just as well... in the same way as men." (Erica)

These articulations mirror the post-feminist promise of boundless possibility (Orgad, 2019), reinforcing the belief that through autonomy and correct decision-making, women can "have it all."

4.4 Generation X Women Entrepreneurs and Constructions of Gender

The narratives of Generation X women entrepreneurs conceptualise femininity as multifaceted and often tension-filled, shaped by awareness of gendered structures, everyday inequalities and deep-rooted social expectations. Femininity is described as a constraint, a resource and an ongoing site of negotiation. Four thematic formations emerge: (1) recognition of structural and institutional gendered constraints, (2) persistence of gendered entrepreneurial fields, (3) ambivalent identity constructions, and (4) communal dimensions of femininity.

Respondents describe gender as materially consequential for entrepreneurial life. They highlight caregiving responsibilities, domestic labour and societal expectations that affect availability and mobility:

"It is absolutely two different things to be an entrepreneur as a man or a woman [...] Women have responsibilities in the family sphere in a different way than men." (Dina)

These accounts underscore the continued relevance of structural inequalities and the gendered division of labour. Respondents also depict entrepreneurship as characterised by gendered occupational cultures, where specific sectors are coded masculine or feminine:

"Certain sectors show more women's entrepreneurship [...] care, beauty, gift shops, clothing [...] Whereas typical sectors for men are machine contracting." (Lily)

Identity constructions are marked by ambivalence. Some view femininity as central and meaningful:

"It means a lot. Without women entrepreneurs, Finland wouldn't run [...] We are too modest a group." (Riley)

Others consider gender irrelevant:

"Is there even a difference between a male or female entrepreneur? [...] It may sound old-fashioned to draw that line." (Lily)

Finally, communal dimensions of femininity emerge strongly. Respondents emphasise solidarity, peer support and collective strength:

"Peer support from one woman entrepreneur to another is crucial [...] There are many women who employ others, often other women." (Riley)

These narratives frame femininity as relational and community-oriented, contrasting with dominant individualistic entrepreneurial ideals and highlighting the importance of gendered networks and mutual support.

5. Discussion and Conclusion

This study contributes to research on women's entrepreneurship by showing how generational positioning shapes both growth orientations and interpretations of gender in entrepreneurial life. By analysing five-year visions alongside narratives of gender and entrepreneurial experience, the study shows that entrepreneurial futures are not only shaped by business goals but also by broader sociohistorical contexts influencing how women understand ambition, agency and identity. The findings illustrate how discourses of agency, ambition and femininity are taken up differently across generations, revealing the continued influence of structural gendered inequalities as well as the pervasive reach of post-feminist and neoliberal narratives emphasising individual responsibility and self-realisation.

Across generations, growth is approached holistically, evaluated in relation to work-life balance, wellbeing and personal aspirations. For both groups, entrepreneurship functions as a core element of self-understanding

rather than a purely economic pursuit. However, the findings reveal clear generational differences in how women entrepreneurs interpret both business growth and gender in entrepreneurial life. Generation Y entrepreneurs present ambitious, future-oriented growth visions linked to identity and societal impact (Eisenbeiss et al., 2015; Myers and Sadaghiani, 2010). In contrast, Generation X entrepreneurs describe pragmatic, incremental growth grounded in stability, workload management and accumulated expertise (Costin, 2011; Bulanova, 2011). Gen Y draw heavily on post-feminist repertoires that emphasise autonomy, confidence and resilience (Gill, 2007; McRobbie, 2009), framing femininity as strength and minimising structural inequalities in ways that reflect the “having it all” ideal (Orgad, 2019; Meliou & Ozbilgin, 2023). In contrast, Gen X entrepreneurs describe gender as a structurally embedded category, referencing caregiving expectations, sectoral segregation and enduring gendered constraints in line with critical feminist perspectives (West & Zimmerman, 1987; Connell & Messerschmidt, 2005). They also emphasise relational dimensions of femininity, such as solidarity and peer support, highlighting a collective rather than individualistic orientation. These findings extend existing research on women’s entrepreneurial growth by demonstrating how generational socialisation shapes not only growth ambitions but also the discursive frameworks through which women interpret gender and growth.

This study suggests that entrepreneurship policies, support programmes and advisory services should recognise generational differences among women entrepreneurs. Support initiatives should move beyond one-size-fits-all approaches and instead consider how different generations prioritise growth, work–life balance and professional identity. In addition, greater attention should be paid to structural barriers that continue to shape women’s entrepreneurial opportunities, rather than framing success solely through individual resilience and ambition.

The study has several limitations that open avenues for further inquiry. First, although the five-year visions offer a future-oriented perspective, the data remains cross-sectional. Longitudinal research could track how entrepreneurial identities and gender constructions evolve over time. Second, the study is based on 24 women entrepreneurs in a specific national and cultural setting. Larger and more diverse samples could further illuminate generational dynamics across contexts. Third, the interviews were structured using the Appreciative Inquiry approach, which emphasises strengths and future possibilities; this positive orientation may have limited the extent to which participants discussed challenges, failures, or structural barriers in their entrepreneurial experiences. Finally, the study contrasts Generation X and Generation Y, but future work could integrate Generation Z and Baby Boomers more fully to capture the full range of generational shifts.

Ethics Declaration: Ethical approval was not required for this study, as it used anonymized data.

AI Declaration: Artificial intelligence tools were employed only for linguistic refinement, such as grammar editing and improving wording. All analyses, interpretations, and substantive contributions to the manuscript were produced by the authors.

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Narrating Feminist Survival: Deborah Levy's *A Living Autobiography*

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Abstract: Deborah Levy's writing often delves into the redefinition of artistic freedom and the re-envisioning of women's identity. Her autobiographical trilogy, *Things I Don't Want to Know* (2013), *The Cost of Living* (2018) and *Real Estate* (2021), provides a daring and poetic examination of female authorship, personal growth, and the continuous navigating of life as a woman. Writing against the grain of patriarchal expectations, Levy does not conform to inherited narratives of happiness linked to marriage, motherhood, and material success in what she calls *A Living Autobiography*; instead, she chooses to write from spaces of instability, ambiguity, and self-reinvention. Thus, the trilogy provides a literary representation of what Sara Ahmed refers to as "living a feminist life"; a never-ending, incomplete process of reconciling freedom, care, and authorship. In this regard, the trilogy can be regarded as a feminist statement that is consistent with the lived, affective politics discussed in Ahmed's *Living a Feminist Life* (2017). Using Ahmed's ideas of the feminist snap, the killjoy, and the feminist survival to analyze Levy's work, this study claims that rather than merely recounting a woman's personal account, Deborah Levy's autofiction puts feminist philosophy into practice and becomes a vital contribution to contemporary feminist thought by showing how writing the self may also be an act of recovering narrative authority and changing feminist futures.

Keywords: Autofiction, Living autobiography, Feminist killjoy, Feminist snap

1. Introduction

"We are our own survival kits." Sara Ahmed

Over the past two decades, most women such as Maggie Nelson, Rachel Cusk, Annie Ernaux, Olivia Laing and Sheila Heti turned to memoir, autofiction and more hybrid forms to interrogate identity, gender and power. Autofiction, in particular, emerged as a significant form in feminist writing thanks to its capacity to unsettle conventional distinctions between autobiography and fiction, making it possible to create a space to express one's own experiences without being forced to display accurate revelation and description, thus, enabling the author to write freely. Serge Doubrovsky, who coined the term autofiction, defines it as "Neither autobiography nor novel" but "exists in a perpetual oscillation between the two" (1993, p.34). He characterizes autofictional writing as marked by linguistic play, ambivalence and instability, describing it as "an ambiguous, androgynous genre of its own" (Doubrovsky, 1993, p.34). From this perspective, autofiction emerges both as a hybrid form and as a response to the limits of traditional autobiography, a genre in which self, language and narrative are deeply entangled. However, autofiction is still a difficult genre to define. The phrase is typically used to refer to "autobiographical fictions or fictionalized autobiographies", as Siddharth Srikanth notes, but "the appropriate or required degree of fictionality" is still up for debate (2019, p. 348). Since autofiction "violates every principle, signpost, or convention that theorists have identified as distinctive resources of fiction," Srikanth contends that this ambiguity presents a fundamental challenge to genre theory (2019, p. 352). As a result, autofiction challenges both autobiographical conventions and the theoretical lines dividing fiction from non-fiction.

As a contemporary British author, Deborah Levy demonstrates a great interest in the intersection of feminism, experimentation and innovative writing style and critique of social and political environment. Having been born in Johannesburg and relocating to the United Kingdom, Levy is an author whose first-hand experience to displacement, authoritarianism and resistance shapes her writing. She has consistently challenged normative structures of gender, domesticity, and women's creativity in her writing. In *A Living Autobiography* trilogy (*Things I Don't Want to Know* (2013), *The Cost of Living* (2018), and *Real Estate* (2021)), Levy rejects linear self-narration and instead she contributes to feminist life writing practice by also rejecting conventional ideals of fulfillment mostly associated with marriage, womanhood and economic stability. Her rejection of both conventional style and conventional ideals regarding femininity enables her to foreground precarity, transition and reinvention, presenting women's lives not as a fixed and stable product of the society, but as an unfinished and continual process. In the trilogy, Levy blends memoir, autofiction and essayist reflection, transforming life writing into a space where she critically questions and experiences authorship, autonomy and survival. Hence, it should be asserted that she does not position herself within a prescriptive feminist writing, instead her work enacts feminism through form and voice, which, as argued earlier, is fluid and continually evolving. In this sense, Levy's writing aligns with contemporary feminist theories that emphasize experience, affect and resistance, offering a literary practice both representing feminist concerns and actively participating in reimagining even reinventing feminist futures. *A Living Autobiography* trilogy, accordingly, being one of those text resisting conventions regarding self-writing, redefines autobiography as an experimental and critical open space. Within

these open spaces, women actively contest patriarchal expectations that construct them as submissive, silent and responsible for others' "happiness". In this regard, Levy can be read as a feminist killjoy, in the sense described by Sara Ahmed, disrupting expectations that women maintain social harmony at their own expense.

Contemporary feminist life writing has increasingly problematized normative narratives of happiness that explains women's struggles with patriarchal forces of oppression such as marriage, material success and motherhood. Operating as powerful cultural scripts, these narratives posit happiness as a social directive rather than a personal emotion and they, at the same time, render alternative modes of living as failures, deficits or deviations; women who do not follow these cultural scripts as "killjoys". Along with her studies on emotions and "promise of happiness", Sara Ahmed's more recent concepts of feminist killjoy and feminist snap are important terms to introduce because particularly Ahmed's *Living a Feminist Life* (2017) provides a significant theoretical framework for analyzing Deborah Levy's trilogy, offering a vocabulary for understanding feminism as an embodied, affective, and ongoing practice rather than a fixed ideological position.

This article is guided by three interconnected research questions: How does Deborah Levy's *Living Autobiography* trilogy employ autofictional form to challenge conventional autobiography and normative narratives of femininity, happiness, marriage, and motherhood? In what ways do Sara Ahmed's concepts of the feminist killjoy and feminist snap illuminate Levy's representation of refusal, rupture, precarity, and feminist survival as embodied narrative practices? How does Levy's hybrid life writing transform personal experience into feminist praxis, contributing to contemporary feminist thought by reimagining authorship, narrative authority, and feminist futures? Together, these questions frame the study's examination of Levy's trilogy as a formally experimental and politically engaged mode of feminist life writing, positioning autofiction as a practice that turns lived experience into feminist theory in action. Given the word-count limitations, the study focuses exclusively on Sara Ahmed's theoretical framework, leaving comparative engagement with other feminist approaches and life-writing traditions for future research.

2. Theoretical Background

In *Living a Feminist Life*, Sara Ahmed (2017) claims that "to bring feminist theory home is to make feminism work in the places we live, the places we work" (p.10), emphasizing the inseparable link between feminist thought and daily spaces. Ahmed further observes that even when composing "texts organized around the history of ideas, I have tried to write from my own experiences: the everyday as animation" (2017, p. 10), so she situates theoretical inquiry within lived experience, thereby rendering feminist commitments concrete and immediate. She emphasizes that by remaining attentive to the everyday, feminist theory becomes more accessible, a strategy Levy likewise adapts in her autofiction by foregrounding domestic, professional, and relational contexts as arenas for negotiating power and identity within everyday life dynamics (Ahmed, 2017). Ahmed theorizes the "killjoy" as a central figure and through this figure the emotional, social and political costs of feminism become visible. She argues that adopting feminism requires consequences because it exposes and disrupts happiness commonly attached to normative power. Ahmed argues "It is not simply that we first become feminists and later become killjoys. Rather, to become feminist is to kill other people's joy; to get in the way of other people's investments" (2017, p. 65). This sentence is not meant to judge feminists, on the contrary, to expose how dominant forms of happiness are built upon silences, exclusions and unequal power relations. She understands and reshapes judgements asserting that "In living a feminist life, we learn about judgments. We learn how they fall. Words surround us, thick with meaning and intensity. We hear these words. We learn from what we are called. It is a feminist calling" (Ahmed, 2017, p. 65). Hence, the killjoy is not simply a figure who is excluded, not wanted, blamed and named; she is also a political one because of these very judgements. Building on Adrienne Rich's (1979) call to be "disloyal to civilization" Ahmed suggests that refusing aforementioned form of happiness is a valid and even necessary feminist practice. She writes: "Our emotions are opened up when we refuse the commandment to be loyal and joyful" (Ahmed, 2017, p. 246). As a result, we can claim that the significance of the killjoy lies in this practice of refusal and keep resisting the voices that tell you to fit in, no matter what.

Another concept Ahmed develops in the same book is *Feminist Snap*, which designates the moment when accumulated pressure, exhaustion and/or violence become so unbearable that feminist subject reaches a breaking point; a juncture that is both profoundly embodied and politically consequential. Ahmed frames snap as a bodily response to that moment of accumulated pressure, writing "Our bodies become our tools; our rage becomes sickness. We vomit; we vomit out what we have been asked to take in. Our guts become our feminist friends the more we are sickened" (2017, p. 255). Snap emerges at this moment of vomiting because of carrying "weight of histories" and reaching a moment that can no longer be carried and thus "things break" (p.255). As Foucault similarly contends power generates resistance and is productive, feminist snap can, therefore, be

understood a Foucauldian production as well. This relational and political act may constitute a breaking point, but it does not conclude there; rather, it signals the possibility of a beginning. Ahmed refers to this duality by writing “Snap, snap: the end of the line (...) Snap, snap: begin again” (2017, p. 192). In every situation that requires choices of either “be silent or lose it”, Ahmed sides with rupture, declaring “I would prefer to lose it” (2017, p.194), which emphasizes one’s own autonomy. Feminist snap, therefore, becomes an act of political resistance, not an erratic behavior. She explicitly connects the feminist killjoy and snap, noting that “The feminist killjoy might herself be a snappy figure; feminists might be perceived as full of snap” (Ahmed, 2017, p.190). By this connection, she argues that snap and killjoy become survival strategies against the pressures of normative happiness and injustice, and they shape how subjects endure, resist and make sense of the ordinary conditions of daily life.

3. Feminist Killjoy and Feminist Snap in *Living Autobiography*

Since Deborah Levy writes from the viewpoint of a life still in process, her work stands out from conventional memoirs. As Joanne Morra claims Levy “dances with the question” (2021, p. 13) when she writes “autobiographies are usually written in retrospect, right at one’s end of life: what would it be like to write one while you were living?”, she challenges the genre’s tendency toward retroactive writing (Allardice, 2018). In her interview Levy declares that “The ‘I’ in my autobiography is myself, but you also have to invent a persona through which to speak, in the same way as when I write about a character in a novel; you leave as much out in nonfiction as you do in fiction” (Allardice, 2018). As the statement also hints, Levy uses an unstable and non-singular narrative voice. “Using an I that is close to myself and yet is not myself” is how Levy characterizes her narrating voice (2018, p.28). Levy acknowledges that “for some reason, the letter I on the screen was blinking and jumping and trembling. That’s how I felt too” indicating that the physical act of writing mirrored her emotional condition (2018, p.40).

Things I Don't Want to Know (2013) is the first book of the trilogy *A Living Autobiography* and thus serves as the beginning of Levy’s own struggle to write her life in a way that she was not used to do. As a result, the text reveals the author’s positioning of the work itself.

The notebook I had brought with me was labelled ‘POLAND,1988’. It would probably be more romantic to describe it as ‘my journal’ or ‘my diary’, but I thought of it as a note book, perhaps a sheriff’s notebook because I was always gathering evidence for something I could not fathom. (Levy, 2013, p.7)

The above quote demonstrates Levy’s uncertainty about genre and purpose at the moment of writing, which makes the notebook a personal space rather than a clearly defined literary form. Much as she acknowledges that calling it a journal or a diary might seem “more romantic”, she deliberately refuses these labels and frames it “a sheriff’s notebook”. This association is important because this framing makes the notebook what it is: a vital example of feminist autofiction that is filled with observation, collection and evidence, without a settled framework, incoherent, hybrid and fragmented. The act of note-taking precedes understanding or interpreting, suggesting that meaning would only emerge retrospectively, when, as she writes “flick[s] through its pages to remind” herself (Levy, 2013, p.7). In this way, the text emphasizes writing as an ongoing process rather than a finished form, positioning Levy between memoir, diary and investigative record, without consciously committing to any single genre. However, her later statement “This novel, it seems, is what I had been gathering evidence for, twenty years before actually writing it” (Levy, 2013, p. 8) crystallizes the author’s recognition of its fictionality along with its factuality. Naming the text as a novel, Levy adopts a term associated with fiction, but her phrasing positions the text in lived experience accumulated over years. The quote implies documentation and memory rather than invention, suggesting that the raw material of the narrative originates in autobiographical fragments. As such, the text occupies an in-between space where autobiography is structured through techniques of fiction, making autofiction a particularly appropriate term to describe Levy’s trilogy *A Living Autobiography*.

In her trilogy, we can see how Deborah Levy presents femininity as an “old-fashioned” exhausted script, yet still powerful to impact subjects who do not have courage to step outside (2018, p.44). In *The Cost of Living* (2018), for instance, she examines expectations through which femininity has been organized and structured, in particular, around the association of virtue. In the following quote, how serenity and endurance are constructed as virtue can be seen clearly:

Serenity is supposed to be one of the main characters in old-fashioned femininity’s cultural personality. She is serene and she endures. Yes, she is so talented at enduring and suffering they might even be the main characters in her story. (..)It was obvious that femininity, as written by men and performed by

women, was the exhausted phantom that still haunted the early twenty-first century. What would it cost to step out of character and stop the story? (Levy, 2018, p.44).

Here, Levy exposes how femininity is maintained through women's willingness to accept pain in silence. The quote is particularly useful when considered Sara Ahmed's critique of happiness as a regulatory agent. Levy expresses her own rejection of this femininity that she "had been thought" by declaring that the narrative, "written by men and performed by women" was "no longer expressive" for her, signaling what Ahmed describes as a feminist snap (2018, p.44). The question of what it would cost "to step out of the character and stop the story" further positions the narrator as a feminist killjoy, who refuses to continue to feed the inherited narratives of feminine happiness (Levy, 2018, p.44).

The inherited narratives about femininity also require women to be in compliant with the role society organizes for them, especially when it comes to marriage as a social institution. In *The Cost of Living*, Levy reflects how femininity is socially organized through this relational identity rather than individual recognition. Based on one of her male-colleagues and his relationship with his wife, Levy touches upon how some women cease to exist and their identities are erased with the marriage. She writes:

Ah, I thought, as we walked past the golden trees, she does not have a name. She is a wife. I wondered why my male colleague often forgot the names of most of the women he met at social events. He would always refer to them as someone's wife or girlfriend, as if that was all I needed to know.

If we don't have names, who are we? (Levy, 2018, pp.13-14)

The observation that "*She is a wife*" highlights the reduction of women to their marital status, which positions them as objects in some others' life (Levy, 2018, pp.13-14). Throughout the novel, Levy questions these gendered hierarchies which are constructed and reproduced each day through casual interactions. More importantly, the final question "If we don't have names, who are we?" functions as a feminist killjoy interruption that unsettles the comfort of such practices (Levy, 2018, p.14). The above passage also signals a feminist snap as it is this weight that accumulates and lead women to snap.

Levy reflects marriage in a way that reveals both personal grief and critical awareness. She states unlike her presumption that life would be "more stable and predictable" after certain age, her "life became faster, unstable, unpredictable" (Levy, 2018, p.13). This acknowledgement serves to rationalize her future decisions, while at the same time making her grieve. She owns that grief, even so she is straightforward about what her marriage meant to her: "My marriage was the boat and I knew that if I swam back to it, I would drown. It is also the ghost that will always haunt my life" (Levy, 2018, p.13). This line of questioning is both tragic and productive at the same time since it opens a space for critical insights. Levy writes the ideal that "love that achieves all of these things" could be "a phantom" and asks "What sort of questions does this phantom ask of me? It asks political questions for sure, but I am not a politician" (2018, p.13). Thus, she forges a connection between the personal and the political, echoing a foundational feminist approach. Likewise, in *The Things I Don't Want to Know*, Levy reflects on marriage and motherhood as structures that shape and often constrain women's lives. During her time in Poland, while observing rehearsals of *Medea*, she closely examines the production process and draws connections between the play and her own experiences. Through this lens, she critiques motherhood as a societal system that governs women's most intimate choices and emotions, frequently demanding the sacrifice of their personal desires. She writes: "It proved very hard to re-negotiate the world's nostalgic phantasy about our purpose in life" (Levy, 2013, p.11). Levy continues claiming that we do not fully comprehend "that Mother as imagined and politicised by the societal system, was a delusion. The world loved the delusion more than it loved the mother" (2013, p. 11). Levy's reference to the "world's nostalgic phantasy" frames motherhood as an idealized construction, not a lived reality, one that is "imagined and politicised" and therefore fundamentally illusory (2013 p.11). From a feminist killjoy perspective, naming this ideal as a "delusion" constitutes a refusal that disrupts the inherited narrative that presents motherhood as natural and fulfilling destiny (Ahmed, 2010). By distinguishing *mother* and the socially "loved" idea of *Mother*, Levy unearths how women are valued less as subjects than as symbols (2013, p.11). This *loved* construction was "fathered by masculine consciousness" and sustained through women's systematic erasure of their own desires (Levy, 2013, p.12). The idea of systematic erasure of desires is made clear when she writes "This male consciousness was male unconsciousness. It needed its female partners who were also mothers to stamp on her own desires and attend to his desires, and then to everyone else's desires" (Levy, 2013, p.12). From the perspective of feminist snap, the quote documents the conditions that make snap inevitable: the repeated demand that women attend to "everyone else's desires" accumulates the weight that would finally become unbearable (Levy, 2013, p.12).

Levy consistently reflects on womanhood as a space of negotiation with societal norms, exploring how women's desires are limited by pressures to be likable, nurturing, and self-effacing, and how asserting ambition or independence often leads to discomfort, pushback, and moral condemnation. In the following excerpt from *Real Estate* (2021), Levy recounts a moment when she is pitching a film script to producers about a woman who "follows her own desires" (p.39), in contrast to the inherited narrative. When she presents her concept for the character, the women do not appear enthusiastic. Levy observes:

I guessed that no woman around the table had ruthlessly pursued her own dreams and desires at the expense of everyone else. In fact, I knew we felt guilty every time we absented ourselves from the wishes and desires of those who depend on us for their well-being and for cashflow. (2021, p.40)

From the perspective of the feminist killjoy, Levy and the woman she imagines both purposefully defy expectations. Because her self-centered desire undermines the moral economy of caring, which requires women to put others before themselves, the proposed character is a killjoy. Levy writes, "The kindest female executive laughed. She looked exhausted. There were dark rings under her eyes. Perhaps I was exhausting her" (2021, p.40). This moment, in particular, marks Levy as a feminist killjoy. By proposing a script about a woman who follows her own dreams, she disrupts the affective comfort of the room, producing visible exhaustion even in a sympathetic female executive. Levy presents this scene as a deliberate recognition moment. She makes it apparent that she was previously familiar with the narrative: "So then, what did the executives want their female characters to be like? I should have asked that question, but I already knew the answer. They had to be likeable" (Levy, 2021, p.40). Her claim that a woman "steering her high horse, with desires of her own" is acceptable only "if she steers her horse off the cliff" succinctly acknowledges how women's desire is permitted only when it is punished or self-erasing (Levy, 2021, p. 40).

According to Levy, "To unmake a family home... is like breaking a clock" (2018, p.17), implying that the end of a marriage represents a complete structural collapse. Building on this idea, Morra observes that during this period Levy "finds herself in a state of radical flux" (2021, p. 9), emphasizing the instability and transformation that accompany such a rupture. In responding to this upheaval, Levy's writing aligns closely with feminist thought. As Dearbhaile Sophie Houston argues, she "employs a vocabulary and rhetoric found more commonly in feminist literary and theoretical writings" (2025, p. 1023), situating her personal experience within a broader feminist discourse. The following quotes emphasizing the roles of both the wife and mother which were assigned to women are examples of this vocabulary and rhetoric. For instance, "If the wife and mother has been impregnated by society, she is playing everyone's wife and mother" (Levy, 2018, p.16) is a very strong criticism revealing that when the subject accepts these roles, she becomes the idealized versions of such roles. Once more, feminist killjoy is exemplified when she further states:

To not feel at home in her family home is the beginning of the bigger story of society and its female discontents. If she is not too defeated by the societal story she has enacted with hope, pride, happiness, ambivalence and rage, she will change the story (Levy, 2018, p.16).

This is a significant representation of feminist killjoy since Levy refuses to accept the patriarchal narrative that domestic labor and emotional care are naturally women's responsibility; rather, she exposes the structural injustice embedded in "the nuclear heterosexual family" (2018, p.16). This is another feminist snap moment because as the text reveals "If she is not too defeated by the societal story she has enacted with hope, pride, happiness, ambivalence and rage, she will change the story" (Levy, 2018, p.16). Through this analysis, Levy shows how personal experience intersects with social norms, highlighting the political dimensions of domestic labor and the ways women navigate, resist, and transform oppressive structures. *Changing the story* is a snap.

Levy shows how marriages could finally come to an end when the subjects decide not to endure anymore and *change the story*. She writes, "You get tragedy when the tree, instead of bending, breaks. They will live with each other for over two decades in this house. And then their marriage, instead of bending, will break" (Levy, 2018, p. 78). Here, feminist snap and killjoy overlap on the verge of a breaking point. When she writes "instead of bending, breaks", Levy points to the rigid expectations of idealized marriage and/or happiness that is systematically taught, yet instead of romanticizing that ideal, she exposes the pain caused by it; thus, her writing resists the social narrative that love should always endure without compromise. The image of the tree breaking, in particular, exemplifies a feminist snap, revealing the structural pressures that shape women's life. As Sara Ahmed writes "feminist snap" is "to snap a bond can be to make room for life by leaving the room" (2017, p.205). In short, when women do not cooperate, endure silently and pretend to be satisfied, they become killjoys by being fair to themselves and when they finally take an action towards ending that haunting phantom "to make room for life by leaving the room", the tea breaks, she snaps, they break (Ahmed, 2017, p.205). Levy, while

exemplifying both killjoy and snap, consciously refuses endurance; she understands that by making a personal choice, she simultaneously shapes the political. She writes, "Their father and I agreed that we would live separately but we would always live together in the lives of our children. There are only loving and unloving homes. It is the patriarchal story that has been broken" (Levy, 2018, p. 17). She chooses a genuine loving home over an *imagined* happy one.

4. Conclusion

As a conclusion, Deborah Levy's *A Living Autobiography* trilogy demonstrates how feminist life writing can function as a sustained practice of refusal, survival, and reorientation rather than as a coherent narrative of resolution or fulfillment. Employing autofiction as both a formal and political strategy, Levy disrupts the conventions of traditional autobiography and the normative narratives that organize femininity around happiness, marriage, and motherhood. Blending memoir, autofiction, and essayistic reflection, she unsettles dominant scripts of femininity and writes from states of instability and precarity. Divorce, financial insecurity, and creative uncertainty are framed as enduring conditions shaping women's lives and artistic practices. By rejecting linear self-narration and stable identity, Levy presents women's lives as ongoing negotiations rather than coherent stories of fulfillment. Writing becomes a method of navigating precarity, allowing reflection without resolution and movement without arrival. In this sense, Levy's autofiction moves beyond personal testimony and puts feminist philosophy into practice, reclaiming narrative authority and reorienting feminist futures.

When Sara Ahmed's concepts of the feminist killjoy, feminist snap and feminist survival are considered, Levy's work reveals how women's lives are shaped by affective economies that demand accommodation and silence, and how resistance emerges precisely at the points of exhaustion, discomfort, and rupture. Within this framework, Levy's narrative gestures appear not as stylistic choices alone but as embodied practices of refusal that expose the affective economies sustaining patriarchal ideals. Rather than merely recounting a woman's individual experience, Levy's narrative practice materializes feminist theory by staging moments of snapping, refusal, and endurance as lived, embodied acts. Moments of discomfort, exhaustion, and breaking are not framed as personal failures but as politically charged responses to accumulated structural pressure, transforming refusal into a condition of feminist survival. Levy's characters repeatedly refuse to "bend" within inherited structures, instead exposing the violence embedded in ideals that promise happiness while requiring self-erasure. In this sense, Levy's writing enacts what Ahmed describes as a politics of embodied resistance. As Ahmed writes, "A killjoy survival kit is also about allowing your body to be the site of a rebellion, including a rebellion against the demand to give your body over to a cause or to make your body a cause" (2017, p. 249). Levy's trilogy stages this rebellion through everyday acts of stopping, leaving, refusing, and re-narrating. Whether by rejecting exhausted scripts of femininity, questioning marriage and motherhood, or insisting on women's desire despite social backlash, Levy aligns with Ahmed's killjoy ethics: refusing to perform happiness when happiness itself is a disciplinary demand. *A Living Autobiography* thus becomes both a method of feminist survival and a vital contribution to contemporary feminist thought, insisting that women's lives remain unfinished, complex, and open to reimagining even when, and especially when, that insistence exhausts others.

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From Research Training to Labour Market Outcomes: Gender Disparities in Career Advancement and Knowledge Transfer among IIT Alumni

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Abstract: Understanding how gendered expectations influence career trajectories in research and innovation is essential for creating an equitable scientific ecosystem. This paper presents an initial analysis of the career paths of alumni from the Italian Institute of Technology (IIT), focusing on researchers who spent at least three years at IIT in the past fifteen years before moving on to positions in academia, entrepreneurship, or other scientific careers. The broader investigation adopts a mixed-methods approach, combining quantitative tracking of alumni outcomes with qualitative evidence from case studies and semi-structured interviews. This paper specifically draws on insights from the interview data to explore how gender, nationality, geographical distribution, and other social factors intersect in shaping post-IIT career opportunities and constraints. As IIT is a relatively young institution, this paper offers an initial examination of how its institutional practices and networks facilitate or hinder equal access to career opportunities, research funding, leadership positions, and business start-ups. The study also investigates knowledge transfer from IIT to broader ecosystems and examines how knowledge flows may be mediated by gendered patterns of recognition, collaboration, and access to resources. Initial findings indicate that while IIT provides a strong platform for research excellence and innovation, gendered expectations may still influence alumni career trajectories, particularly in relation to access to funding, research outputs, entrepreneurial risk-taking, and mobility choices. By linking alumni experiences and narrative accounts, the study provides a nuanced picture of the how research institutions contribute to gender equality in scientific careers. Additionally, it identifies institutional avenues to foster a more inclusive research and innovation environment.

Keywords: EDI, Gender, Intersectional approach, Career, Alumni community, Istituto Italiano di Tecnologia

1. Introduction: Trajectories of Talent and Institutional Reflexivity

In the globalised landscape of contemporary science, not only do elite research institutions function as sites of technical production but are critical hubs for knowledge transfer and career development (Færgeman et al., 2025). Although recently established, the Italian Institute of Technology (IIT) (2005) exemplifies this model, attracting international talent to a high-intensity, multicultural environment. As a matter of fact, literature on international scientific mobility highlights how global academia serves as a hub for talent circulation and knowledge exchange, with mobility contributing to individual career development and broader scientific networks, particularly in STEM fields such as Engineering and Physics (Han et al., 2024). This is especially true for elite researchers, defined as those with top-level scientific achievements, publications, citations, prestigious awards, and reputation (Ackers, 2005; Kairuz et al., 2016; Azoulay et al., 2017; Yuret, 2017).

Although institutional focus is normally centred around scientific output and standardised scientific performance indicators – alongside well-founded criticism of gender and intersectionality-blind assessment methodologies (Bosak & Sczesny, 2008; Khosravi & Chavan, 2012; Mairesse & Pezzoni, 2015; Leone et al., 2025) – the long-term impact of this on career trajectories remains rather unexplored (Müller, 2014; Zhang et al., 2023).

To understand the link between institutional experience and professional success, this study adopts a retrospective approach (Vettori et al., 2021). It examines how the "IIT experience" shapes the subsequent paths of its researchers, moving beyond scientific or technical training to analyse the influence of leadership styles, gender dynamics, and inclusion policies (Zhan et al., 2023). As these researchers and collaborators transition into roles in global academia, industry, and entrepreneurship, they can become agents of cultural change (Massingham, 2014) carrying the skills, and values developed during their tenure.

The findings in this paper are based on ten semi-structured interviews with former IIT collaborators (Alumni) who held various roles, from PhD students and postdocs to team leaders or collaborators. These interviews were organised around five strategic thematic pillars:

1. Contextual backgrounds and roles within the institution;
2. Perceptions of fairness and career dynamics;
3. The institution's role in facilitating knowledge and network transfer;
4. Reflections on inclusive leadership and gender equality;

5. Practical recommendations for future institutional development.

By analysing these narratives, this research identifies both the strengths of its multicultural launchpad and the systemic gaps that must be addressed to ensure equitable career advancement (Bozzon et al., 2018; Gaiaschi & Musumeci, 2020). This study also aims to contribute to the broader discourse on how research-performing organisations can move beyond formal policy compliance towards a genuinely sustainable, inclusive, and gender-attentive ecosystem.

2. Contents and Methodology

The interviews were conducted in October and November 2025 as part of a broader strategic vision promoted by IIT to strengthen alignment between internal research and collaboration activities, as well as external societal, industrial, and institutional contexts. This initiative aims to enhance the visibility, impact, and transferability of IIT's research outputs in innovation and technological development. Within this framework, emphasis is placed on individuals who have undertaken periods of work or research at IIT, whose subsequent professional trajectories elsewhere represent a key channel for disseminating knowledge, fostering collaboration, and amplifying the long-term impact of IIT's research and innovation domain.

The interviews were structured around five thematic sections to gather both retrospective assessments and forward-looking recommendations, as shown in the table below.

Table 1: Content of the semi-structured interviews

Theme	Objective	Key Areas of Inquiry
1. Introduction and context	To outline the interviewee's internal career path and interpersonal experience at IIT.	Role and duration at IIT; composition (roles, gender) of the research group; maintenance of contact with former colleagues.
2. Experience and career dynamics within IIT	To assess how fairness, equality, inclusion, and opportunity were perceived within research groups and the institute.	Perceived fairness in access to professional development opportunities; perception of formal or informal intersectional disparities (based on gender, nationality, age, etc.) impacting careers.
3. Knowledge, networks, and transfer	To evaluate the role of IIT in knowledge transfer and career networking after leaving the institution.	Whether IIT promoted knowledge transfer (to academia, business, start-ups) and how; suggestions for making the Alumni Community an effective network for career opportunities.
4. Alumni as agents of cultural change	To investigate the role of Alumni in driving cultural change related to inclusion in their post-IIT professional lives.	Whether the IIT culture helped them address inclusion/diversity in their subsequent career; usefulness of specific training on inclusive leadership, gender bias, or diversity management.
5. Reflections and recommendations	To gather practical suggestions and ideas for institutional improvement.	Actions a research institution could take to maximise the career potential of early-career researchers; final recommendations for the working group conducting the study.

Participants were drawn from former IIT collaborators, and from this selected based on criteria designed to ensure diversity of perspectives, including gender, scientific or administrative domains covered during their time at IIT, length of time since leaving the organisation, level of responsibility, and expressed willingness to participate in the study. This approach enabled the inclusion of a range of professional trajectories and institutional experiences relevant to the research objectives. It is also important to note that not all individuals

contacted agreed to participate in the interviews; a small number of former collaborators declined or did not respond to the invitation. These refusals were considered as part of the recruitment process and reflect the voluntary nature of participation in the study. Future phases of the investigation will explicitly seek to engage former collaborators who reported negative or less positive experiences at IIT, to broaden the range of perspectives represented and address potential self-selection bias in the current sample (Hiratsuka, 2025).

As a result of this activity, we have a set of respondents broken down as follows: 5 women and 5 men; 2 from administrative support roles and 8 in research; 9 Italians and 1 non-Italian; 7 working in Italy and 3 abroad. Among the researchers, there are 2 university professors (working outside Italy) and 6 in the private sector. Of the 6 in the private sector, 3 are entrepreneurs who have been involved in founding start-ups, and one is the founder of a start-up that is now a company listed on the US stock exchange.

All of them have worked at IIT at some point in the past ten years, each for a period of at least three years and up to a maximum of seven years.

Furthermore, participants were informed in advance about the aims of the initiative and agreed to take part in the interviews by signing an informed consent form, compliant with GDPR, prepared by the legal and ethics department at IIT. They were also assured that the results would be anonymised and pseudonymised to prevent the identification of participants.

The following is an analysis of the main points that emerged during conversations with staff from various backgrounds as previously outlined. The interviewees were assigned a number and will be referred to by their numerical code.

3. The Work Done: Initial Findings

The interviews addressed themes that can be grouped as follows: career development; organisational climate; gender, diversity and inclusion; and the role of the IIT Alumni community. In this paper, we will focus primarily on the gendered aspects of career development and subsequent entry into the job market after the experience at IIT.

Overall, the absence of formal discrimination emerged: both researchers and professionals stated they had never perceived discrimination based on gender or age and confirmed they had not been discriminated against in terms of professional development. One interviewee stated, "I have never perceived discrimination based on gender, or based on age, or based on any other factor." Nevertheless, some female interviewees reported negative experiences, particularly when they were the only woman in the group highlighting gender disparities as a critical issue. In one case, the interviewee recalled being strongly advised by her supervisor to "have thicker skin" due to what she perceived as a discriminatory work environment towards women. When she asked, "If I had been a man, would you, Principal Investigator, have asked the same question?" the answer she received was a flat "no."

Regarding the debate on talent versus opportunity debate and gender imbalance, some argued that the scarcity of women in engineering is not due to a lack of talent but rather a limited capacity to identify and recruit female talent. Other interviewees took for granted that in some scientific domains, such gender segregation is natural. One interviewee remarked, "We have been educated to be engineers and not to pay attention to inclusion!" Another commented, "In a field such as robotics engineering, for years only men were seen in laboratories, and no one was surprised by this".

The narratives of the alumnae highlight a critical managerial gap within STEM-intensive research environments, where technical meritocracy is often conflated with leadership capability, to the detriment of an inclusive organisational culture. As Interviewee 9 observed, "highly accomplished scientists are not necessarily proficient managers who are attentive to gender instances and gender disparities", suggesting that the transition from senior researcher to group leader frequently occurs without the necessary training in soft skills or gender, equality, diversity and inclusion (GEDI) management. This structural deficit demands a move towards the professionalisation of leadership; Interviewee 4 emphasised that institutional evolution depends on the mandate to "train managers in an inclusive manner, which in my opinion is the most important thing", identifying managerial accountability as the primary lever for systemic change and counter-bias actions. Furthermore, the desire for a shift in institutional climate is explicitly linked to gender representation at the highest levels of governance. Interviewee 9 expressed a specific hope for the appointment of "a female director who is more sensitive towards diversity and inclusion", reflecting a widespread expectation among women researchers that gender diversity in top management acts as a catalyst for a more inclusive institutional framework.

The persistent disparity in labour market participation within specialised high-tech sectors, such as robotics, must be traced back to the socio-historical origins of these disciplines. For decades, the foundational frameworks of robotics and engineering were established almost exclusively by men, institutionalising a mono-gendered environment that shaped the standards of merit, leadership, and professional belonging. This historical legacy has created a structural "path dependency", where the long-standing absence of female voices at the discipline's inception fostered organisational cultures and career trajectories tailored to a male-centric model. Consequently, the contemporary underrepresentation of women in these fields is not merely a modern recruitment failure, but the cumulative result of historical exclusion that has entrenched occupational segregation over time. Addressing today's gender gap thus requires acknowledgement of these historical residues that, for generations, lacked the diversity of perspective necessary for inclusive systemic development (Leone et al., 2025). Collectively, these insights suggest that addressing gender disparities in the STEM labour market requires moving beyond "performative" GEDI policies towards a fundamental professionalisation of inclusive leadership and the strategic leveraging of women-led professional networks.

The need for inclusive, sensitive and attentive leadership is contrasted with the experiences of those who transitioned into the private sector, where GEDI standards appear to be more rigorously institutionalised. In corporate environments, as noted by Interviewee 4, there is "significant attention to diversity and inclusion... positively stressed", suggesting that private firms may offer more robust structural protections for employee well-being than traditional academic settings.

The role of social capital and professional development through a GEDI lens remains a cornerstone for navigating these disparities; Interviewee 7 highlighted the necessity of institutionalised alumni communities to "give value to people's experience and diversity and create that network that [...] always helps".

Regarding non-scientific training, several interviewees reported that they did not receive any specific training on subjects outside their primary roles, such as gender mainstreaming, GEDI, or additional professional or transferable skills. In fact, a key suggestion from all interviewees is the greater need for managerial training on topics related to GEDI. Multiple interviewees stressed the crucial need for compulsory management training for Team Leaders/PIs (supervisors), especially on topics like diversity, inclusion, and avoiding cognitive biases in hiring and evaluation, which are still very often perceived as neutral but in reality are based on gender disparities.

The main contents are summarised in the table below.

Table 2: Main points from the semi-structured interviews

Key Point	Summary
Reported gender discrimination	At least two female interviewees reported experiencing discriminatory behaviour due to their gender in a male-dominated environment.
Personal discrimination	Other interviewees stated they did not personally perceive, or experience discrimination based on identity, gender, age, background or other factors.
Intersectional and diverse environment	The international nature of IIT was uniformly praised as a key formative experience.
IIT as a Launchpad	IIT provided the crucial foundation for major international career advancement.
Systemic career reflection	Leaving the institution is seen as a necessary part of growth for both the individual and the institution itself.
Gaps in training on GEDI themes and GEDI mainstreaming	Training was highly technical but lacked focus on crucial non-scientific, managerial, or soft skills.

4. Conclusions

IIT is a young institution which people have often viewed as a springboard for their career since its inception in 20024, so perspectives vary greatly depending on both original and current roles. It is also noteworthy that interview participants had generally favourable perceptions of the institution, as others would most likely have declined to take part.

Participants emphasised that technical brilliance does not automatically lead to inclusive leadership; instead, the study suggests that for a research-performing organisation to achieve true maturity, it must evolve from a site of high-intensity technical production into a reflexive ecosystem where equitable career advancement is valued as highly as scientific output (Murgia & Poggio, 2019; Picardi, 2019).

Diversity and gender issues are not always recognised, partly because, in some cases, those who deny their existence are white males in positions of authority, such as Principal Investigators or team leaders (Weisshaar, 2017), some of whom even acknowledge this themselves. A few women have highlighted gender differences. In one case, a woman reported being pressured because of her role as a young assistant. She emphasised that her vulnerability was heightened by being both the only woman in the group and the most junior team member, a position that increased expectations, visibility, and dependence on senior approval. The lack of leadership capacity to recognise or address gender and broader EDI concerns further worsened the situation. As she reflected, “I was an assistant at that time and my experience was awful.” This account illustrates how hierarchical precarity, combined with gendered isolation, can create environments in which unequal burdens and limited avenues for recourse become normalised. Another woman explained that, since the scientific field in question is still largely male-dominated, even now, in her senior position, she tries to maintain a certain balance: “Mindful of my experience at IIT, I now try not to apply any bias when recruiting my colleagues and I try to promote a certain gender balance in my team, without compromising on the criteria of merit and competence.” She does not base her choices solely on gender but strives to ensure equal gender representation in her research group. Another woman interviewed admitted she had never attended a training course and, after participating in a specific GEDI training at her current company, said that if she could go back, she would consider such training and awareness essential for anyone working in an institution: “After receiving ad hoc training, I discovered how much training can help in addressing potential gender inequality right from the advertising and recruitment process.” Some men acknowledged that, as members of the dominant majority in both the scientific field and their research group during their time at IIT, they never noticed any differences but admitted their complete lack of awareness of the issue: “We were all men, I was neither surprised nor attentive.”

Therefore, we can conclude that the lack of training in GEDI issues is a point raised by the majority. However, in two cases, interviewees stated that, since the discussion concerns science and highly educated individuals, there were certainly no prejudices and consequently no need for training or greater awareness: “Science is science and is neutral.” This reveals the same bias as those who believe that inequalities occur only among people who are not highly educated and supports the false thesis that the more education one has, the less bias one holds (Gundara, 2000; Knowles & Lowery, 2012).

None of the interviews addressed GEDI and gender approaches from a scientific perspective, specifically in terms of conducting research and producing knowledge. Nevertheless, in several cases, those conducting research were also involved in interactions with end users, designing aids for people and their related activities. The approach to scientific integrity, understood as adapting scientific activity to the needs of the people for whom the research is carried out, therefore appears to be almost absent.

The melting pot experience was positive, with all interviewees considering it highly beneficial to have worked in an environment rich in cultures, nationalities, and languages, which required the daily use of English. It is also noteworthy that as this is an institution based in Italy, all interviewees regarded internal career opportunities as significant and not determined by factors that are decisive in the Italian context, such as age, geographical origin, or cultural background. However, much remains to be done regarding gender equality, as currently, out of approximately 74 Principal Investigators and 16 Facility Coordinators – who are responsible for a research unit or facility, lead scientific activities, and coordinate team members – the majority are men (www.iit.it/en-US/about-us/principal-investigators, last accessed 1/12/2026): 20 women and 54 men PIs, and 6 women and 10 men Facility Coordinators.

Furthermore, the IIT has not always significantly contributed to people’s careers, and career paths and growth opportunities have been unclear for most. Even in areas supporting research activities, such as administrative

or technical roles, staff turnover remains fairly high, partly due to a lack of incentives for growth, professional stimulation, and clarity about possible career paths.

These findings should be considered preliminary insights within an ongoing investigation that will continue over the coming years. Thus the institutional specificity and participants' positive perceptions of the institute does not undermine the structural dynamics identified, which merit deeper reflection. These accounts indicate that while the research environment offers a prestigious 'scientific launchpad', the transition to the labour market often reveals a stark contrast with the private sector, where, as observed in two cases, there is a more explicit and "positively stressed" focus on "diversity inclusion and employee well-being".

This work is expected to stimulate further internal discussion at IIT and, more broadly, to contribute to comparative reflection among similar research institutions facing shared challenges related to career development, GEDI awareness, and the alignment between scientific excellence, organisational practices, and societal impact.

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Ethics Declaration: Participants were informed in advance about the aims of the initiative and agreed to take part in the interviews by signing an informed consent form, compliant with GDPR, prepared by the legal and ethics department at IIT. They were also assured that the results would be anonymised and pseudonymised to prevent the identification of individuals who participated.

AI Declaration: AI-based tools were used to support the transcription of interviews and to assist in the preliminary synthesis of their main contents, which were subsequently reviewed, interpreted, and further elaborated by the authors.

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Institutional and Administrative Determinants of Gender Disparities in Public Education: A Systematic Review

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Abstract: Gender disparities in public education remain a persistent governance challenge in South Africa, particularly in historically marginalized communities such as uMlazi Township. Despite progressive national policies aimed at promoting gender equality, the realities within public schools often reflect uneven implementation and limited institutional responsiveness. This study is informed by the need to understand the mechanisms behind persistent disparities and to contribute to the broader discourse on gender equity in education. Its relevance lies in its potential to inform policy, improve school governance, and promote inclusive educational practices. The study explored the persistent gender disparities in public education to inform future interventions on Umlazi Township. Despite formal commitments to equality, female learners continue to face barriers in academic performance, school retention, and leadership representation. The research is motivated by the observable disconnect between policy intentions and on-the-ground realities and aimed to uncover the institutional and administrative drivers that reinforce these disparities. A systematic review approach was adopted, collecting data from online databases and complemented by documentary analysis of school policies, performance reports, and government directives. A total of 17 studies were selected for review. Female students are significantly disadvantaged in the public education sector. Including the inconsistent application of policies by the government in public education, poor institutional governance and the poor institutional culture where female learners are subject to discrimination and violence. The data were analysed using a systematic literature review, specifically the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA), by identifying key terms such as 'gender disparities' and 'education' to select relevant records. Insights from existing policy documents and institutional reviews suggest that while gender equity is formally endorsed, systemic gaps persist in areas such as staff training, policy enforcement, and support structures for female learners. Emerging themes point to the influence of entrenched institutional cultures, inconsistent policy application, and limited gender-sensitive planning at the school level. These factors inadvertently reinforce disparities in enrolment, retention, and academic performance. The key implications of the study are context-specific recommendations for strengthening gender-responsive governance in education, including inclusive policy reforms, targeted capacity-building, and enhanced community engagement. By critically examining the intersection of policy and practice, this research contributes to the broader discourse on equitable education systems and offers actionable insights for policymakers, school leaders, and civil society actors working to close the gender gap in South African public schools.

Keywords: Gender disparities, Education governance, Policy implementation, Institutional factors, Public education

1. Introduction

The recognition of gender equality in education as a basic human right and a key element of sustainable development persists globally. Global frameworks like the United Nations Sustainable Development Goals (SDGs), especially SDG 4 (Quality Education) and SDG 5 (Gender Equality), play a crucial role in efforts to eliminate gender gaps in education and to provide equal opportunities for all learners (Krupa and Taneja, 2020). Education functions not just to individual empowerment but also as a catalyst for wider social and economic change (Jamal *et al*, 2023; Khosa, 2023). Nevertheless, even after numerous years of reform and advocacy, gender inequalities continue to exist in various education systems, especially in areas characterized by poverty, social vulnerability, and inadequate institutional capacity.

In South Africa, the democratic government established post-1994 is often praised for implementing progressive reforms designed to eliminate apartheid-era inequalities and enhance equity concerning race, class, and gender (Akala and Divala, 2016). The Republic of South Africa's Constitution (1996) guarantees equality and forbids discrimination, while the South African Schools Act (1996) assures fair access to education. Additional policies such as the Gender Equality in Education Policy (1999) and the National Development Plan (NDP) 2030 reaffirm commitments to gender mainstreaming and educational equity. These frameworks reflect South Africa's adherence to global commitments towards gender justice and inclusive development. However, despite these reformative measures, ongoing gender disparities are evident in numerous public schools, especially in township areas such as Umlazi (Vyas-Doorgapersad, 2023). Furthermore, research by Chabaya and Gudhlanga (2013) exploring methods to attain gender equity in education revealed a significant rise in the enrolment of girls and women across all education levels; nonetheless, true equity had not yet been realized, as challenges like the absence of mechanisms for enforcing and monitoring policy implementation persisted. These outcomes are consistent with findings by Saâd and Ella (2019), which state that effective governance and adequate public

funding for education can help diminish gender disparities at all educational stages. These findings underscore the importance of prioritizing the effective execution of policies by policymakers.

Umlazi Township, located south of Durban in KwaZulu-Natal, provided a critical case study for examining these challenges. As one of the largest townships in South Africa, Umlazi continues to be characterised by high levels of unemployment, poverty, crime, and social vulnerability. These socio-economic conditions place significant pressure on public schools and disproportionately affect female learners. This is unfavourable as girls and women are an integral part of the South African economic system and thus deserve more attention (Moletsane *et al*, 2010). In a study by Doğan and Kirikkaleli (2021) to explore whether gender equality mattered for environmental sustainability in sub-Saharan Africa, they found that women were willingly participating in environmentally friendly campaigns where they are more educated. Moreover, this emphasises the importance of the perspectives and attitudes of girls and women towards their education (Bandyopadhyay and Subrahmanian, 2008; Šidlauskienė and Butašova, 2013). Furthermore, research shows that girls in township schools are more likely to experience gender-based violence (GBV), teenage pregnancy, harassment, and dropout, while also facing limited access to psychosocial support services (Moletsane *et al*, 2010; De Wet, 2023; Pietersen & Langeveldt, 2025). Such challenges compromise not only educational access and participation but also long-term academic performance and life opportunities. The intersection of socio-economic disadvantage and institutional weakness creates a context in which gender disparities are reproduced and sustained.

Existing literature emphasises that gender disparities in South African education are not solely shaped by societal factors but also by institutional and administrative structures (Vyas-Doorgapersad, 2023). Biased leadership, limited enforcement of gender policies, and insufficient teacher training will often perpetuate inequality (Morrell *et al*, 2012). Furthermore, Pietersen and Langeveldt (2025) argue that gender-based violence in South African education must be understood as an institutional phenomenon rather than merely individual misconduct. Their feminist legal and pedagogical analysis showed how school cultures often normalise power imbalances, thereby undermining safety and participation for female learners. De Wet (2023) reveals that sexual violence and harassment in South African schools remain widespread and underreported, with weak disciplinary enforcement and accountability failures allowing perpetrators to operate with impunity. Moreover, Khosa (2023) highlights that institutional gender inequality persists even within learning institutions designed to promote empowerment, identifying structural barriers such as male-dominated leadership, resistance to gender transformation, and limited institutional support for gender equity as key constraints. At a governance level, Vyas-Doorgapersad (2023) explained that South Africa's failure to fully realise SDG 5: Gender Equality, is driven by weak institutional capacity, fragmented policy implementation, and insufficient political accountability. Collectively, this literature confirms that gender inequality in education is not primarily a policy absence problem, but rather an institutional implementation failure characterised by weak governance, poor accountability, and deeply entrenched school-level cultures.

Although South Africa continues to develop robust legislative and policy frameworks aimed at promoting gender equality in education, their application at school level remains inconsistent and fragmented (Sturm, 2007; Walker *et al*, 2019). School administrators often possess limited operational guidance on how gender policies should be implemented in daily school management practices, resulting in superficial or symbolic compliance rather than substantive transformation (Khosa, 2023). Moreover, De Wet (2023) further notes that inconsistent disciplinary responses to gender-based misconduct in schools reflect weak institutional oversight and accountability structures. Pietersen and Langeveldt (2025) argue that inconsistent policy enforcement reflects the persistence of patriarchal institutional cultures that resist gender transformation (Abbas and Smith, 2023; Jamal *et al*, 2023). Moreover, this is emphasised in a study by Brown and Irby (2005) who found that women were unlikely to be in administrative and educational leadership positions because they were perceived as incompetent. For instance, in a study by Legewie and DiPrete (2012) compared the behaviour of boys and girls in a school setting, it was found that they differed in the way they engage with the institutions and resources; however, this does not suggest a division between them. Thus, taking these findings at face value may result into perpetuating the gender stereotypes in societies, which may lead to divided interventions among the genders, where research emphasises the need to improve educational systems where girls and boys are taught equally (Piatt, 2008). Consequently, the gap between formal policy commitments and actual school-level practice will continue to reproduce gender disparities in enrolment patterns, learner participation, safety, and academic performance in township schools such as those in Umlazi. Gender-responsive budgeting, an essential tool for equity, remains to be inconsistently applied in South African schools (Licumba *et al*, 2015; Gouws, 2017).

The study scrutinised the processes by which formal policies are translated into practice, highlighting institutional capacity, administrative commitment, accountability mechanisms, and resource flows (Matland,

1995). An equity framework emphasised the redistribution of opportunities, resources, and support to ensure fairness, particularly for historically marginalised groups (Gooden, 2015; Pekkarinen, 2012). Applying these frameworks enabled a critical examination of how institutional structures, administrative decisions, and governance practices mediate the impact of gender-equality policies and why, despite formal commitments, gender disparities persist on the ground. Through these theoretical lenses, the study analysed the structural and institutional factors shaping the implementation of gender-equity policies within schools.

The central problem addressed in this study is therefore not the absence of policy frameworks but the ineffective institutionalisation of gender-responsive education at the school level. Institutional and administrative systems within public schools in Umlazi Township were examined to understand how they fail to operationalise gender equality policies effectively, resulting in persistent disparities in educational outcomes. By focusing on governance structures, resource allocation, and organisational cultures, the study contributes to ongoing debates about the effectiveness of gender equity policies and the need for systemic reforms. Ultimately, tackling gender disparities in education requires more than policy rhetoric; it demands institutional transformation. This paper, therefore, discusses the institutional and administrative drivers of gender disparities in public education in Umlazi Township, offering evidence-based recommendations for building inclusive, equitable, and responsive education systems in South Africa and beyond.

2. Methodology

This paper conducted a systematic literature review in accordance with Preferred Reporting Items for Systematic review and Meta-Analyses (PRISMA) guidelines. The method is set in the following sub-topics, inclusion and exclusion criteria, type of studies, search procedures and search strategy, and data analysis, result, discussion, study limitations and conclusion. This systematic review purports to investigate the ways in which institutional and administrative drivers influence the differences between male and female students in public schools. The study will be guided by the main research question below:

In what ways do institutional and administrative practices influence gender-based academic performance in public schools?

The main question will be supported by the following sub-questions:

1. How do socio-economic factors intersect with gender to affect educational outcomes in public schools?
2. How do cultural attitudes towards gender roles influence administrative policies in public education?
3. What are the effects of Gender-Based Violence on student performance in public schools?

2.1 Inclusion and Exclusion Criteria

A systematic review conducted encompasses research that outlines the methods for assessing gender disparities in public school education. Only studies focusing on gender disparities in the context of education were included, while those discussing gender disparities outside of education were excluded. Priority was given to articles published in peer-reviewed journals, as they are regarded as more reliable sources. The selected records were published between the period of 2005 to 2023 to ensure higher inclusivity. Additionally, policy documents were chosen to serve as a reference for expectations concerning gender equality in education. The research also concentrated on manuscripts addressing disparities between male and female students. Moreover, the study focused mainly on English publications and thus unintentionally applied a language restriction. Moreover, the study did not apply a strict geographical exclusion in the selection of the studies but maintained that the studies were focused on public schools. Additionally, studies from the developing countries were prioritised, specifically from the Sub-Saharan region for relevance.

2.2 Search Procedures

This systematic review adheres to the extended PRISMA guidelines for systematic reviews and meta-analysis. The search process was primarily conducted from Sabinet, Noyam, Project Muse, Taylor & Francis Group, SagePub, Oxford Academic, Litmaps and Google Scholar. The search keywords in the databases were chosen to pinpoint the differences in educational experiences between girls and boys in public schools. The search words applied were 'education, public education' alongside 'gender disparities, gender differences, and 'gender disparities' alongside 'institutional structure, policy implementation, education governance in public education'.

2.3 Search Strategy

Creating a search strategy to find manuscripts about gender discrepancies was the first step in the review process. The text was categorized based on the issue of assessing institutional and administrative reasons for gender gaps in public schools using the selection criteria. Manuscripts that addressed the problem of gender inequality were included. If a manuscript's subject had nothing to do with the goals of the literature study, it was rejected. The authors, year of publication, title, document type, and findings were all included in the data extraction information.

2.4 Data Analysis and Presentation

The data was analysed according to coding categories and outcomes. The terms 'Gender disparities' and 'education' were used throughout to refer to findings from the entire included body of literature, including papers and policy documents that highlighted the need for overcoming gender disparities. The process of study selection is demonstrated below, whereas *Table 1* presents the information extracted from the records.

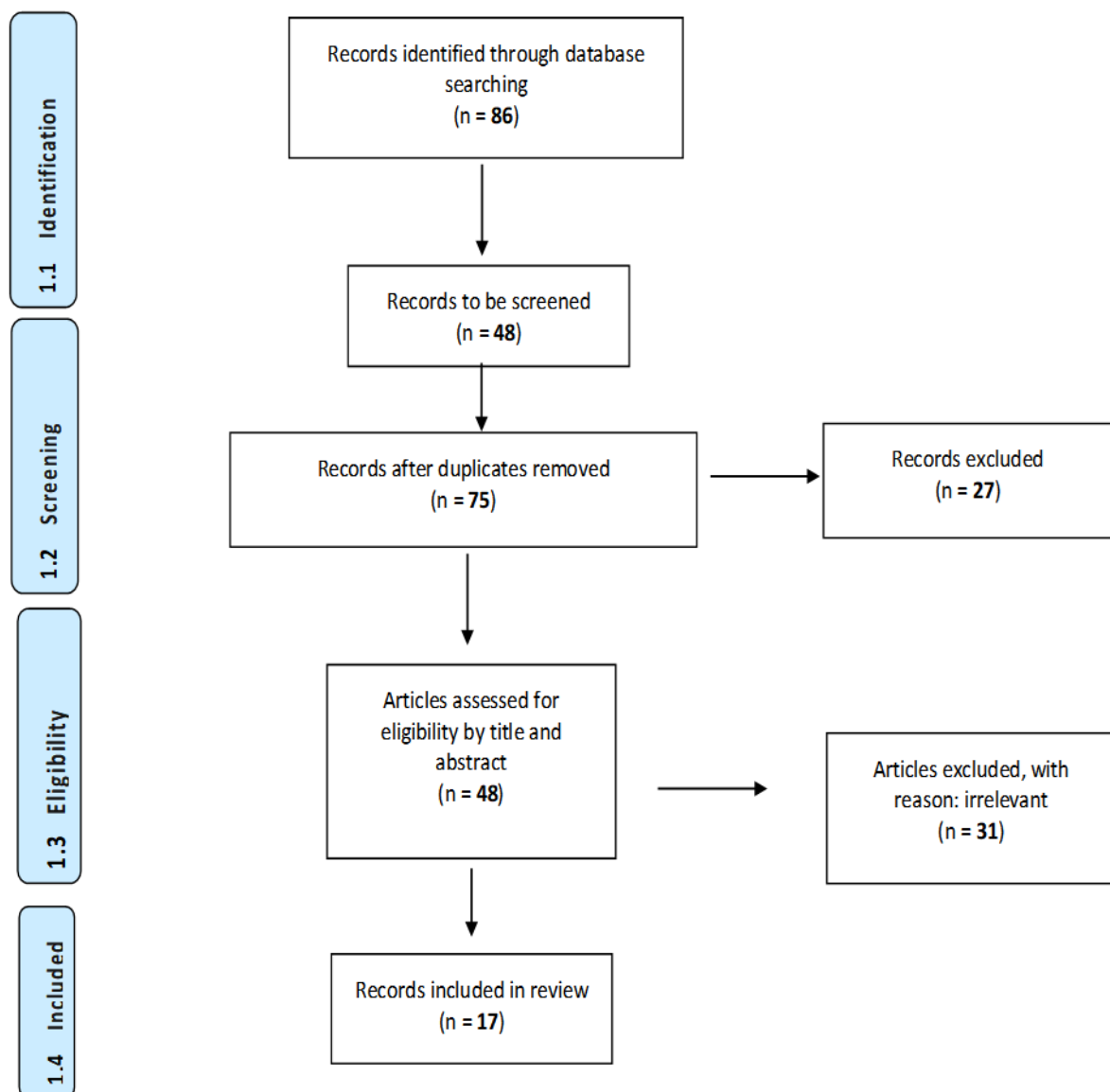


Figure 1: The screening process

Table 1: The Data extraction process

Author(s), (Year)	Title	Type of record	Findings
Abbas and Smith (2023)	Gender inequality in education: a comprehensive examination of social science studies	Journal	Persistent patterns of gender disparity across different educational levels and regions, the influence of specific sociocultural factors.
Jamal <i>et al</i> , (2023)	Addressing Gender Disparities in Education: Empowering Girls Through Education in Pakistan	Journal	Factors such as limited access to educational resources, societal norms, and discriminatory practices were identified as barriers hindering girls' educational advancement
Moletsane <i>et al</i> , (2010)	A critical analysis of gender violence and inequality in and around schools in South Africa in the age of AIDS: Progress or retreat	Report	If the South African government is serious about its pledge to educational equality, the national and provincial education departments must coordinate to take immediate steps to address the violence girls face in school by fulfilling its responsibility to prohibit and protect girls against such abuses.
Šidlauskienė and Butašova (2013)	Designing gender equality as institutional transformation at a higher education institution	Journal	Women remain more strongly underrepresented among researchers than among highly qualified professionals in traditionally male dominated scientific and professional fields.
Akala and Divala (2016)	Gender equity tensions in South Africa's post-apartheid higher education: in defence of differentiation	Report	A deliberate effort must be made to shift attention from aggregations to impediments for the promise of equality and equity to be realized for those who experienced most barriers in accessing higher education.
Saad and Ella (2019)	Economic complexity and gender inequality in education: an empirical study	Journal	The results show that public spending on education, good governance and financial openness reduce gender inequalities at all levels of education in all samples
Walker <i>et al</i> , (2019)	<i>The Power of Education to Fight Inequality: How increasing educational equality and quality is crucial to fighting economic and gender inequality</i>	Journal	Education can help tackle gender disparities in wages, poverty, reproductive autonomy and political power. It can dramatically improve the health outcomes for women and their children.
Chabaya and Gudhlanga (2013)	Striving to achieve gender equity in education: a Zimbabwean experience	Journal	Significant increase in the education of girls and women in terms of numbers was noted in all levels of education although equity is yet still to be achieved.
Doğan and Kirikkaleli (2021)	Does gender equality in education matter for environmental sustainability in sub-Saharan Africa?	Journal	The results suggest that girls' skills in climate, environmental, and energy solutions can be possible through their education.
Pekkarinen (2012)	Gender differences in education	Journal	Widening gender gap in education combined with recent wage and employment polarisation will likely lead to widening inequalities and is linked to declining male labour force participation.
Bandyopadhyay and Subrahmanian (2008)	<i>Gender Equity in Education: A Review of Trends and Factors</i>	Report	The study highlights that the participation of the girl-child is affected significantly due to social attitudes towards their education and by other forms of gender and social discrimination in Indian society.
Khosa (2023)	Gender equality or inequality in learning institutions in South Africa: A case of the professional advancement of women	Journal	It was indicated that the paradigm for empowering women in South Africa must emphasise seizing chances, providing a guiding structure, recognising efforts and successes, and eliminating patriarchy
Licumba <i>et al</i> , (2015)	Gender equality in education and economic growth in selected Southern African countries	Report	Reducing gender inequality in education will not only promote growth but also help to advance other valuable development goals.
Sturm (2007)	Gender equity as institutional transformation. <i>Transforming</i>	Journal	Change requires a process of institutional mindfulness to enable women.

Author(s), (Year)	Title	Type of record	Findings
	<i>science and engineering: Advancing academic women</i>		
Brown and Irby (2005)	Increasing gender equity in educational leadership	Journal	Women were unlikely to be hired as administrators partly because women were believed to be “unfit” for administrative jobs due to their supposed inability to discipline, to work with men, to “command” respect, and to possess rational and logical approaches to leadership.
Legewie and DiPrete (2012)	School context and the gender gap in educational achievement	Journal	Therefore, boys are more sensitive to school resources that create a learning-oriented environment than are girls.
Piatt (2008)	Gender segregation in the public schools: opportunity, inequality, or both?	Paper	Instead of trying to find justification for segregation, it might be a better use of resources to focus on improving an educational system where boys and girls can learn together.

The studies selected for the systematic review were charted above by looking mainly at the title, year of publication, type of document and most importantly the findings. The studies are not presented in the order of the year of publication; however, they were presented according to the identified themes, identifying institutional governance and institutional culture as the priority as these themes expose the extent to which males and females are treated differently in public schools and how the policies are not well implemented. Furthermore, through the application of the relevant search keywords, the study was able to identify studies that addressed pertinent themes by looking at their titles, key population and findings.

3. Results

The research utilised a systematic review to identify themes that surface from the examined records. In addition, this section offers a narrative summary of the recognized gender inequalities within public schools. The identified themes to be discussed below are poor institutional culture, Gender-Based Violence against females, poor institutional governance and inconsistent policy application.

3.1 Poor Institutional Culture

Institutional culture in many public schools continues to reflect patriarchal norms, limiting safe and supportive environments for female learners (Brown and Irby, 2005; Bandyopadhyay and Subrahmanian (2008); Jamal *et al*, 2023). Structural or symbolic violence—including bullying, harassment, and gender-based intimidation—remains widespread and normalised within school settings (Bandyopadhyay and Subrahmanian, 2008; Moletsane *et al*, 2010; Jamal *et al*, 2023; Khosa, 2023).

3.2 Gender-based Violence Against Females

Female learners may face heightened risks of GBV, harassment, and lack of access to gender-sensitive facilities such as menstrual hygiene support, safe sanitation, and counselling services. (Moletsane *et al*, 2010, Khosa, 2023). These deficits are likely to undermine attendance, retention, and academic performance (Licumba *et al*, 2015).

3.3 Poor Institutional Governance

Institutional governance and resource allocation practices may prioritise generalised needs over gender-specific interventions (Akala and Divala, 2016; Abbas and Smith, 2023). Insufficient staff training and a lack of gender-aware administrative planning further marginalise female learners, mirroring broader findings on institutional resistance to gender equity and the weak professional advancement of women in learning institutions (Piatt, 2008; Pekkarinen, 2012; Saād and Ella, 2019).

3.4 Inconsistent Policy Application

Although South Africa has developed progressive gender equality policies, their application at the school level remains inconsistent and fragmented (Sturm, 2007; Chabaya and Gudhlanga, 2013; Abbas and Smith, 2023; Khosa, 2023). School administrations often lack clear operational guidelines and adequate monitoring support to implement gender-responsive practices effectively, resulting in superficial or symbolic compliance rather than substantive transformation (Khosa, 2023). Moreover, De Wet (2023) observes that disciplinary responses to gender-based misconduct are inconsistent and frequently suppressed to protect institutional reputations, while

Khosa (2023) attribute these failures to entrenched patriarchal leadership cultures that resist accountability and gender transformation. Taken together, these dynamics suggest that the gap between policy and practice continues to undermine the safety, participation, and academic progression of female learners in public schools (Legewie and DiPrete, 2012).

Synthetic analysis of these trends indicates that the problem is not simply one of weak enforcement but of institutional cultures that actively reproduce inequality (Pait, 2008; Walker *et al*, 2019; Doğan and Kirikkaleli, 2021). Policies are often interpreted through the lens of existing power hierarchies, meaning that even when frameworks exist, their translation into practice is filtered by patriarchal norms, resource constraints, and administrative inertia (Sturm, 2007; Šidlauskienė and Butašova, 2013; De Wet, 2023). This creates a cycle in which gender equity remains aspirational at the policy level but elusive in everyday school governance.

Synthesising these findings, the study demonstrated that gender disparities in township education are less a result of policy absence than of systemic institutional and administrative failure to operationalise equality commitments. The persistence of these disparities reflects a structural disconnect between policy intent and institutional practice. Formal policies exist at provincial or national levels, but implementation gaps at the school level—driven by limited oversight, capacity, or institutional will—results in minimal practical change.

4. Discussion

The records identified by this study provided significant evidence for its initial assumptions. The study assumed that the gender disparities in public education were not caused by a lack of functional policies but their poor administrative and institutional application resulting into discriminatory perspectives and behaviour towards female students. There remains a significant gap between the treatment of male and female students in public schools (Chabaya and Gudhlanga 2013; Licumba *et al*, 2015; Abbas and Smith, 2023; Jamal *et al*, 2023). The records on Table 1 demonstrate that there are administrative and institutional drivers that contribute to gender disparities in education. Factors such as poor access to educational resources, discriminatory practices and norms held by the society were barriers to the girls' education (Pekkarinen, 2012; Jamal *et al*, 2023; Smith, 2023). The hindering societal norms are evident where women were viewed as unfit for administrative jobs because according to society, they lacked the discipline and command (Brown and Irby, 2005; Šidlauskienė and Butašova, 2013). Moreover, Moletsane *et al*, (2010) and Khosa (2023) posit that these societal norms may even lead to violence against girls and women, further emphasising the need to address them. Hence, there remains a need to improve the education of both men and women by providing them with equal opportunities and fair treatment (Bandyopadhyay and Subrahmanian, 2008; Akala and Divala, 2016; Saâd and Ella, 2019; Walker *et al*, 2019). This aligns with the goals of policy makers nationally and internationally where they demonstrate the desire to empower women through education to ensure equality (Piatt, 2008; Legewie and DiPrete, 2012; Doğan and Kirikkaleli, 2021). Therefore, there is a need for the South African government to improve the institutional structures in society and address the issues of patriarchal norms to empower women in education (Sturm, 2007; Moletsane *et al*, 2010; Licumba *et al*, 2015; Khosa, 2023). The paper reiterates that the problem is not that the government has not put the policies in place but the inconsistency in their application. These are linked to administrative ineffectiveness, inconsistent policy applications and institutional drawbacks.

4.1 Policy Implications for the Future

This paper underscores the necessity for gender-sensitivity training for school administrators, teachers, and School Governing Body members to raise awareness and promote institutional capacity for gender-responsive governance. Moreover, more allocation of resources to gender-specific facilities and support services (e.g., safe sanitation, menstrual hygiene management, counselling, safe transport) in township schools. Furthermore, the establishment of monitoring and accountability mechanisms at school and district levels to ensure gender equity policies are not only adopted but enforced. Additionally, the inclusion of female representation in school leadership and decision-making bodies (SGBs, management teams) to ensure institutional culture and governance reflect gender equity. Lastly, the engagement of community stakeholders and civil society (parents, local organisations, youth groups) to foster a supportive environment for gender-sensitive education and help monitor implementation of policies.

5. Study Limitations

Although a systematic review typically encompasses a wide array of literature on the subject being examined, this study highlights the importance for additional research specifically focused on public schools in South African townships.

6. Conclusion

This paper argued that persistent gender disparities in public education in Umlazi Township cannot be addressed solely through normative policy frameworks or socio-cultural interventions. Instead, they are deeply rooted in institutional and administrative practices, governance weaknesses, and resource allocation decisions that fail to reflect gender-responsive priorities. By adopting a systematic review and analysing the relevant literature, the study uncovered how governance and administration shape gendered education outcomes and propose context-specific, actionable recommendations for strengthening equity in township public schools.

In doing so, it contributed to a more realistic, systematic, and structural understanding of gender inequality in education—one that holds institutions accountable rather than casting blame only on cultural or individual factors. Addressing these institutional drivers were therefore critical for achieving gender equality in education and for advancing South Africa's commitments under SDG 4: Quality Education and SDG 5: Gender Equality.

Ethical Declaration: This systematic review analysed data from published studies and publicly accessible sources. No ethical approval was required as the study did not involve primary data collection, human participants, or personal data.

AI usage Declaration: The study used some AI software to improve English grammar and for concise writing.

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French Feminists and Intersectionality: Critical Perspectives

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Abstract: During the 1990s, the mainstreaming of intersectional theory marked a paradigmatic shift in Anglo-American feminisms. This paper examines the engagement and critique of intersectionality by French feminists. It highlights the voices of French feminists who align with diverse factions of feminism and whose scholarly contributions address the complexities of difference among women in theoretical, research, and analytical contexts. Through their writings and insights gathered from a series of interviews, it becomes evident that the concepts and identity categories prevalent in French feminisms stem from specific theoretical frameworks of difference, with a distinct historical trajectory compared to the Anglo-American feminisms where intersectionality is predominantly emphasized. The analysis presented herein is informed by a literature review coupled with interviews conducted with a selection of scholars across various feminist trends, all residing in France and recognized for their significant contributions to the discourse on differences within French feminisms. These interviews, which were conducted in-person and recorded using a semi-structured questionnaire, were subsequently analyzed through thematic coding to extract common and salient themes. The findings of this analysis pinpoint three primary critiques of intersectionality articulated by the interviewees: (1) its foundation in predominantly Anglo-American contexts, (2) the prioritization of race-related issues modeled on the U.S. experience, and (3) a hegemonic framework that neglects concepts and analyses emerging from other contexts. Furthermore, the interview data illuminate the power dynamics that influence the construction of intersectionality. The anglicization of intersectionality has allowed this theoretical approach to take root in academia and normalize from an understanding that, although specific, is never clearly identified. The Anglophone identity, like many other dominant identities, goes unnoticed and remains invisible. The insights gathered through this research indicate that French feminists challenge the universalizing assertions of intersectionality, proposing alternative frameworks that resonate more closely with their intellectual heritage for understanding differences and systems of oppression. They ask for tools and theoretical approaches that are better aligned with the unique histories and cultural contexts from which they emerge.

Keywords: Feminism, Francophonie, Intersectionality, Language

1. Introduction

During the 1990s, the spread of intersectional theory opened the door to a shift in Anglo-American feminisms; quickly after the circulation of founding texts, intersectionality emerged as a crucial concept and acquired the status of a paradigm in these feminisms (Hancock, 2007). What is the status of intersectionality in French feminisms? This text examines the openings and critiques formulated on the subject of intersectionality by a sample of French feminists, which they apprehend with a mixture of enthusiasm and resistance. Through writings and words, it is revealed that the identity concepts and categories that predominate in French feminisms are grounded in a specific history, local experiences and French intellectual traditions.

The analysis presented in this text is based on a literature review and on interviews conducted with a sample of feminists who identify with various trends of feminism. They all live in France and they have written important texts on differences in French feminisms. The interviews were conducted in person and recorded. Prior to each interview, participants were presented with a consent form that allowed them either to request confidentiality or to consent to the disclosure of their identity in publications following data collection. All individuals quoted in this text consented to the disclosure of their identities. The data collection design and the consent form for interviewees were approved by the Research and Ethics Committees of the institution with which the author is affiliated. The interviews were conducted using a semi-structured questionnaire. They were coded using thematic analysis for analytical purposes and for the identification of common and meaningful themes.

The findings illustrate a critical relationship with intersectionality; interviewees do not reject the idea of multiple intersecting oppressions, but for many it is rather the compelled understanding of oppressions within the intersectional framework, its prescriptive grammar and invisible hierarchies that they question.

2. Literature Review

Intersectional thinking took root in the late 19th and early 20th centuries, following the abolition of slavery in the United States. More than a century ago, thinkers like W.E.B. Du Bois spoke of the complexity of systems of oppression based on the lives of African Americans (Hancock 2005). At least four distinct dimensions can be identified in an intersectional analysis. These may be identities, such as French-speaking women, categories of difference such as race and gender, processes of differentiation such as racialization or finally systems of

domination such as racism, colonialism, and sexism; these dimensions can be considered simultaneously or separately (Dhamoon 2011: 233).

The power relations produced by specific racial identities are placed at the center of intersectional analysis, in relation to the origins of this approach in Kimberlé Crenshaw's seminal text (1989). Intersectionality must be understood from the trajectory of Black Feminism (Hill Collins, 2015); since the theory of intersectionality first emerged around issues related to race and in the context of the United States, the experience of Black women in the United States and Black Feminism must be the central referents (Carastathis, 2016). But this is also precisely one of the reasons why several feminists, in France and from the South, express reservations about this prescriptive grammar: because it is inscribed in the very specific history and dynamics of race relations in the United States, far from universal resonance.

By wanting to establish itself as the dominant paradigm of current feminism (Hancock, 2007), is intersectionality a reincarnation of universalist feminist theories? Many feminists, postcolonial, decolonial, from the South or from different Francophonie spaces, express reservations about intersectionality seen as relating to American experiences, more specifically those of African American women, as experiences with universal resonance. Jasbir Puar (2007) sees intersectional theory as another way of imposing Western theoretical models on the rest of the world. When examining intersectionality, Puar is critical of attempts to situate intersectionality within the genealogy of Black feminist thought. For her, giving Black Feminism a generative status in intersectionality theory could obscure the deployment of the variety of interpretations of intersectionality. Puar also questions the capacity of the categories privileged by the intersectional analysis to cross national and regional borders. This journey may constitute another instance of epistemic re-colonization. To the extent that privileged categories of intersectional analysis are the product of colonial agendas and regimes of epistemic violence, the global journey of intersectionality may signal the imposition of a Western Euro-American epistemological formation.

Elsa Galerland and Danièle Kergoat (2014) bring intersectionality and materialist feminism into dialogue. The latter oppose to the concept of intersectionality that of the consubstantiality of social relations, developed in 1978 by Kergoat, a French scholar, more than 10 years before the appearance of the term intersectionality (Kergoat, 1978) and which allows to take the materialist character of the processes of domination and oppression into account, which is rarely, they write, highlighted in intersectionality. For French theorist Nelly Quenemer, the notion of intersectionality, as defined and deployed by Crenshaw, is only one attempt among many others to understand the overlapping of gender relations, of class and race and the constitution of subjectivities around several axes of differentiation (2020).

Martha Gimenez (2001) articulates a Marxist critique of intersectionality which concerns the absence of an explanatory theory of power in this framework. What are the mechanisms that produce inequalities? She opposes to the principle of non-hierarchization of oppressions, common in intersectional frameworks, the centrality of class, which, according to her, is not equivalent to race or gender. Soumaya Mestiri (2020) pleads for a post-intersectional feminism, that is to say going beyond intersectionality. She draws on the analyzes of Latin American decolonial feminists to propose a framework based on a new epistemology of relations of domination which would come from strains other than the referent produced by the colonial process and the imposition of notions and values such as the rule of law, equality, or even the authority of the State.

3. Reception of Intersectionality in France: Three Critiques

A series of interviews carried out with a sample of feminists who live in France and who have published on feminisms and issues of race, identities, and/or differences among women made it possible to identify a set of critiques formulated on intersectionality. A first critique targets the centrality of race in intersectionality and its understanding of the category of race that is part of one national history, that of the United States. Such a posture does not translate the specific history of France, the complex and difficult experience of race in France, where the history of the 20th century has favored the radical delegitimization of racial categories and where colonization and decolonization have been experienced in a specific way. France has also been shaped by a long tradition of social movements aligned with Marxism and a specific focus on social classes as explanatory factor for social inequalities.

Several interviewees share a critical posture that designates the imperialism of American categories. Houria Bouteldja identifies as a decolonial scholar (2023) and anti-imperialist activist involved with the Indigenous Peoples of the Republic movement in France. Bouteldja recognizes the interest that Black women in France have in the writings of Black American feminists of color, because there is a similarity in the condition that she sees

as that of racialized people within a white space and at the heart of the Empire. However, the question of race is not central for feminisms of the South and for Islamic feminisms: *"Southern women don't live in Western societies and their conditions are not quite the same. Islamic feminists are more interested in what is happening in Iran, Morocco, Tunisia. Through the prism of Islam, we are no longer within the strict borders of the Empire. These feminists rarely use the question of race. Their prism is the non-patriarchal reading of the Koran"*.

For Magali Bessone, a philosopher who works on questions of race in France (2013), there is great difficulty in using the word race in France, for a set of historical reasons. She pleads for a reversal of perspective in order to include race in the public debate: *"In France, we see the idea reappear periodically that the word race should not be used in the constitution, legislation, on the grounds that race does not exist and that the texts of law do not have to consecrate the non-existent"*. She notes a strong resistance to talking about race in France, which she attributes to the experience of the Second World War: *"So, we can clearly see that there is still something very resistant about race, I think that in France, there is a legacy of the Second World War and the Holocaust there, which is, which seems indisputable, race is the Holocaust, and therefore we do not speak of race by endorsing the term race because that would mean that we forget that in the name of an alleged and supposed race we were able to put in place the policy of systematic massacre of certain types of populations, Jews or gypsies. I think that's the fiercest resistance"*. Bessone nevertheless wants a change and an opening towards the integration of perspectives around race in the French context, a strategy that would make it possible to go beyond universalism as well as the history and the constructions that made the Holocaust possible.

Sociologist Laure Bereni (2024) locates in the mid-2000s the dissemination, in France, of work on the intertwining of power relations and intersectionality, thought beyond the class and gender analogy that has been developed previously in French feminisms: *"I would say that it is from the mid-2000s in France, that the framework of intersectionality and the intertwining of power relations really made its entrance, beyond analogy. That is to say truly as a way of approaching social relations as intertwined with each other"*. Bereni remains skeptical about the deployment of intersectionality in feminist research in France, which would be more a sprinkling enterprise than a theoretical project that would achieve consensus in the French context. Like Bessone, Bereni argues that one of the difficulties with intersectionality is at the level of the integration of race, a posture which, because of the French history of the last century, proves difficult to defend.

For sociologist Anne-Marie Devreux (2022), tackling the question of race remains difficult in the French context: *"Intersectionality is the need to take the intersection of social relations of sex and race into account in our analyses. We say class, so as not to forget it, but I believe that what causes friction between us, what possibly causes conflict, is sex and race"*. Devreux denounces the superficiality with which intersectional theories approach the articulation of multiple oppressions: *"I denounce the fact that we say: sex-race-class in many papers as if we had said it, therefore we had treated. It is much more complicated than that and it is not enough to say that it is necessary to consider: sex, race and class to have dealt with them, to have analyzed them"*. She identifies a similar process when it comes to integrating race: *"It is not because we say 'race' that we have dealt with race... Besides, it's funny, maybe it has been disappearing for a year or two, in France, authors often put quotation marks on race, without putting any on sex, in the social relation of 'race', social relation of sex... because race does not exist. So, the same could be said for sex that does not exist like that"*.

Sociologist and feminist activist Françoise Picq (2011) comments on her reluctance to prioritize race over other categories in feminist analysis in these terms: *"This is something that annoys me. That I find that the Indigenous people of the republic have a racist reading. Everything is seen around this prism. This question must be taken into account. Society has all of this within it, but we cannot read the whole of society from that. (...) I don't like at all the word racialized which is used a lot in these circles and which I find offensive. I think that Black feminism is an American story"*.

A second critique of intersectionality pits Marxism against intersectionality. At the center of this critique lies the idea that in France, social class analysis is part of a long tradition in social sciences and is still central. Contrary to Marxism, intersectional theory does not provide an explanatory framework for oppression. In a word, the theory of social classes is identified by many as being the paradigm which has dominated the social sciences, in France, and which has by extension crossed and continues to cross feminism. Similarly, intersectionality is criticized for its lack of articulation of the trilogy of categories at the base of intersectionality, namely the categories of race, class and gender.

For Laure Bereni, who has also identified arguments linked to race in her analysis of the French context, related in the previous section, the history of social movements in France has been articulated around Marxism and the class struggle, which has had the effect of making the question of social classes unavoidable in French feminisms.

The latter makes the analysis that there have been a number of proposals in French feminist theory on the intersection of oppressions, mainly around a gender and class articulation and more specifically in the work of Danièle Kergoat: *"There was Danièle Kergoat and others who have problematized the articulation between gender and class. Because French social movements are dominated by the class paradigm and French sociology is so dominated by the class paradigm, in a way, this articulation had to be done"*. Bereni notes a tendency that has been present in French feminisms to establish an analogy between the oppression of women and the oppression of the proletariat, rather than to consider the intertwining of these oppressions. According to Bereni, French feminists have been forced to justify the legitimacy of their approach to the object of woman in relation to the dominant class paradigm: *"It is the idea that we legitimize the object of woman and the analysis of male domination in the social sciences, in particular by comparing this object to the proletariat, to the workers, to the popular classes and by comparing male and patriarchal domination to class domination. So we use analytical schemes from Marxism and move them towards the object of woman and male domination and in a way we use this structure to legitimize the object of woman"*.

For sociologist Armelle Testenoire (Palomares, E. & Testenoire, A. 2010), if the issue of racism has not been explored in depth in French feminist analyses, it is because the theme of the articulation of gender and class has taken center stage: *"The question of racism, if we compare it with the Anglo-Saxon world, or at least with the United States, more precisely, the question of racism is almost the social classes in France. It is the major social question of the 20th century, it is what has animated history. It is still the great social question in the United States. And in France, historically, the big social question has been classes"*. The issue of racism, ubiquitous in the United States, has remained largely ignored in France: *"and racism, well, we ignored it knowing that the United States was racist. So, I think that (in France) there is this non-recognition of racism which means that the question that arises all the time (...) is inequalities"*.

In a third critique of intersectionality, the concept is perceived as the Trojan horse allowing Anglo-American hegemony to impose itself in the Francophonie to conceal the work that has been done in French feminist theory on the different forms of oppression. Through the authors who constitute the base on which it unfolds, the intersectional theory confirms the position of subalternity of France and the Francophonie in the field of feminist theories. For Nacira Guénif, a sociologist close to postcolonial theories (2006), intersectionality brings the whole of Anglophone hegemony into the French space in an extremely powerful and somewhat uncontrollable way. Such an undertaking risks making invisible the different modes of analysis that would be used by women in France to describe their situation: *"What I see in all that is that there is a sort of predominance of an American paradigm which imposes itself and which in fact reduces to silence other expressions, other modes of expression and also establishes a hierarchy"*.

Guénif identifies intersectionality as a process that allows race to be obscured and all differences not to be named, much like the term diversity does: *"Intersectionality is beginning to take place in a certain academic discourse, so as not to name the breed outright. Because what is interesting about intersectionality is that it does not name all the differences from which it operates. So, there are some for which it is very comfortable. It's kind of like diversity replacement. We talked a lot about diversity... (Diversity is) the cache-sexe that allows us not to talk about sexism or racism, and about different components. Now intersectionality allows that. For what? Because it is part, you could say, of a very Western, very white semantics"*. Guénif perceives intersectionality as a hegemonic term. In her analysis of the French context, Guénif identifies the process of designation that results from identification with post or decolonial identity categories: *"It allows us to understand how, in France today, there is a vocabulary which is that, for example, of women who call themselves racialized, or of feminist struggles who call themselves decolonial, and what they say very clearly is that they position themselves in a form of differentiation, they distinguish themselves from certain currents to assert others"*.

For Sam Bourcier, sociologist and queer activist (2022), intersectionality is a term that is used by academics as an injunction. This is an obligatory approach in American universities: *"if a trans person works on decolonial issues and not on intersectionality, they will not be accepted."* On intersectionality, Bourcier explains feeling annoyance: *"I didn't understand the annoyance I had with this term intersectionality. I very quickly saw that there was this word which was a bit like a keyword, but that the big problem was that it was impossible to do. Intersectionality (...) it's difficult to do, it's difficult to implement, I think, as a policy"*. Bourcier perceives the call for intersectionality as a tool that could be used to intimidate: *"I clearly saw that it was a speech of intimidation, and that it was bad people in general, rather the white academic, who, to speak of everyone will say yes, we need an intersectional (analysis)"*. Bourcier also notes that the term intersectionality is not used at all in some contexts, such as Italy. Finally, he observes that intersectionality has been appropriated by academics who are not involved in anti-oppression activism: *"As soon as it passed into the university as an official or academic*

political discourse (...) at that point it was taken up by academics who appropriated the tool and who ultimately did not denounce things”.

4. Prescriptive Grammars of Intersectionality and Feminist Decolonial Theories

Language has been and continues to be a source of oppression and domination whose geometries are complex. Despite the fact that the first theorizations of intersectionality proposed by Crenshaw (1989) denounce monolingualism as constituting a significant obstacle for many non-English-speaking American women, it is clear that her invitation to theorize language did not find its echo neither in the development nor in the institutionalization of intersectionality. The anglicization of intersectionality has allowed this theoretical approach to take root in academia and normalize from an understanding that, although specific, is never clearly identified (Baril, 2017). The Anglophone identity, like many other dominant identities, goes unnoticed and remains invisible.

Soumaya Mestiri (2025) pleads for a decolonization of feminism leading to a post-intersectional feminism, that is to say going beyond intersectionality and its prescriptive grammars. She draws on the analyzes of Latin American decolonial feminists like Maria Lugones to propose a framework based on a new epistemology of relations of domination which would come from strains other than the referents produced by the colonial process and the imposition of notions and values such as the rule of law, equality, or even the authority of the State.

In her book *Pour un féminisme décolonial*, Françoise Vergès refers to the need to understand France through its own narratives of colonialism and slavery. She writes: *“I therefore remain surprised by the stubbornness to forget slavery, colonialism and “overseas”*. For Vergès, it is imperative to understand the causes of this erasure within the specific context of France. On this, she uses the term ‘French innocence’: *“What is the purpose of such repression, if it is not to maintain the idea that all this – slavery, colonialism, imperialism – has certainly arrived but always outside of what constitutes France? We thus minimize the links between capitalism and racism, between sexism and racism, and we preserve French innocence. Thus, French feminism displays restraint in the face of heritage colonial and slavery. It is to be believed that, from then on that women would be victims of domination masculine, they would have no responsibility to with regard to the policies pursued by the French State”* (Vergès, 2019).

Decolonial feminism as imagined by Vergès rally a wide spectrum of women’s struggles, including Indigenous women, Black women, enslaved women, subaltern women and women in national liberation struggles. Southern women and their movements are leading voices in decolonial feminisms. There is also insistence on the need to revisit the European narratives of the world and to include perspectives from the South: *“To erase South-South transfers and itineraries of liberations, to obscure internationalist experiences anti-colonial forces, suggests that the decolonization would have only been independence in the law, and even a decoy. The ignorance of the South-South movement of people, ideas and emancipatory practices preserve hegemony of the North-South axis; but South-South exchanges have been crucial for the dissemination of dreams of liberation”* (Vergès, 2019). Vergès rallies to the concept of multidimensionality, which provides an alternative to the limits of intersectionality; decolonial feminism performs multidimensional analyses of oppression and it refuses to define race, sexuality and class as mutually exclusive categories.

5. Conclusion

The comments collected on intersectionality through a literature review and interviews with French feminists have revealed a complex relationship. In the sample of interviewees, feminists who reject intersectionality identify with different feminist approaches and their arguments against intersectionality lie mostly in the rejection of an imposed model built on the basis of specific experiences grounded in the American context. What emerges from the thematic analysis is a common desire among interviewees to think about intersecting oppressions with original tools, more in line with French specificities. Intersectionality is seen as one of many theoretical tools but not the only one and not as the perfect one. In this sample, a shared position is not to deny the existence of multiple, intersecting oppressions, but to move beyond the constrained reading of oppression imposed by the intersectional framework, whose prescriptive grammar tends to produce its own invisible hierarchies.

What comes out of this sample of feminists interviewed is a set of critical perspectives on intersectionality, the questioning of a hegemonic vision of feminism, defined from a center which fails to clearly identify itself and imposes a specific model for understanding differences. Likewise, another dimension that is called into question

is this idea that we can only talk about the differences between women from a single framework, that of intersectionality, and this, despite criticisms formulated on the subject and primarily around the lack of representation of Southern women's perspectives. Feminist claims of decolonial thought push further the debate on the principles which must animate feminisms with an authentic aspiration to the decentered representation of subjects. Beyond the criticisms leveled at intersectionality, there is no single way of thinking about enriching analyzes to make room for the multiplicity of experiences and points of view. French feminists who have shared their perspectives in this research project have identified other tools and theories that are more in line with intellectual traditions and theories produced by their specific histories.

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Gendered Immigrant Experiences during COVID-19 in Canada

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Abstract: This article examines the experiences of immigrant women and men from Ukraine during COVID-19 pandemic in Canada. Previous research has documented consistent gender differences in healthcare in general and in COVID-19 experiences in particular. However, no prior studies have directly compared the COVID-19 experiences of immigrant women and men within a single immigrant group, which is the focus of the present study. The study addresses two research questions: (1) Did COVID-19 experiences by immigrants from Ukraine in Canada differ by gender? and (2) What patterns of COVID-19 information access did immigrant women and men from Ukraine in Canada report, and did these patterns differ by gender? The study is based on a survey that included 51 women and 24 men. Quantitative analysis of the survey responses shows that women reported greater disruption of daily life due to COVID-19 and stronger fear that loved ones would contract the disease. By contrast, the types of COVID-19-related information sought during the pandemic did not differ significantly by gender. These findings have direct implications for healthcare, infectious-disease control, and mass-media communication, highlighting the need for gender-specific approaches to information access and for gender-disaggregated data to guide public-health messaging.

Keywords: COVID-19 experiences, gender, men and women, COVID-19 information seeking, immigrants from Ukraine in Canada.

1. Introduction

Patients' experiences in healthcare often differ by gender even in countries such as Canada, where gender equality is formally institutionalised (Kemp et al., 2021; Lacasse et al., 2023). Immigrants who are vulnerable because of unfamiliarity with the healthcare system, language barriers, and other structural obstacles are also disadvantaged in accessing healthcare (Díaz-Millón & Olvera-Lobo, 2025). COVID-19 revealed substantial differences in individuals' experiences across genders (Prowse et al., 2021; Chima et al., 2022) as well as between immigrant groups and the general population (Leung et al., 2023). This article brings together these two strands of vulnerability—gender and immigration status—by examining gender differences in the COVID-19 experiences of immigrants from Ukraine in Canada. The choice of this immigrant group is motivated by its global relevance in light of the ongoing Russian aggression against Ukraine, its significance in the Canadian context, and the author's research expertise. Although COVID-19 has largely subsided as an epidemic, it constituted one of the major crises affecting the world's health systems, and its lessons remain highly relevant for the future.

Canada has been receiving immigrants from Ukraine since the nineteenth century and is home to the largest Ukrainian diaspora abroad (Luciuk & Hryniuk, 1991). The number of individuals of Ukrainian ancestry in Canada currently exceeds 1.2 million, of whom approximately 100,000 report Ukrainian as their mother tongue (Statistics Canada, 2022). This population is characterised by high levels of literacy and digital literacy, making it particularly important to examine whether its members nevertheless experienced difficulties in accessing COVID-19-related information.

2. Literature review

This section reviews the literature on gender-related differences in healthcare, particularly during COVID-19, as well as reported challenges in immigrants' access to healthcare.

2.1. Gender differences in healthcare

Although the challenges faced by non-cisgender individuals in accessing healthcare must be fully acknowledged (e.g., Nowaskie & Menez, 2024), the present study focuses on two genders—men and women—because all participants in our sample identified as either men or women, with only two participants preferring not to disclose their gender and none identifying as non-cisgender. Healthcare access is gendered in terms of both the needs and the barriers experienced by women and men, which are shaped by social roles, resources, and provider and system responses.

Previous research shows that women use outpatient and preventive services more frequently than men, whereas men are more likely to delay or avoid help-seeking, particularly for stigmatized or emotionally laden concerns (Bertakis et al., 2000; Courtenay, 2000; Galdas et al., 2005). Cross-national research in Europe similarly reports higher odds of women's use of primary, specialist, dental, and mental-health services, with variation by country and service type—suggesting that health-system design can either amplify or reduce gender gaps (Golinelli et al., 2025). However, higher utilization does not necessarily translate into easier access. Recent research indicates that women report higher levels of unmet need due to healthcare costs than men, consistent with gendered income gaps and caregiving-related “time poverty,” that is, women's greater time investment in caring for family members (Rahman et al., 2022). In many settings, women also face constraints related to unpaid care work (e.g., childcare and eldercare), transportation, and limited control over household finances, which may delay appointments and disrupt continuity of care (Arbaugh et al., 2024). At the same time, gender bias within clinical encounters can shape “effective access,” including differential diagnostic testing and treatment (e.g., Al Hamid et al., 2024). Together, these strands of research suggest that gender disparities arise from interacting mechanisms involving gender norms, socioeconomic position, and institutional bias.

In Canada, where the present study was conducted, provincial coverage of physician visits and hospital admissions reduces financial barriers; nevertheless, gendered differences in perceived unmet needs, attachment to primary care, and waiting times persist. Women are more likely than men to report unmet healthcare needs (Bryant et al., 2009; Socías et al., 2016). Overall, across multiple contexts, including Canada, women tend to have higher levels of contact with healthcare services while simultaneously reporting substantial unmet needs, whereas men's access challenges are often mediated by lower help-seeking behaviour and gender norms.

2.2. Immigrants' access to healthcare

Immigrants face more barriers to healthcare than the general population, primarily because of language discordance (Díaz-Millón & Olvera-Lobo, 2025; van Lent et al., 2025) and legal and administrative stratification related to insurance status and documentation (Derosé et al., 2007; Hacker et al., 2015). Additional challenges include unfamiliarity with the healthcare system, transportation difficulties, settlement priorities, and other structural constraints (Kaur et al., 2021; Sundareswaran et al., 2024). In mental healthcare in particular, immigrants encounter numerous barriers, including stigma, limited availability of culturally appropriate services, lack of interpreters, and concerns about discrimination (Bilican et al., 2025).

In Canada, these challenges are compounded by the lack of insurance coverage during the initial months after arrival, which may result in restricted or absent access to medical care (Garasia et al., 2023), as well as by difficulties in securing a regular family physician, often leading to delayed preventive care and fragmented follow-up (Kalich et al., 2016; Tsai et al., 2023).

2.3. COVID-19 experiences by gender and immigrant groups

COVID-19 experiences reinforced the gendered differences outlined above and introduced additional disparities. Women reported greater negative social, mental-health, and economic impacts during the pandemic and higher levels of pandemic-related stress in many settings (Flor et al., 2022; Prowse et al., 2021; Czepiel et al., 2024). Studies of vaccine attitudes and information-seeking behaviour found lower vaccination intentions and greater concern about side effects among women in multiple samples, and systematic reviews confirm that men more often report higher vaccine acceptance (Zintel et al., 2023; Syan et al., 2021). Reviews of COVID-19 clinical research further highlight inadequate sex and gender reporting, which complicates the interpretation of adverse-event patterns and underscores the need for gender-disaggregated data to inform healthcare and public-health messaging (Heidari et al., 2021; Zintel et al., 2023).

Among immigrant populations worldwide, COVID-19 amplified pre-existing structural vulnerabilities affecting exposure to infection and access to timely, actionable health information (Hintermeier et al., 2024; Hayward et al., 2021). Information access refers to the ability to find, understand, trust, and use information—an ability that is critical during times of crisis—and was weaker among immigrant populations during COVID-19 (Kalocsányiová et al., 2023).

Canadian research similarly shows that immigrants and refugees faced compounded barriers to understanding and acting on COVID-19 guidance, particularly during the early stages of the pandemic, when policies, eligibility rules, and service pathways changed rapidly (Leung et al., 2023; Amoako & MacEachen, 2021). Research in the Canadian context also documented disruptions in access to health and social services among immigrants from

specific groups, such as Sub-Saharan Africans, alongside heightened anxiety, with information needs shaped by settlement pressures and constrained support networks (Leung et al., 2023).

2.4. Theoretical foundations

Gender and immigration interact in shaping healthcare and information access, highlighting that gender gaps are often intensified or reconfigured by migration-related barriers (Ssendikaddiwa et al., 2023). Accordingly, the present study is informed by an intersectional perspective (Bowleg, 2021) with respect to gender and immigration. An additional overarching framework is the Social Determinants of Health approach (Marmot et al., 2020), which conceptualises immigrants' COVID-19 experiences as shaped by structural and social conditions, including language access, access to health information, and navigation of healthcare systems.

2.5. Research aim and research questions

To the best of our knowledge, no previous studies have systematically compared the COVID-19 experiences of immigrant women and men within a single immigrant group, and this constitutes the primary aim of the present study. Expanding research to include immigrant groups with diverse literacy and digital skills is also essential to obtain a more comprehensive understanding of immigrants' needs during health crises. The study addresses the following research questions:

1. Did the COVID-19 experiences of immigrants from Ukraine in Canada differ by gender?
2. What patterns of COVID-19 information access did immigrant women and men from Ukraine in Canada report, and did these patterns differ by gender?

The methodology used to address these questions is described in the following section.

3. Methodology

This section outlines the methodology and participant characteristics.

3.1. Methods and tools

A survey was designed to examine Ukrainian immigrants' experiences during COVID-19, based on earlier work (Nedashkivska & Makarova, 2026). The study instruments and procedures were approved by the author's university research ethics board. The survey was administered via SurveyMonkey in three languages (English, Ukrainian, and Russian), with translations prepared and verified by the author and native-speaking assistants. Eligibility criteria included being an immigrant from Ukraine, being over 18 years of age, and having arrived in Canada before February 2022. A purposive sampling strategy was used to ensure that these criteria were met. Recruitment took place through university and community websites, and participants were given the option to volunteer for a follow-up interview at the end of the survey. Because of space limitations, the interview data are not reported in the present article. Survey responses were exported to Excel (Microsoft 365, Version 2407) and analysed using SPSS 28.

Responses to the Likert-scale closed-ended survey questions were analysed using SPSS 28 to compare results across gender groups. Because Likert-scale data are ordinal in nature and exhibited non-normal, skewed distributions with unequal group sizes, non-parametric statistical procedures were employed. Specifically, Mann–Whitney U tests (Wilcoxon rank-sum), Wilcoxon signed-rank tests, and chi-square tests of independence were used, the latter to compare frequency distributions of categorical variables across gender groups. These tests are appropriate for ordinal and nominal data and allow for the assessment of whether response patterns differ systematically between groups.

3.2. Participants

Participants were first-generation immigrants from Ukraine who reported using Ukrainian or Russian as their first or second language, including bilinguals in Ukrainian or Russian and another language. The sample consisted of 51 women and 24 men residing in five Canadian provinces (Saskatchewan, Alberta, British Columbia, Ontario, and Manitoba). The mean age was 37.4 years (SD = 10.0) for women and 36.1 years (SD = 9.6) for men. Because the group sizes were unequal and the age distribution among women was non-normal, a Mann–Whitney U test

was used to compare age distributions between the two groups. The difference was not statistically significant ($U = 617.50$, $z = 0.06$, $p = .955$). Most participants held a university bachelor's or master's degree (see Table 1).

Table 1. Education level by gender.

Degree	F_n	M_n	F %	M %
Bachelor's Degree	7	8	13.7	33.3
Doctorate Degree	4	1	7.8	4.1
Master's Degree	23	7	45.0	29.1
Other	5	2	9.8	8.3
Primary school completed	2	0	3.9	0
Secondary school incomplete	0	2	0	8.3
Secondary school completed	2	1	3.9	4.1
Technical or Vocational certify.	7	2	13.7	8.3

A chi-square test of independence with Monte-Carlo permutation correction was conducted to examine the association between gender and highest level of education. The association was not statistically significant, $\chi^2(8) = 10.43$, $p = .24$, indicating that the distribution of education levels did not differ significantly between women and men.

4. Results

This section reports the findings of the study across the two gender groups: men and women.

4.1. COVID-19 disruptions and fear

In response to the two survey questions listed below, participants provided the answers summarized in Table 2.

Survey Q1: "On a scale of 1 to 10, how much COVID-19 disrupt your daily life"

Survey Q2: "On a scale of 1 to 10, how much did you fear for your loved ones during COVID-19?"

Table 2. Reported disruption and fear caused by COVID-19 by gender.

women	(n=51)	men	(n=24)	U	p
mean, StD	median	mean, StD	median		
7.1 (0.3)	7.3	5 (2.5)	5	353.5	.003
6.7 (0.3)	7	4.24 ()	4	285.5	< .001

The Mann-Whitney analyses indicate that women reported significantly greater disruption of daily life and significantly greater fear for loved ones due to COVID-19 than men.

4.2. Problems understanding COVID vocabulary

When asked Survey question 3 ("Did you experience problems understanding COVID-19 vocabulary in Canada?"), participants provided the responses summarized in Table 3.

Table 3. Frequency of reported problems understanding COVID vocabulary by gender (n, % within gender)

Gender	never	rarely	sometimes	often	all the time	Total
Women (n = 51)	26 (51.0%)	11 (21.6%)	10 (19.6%)	2 (3.9%)	2 (3.9%)	51 (100%)
Men (n = 24)	17 (70.8%)	3 (12.5%)	3 (12.5%)	0 (0.0%)	1 (4.2%)	24 (100%)

No statistically significant difference was found between women and men in the frequency of reported difficulties understanding COVID-19-related vocabulary (Mann-Whitney $U = 491.50$, $p = .128$), although women reported experiencing vocabulary-related problems slightly more frequently than men.

4.3. Types of COVID-19 related information of greatest interest to participants

Survey Question 4 asked participants to indicate the types of information they searched for during COVID-19, with multiple response options permitted. The distributions of responses are presented in Table 4.

Table 4. The types of information that the participants searched for during COVID-19

Information type option	Women n (%)	Men n (%)
Infection rates	30 (58.8%)	14 (58.3%)
Death rates	25 (49.0%)	13 (54.2%)
Masks	21 (41.2%)	8 (33.3%)
Social distancing	19 (37.3%)	9 (37.5%)
Vaccinations	31 (60.8%)	17 (70.8%)
Vaccine types & availability	22 (43.1%)	12 (50.0%)
Side effects	28 (54.9%)	14 (58.3%)
Boosters	7 (13.7%)	5 (20.8%)
Appointment for vaccination	12 (23.5%)	10 (41.7%)
Scheduling booster	7 (13.7%)	8 (33.3%)
Long-term effects	23 (45.1%)	12 (50.0%)
Work / class mode switch	22 (43.1%)	11 (45.8%)

Overall, the response distributions were highly similar across the two gender groups. The most frequently searched topics concerned vaccinations, infection rates, vaccine side effects, vaccine types and availability, and the long-term effects of COVID-19. Gender differences in the distribution of COVID-19-related information interests were examined using separate chi-square tests for each response option as well as a test of the overall response distribution. No significant overall gender differences were observed ($\chi^2(11, N = 75) = 3.63, p = .974$).

Across individual response options, only one marginal trend emerged. Men reported searching for information on scheduling booster appointments somewhat more frequently than women, although this difference did not reach statistical significance ($\chi^2(1, N = 75) = 2.79, p = .095$).

4.4. Types of information that the participants had problems finding

In a subsequent multiple-choice question, participants were asked to identify the types of COVID-19-related information they had difficulty finding during the pandemic. The responses by gender are presented in Table 5. As shown in Table 5, women and men reported very similar patterns of difficulty in locating COVID-19-related information. However, a statistically significant gender difference was observed for infection-rate information: men were significantly more likely than women to report difficulty finding this type of information ($\chi^2(1, N = 61) = 4.81, p = .028$).

Table 5. Types of information that the participants had problems finding

Hard to find information	Women n (%)	Men n (%)
Infection rates	1 (2.3%)	4 (23.5%)
Death rates	2 (4.5%)	1 (5.9%)
Masks	1 (2.3%)	0 (0.0%)
Social distancing	1 (2.3%)	1 (5.9%)
Vaccinations	5 (11.4%)	1 (5.9%)
Vaccine types & availability	7 (15.9%)	2 (11.8%)
Side effects	14 (31.8%)	5 (29.4%)
Boosters	4 (9.1%)	0 (0.0%)
Appointment for vaccination	6 (13.6%)	4 (23.5%)

Hard to find information	Women n (%)	Men n (%)
Scheduling booster	2 (4.5%)	0 (0.0%)
Long-term effects	14 (31.8%)	4 (23.5%)
Work / class mode switch	8 (18.2%)	2 (11.8%)

Overall, the number of reported difficulties was low, indicating that participants generally experienced few problems in accessing COVID-19–related information. This pattern is likely attributable to the high levels of literacy and digital literacy reported for this population.

4.5. Sources used for COVID-19 information search

Participants were also asked to indicate the sources they used to obtain COVID-19–related information. The distributions of responses by gender are presented in Table 6. Overall, participants relied primarily on the Internet in Canada and on friends as sources of COVID-19 information. In contrast, provincial government sources—intended to serve as major channels for information about vaccinations, boosters, and related guidance—were used relatively infrequently. Patterns of information source use were largely similar across women and men, with one notable exception. Men reported significantly greater use of Canadian online newspapers than women ($\chi^2(1) = 9.22, p = .002$). In addition, a marginal trend was observed for Canadian television use: men relied somewhat more on Canadian television than women, although this difference did not reach statistical significance ($\chi^2(1) = 3.10, p = .078$).

Table 6. Sources of COVID-19 Information by Gender

Source of information	Women n (%)	Men n (%)
Canadian television	13 (25.5%)	11 (45.8%)
Canadian online newspapers	7 (13.7%)	11 (45.8%)
Other Canadian media	4 (7.8%)	3 (12.5%)
Municipal government sources	6 (11.8%)	3 (12.5%)
Friends	28 (54.9%)	12 (50.0%)
Media in country of origin	18 (35.3%)	10 (41.7%)
Internet in Canada	30 (58.8%)	15 (62.5%)
Internet in country of origin	16 (31.4%)	10 (41.7%)
Public library	0 (0.0%)	0 (0.0%)
University / college library	1 (2.0%)	0 (0.0%)

5. Discussion

The COVID-19 pandemic exacerbated existing healthcare access challenges for immigrants and refugees, who faced distinct barriers related to language, knowledge of the healthcare system, and access routes (Leung et al., 2023). The present study contributes novel evidence on gendered COVID-19 experiences within a specific immigrant population—first-generation immigrants from Ukraine in Canada. Several consistent patterns emerge from the findings.

With respect to Research Question 1 (Did the COVID-19 experiences of immigrants from Ukraine in Canada differ by gender?), we found that immigrant women reported significantly greater disruption of daily life and stronger fear for loved ones than did men. This finding closely aligns with a substantial body of international COVID-19 research showing that women experienced higher psychological burden, caregiving strain, and emotional stress during the pandemic (e.g., Prowse et al., 2021; Flor et al., 2022; Czepiel et al., 2024).

Turning to Research Question 2 (What were the COVID-19 information access patterns among immigrant women and men from Ukraine in Canada, and did these patterns differ by gender?), several notable trends emerged. Overall, there were striking similarities between women and men in their patterns of COVID-19 information seeking. Both genders primarily searched for vaccination-related topics, infection rates, side effects, vaccine availability, and the long-term consequences of COVID-19. This convergence contrasts with some international findings reporting greater vaccine hesitancy and heightened concerns about side effects among women (Syan et al., 2021; Zintel et al., 2023), suggesting that high levels of education and digital literacy may attenuate gender gaps in information seeking in this population.

Importantly, the study also shows that difficulties in accessing COVID-19 information were generally rare, consistent with the participants' high literacy and digital skills. Nevertheless, one notable exception emerged: men were significantly more likely than women to report difficulty finding information on infection rates. This pattern may reflect differences in media consumption habits. In addition, men relied more heavily on Canadian online newspapers than women and showed a marginal (though not statistically significant) tendency toward greater use of Canadian television. These patterns are consistent with broader evidence indicating that men more often consume formal news media and rely more on television, whereas women tend to rely relatively more on interpersonal networks and diverse online channels (e.g., Kontolatou, 2025).

Taken together, these findings highlight an important nuance in gendered pandemic experiences. While emotional impacts remained strongly gendered, access to and engagement with COVID-19 information among Ukrainian immigrants in Canada showed relatively little gender differentiation, likely reflecting the documented high levels of education and digital competence among Ukrainian immigrant women (Berg, 2025; Kosyakova et al., 2025). This pattern contrasts with research documenting substantial information barriers among more linguistically or socioeconomically marginalised immigrant groups (Leung et al., 2023; Kalocsányiová et al., 2023), underscoring the protective role of literacy, digital skills, and transnational media access. Notably, participants made limited use of provincial government COVID-19 information websites, a finding that warrants further attention.

The results should, however, be interpreted with caution because of the study's limited statistical power. It is possible that additional gender differences exist but were not detected in the present sample. Future research with larger and more diverse samples may identify further gender-based patterns in pandemic experiences and information access.

5.1 Limitations

The primary limitation of the study is the relatively small size of the male subsample. A second limitation concerns the analysis of family-related variables: although participants were asked about the presence of children and elderly family members, the number of respondents in these categories was insufficient to permit meaningful comparisons. A further limitation is that the study is purely quantitative. Although qualitative interviews were conducted with the aim of adding an in-depth component to the analysis, these data could not be reported because of space constraints. More detailed qualitative analyses will be undertaken in future work.

5.2 Conclusions

In conclusion, this study shows that gender differences among Ukrainian immigrants during COVID-19 were most pronounced in psychosocial disruption and emotional burden, whereas differences in information-seeking behaviour and information access were comparatively limited. These findings reinforce the importance of gender-disaggregated data in pandemic preparedness and response, while also suggesting that interventions should prioritise emotional support for immigrant women and tailor communication strategies to men's preferred news channels.

More broadly, the results illustrate how gender, migration status, and social resources intersect to shape health experiences during times of crisis. Future research should extend this approach to a wider range of immigrant groups with diverse literacy levels and language profiles in order to inform more equitable public-health communication and crisis response strategies. From a practical perspective, provincial governments, and particularly ministries of health responsible for healthcare delivery in Canada, should devote greater attention to promoting and disseminating their official COVID-19 information platforms more effectively.

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Ethics declaration

The study was approved by the University of Saskatchewan Behavioural Research Ethics Board (4057).

AI declaration

ChatGPT 5.1 was used to proofread the text of the article for typos and errors.

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From Policy to Participation: Gendered Classroom Dynamics in Stem Higher Education

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Abstract: This article examines the discursive practice of gender equality policies within the classroom setting of higher education, and how gender equality operations influence the participation, engagement and access to educational and career directions of students, especially in STEM fields. With the applied linguistic approach, it explores the intersection of gender with other forms of social divisions, such as academic discipline, institutional status and linguistic background to determine how these factors can affect classroom dynamics in both technology-based and lecture-based university classes. Using a mixed-methods approach, the study integrates student comments from the European University of Armenia and Yerevan State University with interactional and corpus-assisted analysis of classroom speech and critical discourse analysis of institutional gender-equality policy texts. In this way, both macro-level policy intentions and micro-level classroom interactions can be studied and allow understanding the holistic picture of how institutional directives are applied into the everyday teaching and learning practices. The article is aimed, in particular, at studying whether and how the inclusive policy language is implemented in classroom participation, authoritative and expertise negotiation, development of academic confidence and sense of belonging within students. The results indicate that there is an overlap that occurred over the years between the language of policy texts and the discursive realities of classrooms. In many ways, policies emphasize gender equity, but the dynamics in classroom often stifle subtle gendered and disciplinary hierarchies that define who speak, what is valued and how students see themselves as having the potential to participate in STEM disciplines. Compounded barriers to full engagement are frequently faced by non-native speakers, women and nontraditional students with regard to their enrollment status, which underscores the relevance of intersectional analysis. The article elucidates the primary place of language in mediating gender educational experiences. It puts forward intersectionally enlightened and linguistically focused pedagogical and policy practices that reflect the intricate relationship among identity, discipline, and classroom dynamics. The results show that meaningful equity in higher education cannot be achieved only by focusing on the design of the institutional policies but also by considering the daily interactions in which authority, participation and belonging are practiced.

Keywords: Gender equality, Higher education, STEM, Policy implementation, Student participation, Applied linguistics

1. Introduction

The issue of gender equity in tertiary education has been consistently identified as one of the urgent objectives, especially in the area of Science, Technology, Engineering and Mathematics (STEM) where women and other marginalized individuals are underrepresented (Blickenstaff, 2005; UNESCO, 2021). Gender equality policies have been introduced in institutions all over the world with a view of minimizing structural obstacles, ensuring inclusive participation and encouraging different scholarly opportunities. Such policies commonly focus on equal opportunities, equal assessment and facilitating learning conditions. However, there is an indication that the translation of such policy goals into classroom practices is not even, and there are still gaps in participation, engagement and achievement (Ro et al., 2022; Reinking and Martin, 2018).

Although macro-level policy documents encourage inclusivity, micro-level classroom interactions are crucial in shaping student' educational experiences. These gendered and disciplinary hierarchies may be strengthened or disrupted through participation in classroom discourse, authority negotiation and expert identification. In STEM education, it has been found that women can contribute less to the discussion, get less positive feedback and have subtle biases in their interactions with teachers and classmates (Bian et al., 2017; Cheryan et al., 2015). These trends not only affect short-term engagement but also academic confidence, sense of belonging and career goals in the long term. Although there has been an increasing interest in gendered dynamics in higher education, there are few researches with gap bridging between the policy discourse and the classroom interaction. Much of the existing literature examines policies or pedagogical practices in isolation, without sufficient attention to how institutional directives are interpreted, mediated, or resisted in everyday teaching contexts. Moreover, gender is frequently treated as a singular category, overlooking its intersection with academic discipline, institutional status, and linguistic background.

The present research addresses these gaps by adopting an intersectional applied linguistics approach that integrates critical discourse analysis of institutional gender equality policies, corpus-assisted and interactional

analysis of classroom discourse, and student self-reports. This approach enables systematic examination of both macro-level policy texts and micro-level classroom practices, highlighting how language mediates inclusion, power, and participation. By analyzing policies alongside classroom interaction, the study examines whether institutional commitments to equity are enacted, mediated, or undermined in everyday pedagogical practice within STEM higher education.

Therefore, the principal research question is: How do institutional gender equality policies get implemented, mediated or undermined in the context of classroom discourse and participation practices in STEM higher education. To address this general question, the present study is designed based on the following sub-questions:

1. What is the linguistic representation of the policies that govern gender equality in higher educational institutions, and in what type of discursive means are inclusion policies promoted?
2. What are the ways classroom dynamics re-enact, re-interpret or oppose the intentions of these policies, especially in technology- and lecture-based STEM courses?
3. How do the students view and feel the effects of classroom discourse on their participation, a sense of belonging, and academic goals?
4. In what ways are intersecting social categories, including gender, discipline, institutional status, and linguistic background, useful in determining how policy and classroom experiences are realized?

By connecting institutional policy discourse with classroom interaction and student perspectives, this study contributes to applied linguistics and higher education research by demonstrating how equity is negotiated in practice. The findings aim to inform linguistically sensitive and intersectionally informed pedagogical and policy approaches that support more inclusive learning environments in STEM and beyond.

2. Literature Review

2.1 Gender Equity in Higher Education and STEM

The issue of gender equity in higher education (especially in STEM fields) has been long-standing among policymakers, educators and researchers. The gender differences in the enrolment and career progression have been long-established, female students continue to be underrepresented in the fields of engineering, computer science, and physics (Blickenstaff, 2005; Miller and Wai, 2015; UNESCO, 2021). Empirical studies prove that these differences are not merely the result of individual choice but determined by structural restrictions, cultural practices and instructional interaction on the classroom level (Cheryan et al., 2015; Reinking and Martin, 2018). Observations of STEM learning environments have shown that disparities in access to speaking time, unequal instructor feedback, gender expectations of competence, stereotype threat and implicit bias all have a systematic impact on student confidence, academic self-concept, and career aspiration with marginalization of female students and other underrepresented groups (Sadler et al., 2012; Murphy et al., 2007; Steele and Aronson, 1995; Bian et al., 2017). Consequently, colleges and universities have started to implement gender equality policies that have enabled them to offer inclusive learning spaces, provide equitable access to the available resources, and assist underrepresented groups via their fair evaluation practices, mentoring, and career development programs (Ro et al., 2022). Nonetheless, studies always point towards the disjuncture between the policy development and the classroom implementation. Although macro-level policies express the promises of inclusion and equity, the actual practice of teaching and learning is still influenced by highly socialized processes that may reproduce the hierarchies existing (Reinking and Martin, 2018).

2.2 Policy Discourse and the Micro-Macro Gap

The applied linguistics and higher education policy studies have focused on how language creates social realities and mediates power relations. The critical discourse analysis (CDA) has been extensively used to analyze the way in which institutional policies position gender and inclusion issues (Fairclough, 2003; Lazar, 2005). Studies indicate that policies can be written in broad and idealistic terms but can still be ambiguous about strategies of implementation and thus can be subject to interpretation in classroom situations (Downes et al., 2024). The gap between the intentions of the institutions and classroom enactments is known as the macro-micro gap. To illustrate, STEM education studies indicate that the implementation of policies promoting participatory instruction can be unequally executed and that the participants of teaching can subconsciously support some student groups or certain types of communication, thus reproducing gendered norms (Cheryan et al., 2015; Murphy et al., 2007).

2.3 The Discussions in the Classrooms, Power and Participation

One of the primary platforms of negotiating authority, expertise and participation is the classroom discourse. Research has indicated that gendered patterns are manifested in the speaker, evaluation of ideas and placement of students during a discussion (Holmes and Stubbe, 2015; Thorne, 1993). Lecture-based STEM courses are notorious in terms of the questioning strategies of the instructors, peer interactions and the turn taking where the voices which are more assertive or traditionally dominant are often attributed to male students. Such implicit types of inequality may influence the involvement, self-efficacy and academic functions of students (Sadler et al., 2012). Technological studies in learning settings are another level of complexity. Digital platforms, code laboratories and collaborative tools afford participation, yet are also indicative of existing social inequalities. As an example, women students might be less likely to volunteer their response or be in charge of a group project because of perceived or internalized norms (Cohoon, 2001; Margolis and Fisher, 2002).

2.4 Intersectionality Research in Higher Education

Intersectionality is an original concept developed by Crenshaw (1989) that has evolved into a crucial model of the intersection of two or more social identities, including gender, race, class, language background and institutional status in creating specific privilege or disadvantage. Intersectional approaches to higher education demonstrate that gender does not completely describe the disparities in participation or academic success. To illustrate, females that belong to underrepresented ethnic groups or do not speak English as a first language can encounter some of the additional barriers in STEM classrooms (Museus & Liverman, 2010; Ong et al., 2011). Recent researches that combine intersectionality and applied linguistics focus on how language mediates these experiences (Piller, 2025). Classroom talk, practice in assessment and peer relationships can vary in their impact on students based on the overlapping identities of students.

3. Methods

3.1 Participants

The participants of the study included students and instructors of two higher education institutions in Armenia, namely, Yerevan State University and the European University of Armenia, both of which have STEM programs. There were 120 undergraduate students (65 female students and 55 male students) studying engineering, computer science and physics courses offered in both lecture based and technology enhanced methods. The student cohort reflected diversity in linguistic background (native and non-native speakers of the language instruction). Also, 12 tutors who delivered these courses were included in the study and this was a diversity of disciplinary background and teaching experience. Students were selected using purposive sampling to ensure representation across gender, discipline, linguistic background and enrolment status. Participation was voluntary and students were recruited from courses in which gender equality policies were formally applicable at the institutional level.

3.2 Materials

The materials to be analyzed were divided into three categories:

Policy documents. Policy documents of institutional gender equality, strategic plans and official guidelines were gathered by the participating universities.

The policies were selected based on three criteria: (1) explicit reference to gender equality or inclusion, (2) formal adoption at the institutional level and (3) relevance to teaching, assessment or student participation.

Classroom records. Some of these records were audio and video records of classroom sessions such as lectures, laboratory sessions and group work to record real time classroom interactions. The analysis of classroom discourse via 60 hours was conducted. The recorded lessons were selected to represent different pedagogical formats (large lectures, laboratory sessions and group-based activities) and different STEM disciplines in order to capture variation in interactional dynamics.

Student reflections. The participants were given written reflections about their experiences in the classroom, their perceptions regarding their inclusion and participation, and how the teaching practices affected their engagement and academic confidence.

3.3 Procedures

The research was based on a sequential mixed-methods design. In the first step, institutional policy documents were gathered and analyzed using critical discourse analysis to identify themes, language patterns and discursive

approaches related to gender equity. The next step involved recording classroom interactions over one semester across a range of class formats and teaching styles. Lastly, students were asked to write reflective essays regarding their classroom experiences, particularly in relation to participation, sense of belonging, and perceived barriers or supports. Student reflections were collected using a semi-structured written script consisting of open-ended prompts.

3.4 Data Collection and Analysis

Data analysis combined qualitative and quantitative approaches. Critical discourse analysis (Fairclough, 2003) was used to analyze policy texts to find out the linguistic representations of inclusion and equity. Recordings in classrooms were translated and the analysis of those were based on the corpus-assisted discourse analysis to reveal the patterns of participation, turn taking, questioning and feedback. There was interactional analysis of the negotiation of authority, expertise and participation with consideration of finer gendered and disciplinary interactions. The thematic coding of student reflections was used to define the perceptions of inclusion, confidence and an impact of classroom practices on academic pathways. The combination of these three sources of data into triangulation made it possible to have an overall picture of the operations of the macro-level policies to be enacted or challenged on the micro-level, i.e., classroom interaction. Special care was put on intersectional factors, in which gender, lingual background and institutional status were intersected to influence the experiences of the students. Ethical factors such as confidentiality of the participants, voluntary participation, and anonymization of the data were strictly followed during the study.

4. Results

The article examines the effectiveness of gender equality policies in higher education STEM classrooms, in terms of classroom talk, the participation patterns and the perceptions of students. The data included in policy documents, recordings of classes and student reflections were analyzed to answer the research questions. The findings are put into three sections, namely (1) policy discourse, (2) patterns of interactions in classrooms, and (3) student reflections.

4.1 Policy Discourse Analysis

It entailed the critical discourse analysis of institutional gender equality policy documents in two universities. The analysis has revealed repetitive discursive strategies that are meant to propagate the inclusion. In both institutions, the policy has always focused on the guidelines of equal opportunity, representation and the establishment of supportive learning environments.

Table 1 summarizes the frequency of key discursive strategies identified in the institutional gender equality policy documents, along with illustrative example phrases.

Table 1: Frequency of Key Discursive Strategies in Policy Documents

Strategy	Frequency	Example Phrase
Inclusive pronouns	48	"All students are encouraged to..."
Action-oriented verbs	36	"The university supports equitable..."
Hedging/vague implementation	22	"Faculty should consider, where possible..."

Although the expressed policies were clear in terms of the expression of the institutional commitment to equity, the ambiguity on the issues of enforcement or monitoring indicated that the operationalization might include gaps. It is important to note that STEM-specific instructions were scarce and the majority of the sources were focused on broader concepts of teaching, providing significant interpretative opportunities to the instructors.

4.2 Classroom Interaction Patterns

The classroom interaction analysis reveals a complex relationship between stated institutional commitments to equity and the everyday realities of participation in STEM classrooms. While some interactional practices aligned with inclusive policy goals, others systematically reproduced gendered and intersectional hierarchies. The findings are presented as interconnected patterns rather than isolated phenomena, highlighting how participation, authority, and identity are jointly constructed through classroom discourse. Analysis of 60 hours of classroom recordings revealed three main findings.

Participation Inequalities: Male students spoke 58% of the time in lecture-based classes, compared with 42% by female students. In technology-based lab sessions, participation was more balanced (52% male, 48% female) but remained skewed when instructors addressed conceptual questions.

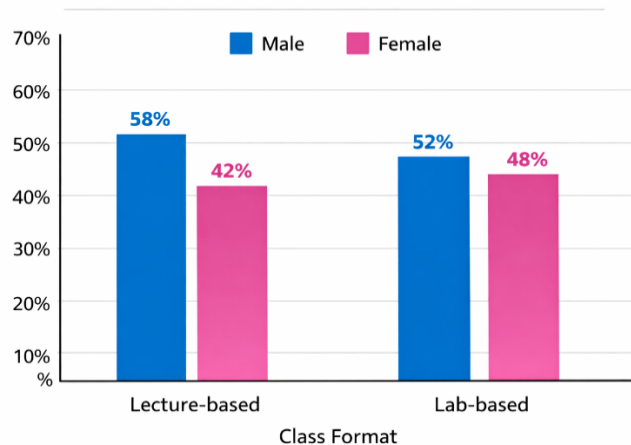


Figure 1: Participation by Gender across Class Formats

Turn-Taking and Authority Negotiation: Instructors often directed technical questions toward male students, particularly in larger lecture courses. Female students were more likely to be interrupted or receive delayed feedback. This was also evident in peer interactions where male students tended to become the leaders in group work whereas female students tended to be more reserved.

Table 2: Interaction Patterns by Gender

Interaction Type	Male Students	Female Students
Initiated Questions	64%	36%
Responded to Instructor	60%	40%
Peer-led Contributions	62%	38%

Intersectional Observations: The non-native speakers, especially female students, were also less represented both in the lecture and lab settings. High-stakes discussions were implicitly restricted to students with a part-time status of enrollment or prior limited experience in STEM. In general, these results suggest that gendered involvement is compounded with linguistic background, enrollment and disciplinary norms. Although these trends are not entirely reflected in formal policies that encourage inclusion, they are indicative of existing gaps between institutional desires and classroom practices.

4.3 Student Reflections

Student reflections are presented using a consistent first-person analytical stance and are interpreted in relation to policy discourse and classroom interaction patterns.

Thematic analysis of 120 student reflections revealed three themes that were most common when it came to inclusion, confidence and suggestions on how to enhance equity in the classroom.

Perceptions of Inclusion and Belonging: The existence of institutional policies that encouraged equity was admitted by many students yet they stated that the experiences in classrooms were not always in line with the stated principles. Non-native and female students often mentioned that they felt neglected or shy to ask any questions, despite the direct encouragement of the instructor. Certain students reported that group work tended to support pre-existing participation inequalities with more outspoken individuals domineering the disparate discussions. Some students actually commented on the less obvious kinds of marginalization, like being given less conspicuous work when working on group projects or being ignored in big lecture classes.

Selected Student Reflection Excerpts: "Even when policies say everyone can participate, I still feel ignored in lectures."

"In group tasks, I often end up taking notes while others lead the discussion, which makes me feel invisible."

Impact on Confidence and Academic Pathways: Students stated that they felt subtle gendered hierarchies and dynamics in classrooms affected their self-confidence levels and desire to take up higher-level STEM classes. A number of female students mentioned that peer relationships and what they believed to be preferred by their instructors influenced their choices of majoring in certain STEM sub-disciplines. Male students can also note such dynamics and they saw that female peers did not always ask questions or take the lead on something. Non-native speakers also pointed to the further difficulty of engaging in high-stakes conversation because of language barriers, which were also compounded by gendered expectations.

Selected Student Reflection Excerpts: "I hesitate to ask questions in labs because male students always dominate discussions."

"I decided against taking an advanced physics course because I didn't feel confident speaking up in class."

Recommendations from Students: Students suggested establishing explicit classroom norms, structuring peer collaboration more deliberately and using inclusive questioning strategies. Several students emphasized the importance of instructors rotating questions systematically and actively inviting contributions from quieter participants. Others suggested workshops or guidance on group dynamics to ensure that all voices are heard in collaborative settings.

Selected Student Reflection Excerpts: "It would help if instructors rotated questions more deliberately."

"Structured group roles would make it easier for everyone to participate."

Taken together, the quantitative participation data and qualitative student reflections reveal that disparities in classroom talk are not merely numerical but experiential. Patterns of unequal turn-taking and feedback were mirrored in students' reported feelings of hesitation, invisibility and reduced academic confidence. These converging findings strengthen the argument that classroom discourse functions as a key mechanism through which gender equality policies are either enacted or undermined in practice.

5. Discussion

This paper has analyzed the interplay of the gender equality policy, classroom practice and student experience in the higher education STEM setting and the core hypothesis that whereas institutional policy advances the principles of inclusiveness, the practices within classrooms tend to reproduce micro gendered and disciplined hierarchies that dictate student access, confidence and academic trajectories. The results give understanding of the multifaceted connection among macro-level policy motivations and micro-level classroom implementations with the primary focus on the central standing of language in mediating equity.

5.1 Disconnect Between Classroom Practice and Policy

The analysis of institutional gender equality policy showed some aspirational language of inclusion, equal opportunity and support of all students. Inclusive pronouns and action-oriented verbs were common in the policies, and this indicated the institutional belief in equity. But there was a lack of clarity in implementation directions, which was typical in all the documents, indicating that there was a mismatch between stated goals and action plans. This is consistent with the previous studies that have revealed that the language of the policies tends to express ideals without defining how the same can be implemented in everyday teaching activities (Downes et al., 2024; (Ro et al., 2022). Although there were policy guidelines on equal participation, male students could always make more speeches during lecture-based classes, had higher chances of being addressed by instructors, and led in the interactions with other students. Female and non-native learners tended to be more careful, which is in line with the studies showing that even policy objectives can be put at risk through the hierarchies inherent to the classroom and the implicit biases (Bian et al., 2017; (Cheryan et al., 2015). Such results help to reveal the stability of the implicit gendered norms that are not discussed directly in the policy documents implying that macro-level intentions will be not enough to ensure micro-level equity.

5.2 Intersectional Dynamics of Participation and Engagement

The intersectional nature of this study is one of the most important contributions as it emphasizes the interaction between gender and linguistic background, enrollment status and prior experience to influence classroom participation. The non-native speakers, especially females, were less likely to volunteer an answer or

participate in activities led by peers. Students who had limited previous STEM experience or were part-time students also had difficulties with making participation claims. These findings are reminiscent of earlier studies reinforcing the complicated nature of the data on obstacles that students in having multiple marginalized statuses encounter (Crenshaw, 1989; Museus and Liverman, 2010; Ong et al., 2011). Although it was clear that the males dominated the lectures, the success was not equal among all the male students, the non-native or part-time male students were no longer than females in taking part in lectures. This subtle insight explains why it is crucial to take into account various axes of identity when designing policies and interventions in the classroom, and leave behind the simplistic male/female dichotomy to comprehend participation and engagement comprehensively.

5.3 Contextual Mediation: Lecture vs. Lab Environments

Smaller, technology-based lab sessions were found to have a more balanced participation compared to large lectures. Labs were offering opportunities to work together and get regular feedback on instructors, minimizing engagement barriers. This observation is consistent with the previous studies proving that classroom layout, collaborative learning models, and interactive instructions have the potential to alleviate gendered difference (Cohoon, 2001; Sadler et al., 2012). It also implies that policy implementation is context specific: although the overall institutional guidelines determine the goals, the micro context of the classrooms determines the realization of the inclusive practices.

5.4 Language as a Mechanism of Inclusion and Exclusion

The linguistic analysis of the study highlights the importance of using language as a mediating power, authority, and participation. The classroom talk indicated that the negotiation of authority takes place based on turn-taking, questioning and feedback patterns that may either support or disrupt the hierarchies. Male students were often placed as official contributors whereas female and non-native students more often encountered the delay in feedback or disruption. These results can be compared with the study by Holmes and Stubbe (2015) on gendered workplace talk and that by Thorne (1993) on classroom talk, which indicate that even in supposedly inclusive environments, the reproduction of inequities can be done through the subtly linguistic patterns. Policy language and classroom interaction, therefore, are interconnected locations, which negotiate, contest and perform equity.

5.5 Academic Confidence and Career Pathways Implications

Student comments showed that classroom engagement patterns had concrete implications to confidence and academic paths. Female students would often cite the reluctance to attend higher-level STEM classes or leadership in group activities as a result of feeling excluded or their value was underrated. The same concerns raised by non-native speakers who stated that language proficiency overlaps with gendered norms to determine self-efficacy. These findings are consistent with previous findings on stereotype threat and self-concept in STEM education (Steele and Aronson, 1995; Margolis and Fisher, 2002), with respect to their long-term consequences on career goals and educational opportunities.

6. Conclusion

This paper discussed how gender equity could be applied in higher education STEM classrooms on the intersectional and linguistic aspects of participation, power and opportunity. By combining critical discourse analysis of institutional policies with corpus-assisted and interactional analyses of classroom discourse and student reflections, it highlights how macro-level directives interact with micro-level experiences to shape equity outcomes. Although the institutional documents encourage inclusiveness, there is a tendency to have implicit hierarchies that favor the male and native-speaking students affecting the participation, confidence and academic progress. An intersectional approach reveals that gender can respond to language background, enrolment status and prior STEM exposure, which have compounded effects, and female non-native speakers, in particular, felt marginalized demonstrating the need for policies that address multiple, overlapping identities. These dynamics are further mediated by classroom context and pedagogy. Smaller, technology-enhanced lab classes facilitated a more equal participation process compared to large lectures, and language turned out to be a prime demonstration of power and belonging, which explains a need to focus on linguistically responsive pedagogy. The practical implications suggest developing intersectionally and linguistically sensitive policies, training faculty to recognize and mitigate subtle hierarchies, introducing structured classroom practices such as equitable turn-taking and purposeful questioning, and designing instruction to encourage participation among students of different backgrounds. A coordinated action of policy, pedagogy and classroom discourse results in

the creation of equity. The study bridges macro-level guidelines and micro-level interactions offering practice-based learning in higher education and STEM studies. Future studies may include longitudinal research, different disciplines or institutional contexts and evaluate interventions aimed at closing the gap between policy intent and classroom practice. Such work would strengthen evidence-based strategies for inclusive education.

Ethics Declaration: This article involved human participants. Ethical approval was obtained from the European University of Armenia and Yerevan State University. Written consent was obtained from all participants for both participation and publication with anonymity and confidentiality fully maintained.

AI Declaration: The authors declare the use of artificial intelligence, specifically Grammarly and QuillBot, solely for spelling, grammar and language refinement. These tools did not influence the study design, data analysis, interpretation of results or conclusions.

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Towards Gender Equity in Academia: Strategies and Tools for Universities

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Abstract: Gender inequality in academia persists through the interaction of implicit bias and structural barriers. We combine a gender–career Implicit Association Test (IAT) and survey responses from 863 academic and administrative staff across four European universities with document analysis of Gender Equality Plans (GEPs) and 12 semi-structured interviews. The IAT shows an implicit association of men with careers and women with family roles (mean D-score +0.38). Women report more gender-based discrimination and perceived male advantage in permanent contracts, desirable tasks, leadership roles, and informal networks. Regression results indicate that being a woman and endorsing traditional work–family values are robust correlates of higher IAT scores. Across institutions, GEPs commonly include mentoring, leadership development, gender-sensitive recruitment and promotion procedures, monitoring, and, in some cases, targets; effectiveness depends on visible leadership commitment, clear indicators and review cycles, adequate resources, and broad participation. We argue that progress requires pairing training and mentoring with procedural reforms at key career junctures (recruitment, promotion, workload allocation, and leadership selection). Limits include cross-sectional data and the behavioural scope of the IAT.

Keywords: Gender bias, Gender perception, Gender inequality, Leaky pipeline, Survey, Research organisations

1. Introduction

Despite adopting workload allocation models and various institutional policies designed to promote equity, significant disparities persist, particularly affecting women, especially in male-dominated academic environments where institutional structures often reproduce gender hierarchies (O'Connor, 2020). Women in academia face challenges in recruitment, promotion, and funding, and are overrepresented in service and mentorship roles, which tend to be institutionally undervalued despite their essential contributions to community functioning and student development. These inequalities hinder professional advancement and contribute to dissatisfaction, stress, and health problems (Van den Brink & Benschop, 2012; Monroe et al., 2008). The pressure to maintain high research productivity, combined with the demands of expanding student populations, further exacerbates gender inequities, particularly for women who already face structural barriers to career advancement (Monroe et al., 2008). Persistent gender disparities are especially evident in science, technology, engineering, and mathematics (STEM) fields and in senior leadership positions (Moss-Racusin et al., 2012; García-Holgado et al., 2020). Unconscious gender biases continue to shape recruitment and promotion practices, limiting women's representation in these areas (Eddy & Ward, 2015). These challenges are compounded by structural obstacles, including the lack of gender-sensitive policies and limited access to leadership opportunities, particularly within male-dominated disciplines (Benschop & Brouns, 2003).

Gender Equality Plans (hereafter GEPs) have emerged as a vital tool for addressing structural inequalities in academia. They aim to integrate gender equality into institutional policies, governance, recruitment, and educational practices, providing a structured framework for organizational change (EIGE, 2020). These institutional efforts are rooted in broader international dynamics, building on the momentum generated by the transnational women's rights movement and its influence on global policy agendas during the UN conferences of the 1990s (Friedman, 2003). GEPs may also include gender budgeting tools to ensure that financial planning aligns with equity objectives (Addabbo, 2016; Addabbo et al., 2021; Elson, 2016; Polzer, Nolte, & Seiwald, 2023).

However, the success of these plans depends on multiple factors, including the level of commitment from leadership, the development of gender-sensitive policies, and active engagement from both academic and non-academic staff (Krefting, 2003). Universities increasingly adopt GEPs as part of their strategic objectives, aligning with international frameworks such as the United Nations' Sustainable Development Goals (SDGs) for gender equality in education and research (UNESCO, 2017; Achuo et al., 2025). These initiatives build on early European and international commitments to gender equality, including foundational policy frameworks for gender mainstreaming developed within the European Union (Pollack & Hafner-Burton, 2000), the broader political commitments established in the early 1990s (Vedovato, 1991), and key theoretical and institutional reflections on gender mainstreaming as a political and contested process in Europe (Verloo, 1999; 2001; 2002).

Although extensive literature addresses gender bias in recruitment, promotion, and funding, fewer studies examine the joint role of implicit bias measures like the IAT and institutional data from GEPs. This study contributes by systematically linking individual attitudes captured via IATs with institutional responses outlined in GEPs, thereby offering a dual perspective on the persistence and potential mitigation of gender inequality in academia. The study highlights how universities can mitigate gender biases through continuous monitoring and policy refinement, reinforcing their role as key actors in promoting gender equity within academia and beyond. By analyzing individual implicit biases via the IAT alongside institutional practices in GEPs, it aims to provide a comprehensive view of gender bias within European universities. The research includes a sample of 863 academic and administrative staff from four universities, evaluating attitudes and implicit biases as well as the implementation and monitoring of gender equity initiatives in GEPs. This dual approach, quantitatively measuring unconscious bias and qualitatively examining GEP structure, seeks to capture a complete view of gender bias and the effectiveness of institutional interventions.

2. Theoretical Background

Gender bias is a complex phenomenon rooted in historical and cultural stereotypes that associate men with competence, leadership and “innate talent” and women with caregiving and support roles. These stereotypes permeate academic processes and contribute to the “leaky pipeline,” whereby women face increasing barriers at successive career stages (van den Brink & Benschop, 2012; Leslie et al., 2015). They shape recruitment and promotion, assessments of merit and leadership potential, and everyday dynamics such as unequal speaking time and visibility in institutional settings (Shaw, 2000). Empirical studies document their impact on student evaluations of teaching and hiring: male professors are more often perceived as knowledgeable and authoritative, while women—especially those displaying “masculine” behaviours—are penalized as less likable (Boring, 2017; Lindqvist et al., 2021). Experimental evidence shows that, even with identical CVs, science faculty tend to rate male candidates as more competent and hireable, offering them higher salaries and mentoring (Moss-Racusin et al., 2012), though some regional evidence points to field- and context-specific patterns (Carlsson et al., 2020). Biases among teachers and peers also shape students’ performance and aspirations in STEM: exposure to gender-biased math teachers or hostile peer norms lowers girls’ self-confidence and weakens their STEM identity (Carlana, 2019; Robnett, 2016). Overall, this literature underscores the persistence of explicit and implicit bias and the need for institutional, multi-layered strategies that go beyond individual-level interventions (Ceci et al., 2023; Cislak et al., 2018; Llorens et al., 2021; Kapareliotis & Miliopoulou, 2019).

Within this context, universities have become key actors in advancing gender equality through GEPs. GEPs provide formal frameworks for addressing structural barriers by integrating gender-sensitive measures into human resources, career development, governance, research and student services. They operationalize gender mainstreaming—embedding gender equality into institutional processes—and can be reinforced through gender budgeting tools that align resource allocation with equity goals (Van Ewijk, 2011; Hannan, 2022; Sharp & Broomhill, 1990; Sharp, 2003; Addabbo, 2016; Addabbo et al., 2021; Elson, 2016; Polzer, Nolte, & Seiwald, 2023). Examples such as the University of Minho’s GEP, combining diversity targets, work–life balance measures and gender-neutral recruitment, or the Universidad de Valencia’s integration of gender studies and compulsory courses on gender relations, show how participatory and curricular approaches can foster institutional ownership and broader cultural change (Barros et al., 2018; Pla-Julián & Díez, 2019; Doneva et al., 2020). Recent overviews, including the work of the IPAZIA Observatory, stress that such initiatives are most effective when embedded in longer-term strategic frameworks and supported by systematic monitoring (Catuogno, Manzi, & Paoloni, 2022; Naciti et al., 2024).

Building on the literature on gender mainstreaming, institutional change and organizational logics, this paper examines how GEPs are implemented within academic institutions and how they mediate tensions between bureaucratic compliance and transformative gender equality objectives. The analysis is guided by three research questions: (RQ1) How do universities frame and justify GEP adoption in relation to their identity, mission and values? (RQ2) Which organizational and contextual factors facilitate or hinder effective GEP implementation in European higher education institutions? and (RQ3) How do actors involved in implementation navigate competing logics—such as accountability, legitimacy and a normative commitment to gender equality—in practice? By connecting micro-level manifestations of gender bias with meso- and macro-level tools such as GEPs and gender budgeting, the paper situates institutional strategies within a broader theoretical understanding of how universities can move from formal compliance toward substantive gender-transformative change.

3. Methodology

This study follows the research agenda of the IPAZIA Observatory, which calls for empirical analyses of institutional practices and their effectiveness in reducing gender inequalities in public organizations (Catuogno et al., 2022). It adopts a multiple case study of four European HEIs in France, Italy, Albania and Germany, all partners in a Horizon 2020 gender-equality project and actively designing and implementing GEPs, making them suitable for examining how the EU agenda is interpreted in different national and organizational contexts (RQ1–RQ2). The methodological approach is grounded in action research and an interventionist perspective (Berg, 2004; Jönsson & Lukka, 2006; Lukka & Vinnari, 2017): researchers collaborated with institutional actors to design and implement measures such as unconscious-bias training, revised recruitment and promotion procedures, and mentoring, allowing observation of how stakeholders negotiate compliance, accountability and normative commitments to gender equality in practice (RQ3). Data were collected through a mixed-method design combining a survey with a gender-career IAT (863 academic and administrative staff), document analysis of GEPs and related policies, and twelve semi-structured interviews with key actors. Interviews, conducted between May and September 2024 under Horizon 2020 ethics approval, were recorded, transcribed and anonymized. Triangulating these sources provides a nuanced picture of how GEPs are designed, implemented and experienced within universities.

4. Data

Participants were recruited via email invitations sent through each institution’s universal mailing list, targeting both academic (professors, instructors, graduate students, and postdoctoral researchers) and administrative staff across all departments and disciplines. After the initial email, a reminder was sent approximately one week later. To protect respondent anonymity, we do not disclose the identities of the participating universities. Given the close-knit nature of certain academic fields, revealing specific departments could pose ethical concerns due to the sensitive nature of some survey questions.

In total, 6,791 individuals were contacted. Of these, data from 863 respondents (a response rate of 12.38%) who completed the survey were analyzed. While participants could indicate a preference not to disclose their gender, our analysis is limited to respondents who identified as either male or female. The final sample distribution by institution is provided in Table 1.

In two institutions, the achieved sample size was sufficient to ensure a 5% margin of error at the 95% confidence level, whereas in the remaining two institutions the sample size corresponded to an approximate 10% margin of error at the same confidence level.

Table 1: Sample characteristics and key frequencies

Gender, N = 863 (%)		Academic Staff, N = 541 (62.40%)	
Women	581 (67.32%)	Full Professor	56 (10.35%)
Men	282 (32.68%)	Associate Professor	105 (19.41%)
Age		Assistant Professor	27 (4.99%)
21-34	263 (30.48%)	Instructor	41 (7.58%)
35-44	220 (25.49%)	PhD Student	57 (10.54%)
45-54	231 (26.77%)	Post-Doc Student	78 (14.42%)
55-64	130 (15.06%)	Researcher with tenure	27 (4.99%)
65 and over	12 (1.39%)	Researcher with fixed-term contract	24 (4.44%)
No answer	7 (0.81%)	Research Fellow	45 (8.32%)
Education		Other	2 (0.37%)
High school diploma or less	38 (4.40%)	No answer	31 (5.73%)
Undergraduate degree	212 (24.56%)	Research Areas	
Master’s degree	283 (32.79%)	Arts, Humanities and Education	84 (15.53%)
Ph.D. degree	321 (37.19%)	Medical and Health	50 (9.24%)
No answer	9 (1.04%)	Economics, Business and Finance	99 (18.30%)
Children		Chemical Sciences, Biology and Earth Sciences	22 (4.07%)

Gender, N = 863 (%)		Academic Staff, N = 541 (62.40%)	
None	379 (43.92%)	Engineering and computing	70 (12.94%)
1	160 (2.18%)	Law and Political Science	39 (7.21%)
2	238 (27.58%)	Maths, Statistics and Physical Sciences	40 (7.39%)
3 or more	72 (8.34%)	Sociology	23 (4.25%)
No answer	14 (1.62%)	Other	16 (2.96%)
		No answer	81 (14.97%)
Living with the partner		Non-Academic Staff, N = 326 (37.60%)	
Yes	519 (60.14%)	Grade A	66 (20.24%)
Not all days	36 (4.17%)	Grade B	28 (8.59%)
No	54 (6.26%)	Grade C	137 (42.02%)
No answer	254 (29.43%)	Other	20 (6.13%)
		No answer	55 (16.87%)

4.1 Measures

To isolate the role of stereotypes, we administered a survey that included an IAT to measure gender biases. The IAT, a widely used computer-based tool developed by social psychologists, is designed to minimize social desirability bias in self-reported answers and is commonly applied in various contexts. The resulting IAT D-score indicates the level of implicit bias each participant displays, comparing in-group preferences to out-group associations.

Participants were presented with two sets of stimuli: the first set included typical national male and female first names, and the second set comprised terms related to business (e.g., "Manager") and family (e.g., "Marriage"). Words appeared one at a time in the center of the screen, and participants were instructed to categorize each word as quickly as possible to the left or right side of the screen according to labels displayed at the top (e.g., "Female" on the right, "Male" on the left).

Two types of categorization tasks were used to calculate the score. In the "order compatible" task, participants were instructed to categorize male names and career-related terms to one side of the screen, and female names and family-related terms to the opposite side. In the "order incompatible" task, participants categorized female names with career terms and male names with family terms. The order of these tasks was randomized for everyone. The underlying idea is that if participants hold implicit associations between men and career roles, they will perform the compatible task faster than the incompatible task. Implicit bias is measured by the difference in reaction times: faster response times in the "compatible" task suggest stronger implicit associations between "Males-Careers" and "Females-Family." A positive D-score indicates this bias, while a negative score suggests the reverse ("Females-Careers" and "Males-Family"). A score of "0" indicates no implicit bias, although none of the participants received an exact score of "0."

4.1.1 Survey structure

The survey included the gender-career IAT alongside several question blocks on demographics, profession, work-life balance, social values, and leisure activities. To minimize selection bias, both the order of the IAT and the question blocks were randomized across four groups. Each respondent was randomly assigned to one of the following groups at the start of the survey:

- Group 1: Leisure questions, IAT, followed by a randomized order of remaining blocks.
- Group 2: Demographics and work-life balance questions, IAT, then remaining blocks randomized.
- Group 3: Professional questions, IAT, and then remaining blocks randomized.
- Group 4: Social value questions, IAT, followed by a randomized order of the remaining blocks.

Random assignment to different groups helps reduce selection bias by equalizing treatment and comparison groups.

4.1.2 Analysis

A cross-sectional OLS regression model was used to analyze the relationship between key characteristics and outcomes, including IAT D-scores, perceptions of inequality, and experiences of discrimination. The model structure is defined as:

$$y_{ig} = g + X_i + u_{ig},$$

where y_{ig} represents the outcome variable, X_i is a vector of socio-demographic characteristics of individual i (e.g., gender, age, profession, education, marital status, and social value attitudes), and g is a fixed effect term that accounts for the average effect of individuals in group g (for $g = 1, 2, 3, 4$). The error term u_{ig} captures unexplained variation in y_{ig} . This approach allows us to assess the explanatory power of socio-demographic variables on implicit bias and perceptions of inequality in career opportunities and resource distribution.

5. Results and Discussion

Table 2 reports OLS regressions of respondents' IAT scores on individual characteristics. Gender is the most stable correlate: women score higher than men ($\beta = 0.194$, $p < 0.001$), and the association remains after adding controls and group fixed effects (column 9: $\beta = 0.223$, $p < 0.001$). Agreement with the statement "A family is more important than a job" is also consistently associated with higher implicit bias (column 9: $\beta = 0.031$, $p < 0.05$). Other covariates (children, age, education, academic status, partnership status) are not robustly related to IAT scores in the fully specified models.

Table 2: Correlation between respondents' characteristics and IAT

Dep. Var.: IAT score	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Woman	0.194*** (0.026)							0.221*** (0.028)	0.223*** (0.028)
Children		0.067** (0.025)						0.050 (0.036)	0.049 (0.037)
Academics			-0.033 (0.026)					-0.019 (0.030)	-0.020 (0.030)
Age group:									
35-44				0.005 (0.033)				-0.043 (0.041)	-0.042 (0.041)
45-54				0.071* (0.032)				0.024 (0.044)	0.024 (0.044)
55-64				0.087* (0.039)				0.058 (0.053)	0.056 (0.053)
65+				0.109 (0.102)				0.156 (0.126)	0.171 (0.127)
Education:									
High school degree					-0.105 (0.152)			-0.030 (0.158)	-0.028 (0.155)
Undergraduate degree					-0.132 (0.146)			-0.026 (0.151)	-0.016 (0.148)
Master school degree					-0.178 (0.147)			-0.091 (0.152)	-0.084 (0.149)
Ph.D.					-0.150 (0.146)			-0.029 (0.153)	-0.021 (0.150)
Living with a partner						0.006 (0.029)		-0.021 (0.033)	-0.020 (0.031)

Dep. Var.: IAT score	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
"A family is more important than a job"							0.020** (0.011)	0.030** (0.012)	0.031** (0.012)
Group fixed effects	NO	NO	NO	NO	NO	NO	NO	NO	YES
Obs.	863	849	820	856	854	822	844	762	762
R ²	0.062	0.008	0.002	0.011	0.004	0.000	0.004	0.100	0.105

Note: Each column reports result from a separate OLS regression. Robust standard errors are reported in parentheses.

The Table 2 results indicate that implicit gender–career associations remain salient among university staff and are patterned by both gender and work–family norms. The gender gradient suggests that implicit stereotypes are not only an “outgroup” attitude held by men, but a broader cognitive and cultural association that can be shared across groups, potentially through internalization and repeated exposure to gendered expectations in academic careers. The stable relationship between traditional work–family values and higher IAT scores further points to the role of normative beliefs in shaping perceptions of merit, commitment, and leadership potential—especially in settings where evaluation criteria are multidimensional and partly discretionary.

Importantly, the lack of robust associations for education, academic vs. non-academic status, and partnership status suggests that implicit bias is not confined to a specific occupational subgroup within universities. The weak and non-robust relationships for children and age (once fixed effects are included) are consistent with the idea that any observed differences may reflect institutional experiences or cohort-specific exposures rather than family status per se. While the cross-sectional design does not allow causal claims, these patterns provide a coherent empirical basis for linking micro-level attitudes to meso-level organizational processes.

From an institutional perspective, the results clarify why awareness-raising measures alone may have limited effects when “career-making moments” remain opaque. Effective interventions should therefore combine (i) individual-level tools (training, mentoring, role-model visibility) with (ii) procedural safeguards that reduce discretion in high-stakes decisions: standardized recruitment and promotion rubrics, transparent workload allocation and recognition of service, structured committee deliberation, and systematic monitoring with public reporting. The next section examines whether and how GEP design features (leadership commitment, indicators, resources, participation) create the conditions for these mechanisms to operate in practice.

6. GEPs and Institutional Actions

We complemented the quantitative analyses with document analysis of GEPs and interviews to assess how measures were implemented across four universities (Alfa, Beta, Gamma, Delta) and which contextual factors shaped these choices (RQ2). Across cases, actions fell into three clusters: career support (mentoring/leadership training), governance and accountability (equality officers, gender-balanced committees, monitoring), and work–life balance and safety (flexibility measures and GBV prevention/reporting).

Recurring constraints included resistance to gender-inclusive measures, weak gender-disaggregated data systems, limited family-friendly infrastructure, and resource constraints that reduced continuity. Where implementation was perceived as stronger, respondents highlighted visible leadership commitment, sustained communication, incentives to participate, clear indicators, and practical monitoring tools, alongside transparent criteria for leadership roles and trusted confidential GBV reporting. Together with the survey evidence, this points to a central mechanism for effectiveness: GEPs matter when they change procedures and accountability, not only when they exist on paper (RQ3).

7. Concluding Remarks

This study investigated gender bias in European academic institutions through integrated individual and institutional analyses. At the individual level, IAT evidence shows that implicit gender bias is widespread among academic and administrative staff, reinforcing stereotypes that link men to leadership and research excellence and women to service and caregiving roles (RQ1). At the institutional level, GEPs offer a framework to address these patterns, but their design, implementation and monitoring differ markedly across universities. Effectiveness is closely tied to robust data collection, visible leadership commitment and meaningful stakeholder

engagement, and to how institutions navigate the tension between compliance requirements and more transformative ambitions (RQ2–RQ3).

Effective gender equity interventions therefore require more than formal compliance. Embedding accountability cultures, participatory governance and transparent reporting, supported by regular audits, can help turn GEPs from procedural obligations into strategic tools for long-term institutional transformation. Our contribution is threefold: we propose a dual-perspective methodology that combines individual measures of unconscious bias with institutional policy analysis; we highlight the need to align GEPs with sustainable development goals, especially SDG 5 and SDG 4; and we offer policy-relevant guidance for improving gender equity strategies within universities.

This study has limitations: it focuses on four institutions, relies on cross-sectional data and uses the IAT, which cannot fully capture behaviour in real-world academic settings. Future research should extend the analysis to a broader set of institutions, employ longitudinal designs and develop comparative frameworks to evaluate which GEP components deliver lasting impacts. By addressing both individual and structural dimensions of inequality, universities can strengthen their role as key agents of change within the wider sustainable development agenda.

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Ethics declaration: Each participating institution obtained ethics clearance before data collection. Participation was voluntary with online informed consent; only adults (≥ 18) were eligible. Responses were anonymous, withdrawal was possible, and data were processed under GDPR.

AI declaration: AI-assisted tools were used only to revise sentence structure, grammar, and phrasing under author supervision; no analyses or citations were generated, and the authors remain responsible for all content.

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Who Decides? Reproductive Autonomy Among Married Rural Women in India: Evidence from 11 Villages

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Abstract: Reproductive autonomy is central to women's health, rights, and gender equality, yet many married women in rural India continue to have limited authority over decisions related to childbearing and healthcare. While prior research has linked women's autonomy to education, poverty, and social norms, fewer studies have examined how digital access, financial control, and collective participation intersect with structural disadvantage at the village level. This paper investigates the extent of reproductive decision-making autonomy among married rural women and examines its association with education, caste, economic vulnerability, digital use, financial control, and self-help group participation. A cross-sectional survey was conducted among 982 married women aged 18–49 years across 11 purposively selected villages in India. The questionnaire was structured using the Advancing Women's Empowerment through Systems-Oriented Model Expansion (AWESOME) framework. Descriptive statistics and chi-square tests were used to analyse patterns of decision-making and associations with key socio-demographic and empowerment variables. Only 20.3% of respondents reported sole decision-making authority over childbearing, while 44% reported that husbands or in-laws were the primary decision-makers. Sole authority over healthcare visits was reported by 28.8% of women. Education and self-help group participation were positively associated with reproductive autonomy, while caste and economic vulnerability were associated with lower autonomy. The findings further show that household access to phones, homes, or bank accounts does not necessarily translate into women's agency when independent control is absent. The paper contributes to gender research by showing that reproductive autonomy is shaped not only by household assets, but by the interaction of structural disadvantage, effective resource control, and collective support. The study argues that gender-transformative interventions must move beyond material provision toward strengthening women's independent digital and financial control and expanding collective platforms that support negotiation and agency.

Keywords: Reproductive decision-making, Structural barriers, Socio-economic disadvantage, Self-help group participation, Gender equity

1. Introduction

Sexual and reproductive health and rights (SRHR) are central to women's dignity, well-being, and gender equality. Global commitments such as the International Conference on Population and Development (UNFPA 2004) and Sustainable Development Goal 5.6 (United Nations 2018) affirm women's right to decide whether, when, and how many children to have. However, for many women in rural India, reproductive decisions continue to be shaped by unequal gender norms, limited access to resources, and restricted control over healthcare.

Postcolonial feminist scholars argue that women's autonomy must be understood within specific social and cultural contexts rather than as an abstract individual attribute. Women's decision-making is often constrained both by wider structural inequalities and by patriarchal control within households and communities, a process described as "double colonisation" (Petersen and Rutherford (1986; Tiwary 2020). In India, bodily and reproductive autonomy is frequently subordinated to marital and familial expectations, making reproductive decision-making a relational process shaped by caste, class, gender, and social norms (Sharma and Rani 2017).

In this context, reproductive decision-making is often dominated by husbands or elder family members, with many women having limited influence over childbearing or their own healthcare. National evidence shows that a substantial proportion of married women in India do not independently decide on contraception or healthcare use (IIPS and ICF 2021). Limited autonomy has been linked to adverse outcomes including lower contraceptive

uptake, unintended pregnancies, and delays in seeking care (Blanc 2001; Jejeebhoy and Sathar 2001). Although earlier studies identified education, mobility, and access to resources as important determinants of autonomy (Dixon-Mueller 1978; Dyson and Moore 1983), more recent work shows that autonomy is also shaped by intersecting forms of disadvantage such as poverty, caste, and unequal household power relations (Shroff et al. 2009; Agarwala and Lynch 2006; Darteh et al. (2019); Lailulo et al. 2015). In India, Scheduled Caste and Scheduled Tribe women continue to report lower reproductive autonomy than more socially advantaged groups (Tayal et al. 2024).

Recent literature also points to the growing relevance of digital access and financial inclusion. Mobile phones, internet access, and digital financial services may expand women's access to information, mobility, and decision-making opportunities (Rajkhowa and Qaim 2022; Showkat et al. 2024). However, the mere presence of devices or bank accounts does not ensure agency. Women often experience only secondary access, where resources exist at the household level but remain controlled by men (Barboni et al. 2018; Gurumurthy and Chami 2014). Similarly, formal financial inclusion may not lead to real decision-making power if women lack control over account use (Demirguc-Kunt et al. 2017; Field et al. 2019). At the same time, women's collectives such as self-help groups (SHGs) can widen decision space by building confidence, solidarity, and negotiation capacity (Gupta and Prennushi 2014; Sanyal 2009).

Despite this growing literature, few studies in rural India examine how reproductive autonomy is shaped simultaneously by education, caste, economic vulnerability, digital use, financial control, and collective participation. Much of the available evidence relies on national or state-level datasets, which often mask local variation in village-level empowerment contexts. This study addresses that gap through a cross-sectional survey of 982 married women across 11 rural villages in India, guided by the Advancing Women's Empowerment through Systems-Oriented Model Expansion (AWESOME) framework (Gressel et al. 2020).

The paper addresses the following research questions:

RQ1: *What proportion of married rural women report sole, joint, or limited authority over childbearing and healthcare decisions?*

RQ2: *How is reproductive decision-making autonomy associated with education, caste, economic vulnerability, digital use, financial control, and self-help group participation?*

RQ3: *How do these factors together reveal patterns of intersectional disadvantage and village-level variation?*

Given the quantitative nature of the study, the following hypotheses are proposed:

H1: *Women with higher levels of education will report greater reproductive decision-making autonomy than women with lower educational attainment.*

H2: *Women from Scheduled Caste/Scheduled Tribe households and economically vulnerable households will report lower reproductive decision-making autonomy than relatively advantaged women.*

H3: *Independent digital use and greater financial control will be positively associated with reproductive decision-making autonomy.*

H4: *Participation in self-help groups will be positively associated with reproductive decision-making autonomy.*

2. Methods

2.1 Study Design and Setting

A cross-sectional survey was conducted during November-December 2023 among married women in 11 purposively selected rural villages in India. The villages were selected to capture variation in caste composition, economic vulnerability, digital access, and women's collective participation, as these factors were considered relevant to reproductive decision-making and empowerment. The sites were not intended to be statistically representative of all rural India; rather, they were chosen to enable comparison across differing village contexts.

2.2 Participants

Eligible participants were married women aged 18-49 years residing in the selected villages who provided informed consent. Women were excluded if severe cognitive impairment prevented meaningful participation or if participation posed safety concerns. A total of 982 women were surveyed across the 11 villages.

2.3 Data Collection and Measures

Data were collected using a structured questionnaire developed with input from experts in gender studies, public health, and social work. The tool was informed by the Advancing Women's Empowerment through Systems-Oriented Model Expansion (AWESOME) framework, which examines empowerment through the domains of mental space, awareness, access, and opportunities (Gressel et al. 2020). The questionnaire included modules on reproductive decision-making, digital access, financial inclusion and control, community participation, and socio-demographic characteristics.

The primary outcomes were women's reported authority over decisions related to childbearing and their own healthcare. Explanatory variables included education, caste, ration card status, age, house ownership, mobile phone access and independent use, internet access, bank account ownership and control, and self-help group (SHG) participation. These variables were selected because prior research identifies them as important correlates of women's autonomy, especially in rural and socially stratified contexts. The questionnaire was translated into local languages, pre-tested for clarity, and administered orally by trained female fieldworkers. Where needed, community translators supported the process. Data were recorded on encrypted mobile devices using SurveyCTO.

2.4 Analysis

Data were exported into IBM SPSS Statistics version 23 for analysis. Descriptive statistics were used to summarise respondents' socio-demographic characteristics and patterns of reproductive decision-making. Chi-square tests were used to examine associations between childbearing decision-making and selected socio-demographic and empowerment variables, including education, caste, ration card status, age, village, and household assets. Given the cross-sectional design, the analysis identifies associations rather than causal relationships. Village-level comparisons were included to explore local variation in empowerment and decision-making patterns.

3. Results

3.1 Reproductive and Health Decision-making Autonomy

A total of 982 women were included in the analysis. With regard to childbearing decisions, only 22.5% of respondents reported that they decided by themselves, while 35.3% reported joint decision-making with their husbands and 28.5% reported that the husband was the main decision-maker. A further 10.3% were unsure who made the decision, and only small proportions reported that decisions were made by someone else, jointly with others, or by the whole household. Healthcare decision-making showed a similarly constrained pattern: 33.4% reported sole authority over their own healthcare, 18.4% reported joint decision-making with husbands, and 41.3% reported that husbands decided. Childbearing and healthcare decision-making were strongly associated, suggesting that women with limited voice in one domain often experienced similar constraints in the other.

Table 1: Childbearing decision-makers among respondents (N = 982)

Decision-maker	n	%
Jointly with husband	347	35.3
Husband only	280	28.5
Self only	221	22.5
Not sure	101	10.3
Everyone jointly	17	1.7
Jointly with someone else	9	0.9
Someone else	7	0.7

Table 2: Healthcare decision-makers among respondents (N = 982)

Decision-maker	n	%
Husband only	406	41.3
Self only	328	33.4
Jointly with husband	181	18.4
Someone else	26	2.6
Everyone jointly	25	2.5
Not sure	9	0.9
Jointly with someone else	7	0.7

3.2 Socio-demographic and Empowerment Profile

Table 3: Selected socio-demographic and empowerment characteristics of respondents (N = 982)

Variable	Category	n	%
Caste	SC/ST	443	45.1
	OBC	219	22.3
	General	212	21.6
	Other	96	9.8
	Prefer not to say	12	1.2
Ration card status	BPL	438	44.6
	PHH	190	19.3
	APL	171	17.4
	NPHH	96	9.8
	Don't know	26	2.6
	AAY	11	1.1

Variable	Category	n	%
	Prefer not to say	4	0.4
	Missing	46	4.7
Education	No formal education	287	29.2
	Below primary	158	16.1
	Below secondary	313	31.9
	Higher secondary	102	10.4
	Undergraduate	84	8.6
	Postgraduate	36	3.7
	Prefer not to say	2	0.2
Phone ownership	Smartphone	399	40.6
	Basic phone	253	25.8
	Does not own phone	314	32.0
	No response	16	1.6
Internet use	Uses internet	651	66.3
	Does not use internet	322	32.8
	Missing	9	0.9
SHG participation	SHG member	281	28.6
	Not an SHG member	701	71.4

Note. AAY = Antyodaya Anna Yojana; APL = Above Poverty Line; BPL = Below Poverty Line; NPHH = Non-Priority Household; OBC = Other Backward Class; PHH = Priority Household; SC/ST = Scheduled Caste/Scheduled Tribe; SHG = self-help group.

The sample reflected substantial social and economic disadvantage. Nearly half of respondents belonged to Scheduled Caste or Scheduled Tribe households (45.1%). In terms of economic classification, 44.6% held Below Poverty Line ration cards and 19.3% held Priority Household cards. Educational attainment was also limited: 29.2% had no formal education, 16.1% had only primary or lower schooling, and 31.9% had education below the secondary level, while only 12.3% reported undergraduate or postgraduate education.

In relation to access-related variables, 40.6% reported owning a smartphone, 25.8% a basic phone, and 32.0% reported not owning a phone. Internet use was reported by 66.3% of respondents. Self-help group participation remained limited, with 28.6% reporting SHG membership. These descriptive results indicate that formal access

to some resources was present, but meaningful participation and independent decision-making remained unevenly distributed.

3.3 Factors Associated with Childbearing Decision-making

Table 4: Chi-square associations between childbearing decision-making and selected variables

Variable	χ^2	df	p
Village	332.06	54	< .001
Ration card status	114.48	36	< .001
Caste	96.31	24	< .001
Phone ownership	75.52	18	< .001
Education	51.17	36	.048
SHG participation	31.04	6	< .001
Internet use	4.45	6	.616
House ownership	4.41	6	.621

Childbearing decision-making varied significantly by village, caste, ration card status, education, SHG participation, and phone ownership. Village-level variation was particularly strong ($\chi^2=332.06$, $p<0.001$), indicating that decision-making patterns differed substantially across local contexts. Caste was also significantly associated with childbearing decision-making ($\chi^2=82.44$, $p<0.001$). Women from general-category households were more likely to report sole authority over childbearing (36.3%) than women from SC/ST households (19.9%) and OBC households (13.7%).

Economic vulnerability showed a similarly patterned relationship. Ration card status was significantly associated with childbearing decision-making ($\chi^2=101.04$, $p<0.001$). Women in APL households were more likely to report sole authority (33.9%) than women in BPL households (20.1%) or AAY households (9.1%), indicating that reproductive autonomy was lower among more economically vulnerable households.

Education was modestly but significantly associated with childbearing decision-making ($\chi^2=49.93$, $p=0.013$). Women with no formal education were least likely to report sole authority (18.1%), whereas women with postgraduate education reported the highest level of sole authority (30.6%), although the number in this category was small. House ownership was not significantly associated with childbearing decision-making ($\chi^2=4.41$, $p=0.621$), suggesting that household asset ownership alone does not meaningfully differentiate women's reproductive authority.

Digital access showed a mixed pattern. Phone ownership was significantly associated with childbearing decision-making ($\chi^2=72.74$, $p<0.001$). Women who owned smartphones were much more likely to report sole authority over childbearing (33.6%) than women who owned basic phones (18.2%) or no phone (11.5%). By contrast, internet use as a binary variable was not significantly associated with childbearing decision-making ($\chi^2=4.45$, $p=0.616$). This suggests that simple connectivity may matter less than the form of device access and, potentially, the extent of personal control over it.

Collective participation also mattered. SHG participation was significantly associated with childbearing decision-making ($\chi^2=31.04$, $p<0.001$). Women who were SHG members were more likely to report either sole or joint decision-making with husbands than non-members, indicating that collective participation may widen women's involvement in reproductive decisions even when it does not always translate into sole authority.

3.4 Village-level Variation and Intersectional Disadvantage

The strongest association in the dataset was village-level variation, pointing to the importance of local empowerment contexts. The proportion of women reporting sole authority over childbearing ranged from as low as 3.9% in Kanti and 4.0% in Dongarapur to 45.3% in Thirupalaikkudi and 42.6% in Murad Garhi. In contrast, husband-dominated decision-making was especially high in villages such as Morasia, where 55.9% reported husbands as the main decision-maker. These differences suggest that reproductive autonomy is shaped not only by individual characteristics, but also by village-level social environments and norms.

The results address all three research questions. Overall, women were more likely to report joint or husband-dominated decision-making than sole authority over childbearing and healthcare. Reproductive autonomy was significantly associated with education, caste, economic vulnerability, phone ownership, and SHG participation, supporting H1, H2, and H4, while H3 received only partial support because smartphone ownership was associated with greater autonomy but internet access alone was not. The strong variation across villages, together with lower autonomy among socially and economically disadvantaged women, highlights the role of intersectional inequality and local empowerment contexts in shaping reproductive decision-making.

Taken together, the findings point to a layered pattern of disadvantage. Lower autonomy was concentrated among women facing caste-based marginalisation, economic vulnerability, limited education, and weaker access to enabling resources such as smartphones and collective platforms. At the same time, the absence of a significant relationship for house ownership and internet use suggests that nominal household assets do not automatically translate into women's reproductive authority.

4. Discussion

This study examined reproductive decision-making autonomy among married rural women across 11 villages in India and found that independent authority over childbearing remains limited. Only a minority of women reported sole decision-making power over childbearing, while a substantial proportion reported that husbands were the primary decision-makers or that decisions were made jointly. Although sole authority over healthcare was somewhat higher, the overall pattern still suggests that women's reproductive agency remains constrained within household and relational power structures. These findings are consistent with earlier research showing that reproductive autonomy in South Asia is often negotiated within marriage and family rather than exercised as an individual right (Blanc 2001; Jejeebhoy and Sathar 2001).

The results also show that reproductive autonomy is shaped by inequality rather than by resource presence alone. Women from Scheduled Caste and Scheduled Tribe households and women from economically vulnerable households reported lower autonomy than more socially and economically advantaged groups. This supports existing evidence that caste and poverty continue to structure women's ability to make decisions regarding their own bodies and health (Agarwala and Lynch 2006; Shroff et al. 2009; Tayal et al. 2024). The findings therefore reinforce an intersectional understanding of autonomy, in which gender disadvantage is compounded by social and material inequalities rather than experienced in isolation.

A key contribution of the study is its distinction between access and control. While household ownership of phones and other assets was not uncommon, these did not automatically translate into greater reproductive decision-making power. Smartphone ownership was associated with higher autonomy, but simple internet access was not. This suggests that the empowerment potential of digital resources depends less on nominal connectivity and more on the nature of women's personal access and control. This aligns with earlier work showing that women often experience only "secondary access" to digital and financial resources, where devices or accounts formally exist but remain controlled by male family members (Barboni et al. 2018; Gurumurthy and Chami 2014).

Collective participation also emerged as important. Women who were members of self-help groups were more likely to report involvement in childbearing decisions than those who were not members. Although the cross-sectional design does not permit causal claims, this pattern suggests that SHGs may widen women's decision space by providing peer support, information, confidence, and opportunities for collective negotiation (Gupta

and Prennushi 2014; Sanyal 2009). At the same time, participation itself remained uneven, indicating that collective empowerment opportunities are also shaped by broader structural constraints.

The strong variation across villages is another important finding. Differences in women's reported autonomy across the 11 sites suggest that local gender norms, social environments, and community-level opportunities matter alongside individual and household characteristics. This is significant because national and state-level analyses often flatten such variation, masking how local "empowerment regimes" shape women's reproductive agency. The present study therefore adds value by showing that reproductive autonomy is not only an individual or household issue, but also a context-dependent outcome shaped by village-level conditions.

These findings should be interpreted in light of the study's limitations. The cross-sectional design identifies associations rather than causality, and self-reported responses may be influenced by social desirability or differing interpretations of what counts as "joint" decision-making. In addition, the purposive selection of villages limits generalisability beyond similar rural contexts. However, the study's multi-site design, relatively large sample, and use of a multidimensional empowerment framework offer an important contribution to gender research by showing how reproductive autonomy is structured across intersecting domains of disadvantage, access, and collective opportunity.

Overall, the study shows that reproductive autonomy in rural India cannot be understood solely through household asset ownership or formal inclusion. What matters is whether women have meaningful control over resources, supportive collective spaces, and room to act within unequal social settings. Gender-transformative interventions must therefore move beyond provision alone and focus on strengthening women's independent digital and financial control, expanding collective platforms such as SHGs, and addressing the caste- and poverty-based inequalities that continue to constrain reproductive agency.

5. Contribution, Policy and Practice Implications, and Conclusion

This study contributes to gender research by showing that reproductive autonomy in rural India is shaped not only by household resources, but by the interaction of structural disadvantage, effective control, and collective support. By examining education, caste, economic vulnerability, digital access, financial control, and self-help group participation together, the study demonstrates that women's access to assets does not automatically translate into agency. In particular, the findings highlight the importance of distinguishing between the presence of resources within households and women's independent ability to use them meaningfully.

The findings also have clear implications for policy and practice. Interventions aimed at improving women's sexual and reproductive health and rights should move beyond asset provision alone and focus on strengthening women's control over digital and financial resources. Policies that promote private phone access, personal SIM ownership, PIN literacy, and independent bank account use may be more meaningful than simple inclusion in household-level infrastructure. At the same time, programmes should prioritise women facing compounded disadvantage, particularly those from SC/ST and economically vulnerable households, through targeted outreach, mobility support, and context-specific behaviour change strategies.

The association between self-help group participation and reproductive decision-making further suggests that collective platforms can play an important enabling role. SHGs may serve not only as financial or livelihood spaces, but also as platforms for rights awareness, peer support, and negotiation skill-building. Integrating SRHR information and gender dialogue into such community-based platforms may therefore help widen women's decision space. Since reproductive decisions are also shaped by family and community gatekeepers, interventions should engage husbands, elders, and community leaders in norm-shifting dialogue rather than focusing on women alone.

In conclusion, reproductive autonomy among rural women in this study remained constrained, particularly among those facing caste- and poverty-based disadvantage. The results show that access without control is a weak pathway to empowerment, and that collective participation may help women convert access into agency. Strengthening women's reproductive autonomy therefore requires approaches that combine resource access with independent control, collective support, and attention to the local social contexts in which decisions are made.

Ethics Declaration: Ethical approval was obtained from the Institutional Human Ethics Committee (Approval #028 - IEC_SSBS_AL_CWEGE-AVV_028) of Amrita Vishwa Vidyapeetham, Amritapuri Campus. Written and verbal informed consent was obtained from all participants. Interviews were conducted in private settings to ensure confidentiality. No personally identifying data were collected.

AI Declaration: During the preparation of this work the author(s) used ChatGPT 4 in order to edit and orient the article. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article

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Gendered Effects of Robotisation on Job Quality

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Abstract: This paper examines whether industrial robotisation is associated with gender-differentiated patterns in job quality across Europe. We combine individual-level data from the European Working Conditions Telephone Survey (EWCTS) 2021 with country–industry measures of robot exposure constructed from International Federation of Robotics (IFR) statistics. Job quality is captured along three dimensions—work intensity, physical risks, and autonomy—using harmonised EWCTS job-quality recodes. We estimate weighted logit models with individual and job controls as well as country and industry fixed effects, allowing robotisation effects to differ by gender through interaction terms. Overall, robot exposure is only weakly related to job-quality outcomes once controls and fixed effects are included. However, these associations are heterogeneous across dimensions: robotisation is associated with lower physical risks for both genders, a persistent female disadvantage in work intensity, and a narrowing gender gap in autonomy as robot exposure increases.

Keywords: Gender, Robotisation, Job quality

1. Introduction

Since the Industrial Revolution, technological progress has significantly influenced the functioning of the labour market. It first displaced some craft tasks while increasing output, then transformed production through Fordist mass production, and more recently, through computerisation, robotisation, and artificial intelligence, it has enabled the automation of routine manual and cognitive tasks. AI is now extending automation to perception, prediction, and content generation, reshaping jobs by reorganising tasks rather than replacing entire occupations.

Nowadays, next to rapidly developing AI, robot adoption is broad and still rising. According to World Robotics 2025 statistics on industrial robots, 542,000 robots were installed in 2024 - more than twice as many as ten years ago. The global operational stock reached about 4.664 million units in 2024 (+9% year-over-year). Europe is an important setting of two reasons: it's a second region across the world with the highest number of annual installations (after Asia and Australia), and the first with robot density per worker (219 units per 10,000 employees in 2024, according to International Federation of Robotics (IFR) Press Room).

Due to the increasing role of robotization, many research is focused to analyse their impact on labour market, mainly on employment. Existing research document ambiguous outcomes, especially due to the country, sector, occupation/job and skills heterogeneity, e.g. higher exposure to industrial robots might be associated with cuts in employment and wages in case of US, but with increase in productivity and wages in Europe, see for review (Filippi, Bannò, & Trento, 2023; Guarascio, Piccirillo, & Reljic, 2025; Hötte, Somers, & Theodorakopoulos, 2023; Sharfaei, 2024).

However, less is known as far as the gender differences are taken into account. Scarce evidence for Europe shows that robot adoption and automation may increase gender pay gap (Aksoy, Özcan, & Philipp, 2021; Pavlenkova, Alfieri, & Masso, 2023).

Therefore, studying the impact of robotisation on gender inequalities in European labour markets is important. This study addresses this issue by developing a gender perspective on automation, asking how industrial robot adoption is associated with core dimensions of job quality for men and women. The main contribution of our research is to fill a persistent gap in the literature by providing EU-wide evidence on gender-differentiated relationships between robot exposure and job quality.

To do so, we employ a micro–macro linkage: individual job-quality indicators from the European Working Conditions Telephone Survey (EWCTS) 2021 matched to country–industry measures of robot density derived from International Federation of Robotics (IFR) data. Our empirical analysis focuses on three dimensions of job quality—work intensity, physical risks, and autonomy—captured as binary outcomes using harmonised EWCTS job-quality recodes. We estimate weighted logit models with rich individual and job controls and include country and industry fixed effects; we further allow the association between robotisation and job quality to vary by gender by interacting gender with a two-part robot-density measure (exposure versus intensity among exposed industries). Finally, we complement the regression evidence with Fairlie nonlinear decompositions to quantify the extent to which observed characteristics and sorting patterns account for female–male gaps in job-quality outcomes.

Our results indicate that, conditional on controls and fixed effects, robot density is only weakly associated with job-quality outcomes on average. Nonetheless, the patterns are heterogeneous across dimensions and by gender. Higher robotisation exposure is associated with lower physical-risk exposure for both women and men, while women display persistently higher work intensity than men. For autonomy, women exhibit lower predicted autonomy at low robotisation exposure, but this gap narrows with increasing robot density as women's predicted autonomy rises more strongly than men's. Decomposition results show that robot density explains little of the observed gender gaps in work intensity and autonomy in absolute terms, whereas occupation, work arrangements, and macro-level context (country and industry) account for substantially larger contributions.

The remainder of the paper is organised as follows. Section 2 reviews the literature and discusses mechanisms linking robotisation to gender inequality. Section 3 describes the EWCTS and IFR data, the construction of job-quality outcomes and robot exposure, and the empirical strategy. Section 4 presents the weighted logit estimates and the decomposition results. Section 5 discusses the findings, limitations, and implications. Section 6 concludes.

2. Related Literature

Nowadays, it is underlined that the automation and robotisation processes might be directly related not to the entire occupational groups but to distinct tasks performed by workers (Pető & Reizer, 2021). The distribution of men and women across occupations and performed tasks is different, what might be reflected in diversified treatment from robotisation. The risk of substitution could be therefore different for men and for women. The existing studies are non-conclusive in this matter (for review see (Filippi et al., 2023)), indicating that the final effect might be country, region, industry, firm and occupation-specific. The evidence for OECD countries presented by Brussevich, Dabla-Norris, and Khalid (2019) shows that women more often are engaged in conducting routine, automatable tasks, and therefore are at higher risk of displacement by automation (Brussevich et al., 2019). Importantly, the risk for women is heterogeneous: younger women and those at managerial positions are less prone to be replaced by robotisation processes. As women are underrepresented in STEM (Science, Technology, Engineering, and Mathematics) occupations (Eurostat, 2024), some of the negative effects related to the threat of automation can be mitigated, for example, by increasing the level of education of women and their performance of less routine work. Another branch of research reveals contrasting results for the EU labour market, showing that automation risk is higher for men than for women and is closely linked to differences in the skill and task profiles of their jobs (Pouliakas, 2018).

Apart from different risk of being substituted, the literature on gender disparities on labor market caused by robotization covers the issue of gender pay gap. In general, for Europe the gender wage gap has narrowed considerably over the last half-century, however a substantial gap remains (Kunze, 2018). An extensive literature has studied the factors that can explain this persistence of gender pay differences, but most research focuses on supply-side factors, while the evidence on how demand-side factors (such as automation) affect wage gap is much more scarce (Aksoy et al., 2021). As far as technology is considered the existing evidence is much more scarce. Aksoy et al. (2021) using data from 20 European countries indicates that for each 10 percent increase in robotization, the gender pay gap expands by 1.8 percent. This negative trend is mostly visible in countries with originally high level of gender inequalities and high level of robot density, at the same time. Moreover, robotization is linked with earnings premia for male workers in medium- and high skilled occupations thanks to the productivity gains. For women such effect is not observed. Similarly, using Estonian manufacturing and service data for the years 2006-2018, Pavlenkova et al. (2023) find that in firms where the automation processes were introduced the gender wage gap enlarge. According to Wicht, Müller, and Pollak (2024), who used German data for the years 2011, 2015 and 2019, women, in contrast to men, do not benefit thought performing more complex and autonomous job tasks, which consequently does not lead to wage returns from moving to non-routine tasks. Albinowski and Lewandowski (2024), in turn, using sample of 14 European countries in the 2010-2018 period, find that the wage effects of robot adoption are minor, being young and prime-aged women more beneficial opposite to older women and prime-aged men. However, following Domini, Grazzi, Moschella, and Treibich (2022) the automation induced wage effects are homogeneous across workers of different skills/wage percentiles: French firms importing automation and AI related goods have not experienced higher wage inequalities (in the period 2012-2017).

3. Data and Methodology

Two main datasets are merged for our empirical analysis.

First, data about workers come from European Working Conditions Telephone Survey (EWCTS, hereafter) conducted in 2021. EWCTS is an extraordinary edition of European Working Conditions Survey (EWCS, hereafter) carried out, for the first time via computer-assisted telephone interviewing (CATI), due to the COVID-19 pandemic. Since 1990 EWCS has provided important source of working conditions in Europe on a harmonised basis. The 2021 wave covers over 70,000 detailed characteristics on European workers from 36 countries, including the EU Member States, the United Kingdom, Norway, Switzerland, Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia.

Based on EWCTS data we use three indices of job quality: work intensity, physical environment and work autonomy. The selection of the job quality indices was driven both by the data availability as well as the previous literature on the impact from robotisation on working conditions. First, the use of robots might be related to an increased speed of work, reflected in work intensity (Antón, Fernández-Macías, & Winter-Ebmer, 2023). Second, at the the same time, robotisation can be beneficial in minimizing physical hazards in the workplace by replacing the most dangerous tasks with robots (Gihleb, Giuntella, Stella, & Wang, 2022). The third dimension of job quality is on work autonomy and related meaningfulness at work: past evidence shows that an increased use of robots might deteriorate the job meaningfulness and autonomy (Nikolova, Cnossen, & Nikolaev, 2024). Next, apart from capturing the different impact of robotization on job quality based on gender, we control for a range of workers' characteristics such age, educational level, type of employment contract, employment in public or private sector and company size. For the purpose of representatives we apply final calibrated sampling weights provided with the EWCTS 2021 data, which combine the inverse probability of selection with adjustments for unequal selection due to multiple phone numbers, non-response, and calibration to Labour Force Survey population margins by age, sex, region, occupation and sector (for more details see (Ipsos NV, 2022).

The second core data source are data derived from International Federation of Robotics (IFR, hereafter). It compiles a well-established annual statistical data on industrial robots, collected from industrial robot suppliers worldwide. The data covers 40 countries broken down into areas of application, customer industries, types of robots and other technical and economic aspects. We use the measure of the operational stock of robots that assumes an average service life of 12 years with an immediate withdrawal from service afterwards (more more detail see the annual World Robotics Industrial Robots reports, issued by IFR Statistical Department). Industrial robots, indeed, are described as 'automatically controlled, reprogrammable multipurpose manipulator, programmable in three or more axes, which can be fixed in place or fixed to a mobile platform for use in automation applications in an industrial environment' (IFR, 2025). To control for differences in country and sector size, we use robot exposure, a measure commonly used to capture robot use (IFR, 2025). The robot exposure is calculated as a share of the industrial robots operational stock in given country/sector/year per 1000 employees. Data on employment are derived from Eurostat based on employment by detailed industry (NACE Rev.2) - national accounts (nama_10_a64_e).

3.1 Methodology

In our empirical analysis we focus on three job-quality indicators: work intensity, physical risks, and autonomy, constructed from the EWCTS job-quality recodes. Each indicator is binary and takes values in $\{0, 1\}$, which motivates the use of weighted logit models. In each case, the indicator equals 1 if the respondent is classified as having the given job-quality outcome (high work intensity/exposure to physical risks/high autonomy according to the EWCTS recode), and 0 otherwise. Our key explanatory variable is robots exposure, measured at the country-industry level. Robot exposure is a non-negative variable with a pronounced concentration at zero and a strongly right-skewed distribution for positive values. To accommodate this distributional pattern, we decompose robot exposure into two components, defined as follows:

$\text{robots\_ex}_{cs} =$	$\begin{cases} 1 & \text{if } \text{exposure}_{cs} > 0; \\ 0 & \text{if } \text{exposure}_{cs} = 0. \end{cases}$
$\text{robots\_exp\_log}_{cs} =$ (1)	$\begin{cases} \log(\text{exposure}_{cs}) & \text{if } \text{exposure}_{cs} > 0; \\ 0 & \text{if } \text{exposure}_{cs} = 0. \end{cases}$

where c denotes country and s denotes industry.

This specification follows recommended practice for modelling covariates characterised by a mass point at zero, distinguishing between the presence of any exposure (the extensive margin) and variation in exposure

intensity conditional on exposure (the intensive margin) (Dziak & Henry, 2017). In our context, this specification allows the association between robot exposure and job quality to differ between the presence of any robot penetration in an industry and marginal increases in robot density within industries that are already robotised.

Formally, to examine the relationship between robot exposure and job quality, we estimate the following baseline regression for individual i in country c and industry s :

$$\Pr(Y_{ics} = 1) = \Lambda(\alpha + \beta_1 \text{robot\_ex}_{cs} + \beta_2 \text{robot\_ex\_log}_{cs} + \beta_3 \text{Female}_i + \beta_4 (\text{robot\_ex}_{cs} \times \text{Female}_i) + \beta_5 (\text{robot\_ex\_log}_{cs} \times \text{Female}_i) + X_i'\gamma + \mu_c + \mu_s) \quad (2)$$

where $\Lambda(\cdot)$ denotes the logistic CDF, Y_{ics} is a binary indicator equal to 1 if individual i in country c and industry s reports the job-quality outcome under consideration, and 0 otherwise. Female_i is a gender indicator, X_i is a vector of individual and job controls, and μ_c and μ_s capture country and industry fixed effects. Standard errors are clustered at the country-industry level to reflect the aggregation level at which robot exposure varies.

For each binary job-quality indicator for work intensity, physical risk, work autonomy we estimate weighted logit models including the two-part robot exposure measure, a rich set of individual and job controls (demographics, work arrangements, workplace size, and occupation), and fixed effects for country and industry. To assess gender heterogeneity in the association between robotisation and job quality, we additionally estimate specifications interacting gender with both robot-exposure components. Because robot exposure varies at the country-industry level, standard errors are clustered at that level.

3.2 Descriptive Statistics

Table 1 reports descriptive statistics for the outcome indicators and the main explanatory variables separately for men and women. On average, women exhibit slightly higher work intensity than men and marginally higher exposure to physical risks. By contrast, men enjoy somewhat higher autonomy at work. With respect to background characteristics, the average respondent in both groups is in the mid-career age brackets (around 35–44 or 45–55 years), with women being only slightly older on average. The vast majority of workers in both groups hold open-ended contracts. Women are, on average, more highly educated than men. However, men are more likely to work full-time and more likely to be employed in the public sector. Tenure and workplace size are very similar across genders: both men and women on average fall between 5–9 and 10 or more years of seniority, and work in establishments of roughly comparable size.

Table 1: Descriptive statistics by gender

Variable	Male	Female	Diff. (F–M)	N
Work intensity (0/1)	0.65 (0.48)	0.68 (0.47)	0.03	71,543
Physical risks (0/1)	0.27 (0.44)	0.29 (0.45)	0.02	71,543
Autonomy (0/1)	0.51 (0.50)	0.47 (0.50)	-0.03	71,543
Age group (1–5)	3.16 (1.20)	3.25 (1.17)	0.09	71,543
Open-ended contract (0/1)	0.88 (0.33)	0.87 (0.34)	-0.01	57,886
Education (1–3)	2.42 (0.65)	2.57 (0.60)	0.14	71,182
Full-time (0/1)	0.89 (0.31)	0.77 (0.42)	-0.12	71,041
Public sector (0/1)	0.22 (0.41)	0.38 (0.48)	0.16	64,541
Seniority (1–4)	2.83 (1.07)	2.82 (1.08)	-0.01	71,346
Workplace size (1–4)	2.76 (0.84)	2.76 (0.80)	0.01	69,375

Notes: Reported values are means, with standard deviations in parentheses. “Diff.” reports the raw female–male difference in means. N denotes the number of non-missing observations for the given variable. Binary indicators are coded as 1 for the presence of the characteristic and 0 otherwise. Age groups: 1 = 16–24, 2 = 25–34, 3 = 35–44, 4 = 45–55, 5 = 56+. Education: 1 = low, 2 = medium, 3 = high. Seniority is coded as: 1 = less than 1 year, 2 = 1–4 years, 3 = 5–9 years, 4 = 10 years or more. Workplace size: 1 = working alone, 2 = 2–9 employees, 3 = 10–249 employees, 4 = 250+ employees.

Source: Own elaboration based on merged EWCTS 2021 and IFR 2021 data.

Turning to the second dataset, Table 2 shows substantial cross-country differences in robot penetration across European labour markets in 2021. Three broad groups of countries can be distinguished. First, the highest levels of robot exposure are observed in Germany, which records by far the largest value (62.8 robots per 10,000 workers), followed by Slovenia (55.9), the Czech Republic (44.6), Italy (38.7), and Slovakia (36.1). In these countries, robot exposure is approximately three to four times higher than in the low-adoption economies. Second, an intermediate group includes Austria, Sweden, Denmark, Switzerland, Hungary, Belgium, Finland, Spain, the Netherlands, and France, with robot exposure ranging from around 18 to 34 robots per 10,000 workers. Although these countries are more robotised than the less technologically advanced economies, they remain below the levels observed in the leading group. Third, a large group of countries displays relatively low robot penetration, with robot exposure below 15 robots per 10,000 workers. This group includes Portugal (14.2) and Poland (12.1), as well as Norway, Ireland, Romania, Estonia, Lithuania, Malta, Bulgaria, Croatia, Serbia, and Greece, where robot exposure falls to as little as 2.0. Overall, the disparity between the highest-and lowest-robotised countries is considerable: Germany's robot exposure is more than 30 times higher than that of Serbia or Greece.

Table 2: Robot exposure per 10,000 workers by country, 2021

Country	Robot exposure
Germany	62.8
Slovenia	55.9
Czech Republic	44.6
Italy	38.7
Slovakia	36.1
Austria	33.5
Sweden	32.3
Denmark	28.2
Switzerland	26.6
Hungary	24.9
Belgium	23.1
Finland	20.8
Spain	20.5
Netherlands	19.2
France	18.3
Portugal	14.2
Poland	12.1
Norway	6.8
Ireland	6.6
Romania	6.6
Estonia	6.5
Lithuania	5.1
Malta	5.0
Bulgaria	3.0
Croatia	2.1
Serbia	2.0
Greece	2.0

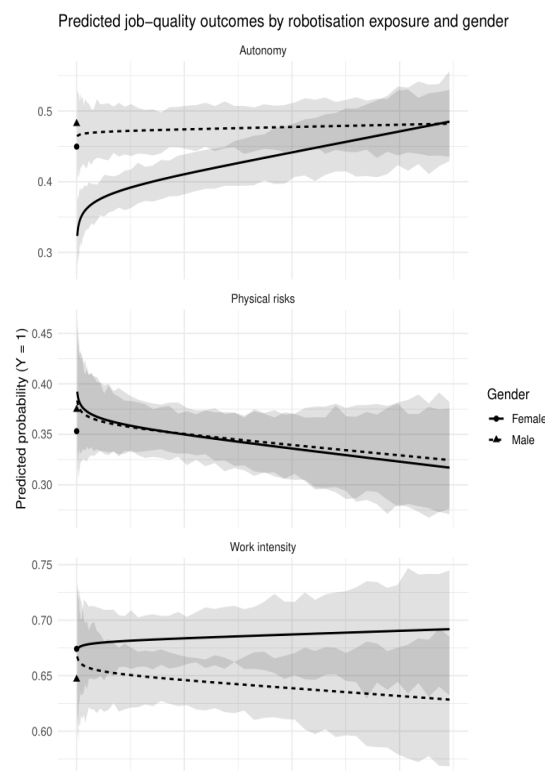
Note: Robot exposure calculated for all economic sectors available in the IFR dataset.

Source: Own elaboration based on IFR 2021 data.

4. Results

Figure 1 presents core weighted logit estimates with country and industry fixed effects and standard errors clustered at the country - industry level, following equation (2). The full set of coefficient estimates is reported in Appendix, Table A.1. Across all outcomes, the robots exposure effects are small once we include the full set of controls and fixed effects. This suggests that, in this specification, differences in industrial robot exposure are not strongly related to the job-quality indicators.

Basically, Figure 1 plots predicted probabilities of each job-quality outcome as a function of robotisation exposure, separately for women and men (with confidence intervals). Three main patterns emerge. First, work autonomy displays a clear gender gap at low levels of robotisation: predicted autonomy is lower for women than for men when robot exposure is near zero. However, the gap narrows with increasing exposure. Women's predicted autonomy increases steadily with robotisation intensity, whereas men's predicted autonomy is comparatively flat. At higher levels of robot density, the two profiles converge, suggesting that robotisation is associated with a relative improvement in women's autonomy compared with men.



Source: Own elaboration based on merged EWCTS 2021 and IFR 2021 data

Figure 1: Predicted job-quality outcomes by robotisation exposure and gender

Secondly, for physical risks, the predicted probability decreases with robotisation exposure for both genders. The gender profiles remain close throughout the distribution of robot density, indicating that robotisation is linked to lower physical-risk exposure overall, with only limited evidence that this association differs strongly between women and men. The decline appears slightly steeper for women, but the overlap of confidence bands suggests that gender differences in the slope are modest. Third, work intensity remains relatively high across the entire range of robotisation exposure, but the patterns differ by gender. Women exhibit consistently higher predicted work intensity than men at all exposure levels. Moreover, the gender gap appears to widen as robot density increases: women's predicted intensity is roughly stable or slightly increasing, while men's intensity declines slightly with exposure.

This implies that robotisation is associated with a small relative increase (or weaker reduction) in women's work intensity compared with men. Taken together, the figure suggests that higher robotisation exposure is not equally associated with better job quality. Instead, the associations differ across dimensions: robotisation correlates with higher autonomy for women relative to men, lower physical risks for both genders, and a persistent (and potentially slightly widening) female disadvantage in work intensity. These heterogeneous

patterns are consistent with the idea that robotisation may reduce physically demanding tasks while simultaneously reshaping work organisation and pace in ways that do not benefit all dimensions of job quality equally.

Our results also indicate that the relationship between robotisation and job quality is not straightforward. Although the main coefficients for robot exposure are small and not statistically significant across all three dimensions, this does not necessarily mean that robotisation is irrelevant for workers' job quality. Rather, the estimates suggest that its association with job quality may differ across dimensions and between women and men. At the same time, the results point to persistent gender differences in job quality, even after controlling for demographic characteristics, work arrangements, workplace size, occupation, as well as country and industry fixed effects. In particular, women report higher work intensity, lower physical risk, and lower autonomy than otherwise comparable men in sectors without robot exposure.

Moreover, the association between robotisation and job quality seems to vary depending on the dimension considered. For work intensity and physical risk, the interaction terms with gender are not statistically significant, which suggests that robotisation is not associated with a systematic change in the gender gap in these two domains. In the case of autonomy, however, the pattern is more nuanced. The results show that in industries where robots are present, women experience a greater disadvantage in autonomy relative to men, while higher robot density within robot-using industries is associated with a reduction in this gap. That is, our estimates suggest that the presence of robots may initially coincide with less favourable autonomy outcomes for women, but that this disadvantage becomes smaller as robot exposure increases. Overall, our findings indicate that robotisation is linked less with broad average changes in job quality and more with differentiated patterns that depend on the specific job-quality dimension and on gender.

5. Discussion

The analysis provides EU-wide evidence on the association between industrial robotisation and gender differences in job quality. Our results suggest that this relationship is not uniform across dimensions. At the same time, the estimates indicate that gender differences in job quality remain visible even after accounting for a broad set of personal and job characteristics, as well as country and industry fixed effects.

In the case of physical risk, the coefficients for robot exposure are negative for both women and men, but they are not statistically significant. Thus, the results do not provide strong evidence that robotisation is associated with lower physical risk in the sample analysed here. At the same time, the direction of the coefficients is consistent with earlier studies suggesting that robots may substitute for more hazardous tasks and reduce workers' exposure to harmful physical conditions (Gihleb et al., 2022). In this sense, our findings do not contradict the view that one possible consequence of robot adoption is a reduction in dangerous manual work, although they do not allow for a strong conclusion on this point.

For work intensity, the pattern is different. The estimates show a persistent female disadvantage, while the interaction terms with robot exposure are not statistically significant. This suggests that the gender gap in work intensity does not vary systematically with robotisation. Earlier studies based on regional-level evidence have suggested that robot adoption may be associated with stronger work pressure, including faster pace of work, tighter targets, or more intensive monitoring (Antón et al., 2023). Although this is not directly comparable to our individual-level measure of job quality, it provides a useful context for interpreting the persistence of gender differences in work intensity observed in our results. At the same time, our estimates do not provide evidence that higher robot exposure is associated with any reduction in the female disadvantage in this dimension.

The results for autonomy are more differentiated. The estimates suggest that in industries where robots are present, women experience a greater disadvantage in autonomy relative to men, while higher robot density within robot-using industries is associated with a smaller gender gap. This indicates that the association between robotisation and autonomy is not linear and cannot be reduced to a single average effect. Earlier evidence has shown that robotisation may be associated with lower autonomy and reduced meaning at work on average (Nikolova et al., 2024). Our findings add nuance to this picture by suggesting that the relationship may also vary by gender and by the level of robot exposure within robot-using industries.

Overall, the findings suggest that robotisation is associated less with broad average differences in job quality and more with differentiated patterns across specific dimensions of work. In this respect, the results support the view that job quality should be treated as a multidimensional concept and that the relationship between technological change and job quality may take different forms for women and men.

6. Conclusions

The paper provides EU-wide evidence on the association between industrial robotisation and gender differences in job quality by linking EWCTS 2021 microdata with IFR-based measures of robot density at the country–industry level. Using weighted logit models with a broad set of controls and country and industry fixed effects, we examined whether robot exposure is associated with work intensity, physical risk, and autonomy, and whether these associations differ between women and men.

Our results suggest that the relationship between robotisation and job quality is not uniform across dimensions. Once personal characteristics, job attributes, and macro-level controls are taken into account, the overall association between robot density and job-quality outcomes remains limited. At the same time, the estimates indicate persistent gender differences in job quality. In particular, the results point to a stable female disadvantage in work intensity, while the coefficients for physical risk are negative but not statistically significant for both women and men. In the case of autonomy, the findings suggest a more differentiated pattern: in robot-using industries women experience a greater disadvantage relative to men, but this gap becomes smaller as robot density increases within those industries.

The study is based on cross-sectional data and therefore does not allow causal interpretation. In addition, the measure of robotisation used in the analysis refers to industrial robots and does not capture other technologies that may also be relevant for working conditions, especially in service activities. At the same time, the results suggest that the relationship between robotisation and job quality is differentiated across dimensions and cannot be reduced to a single general pattern.

In this sense, the analysis may be seen as a starting point for further research. In particular, it would be useful to examine whether the observed patterns differ across occupational groups, since the tasks performed in different occupations are likely to be linked to robotisation in different ways. A more detailed analysis could show more clearly whether robot exposure is associated mainly with physical risk, work intensity, or autonomy in particular occupations. It would also be worth exploring cross-country differences in greater detail, as the observed relationships may vary across national contexts. Another important direction would be to extend the robustness analysis by considering alternative measures of robot exposure, different model specifications, and more disaggregated samples. This would make it possible to assess whether the patterns identified here remain stable across alternative empirical approaches. More generally, the findings suggest that job quality should be treated as a multidimensional concept and that its different dimensions may be associated with technological change in different ways for women and men.

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Appendix A

Table A.1: Full weighted logit estimates with gender interactions

Covariate	Intensity	Physical risk	Autonomy
Robot exposure and gender			
Robot exposure > 0	0.026 (0.082)	-0.080 (0.099)	-0.049 (0.090)
log(robot exposure) for robots_ex > 0	-0.016 (0.026)	-0.029 (0.033)	0.007 (0.018)
Female	0.129*** (0.033)	-0.119** (0.047)	-0.144*** (0.034)
Female × (robots_ex>0)	0.005 (0.101)	0.130 (0.118)	-0.248*** (0.082)
Female × log(robots_ex) for robots_ex > 0	0.024 (0.038)	-0.008 (0.036)	0.058*** (0.022)
Demographics			
Age 25–34	0.106 (0.067)	0.072 (0.073)	0.081 (0.073)
Age 35–44	0.080 (0.067)	-0.013 (0.079)	0.056 (0.077)
Age 45–55	-0.060 (0.061)	-0.206*** (0.074)	0.059 (0.079)
Age 56+	-0.223*** (0.068)	-0.343*** (0.085)	0.051 (0.085)
Education			
Education: medium	0.222*** (0.053)	0.037 (0.068)	0.100* (0.051)
Education: high	0.376*** (0.059)	-0.282*** (0.075)	0.272*** (0.052)
Work arrangements			
Part-time	-0.292*** (0.036)	-0.112** (0.046)	0.006 (0.044)
Tenure 1–4 years	0.135*** (0.048)	0.110* (0.063)	0.070 (0.051)
Tenure 5–9 years	0.193*** (0.052)	0.202*** (0.063)	0.126*** (0.048)
Tenure 10+ years	0.380*** (0.050)	0.357*** (0.063)	0.110** (0.049)
Workplace size			
Workplace size 2–9 employees	-0.007 (0.059)	0.219*** (0.071)	-0.426*** (0.066)
Workplace size 10–249 employees	0.268*** (0.061)	0.180*** (0.069)	-0.651*** (0.059)
Workplace size 250+ employees	0.257*** (0.081)	-0.038 (0.083)	-0.634*** (0.067)
Occupation (ISCO major group)			
Occupation: Managers	-0.022 (0.226)	-1.099*** (0.242)	0.763*** (0.186)

Covariate	Intensity	Physical risk	Autonomy
Occupation: Professionals	-0.194 (0.208)	-0.838*** (0.243)	0.526*** (0.189)
Occupation: Technicians and associate professionals	-0.289 (0.210)	-0.533** (0.232)	0.279 (0.185)
Occupation: Clerical support workers	-0.465** (0.202)	-1.600*** (0.215)	0.225 (0.194)
Occupation: Service and sales workers	-0.379* (0.221)	0.138 (0.227)	-0.134 (0.192)
Occupation: Skilled agricultural, forestry and fishery workers	-0.179 (0.241)	0.847*** (0.280)	0.075 (0.240)
Occupation: Craft and related trades workers	-0.427** (0.211)	0.586*** (0.226)	0.014 (0.196)
Occupation: Plant and machine operators, and assemblers	-0.508** (0.219)	0.079 (0.228)	-0.404** (0.200)
Occupation: Elementary occupations	-0.560** (0.222)	0.395* (0.225)	-0.208 (0.206)

Notes: Entries are logit coefficients with clustered standard errors in parentheses (country × industry). All models use EWCTS calibrated weights. Reference categories: Male; Age: 16–24; Education: low; Full-time; Tenure <1 year; Workplace size: working alone; Occupation: Armed forces. Country and industry fixed effects are included in all models but not reported. Source: own elaboration based on merged EWCTS 2021 and IFR 2021 data

Educate, Connect, Employ: Closing Gender Gaps in the Global South

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Abstract: Digital technologies are broadly claimed as inclusive technologies enabling the eradication of various social and economic gaps. Our study builds on the hypothesis that growing cross-and within-country digitalization gradually mitigates multidimensional gender gaps of different backgrounds. According to worldwide statistics (WDI, 2025), developing countries severely suffer from gender inequalities (digital, educational and labor), which negatively affect developing economies' development due to keeping women as "overlooked resource" and being ignored as unpaid domestic labor. This work contributes providing evidence on gender gaps in educational and labor market dimensions; but also, by estimating cross-country inequalities in this regard. By estimating the size of gender gaps, we verify if growing digitalization contributes to gender gaps eradication at the country's individual level in the group of low-income and lower-middle-income countries. We assess whether cross-country divides in terms of gender gaps are growing or diminishing. Using the World Bank (2025) data, we use the sample of 24 low-income and 46 lower-middle-income countries, in the period from 2000 to 2023. We use a panel dataset encompassing 9 variables – extracted from the World Development Indicators 2025, approximating women's and men's access to digital technologies, education and labor market, including composite indicators delivered by the United Nations Development Programme, approximating gender socio-economic discrimination.

Keywords: Gender gaps, Digitalization, Labor market, Developing countries

1. Introduction

Women in the Global South face structural problems regarding education, finding work and getting basic resources. This continues despite decades of efforts to achieve gender equality, such as the Beijing Platform for Action, the Maputo Protocol, and the African Women's Decade (Alozie & Obong, 2017). The spread of digital technologies gives hope that digitalisation helps to break down barriers and enable women to reach economic potential. It is becoming clear that women need access to the internet, cell phones, and digital services. It allows them gain skills, expand social network, get involved in school, work, and public life (Alozie & Obong, 2017). Empirical evidence shows that women in low- and lower-middle-income countries continue to face difficulties in accessing and utilising digital technologies, and these disparities reflect pre-existing social and economic inequalities (Mariscal et al., 2019). Prior research from Raihan et al. (2025) recognises women as a susceptible group facing digital exclusion, grappling with structural barriers including financial constraints, reduced digital literacy, insecure online environments and culturally unsuitable content. David and Phillips (2022) emphasise the systems theory that suggests that small changes in women's digital inclusion are challenging to sustain. This problem happens because different types of exclusion, like digital, social, and economic, work together in feedback loops to make low-inclusion traps. Furthermore, the literature associates the gender digital gap with persistent disparities in education and employment (Rashid, 2016; Alozie & Obong, 2017; Mariscal et al., 2019). Research from Africa, Latin America and South Asia indicates that reduced educational attainment, diminished labour market engagement and domestic responsibilities restrict women's access to and utilisation of ICT. Digital exclusion even makes it harder for them to get better jobs and make more money (Galperin & Arcidiacono, 2021). Even though a lot of research has been done on this topic, there are still three important gaps. First, much of the empirical work is either cross-sectional or examines only one country or region. This restriction impedes our understanding of the concurrent evolution of digitalisation and gender disparities across low- and lower-middle-income economies. Second, most studies examine digital access, education, and job-market outcomes separately. Nevertheless, policy frameworks are increasingly emphasising the connections among these things.

This paper contributes by examining digitalisation and gender inequality across 70 low- and lower-middle-income countries from 2000 to 2023. First, we show changes in gender gaps have using a panel of indicators on internet use, education, and labour-market participation for both genders and indices of gender inequality. Next, we examine whether greater digitalisation is associated with lower inequality in education and job outcomes. We also use Gini indices to monitor how gender gaps across countries are changing over time. This paper also aims to understand if digital convergence between countries has made gender outcomes more equal and add to ongoing theoretical debates about whether digitalisation in the Global South is mainly a way to include more people or to make gender inequalities worse or better.

2. Background

2.1 Digitalisation, Gender and Development in the Global South

Digital technologies play an increasing role in the development strategies of the Global South. They are expected to improve access to education, healthcare, finance and markets. In low- and middle-income countries, mobile broadband emerges as means of accessing the internet enabling use of online services without needing fixed infrastructure (Mariscal et al., 2019). Nonetheless, these opportunities for accessing digital services are not equitably distributed showing that women are 10% less likely than men to own mobile phones, use mobile internet, or possess the requisite skills to benefit from these services (Mariscal et al., 2019). In some low-income settings, traditional gender norms worsen women's limited access. Often, male household members own and control mobile phones and other devices, requiring women to obtain permission to use them (Rashid, 2016). This restricted utilisation of ICTs by women is associated with their lower educational attainment and socioeconomic status or greater domestic obligations (Alozie & Obong, 2017). Digital inequality also shows that women, along with other groups like low-income people, older adults, ethnic minorities, migrants, and people with disabilities are likely to be left out of the digital world (Raihan et al., 2025). Raihan (2025) further finds that the main obstacles to digital access are low income, the high cost of devices and internet connections, insufficient computers, and insufficient digital skills. Language, cultural relevance and worries about online safety make these problems even worse (Raihan et al., 2025). Consequently, the theory of the digital divide has evolved from a narrow focus on infrastructure to a broader understanding of digital (in)equity as a complex issue shaped by structural inequalities and intersectional identities (Raihan et al., 2025). The digital gender gap is more seen as a sign of and a cause of gendered development outcomes. When women are not allowed to use digital spaces, they have fewer opportunities to participate in the growing digital economy, access online public services, or use digital technologies for business and learning (Mariscal et al., 2019).

2.2 From Digital Divide to Digital Inequality, Systems and Feedback Loops

The initial generation of research on the digital divide concentrated on a dichotomous classification between individuals with access to networks and hardware and those without (Mariscal, 2005). Subsequent research broadened this viewpoint to encompass digital inclusion. David and Phillips (2022) call this bigger picture the 4A/5A frameworks. This includes not only connectivity but also awareness, affordability, skills, literacy and agency. This change has been significant for studying gender gaps because women may have formal access to technology but lack the skills and permission to use. Recent research indicates that an expanded view of digital gender disparities may still be inadequate to explain the worsening of these inequalities despite investments aimed at improving digital access and skills. David and Phillips (2022) contextualise women's digital inclusion within a complex system characterised by feedback loops and conditions of reduced inclusion. Their research indicates that digital, social, economic and political exclusions mutually reinforce each other. As a result, minor improvements in one area can quickly disappear unless actions are taken to address different types of inequality simultaneously. Additionally, recent literature on digital inequality have introduced the concept of adverse digital incorporation, referring to situations in which more privileged people derive greater value from less privileged people through digital systems (Heeks, 2022). Although most people in low- and middle-income countries are now part of some digital system, this has sometimes made inequalities worse (Heeks, 2022). The correlation between digitalisation and gender equality is not simplistic. Digitalisation can help women gain power, especially when it is part of larger efforts to improve education, decent work, and rights. In situations where deep-seated structural inequalities exist, the growth of digital technology may reinforce or worsen the hierarchies that already exist.

2.3 Gender Digital Gaps, Education and Labour Markets

Real-world studies show that differences between men and women in how they access and use digital technologies are linked to patterns of social inequality. Rashid's (2016) analysis of public access ICT venues in Bangladesh, Brazil, Chile, Ghana and the Philippines reveals that women's digital inclusion is impacted by their educational attainment and the accessibility of ICTs within the home environment. Women with tertiary education and home access to ICTs are more likely to be digitally included (Rashid, 2016). Disparities in education contribute to labour market inequalities that are shaped by digital technologies. Mariscal et al. (2019) argue that as more aspects of daily life and essential services move online, women lacking digital literacy are excluded from better-paying jobs. They also have trouble finding jobs online, which widens gender pay gap (Mariscal et al., 2019). The authors also stress that digital financial services can only help women become more financially included if they are connected to the internet and can build data capital through digital transactions (Mariscal et al., 2019). Additionally, the link between having a job and using the internet has been looked at more closely

in Latin America. Galperin and Arcidiacono (2021) show that the gender gap in internet use in Ecuador, Guatemala, Mexico and Peru is primarily due to more men working. They say that if women worked as much as men did, the digital gender gap in these countries would be much smaller. They also find signs that being employed has a more substantial effect on women's chances of being online than on men's. This could be because women work in more digital technology-intensive fields. This finding is connected to our "Employ" dimension examining how digital access, sectoral employment patterns and gender gaps in the labour market are related. Also, evidence from Africa, Asia, and Latin America shows that women face social and cultural barriers when using digital technologies. Research indicates that patriarchal norms, domestic responsibilities and safety concerns constrain women's capacity to optimise digital tools. For instance, women often have little free time to use digital resources and may be explicitly told not to use their phones (Rashid, 2016; Mariscal et al., 2019). These cultural norms impact both educational and employment opportunities, which highlights the need to analyse gender inequalities across various areas rather than depending exclusively on digital metrics.

3. Materials and Empirical Settings

3.1 Data

Our research defines the empirical sample covering 70 low-, and lower-middle income countries (24 low income and 46 lower-middle income economies) from 2000 to 2023 using World Bank country classification (2026). Our panel encompasses 9 variables. First we use Internet Users ($IU_{c,y}$) to approximate the level of digital technologies adoption. Next, we use 8 variables showing the magnitude of labor market-related and education gender gaps: School enrollment, primary and secondary (gross) – gender parity index ($GPI_{c,y}$), gender equality rating¹ - CPIA ($CPIA_{c,y}$), Gender Development Index ($GDI_{c,y}$), Gender Inequality Index ($GII_{c,y}$), labor force participation rate, female/male (% of female/male population ages 15-64) ($LF_{c,y,F/M}$), vulnerable employment, female/male (% of female/male employment) ($VL_{c,y,F/M}$), wage and salaried workers, female/male (% of female/male employment) ($WG_{c,y,F/M}$) and contributing family workers, female/male (% of female/male employment) ($FM_{c,y,F/M}$). Our first indicator is Internet Users. In the perspective of gender-related analysis, the limited access to technological innovations is mirrored by women's discrimination in access to education, restricted participation in e.g. labor market or public life. The Gender Parity Index for captures gender gaps in primary and secondary school enrollment reflecting early-stage inequalities that in further life translates into unequal opportunities on labor market. The, CPIA gender equality rating measures institutional commitment to ensuring gender equality. Next, Gender Development Index and Gender Inequality Index, they encompasses gender development disparities in education, health, and income. Lastly, we use labor market indicators: labor force participation, vulnerable employment, wage and salaried workers and contributing family workers (each indicators used separately for women and man thus demonstrate economic gender inequalities). Our data are extracted from World Development Indicators 2025, International Telecommunication Union 2025, United Nations Educational, Scientific and Cultural Organization 2025 and United Nations Development Programme 2025.

3.2 Empirical Settings

Our empirical techniques combine descriptive statistics, absolute gender gaps calculations, nonparametric graphical approximations to visualize statistical relationship between variables and inequality measure – Gini index.

The absolute gender gap is defined as a difference between given variable for man ($X_{c,y,M}$) and women ($X_{c,y,F}$) in a given year (y). Hence the gender gap follows as:

$$GG_{c,y,X} = X_{c,y,M} - X_{c,y,F} \quad [1]$$

where $X_{c,y,M}$ is the X -variable value for men in X – country and X – year, and $X_{c,y,F}$ – for women with analogous notations. The value of $GG_{c,y,X}$ shows the „distance“ between men and women in given area thus the magnitude of gender gap (disparity). Put differently it demonstrates how much women need to catch-up to be equal to men in given field, in a given country and year.

If we hypothesize that women perform worse than men in given area, we expect the gender gaps to be as follows:

- $GG_{c,y,LF} > 0$, when women – compared to men, less actively participate in labor force;
- $GG_{c,y,VL} < 0$, when woman – compared to man, are more exposed to vulnerable employment;

¹ 1=low to 6=high

- $GG_{c,y,WG} > 0$, when woman – compared to man, are less probable to hold “paid employment jobs;
- $GG_{c,y,FM} < 0$, when woman, compared to man, are more exposed to be considered as “contributing family workers”.

For analytical purposes we also express change in gender gap ($GG_{c,y,X}$) between two years y_{n+1} and y_n as:

$$\Delta GG_{c,y,X} = \Delta GG_{c,y_{n+1},X,M} - \Delta GG_{c,y_n,X,F} . \quad [2]$$

Next, we use locally weighted polynomial smoother is a nonparametric method used to graphically fit the curve displaying relationship between two variables, and thus we approximate the function having a general form:

$$f(.), \quad [3]$$

under assumption that all errors e_i generated by the model are identically zero. Having defined x_i as one of the covariates we can estimates the $f(.)$ by using the multivariate polynomial form where respective x_i is chosen to extrapolate:

$$y_i = f(x_i^*), \quad [4]$$

if $i = 1, \dots k$, in the k -nearest neighborhood of x^* , with underlying assumption that f is the locally a smooth function.

Lastly, we adopt the classical Gini coefficient, where for given population attributed to values y_i , $i=1\dots n$, and if $(y_i \leq y_{i+1})$, the general formula for Gini coefficient is defined as:

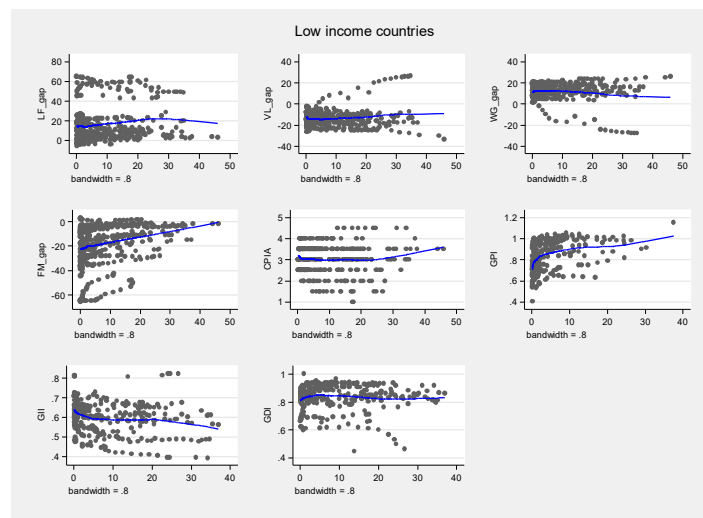
$$Gini = \frac{1}{n} (n + 1 - 2 \frac{\sum_{i=1}^n (n+1-i)y_i}{\sum_{i=1}^n y_i}). \quad [5]$$

4. Results

Here below we discuss the results both for low-, and lower-middle income countries between 2000 and 2023. First, we note that descriptive statistics² show differences across low income and lower-middle income panels in terms of reported gender gaps, but also regarding digitalization (7.4% and 20.1% on average for low and lower-middle income group accordingly). The labor market-related gender disparities are also striking. On average, in low-income group the $LF_{c,y}$ gap is reported as 16.9%pp and almost 21% for lower-middle income group. Next for $WG_{c,y}$ the gap reaches 12%pp and 8%pp for low and lower-middle income panels accordingly. The most significant differences between low and lower-middle income countries are unveiled in for $FM_{c,y}$ as reported (-18.2%pp) for low, and (-11%pp) for lower-middle income group. The gender differences appear less striking in case of educational indicators showing that in this sphere women *versus* men inequalities are being gradually eradicated. Next, we examine three elements. First, we verify the relationship between growing digitalization *versus* gender gaps. Second, we calculate changes in absolute gender gaps for all variables. Third, we verify cross country differences in gender gaps and report if between 2000 and 2023 growing cross-country growing homogeneity or heterogeneity is unveiled. We expect, that increasing digitalization should be reflected in diminishing gender gaps. More specifically we expect that increasing deployment of digital technologies should be associated with declines of gaps regarding labor force participation, vulnerable employment, wage and salaried work and also contributing family workers. The above improvements are expected as higher digitalization enhances overall inclusion, shifts women`s ability to access labor market information, transit from informal and risk-exposed labors to formal and better secured jobs. Analogously, we expect that digitalization shifts help to close gender educational gaps through broadly implemented schooling opportunities. Figure 1 shows the statistical relationship between digitalization and gender gaps in 24 low-income countries between 2000 and 2024. We observe that the overall digitalization level remains relatively low, and no strong relationship between ICT shifts and gender gaps are observed. Relatively the strongest positive relationship is visible between $IU_{c,y}$ and $FM_{c,y}$ with calculated correlation (0.25) however it suggests that digitalization shifts enhanced even more $FM_{c,y}$ gaps. As for the remaining indicators the statistical relationship is scatter and rather unclear. It appear that the educational and economic gender gaps vary massively regardless of the digitalization level. Respective graphs on Figure 1 unveil that e.g. very similar gender gaps (see for instance for $VL_{c,y}$ or $WG_{c,y}$) are reported to highly differentiated digitalization levels (between close to 0% and above 40%). When we turn to educational indices the picture revealed is similar. More detailed and meaningful insights into the relationship between digitalization and gender gaps can be derived from Table 1 (see appendix) reporting absolute changes in

² Full table available on request.

digitalization level and labor market related gender gaps between 2000 and 2023 for each country. The first striking conclusion is that all countries in scope experienced shifts in digitalization with only some exceptions like Somalia, South Sudan or Central African Rep. Still, most of low-income countries made progress in Internet use, with the best examples of Gambia, Togo, Rwanda or Mali. In 12 out of 24 considered countries in the low-income panel experienced declines in gender gaps regarding labor force participation. For wage and salaried workers in only 9 countries the dropping gaps are observed. For vulnerable employment gaps the drops are reported for 11 countries (Niger and Gambia the most significant), and only 3 when contributing family workers are considered. Since vulnerable employment and contributing family work are considered as *destimuli* for socio-economic development in our case the $VL_{c,y}$ and $FM_{c,y}$ as well as their changes ($\Delta GG_{c,y,VL}$) and ($\Delta GG_{c,y,FM}$) must be interpreted reversely to $LF_{c,y}$ and $WG_{c,y}$. If $\Delta GG_{c,y,VL/FM} > 0$ gender gaps are dropping (positive change), and while $\Delta GG_{c,y,VL/FM} < 0$ gender gaps are growing (negative change). Considering the above Table 1 reports 15 economies where $\Delta GG_{c,y,VL} > 0$, and 21 economies where $\Delta GG_{c,y,FM} > 0$. These results show that the period between 2000 and 2023 resulted in decreasing gender gaps when vulnerable employment and contributing family workers indicators are considered. As for $FM_{c,y}$ the leader is Mozambique that noted $\Delta GG_{c,y,FM}=33.02$, and for $VL_{c,y}$ it is Syria where $\Delta GG_{c,y,VL}=38.32$. However, still, Gambia or Niger despite their relatively good progress in digitalization, the gender gap for vulnerable employment has risen.

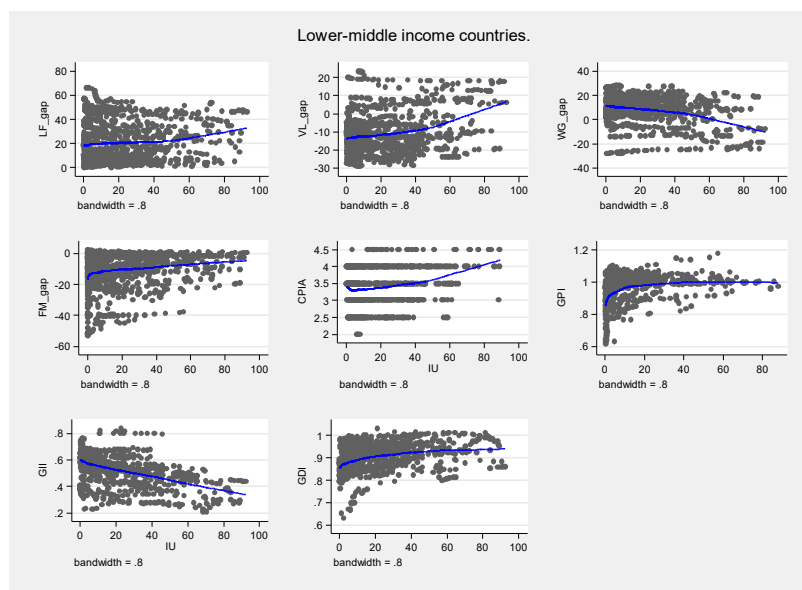


Source: Authors' elaboration. Note: on X-axis values of Internet Users (total).

Figure 1: Digital technologies adoption versus gender inequalities. Low income countries

Next, Figure 2 and Table 2 (see appendix) summarize the results for lower-middle income economies. Also in this case the overall relationship between deployments of digital technologies are not rigidly unveiled. Relatively the strongest negative statistical association is demonstrated between $IU_{c,y}$ and $GII_{c,y}$, with the correlation coefficient at (-0.49), showing that shifts in ICT are negatively associated with overall gender inequalities. Next, the correlation between $IU_{c,y}$ and $GDI_{c,y}$ and $IU_{c,y}$ and $WG_{c,y}$ are (0.35) and (-0.32) supporting the hypothesis that increases in digitalization goes along with increasing gender development and dropping gender gaps regarding wage and salaried workers. Slightly more moderate relationship we observe for $IU_{c,y}$ versus $VL_{c,y}$ as the $r^2=0.31$ indicating that ICT shifts diminish gender gaps in terms of vulnerable employment. Apparently, the demonstrated statistical associations are stronger compared to what was reported for the low-income panel, however – if we take a closer look at individual graphs on Figure 2, it is hard to delineate a clear pattern of relationships between digitalization and gender gaps. High gender gaps remain persistent even on the occasion of rapid digitalization. Analogously to Table 1 for low-income panel, Table 2 (see appendix) summarizes results regarding absolute changes in overall digitalization and labor market related gender gaps. First observation is that during the period 2000-2023 lower-income countries experienced shift in digitalization, even up to 80-90%pp of absolute growth in Internet usage. Such dynamic increases potentially brings better environment and “open windows of opportunities” for women in educational and economic empowerment. In case of $\Delta GG_{c,y,LF}$ and $\Delta GG_{c,y,WG}$ for which we expect the difference to be negative in value suggesting gender gaps diminishing regarding labor market participation and being engaged in wage and salaried jobs, we report promising changes in 29 out of 46 countries for $LF_{c,y}$ and in 23 for $WG_{c,y}$. As for the labor force participation gap the most significant drops are reported for: Bangladesh (-23.77), Nicaragua (-20.40), Eswatini (-15.42), and Cote d'Ivoire (-15.31).

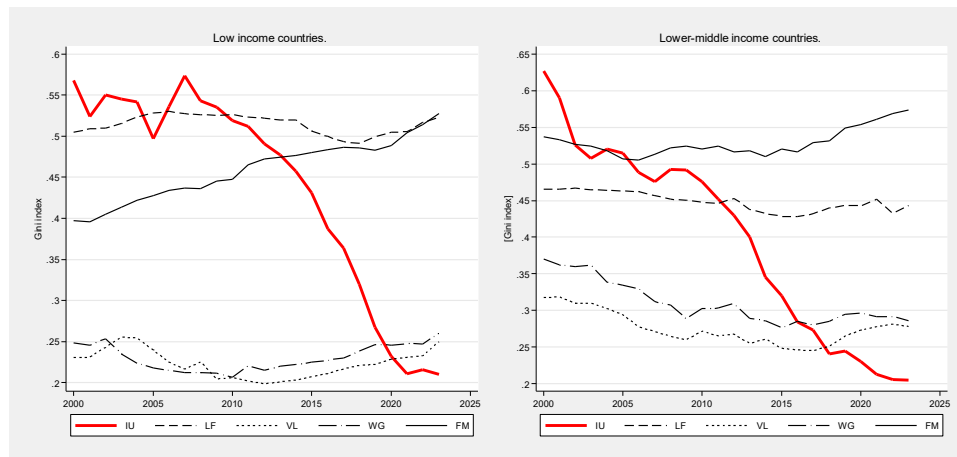
Unfortunately in the same group of countries in the remaining economies the $LF_{c,y}$ have worsened with the highest shift in Guine (+20.02). As women participate more actively in formal labor market activities that results in gender gaps diminishing the $WG_{c,y}$ also should drop as a consequence. In the panel of lower-middle income countries the decreasing gender gap ($\Delta GG_{c,y,WG} < 0$) is reported for 23 economies, with the highest drops in Morocco (-14.56). Unfortunately, if still $\Delta GG_{c,y,WG}$ is considered in Pakistan and Bhutan the gender gap has massively worsened resulting in $\Delta GG_{c,y,WG} = (+18.49)$ and $\Delta GG_{c,y,WG} = (11.53)$. Lastly, in case of vulnerable employment and contributing family workers gender gaps, as previously explained we expect $\Delta GG_{c,y,VL} > 0$ and $\Delta GG_{c,y,FM} > 0$. The best progress is observable for $FM_{c,y}$ gender gaps as in 31 out of 46 the $\Delta GG_{c,y,FM} > 0$. The countries forging ahead the most are Myanmar – (+39.08), Bangladesh – (+28.0) and Cambodia – (+26.47). As for the vulnerable employment the $\Delta GG_{c,y,VL} > 0$ is traced for 21 economies with the best progress achieved in Egypt – (+14.95), Morocco – (+14.45) and Myanmar – (+11.32).



Source: Authors' elaboration. Note: on X-axis values of Internet Users (total).

Figure 2: Digital technologies adoption versus gender inequalities. Lower-middle income countries

Figure 3 displays time trends in cross-country inequalities approximate by Gini index, both for low-, and lower-middle income countries, for: $IU_{c,y}$, $LF_{c,y}$, $VL_{c,y}$, $WG_{c,y}$ and $FM_{c,y}$. This evidence extends the previous analyses offering a dynamic and distributional perspective on how cross-country digital inequalities and labor market related gender inequalities related over the period 2000-2023. Moreover, by tracking the Gini index for Internet users variable and other 4 gender gap related variables, we track how these inequalities evolve in two examined country income groups. The first observation is that the strongest downward trend is reported for the $IU_{c,y}$ Gini index for both country groups, which coincides with the evidence provided in Tables 1 and 2 on strong increases of ICT deployment. The evidence in Figure 3 adds to the previous that this shifts resulted in drops in cross-country digital inequalities and led to growing cross-country homogeneity in terms of digital technologies deployment. Drops in digital inequalities are reported for the same time interval (2005-2010) in low-, and lower-middle income countries, were drops from the level of Gini index c.a. 0.5-0.6 to 0.2. The Figure 3 also unveils overtime dynamics Gini indices for labor-market related gender gaps, and in this time these dynamics differ not only between variables but also the picture is different for low income and for lower-middle income countries. In the lower-middle income group the decrease of cross-country inequalities regarding gender gaps for vulnerable employment and wage and salaried workers is relatively stable over time, with – however, slight upswing after year 2020. As for the labor force gender gap cross-country inequalities barely moved between 2000 and 2023 (from 0.44 to 0.46), and for contributing family workers the light upward trend is visible (from 0.53 in 2000 to 0.57 in 2023). The picture for low income group is even less promising. In terms of digital technologies adoption enormous cross-country inequalities drops are reported (Gini index fell from 0.56 to 0.21), thus the low income group became relatively homogenous. For gender gaps in vulnerable employment, wage and salaried workers and labor force participation the cross-country inequalities have slightly risen. If we consider the gender gaps in regard to contributing family workers the picture is the worst since the Gini increased from 0.39 in 2000 to 0.52 in 2023, picturing growing cross-country disparities.



Source: Authors' elaboration.

Figure 3: Digitalization and gender gaps inequalities (Gini) low-, and lower-middle income countries. 2000-2023

The overall analysis may suggest the existence of the reinforcing mechanism that great digital deployment and inclusion coincides with dropping cross-country inequalities regarding gender gaps on labor market. However this mechanism, although do not necessarily implying causalities, seems to be unveiled only for the lower-middle income countries. It appears, that in the lower-middle income group digital technologies translate into inclusive opportunities for women, and as countries converge in terms of digital technologies use the analogous happens for gender gaps. In low income economies the digital shifts across countries contribute to this country group homogeneity, but the distributional effect on labor market related gender gaps is uneven and barely detectable, which is determined by structural and institutional conditions that may strengthen – or reversely, weaken this effects.

5. Conclusions

Our evidence shows that despite progress in digitalization between 2000 and 2023, its impact on gender gaps in low-income countries remains weak, whereas in lower-middle-income economies the relationship is clearer, especially for wage employment and overall gender development. Still, in both income groups we see improvements in vulnerable employment and contributing family work gaps. We also documented sharp drops in cross-country digital inequalities, yet labor-market gender disparities remain as far more persistent. Our findings suggest that digitalization alone is insufficient to reduce gender inequalities and that its impact depends heavily on broader structural and institutional conditions. Policy-wise, digital strategies should be integrated with labor market reforms and targeted measures facilitating women's transition from informal to formal employment. Governments should also strengthen inclusive institutions and expand gender-sensitive educational and skills programs to ensure that digital progress translates into meaningful reductions in gender disparities.

Ethics Declaration: as for this research the ethical clearance was not required

AI Declaration: this paper was prepared without using any AI-based tools

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Appendix 1: Tables 1 & 2

Table 1: Absolute changes in levels of ICT adoption and magnitude of gender gaps [in %pp]. Low income countries. Change between 2000 and 2023

Country	$\Delta IU_{c,y}$	$\Delta GG_{c,y,LF}$	$\Delta GG_{c,y,WG}$	$\Delta GG_{c,y,FM}$	$\Delta GG_{c,y,VL}$
Afghanistan	17.70	-0.64	4.32	14.09	-4.90
Burkina Faso	16.84	-5.07	1.30	7.12	-1.45
Burundi	10.99	-1.39	-7.14	23.25	6.88
Central African Rep.	7.46	3.67	-0.63	11.17	1.27
Chad	13.15	5.77	0.93	7.20	-1.87
Congo. Dem. Rep.	30.49	3.81	-2.73	28.68	3.54
Eritrea	19.84	-3.23	1.67	11.68	-0.10
Gambia	44.56	-0.91	9.21	4.35	-15.03
Guinea-Bissau	32.20	-4.60	-0.09	10.90	0.36
Liberia	23.47	-1.25	4.19	11.27	-3.17
Madagascar	20.18	0.37	-3.48	-6.11	1.59
Malawi	17.84	1.69	0.06	3.78	0.35
Mali	34.91	2.90	0.10	2.69	0.26
Mozambique	19.64	6.87	6.25	33.02	-3.34
Niger	23.10	4.87	8.09	-5.97	-13.16
Rwanda	33.96	-8.70	-4.62	5.16	4.30
Sierra Leone	20.44	6.22	1.81	-0.31	-1.73
Somalia	-0.08	-0.32	1.44	8.05	2.23
South Sudan	7.07	-1.83	-3.93	9.96	6.01
Sudan	26.37	1.36	4.09	11.61	-6.88
Syrian Arab Rep.	34.52	-10.29	-30.69	31.06	38.32
Togo	36.10	-2.78	0.16	11.78	-0.05
Uganda	15.06	2.42	3.67	4.35	-7.77
Yemen	13.72	6.28	-7.61	5.13	8.50

Source: Authors' calculations.

Table 2: Absolute changes in levels of ICT adoption and magnitude of gender gaps [in %pp]. Lower-middle income countries. Change between 2000 and 2023

Country	$\Delta IU_{c,y}$	$\Delta GG_{c,y,LF}$	$\Delta GG_{c,y,WG}$	$\Delta GG_{c,y,FM}$	$\Delta GG_{c,y,VL}$
Angola	44.70	1.20	2.15	-0.13	-1.50
Bangladesh	44.43	-23.77	-1.67	28.00	-2.85
Benin	31.98	-14.72	-1.65	0.92	1.86
Bhutan	88.00	-5.05	11.53	-10.17	-11.58
Bolivia	68.76	-10.49	-3.90	10.06	2.79
Cambodia	60.65	4.75	3.19	26.47	-3.97
Cameroon	41.65	9.73	-4.73	12.56	4.85
Comoros	35.43	-2.20	-3.94	9.99	5.54

Country	$\Delta IU_{c,y}$	$\Delta GG_{c,y,LF}$	$\Delta GG_{c,y,WG}$	$\Delta GG_{c,y,FM}$	$\Delta GG_{c,y,VL}$
Congo. Rep.	38.37	-0.33	1.39	-0.79	-1.31
Cote d'Ivoire	40.47	-15.31	-0.38	-3.65	-0.06
Djibouti	64.81	-9.39	-1.59	1.67	1.80
Egypt	72.06	3.75	-1.32	4.14	14.95
Eswatini	56.67	-15.42	1.15	0.66	-1.15
Ghana	69.75	-1.64	8.87	-4.61	-8.93
Guinea	26.40	20.02	4.20	3.36	-3.63
Haiti	39.07	-1.83	2.34	3.40	-2.11
Honduras	57.10	-7.16	9.67	-2.52	-4.27
India	55.37	-6.22	-2.85	-4.19	-0.30
Jordan	89.88	-4.96	5.89	0.08	-2.95
Kenya	34.68	5.44	-9.63	13.87	8.83
Kyrgyzstan	87.46	7.06	-2.48	-0.80	2.13
Lebanon	75.55	-13.96	7.85	0.68	-11.40
Lesotho	47.79	6.22	-5.72	2.90	5.22
Mauritania	37.21	-5.10	2.46	1.52	-5.40
Morocco	90.31	-4.80	-14.56	11.95	14.45
Myanmar	58.50	7.13	-6.92	39.08	11.32
Namibia	62.76	-6.74	-7.36	6.15	6.33
Nepal	55.60	-14.91	3.16	1.53	-3.82
Nicaragua	57.22	-20.40	2.78	0.93	-3.11
Nigeria	39.14	-7.63	1.70	0.30	-3.09
Pakistan	27.40	-11.52	18.49	-9.68	-19.47
Papua New Guinea	23.27	0.68	-0.79	-4.58	0.48
Philippines	81.82	-7.15	8.74	1.96	-6.31
Sao Tome and Principe	56.86	-2.65	-2.50	-0.70	1.80
Senegal	60.20	-9.25	-0.11	10.74	-0.49
Solomon Islands	42.02	0.60	9.09	-17.90	-9.82
Sri Lanka	50.55	-2.18	-4.67	8.76	4.14
Tajikistan	56.75	-8.55	2.43	1.76	0.28
Tanzania	28.98	3.22	0.42	-10.40	-0.38
Timor-Leste	34.00	0.43	10.05	-15.88	-9.77
Tunisia	69.65	-11.87	-4.59	1.46	2.96
Uzbekistan	88.52	5.47	4.66	0.92	-2.04
Vanuatu	43.59	2.41	-5.93	-1.65	5.08
Viet Nam	77.85	1.64	1.62	24.30	-3.09
Zambia	32.81	-7.16	-0.52	10.35	-1.49
Zimbabwe	38.00	1.23	-3.59	0.96	2.17

Source: Authors' calculations.

Why Feminist Design Matters for GenAI: Perspectives from Lusophone Innovation Ecosystems

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Abstract: This paper examines professionals' perceptions of Generative Artificial Intelligence (GenAI) and its impact on innovation ecosystems in Brazil and Portugal through a feminist and intersectional design lens. It explores how GenAI shapes work experiences, gender dynamics, and organizational practices, highlighting both perceived opportunities and structural challenges across diverse roles and identities. The study addresses the tension between AI's technological promise, often framed in terms of efficiency, creativity, and innovation, and its implications for equity, diversity, and inclusion in professional contexts. This inquiry is grounded in systemic conditions: AI development remains dominated by a narrow demographic whose assumptions and values are embedded in technological systems, while biased datasets and workplace automation risk reproducing inequalities and widening gendered skill gaps. Empirically, the research draws on 23 semi-structured interviews with cisgender and transgender women and men, as well as non-binary professionals working with AI-driven tools in Brazil and Portugal. Using thematic analysis informed by feminist and intersectional design frameworks, the findings reveal a complex landscape. Participants recognized GenAI's potential to streamline processes and support innovation, while also expressing concerns about the reproduction of hierarchical power relations and the superficiality of many corporate diversity initiatives. The results reinforce that GenAI is not a neutral technology, but a sociotechnical construct embedded in existing power structures. Its deployment can either reinforce systemic disparities or contribute to more equitable innovation ecosystems. The paper offers guidance on the responsible use of GenAI, grounded in feminist design principles and emphasizing ethical practice and inclusive governance.

Keywords: Generative artificial intelligence (GenAI), Feminist design, Gender equity, Design justice, Innovation ecosystems

1. Introduction

The rapid advancement of Artificial Intelligence (AI) is reshaping global innovation by transforming economies, labor markets, and cultural imaginaries. Generative Artificial Intelligence (GenAI), in particular, promises new efficiencies and creative possibilities, yet its adoption has made increasingly visible that innovation is not a neutral process. AI, as a sociotechnical system, mirrors the society from which it emerges (Howcroft & Rubery, 2019). Despite this, dominant debates often treat AI bias as a purely technical problem, presumed solvable through data debiasing or algorithmic adjustments. Feminist and design scholars, however, argue that bias is rooted in deeper structural conditions. Technologies are built upon value-laden binaries; as Baker (2025) notes, oppositions such as “masculine/feminine” and “modern/traditional” are constructed through hierarchical valuations that become encoded into technological systems. Gender thus shapes not only user experience but also work processes, organizational dynamics, and what ultimately gets designed (Etayo Ballesteros et al., 2025).

These structural conditions are reinforced by limited diversity within development teams, extending beyond flawed datasets to design cultures shaped by systemic prejudice. As Hicks, James, and Slater (2024) emphasize, Large Language Models (LLMs), trained on massive text corpora to generate outputs that appear human-produced, are not designed to accurately represent the world but to simulate such accuracy. This highlights the relevance of design justice, which examines how intersecting forms of oppression, including white supremacy, cisnormativity, heteropatriarchy, capitalism, and settler colonialism, are embedded in technological artifacts (Costanza-Chock, 2018, 2020). From this perspective, GenAI is understood as a social construct shaped by power relations rather than an autonomous technical agent. Guided by an intersectional and decolonial perspective grounded in transmodernity (Ballestrin, 2013), this study examines how technology professionals in Brazil and Portugal perceive the intersections of design, GenAI, and gender equity. These Lusophone contexts—situated in the Global South and the Global North, respectively, and shaped by shared colonial legacies—were intentionally selected to enable a comparative analysis that challenges Eurocentric assumptions about technological development. By framing AI as an issue of social justice and power, the study asks: Why is GenAI a Feminist Design matter?

2. Background

Gender disparities in the adoption of AI, particularly GenAI, are not merely the result of individual preferences but reflect and reinforce broader social inequalities and power structures. AI research and development remain predominantly led by white cisgender men, thereby reproducing existing social, cultural, and institutional frictions (Howcroft & Rubery, 2019; Klein & D'Ignazio, 2024). Collins's (1990) concept of the matrix of domination shows how overlapping systems of oppression, white supremacy, heteropatriarchy, capitalism, and settler colonialism, shape social life, while design processes systematically encode these hierarchies into sociotechnical systems (Ciston, 2019; Costanza-Chock, 2020). Empirical data illustrate the consequences of these gaps: women are 20% less likely than men to engage with GenAI (Otis et al., 2024) and represent only 29% of global R&D positions (UNESCO, 2023). In Europe, women hold just 22% of tech roles, although doubling their participation could add €260–600 billion to GDP (McKinsey & Company, 2023). Exclusion from technological development, therefore, concentrates economic opportunities and income among groups with privileged access to emerging technologies.

When women are excluded from technological development and adoption, inequalities tend to deepen. The challenge of AI extends beyond algorithms to the purposes for which they are developed. Embedded in capitalist power dynamics, AI functions as an extractive industry reliant on mineral exploitation, high energy consumption, cheap labor, and mass data collection (Varon & Peña, 2022; Altieri, Sancho, & Carrasco-Campos, 2025). Women are disproportionately represented in jobs most vulnerable to automation, whereas men are more often employed in roles augmented by AI (World Economic Forum, 2025). Consequently, AI adoption is not neutral and can reproduce gendered and racialized stereotypes in both outputs and implementation contexts (Kore, 2022). These effects are intensified by a trust gap: only 61% of women GenAI users feel encouraged by their companies, compared to 83% of men (Deloitte, 2025), and some women report a greater risk of being penalized or perceived as “cheating” when using AI. Lower adoption rates lead to “early biases” in training data, in which women's preferences and needs are insufficiently sampled, thereby amplifying disparities through feedback loops (Otis et al., 2024). In the public sector, AI systems also raise concerns about surveillance and exclusion, expanding the monitoring of poor and vulnerable populations (Varon & Peña, 2022). Poverty, often described as the “feminization of poverty,” is rooted in structural inequalities in access to education and employment (Aguilar, 2011), and AI can “automate inequality,” punishing poor women and producing non-recognition for trans, migrant, or racialized people (Varon & Peña, 2022).

Intersectionality (Crenshaw, 2002; Kerner, 2012; Collins et al., 2021) and decoloniality (Quijano, 1989; Ballestrin, 2013) provide essential tools for analyzing these asymmetries, aligning feminist critiques of modernity with the notion of the “coloniality of power” (Federici, 2004). Feminist standpoint theory, defined by hooks (2000) as “a movement to end sexism, sexist exploitation, and oppression,” emphasizes women's experiences as legitimate epistemological starting points (Bardzell, 2010). As articulated by Crenshaw (2002) and Collins (1990), intersectionality reveals how race, gender, and class intertwine to produce specific vulnerabilities. These perspectives show that sociotechnical systems encode power asymmetries even in the absence of intentional exclusion (Costanza-Chock, 2020; Tonkinwise, 2015; Montuori & Nicoletti, 2021). Design, therefore, is never neutral: Buckley (1986, 2020) demonstrated how patriarchy underpins women's historical marginalization in the field, while feminist critique positions design as a means to expose and transform power relations embedded in artifacts (Escobar, 2018). Design Justice examines whether artifacts reinforce privilege or support marginalized communities, rejecting the “unmarked user” in favor of an intersectional validation matrix (Costanza-Chock, 2018, 2020).

Feminist critiques of digital technologies further reveal how datafication, algorithmisation, and automation reconfigure relations among humans and non-humans, framing AI as a form of large-scale violence (Ricaurte, 2019). Such violence is often obscured where consent cannot be freely exercised, particularly when datafication becomes mandatory for accessing social benefits (Varon & Peña, 2021). In response, Klein & D'Ignazio (2024) outline six principles of data feminism (i.e., rethinking binaries, examining power, considering context, legitimizing affect and embodiment, making labor visible, and embracing pluralism) that are applicable to AI design. Bardzell's (2010) feminist interaction design qualities (i.e., pluralism, participation, advocacy, ecology, embodiment, and self-disclosure) further expand design practice, aligning with decolonial and community-based approaches that emphasize responsibility, consent, collectivity, and technologies oriented toward conviviality, reciprocity, and repair.

Overall, the gender gap in AI adoption is part of broader processes that sustain inequality. AI systems, operating as “certificates of power” (Altieri, Sancho, & Carrasco-Campos, 2025), risk becoming “status quo machines”

when women and marginalized groups are excluded from their development and use (Klein & D'Ignazio, 2024). The shift required is from Design by AI, focused on efficiency, to a Design of AI for Justice, grounded in ethical and social intentionality. Without active participation from these communities, AI will continue reproducing the matrix of domination, keeping them, as Varon and Peña (2022) warn, "absent from the future."

3. Methodology

This research is grounded in 23 in-depth semi-structured interviews with technology professionals working in innovation ecosystems. The interviews explored participants' professional contexts, perceptions of gender dynamics in the workplace and broader ecosystem, current uses of GenAI tools, ethical concerns related to these technologies, and expectations regarding the future impact of AI on diversity and inclusion in innovation environments.

3.1 Sample

The sample comprised professionals from two geographic contexts: Brazil (N = 12) and Portugal (N = 11). Participants ranged in age from 26 to 45 years (M = 31.14; SD = 6.29). Gender diversity was intentionally sought, including 10 women (9 cisgender, 1 trans), 10 men (9 cisgender, 1 trans), and 3 non-binary individuals. The sample also reflected racial and ethnic diversity consistent with the sociopolitical contexts of both countries. Notably, four participants interviewed in Portugal were Brazilian immigrants residing in the country, contributing to a trans-Lusophone perspective. Interviewees occupied roles central to innovation ecosystems, including UX/UI designers, HR and Diversity & Inclusion (D&I) specialists, entrepreneurs (CEOs, COOs, and startup founders), software engineers (including AI and machine learning specialists), data scientists, and managers in innovation-related fields.

3.2 Data Analysis and Theoretical Framing

Data were analyzed using Thematic Analysis (Braun & Clarke, 2006), guided by a feminist and intersectional design lens. This framework oriented the analysis toward identifying how power asymmetries manifest in technological practices and workplace dynamics. Analytical categories were not defined a priori but emerged from four areas addressed in the interview guide: (1) gender dynamics and D&I initiatives; (2) GenAI usage; (3) ethics and AI; and (4) the role of AI in D&I within the workplace. The analysis focused on recurring patterns, tensions, and contradictions in participants' narratives, prioritizing local knowledge and lived experiences across both ecosystems, while also generating insights into ethical concerns and the future role of AI in workplaces and innovation environments.

4. Discussion and Results

4.1 Gender Dynamics and D&I Initiatives

The interviews reveal persistent gender inequality across innovation ecosystems in Brazil and Portugal, though with notable contextual differences. Women and gender minorities remain underrepresented, especially in technical and leadership roles, yet Brazilian respondents reported comparatively greater visibility and progress. Eight of the twelve Brazilian interviewees described workplaces with gender parity or women-majority teams, particularly in design and leadership. Transgender and non-binary visibility was also stronger in Brazil. One non-binary participant noted a rapid cultural shift toward increased diversity: "When I joined two years ago, the number of women was very small. Today, it's much larger."

In Portugal, participants described a more conservative landscape. Even when gender proportions appear balanced, leadership remains male-dominated. One developer highlighted that his company is "50/50," but leadership "is mostly men." A transgender man who worked in both countries emphasized that Portugal is "behind" Brazil in preparing companies for trans inclusion. Together, these findings illustrate how regional specificities intersect with gender, class, and migration status—reinforcing the importance of an intersectional lens (Crenshaw, 2002; Kerner, 2012).

Experiences of prejudice also differ across contexts. Portuguese cis women reported subtler, structural biases, often concentrated in traditional corporate cultures. Brazilian participants described more direct and at times hostile forms of discrimination, especially among trans and non-binary professionals. Brazilian cis women frequently recounted expectations to adopt "masculine" behaviors to advance, reproducing gendered performance norms. These patterns underscore the structural nature of inequality. Homogeneous teams tend to reproduce narrow worldviews and design technologies that reinforce existing hierarchies, echoing Collins's

(1990) critique of hierarchical dichotomies. Diversity in teams, therefore, emerges as a central condition for equitable design.

D&I initiatives exhibit varying degrees of maturity, and critiques of superficial “diversity washing” have emerged in both countries. Brazilian interviewees described more robust formal programs, including diversity committees and AI-supported recruitment processes designed to mitigate bias. External initiatives like “UX para Minas Pretas” and “Programaria” were cited as crucial for training women and minorities. Portuguese interviewees described a more fragmented landscape, in which diversity often emerges “organically” or is driven by multinational companies that import global policies. Local Portuguese initiatives such as “Ladies that UX” and “Women Tech Portugal” fill gaps left by companies lacking structured governance. This contrast suggests that while larger Brazilian companies are more advanced in operationalizing D&I, Portuguese firms often remain in earlier or less formalized stages.

Across both contexts, awareness of AI-driven solutions for D&I remains limited, revealing a critical gap: although the potential of AI to support equity is widely acknowledged, its translation into widely adopted, concrete tools remains incipient. This aligns with Klein and D’Ignazio’s (2024) argument that AI design must explicitly interrogate power structures, aiming to redistribute privileges and disrupt embedded oppressions. The intersectional practice in design requires designers to critically reflect on their privileged positions and the transformative potential of their work (Søndergaard & Hansen, 2017). By doing so, it strengthens the link between feminist activism and technology, highlighting the urgency of gender equity policies both within and outside professional environments.

4.2 GenAI Tools: Adoption and Usage

Participants across both contexts reported the increasing adoption of GenAI tools, though with varying levels of awareness and experimentation. Despite cultural differences, the core activities for which GenAI is used are similar across both ecosystems: optimizing communication and research, code generation, content summarization, and brainstorming. These activities are thus considered essential for productivity. ChatGPT is the most frequently cited tool for general use, followed by GitHub Copilot for coding, test generation, and documentation. Gemini and Perplexity are also mentioned for research and data analysis.

Interviewees from both countries reported that GenAI significantly reduces time spent on operational tasks, thereby freeing capacity for critical and strategic thinking. The most significant change reported in the professional workflow concerns process optimization and a refocusing of the professional's role toward higher-value tasks. Adoption patterns, however, differ. In Brazil, the use of GenAI appears to be more rapid and integrated. Brazilian respondents described their workplaces as innovation-driven, leveraging AI not only for productivity but for strategic transformation. In Portugal, adoption appears more cautious and technically focused. Portuguese professionals often framed GenAI as an “accelerator” that enhances reliability and efficiency within well-defined tasks. A Portuguese entrepreneur noted that excessive caution may slow broader adoption. This difference suggests that the Brazilian ecosystem incorporates GenAI as a natural element of innovation and experimentation, while the Portuguese process tends to be incremental, prioritizing reliability and technical compliance before expanding use.

Despite these differences, both groups highlighted similar benefits, including improved documentation, faster coding, text generation, language support, and strategic synthesis. Brazilian interviewees emphasized AI’s role in reshaping organizational models, requiring leaders to manage interactions between human teams and AI agents. The main risk identified across both countries is overdependence, which, as participants described, leads to “dumbing down”, a decline in critical thinking and foundational knowledge. This concern aligns with critiques of AI’s indifference to truth, as described by Hicks et al. (2024) as a capacity to generate “bullshit.” A Brazilian male designer explicitly articulated this dependence: “We are becoming too dependent on artificial intelligence to think. So when you take that away from professionals, they no longer know how to do their jobs.” Participants emphasized the need for sustained human discernment, particularly because GenAI may generate insecure code or incorrect reasoning.

Interviewees also highlighted psychosocial risks. The speed of AI outputs accelerates workplace expectations, increasing pressure, anxiety, and demand for immediacy. From a design perspective, some participants described AI failures as fundamentally “design issues”, reflecting misalignment between user intent and system interpretation. These concerns resonate with Data Feminism (D’Ignazio & Klein, 2024), which urges designers to consider context and recognize that data and artifacts emerge from unequal power relations. Its principles (i.e., embracing pluralism and making labor visible) challenge the invisibilization of feminized, vernacular, and unpaid

forms of design work, thereby underscoring the necessity of human critical engagement and responsible design at the center of AI development. Overall, both Brazilians and Portuguese converge on the view that AI should be a tool for amplifying capabilities, not replacement, emphasizing the importance of critical sense and ethics as central conditions for its responsible use.

4.3 Ethics and Bias in AI

Participants overwhelmingly agreed that AI is not currently being developed ethically. The primary reason cited is that AI is trained on data reflecting deeply biased societies—racist, sexist, homophobic, and unequal—turning AI into an amplifier of structural injustices. A Brazilian COO explained: “AI is a mirror of humanity. If we live in a racist, sexist society, it will be a magnifying glass.” Portuguese participants echoed this, stressing human responsibility at every stage of model training and deployment. Kore (2022) highlights that algorithmic bias reflects the “circumstances and culture that produce it,” underscoring that AI ethics comprises principles, values, and practices that guide responsible development.

The absence of diverse perspectives within development teams exacerbates these problems. Brazilian participants, especially women and Black professionals, emphasized how exclusion from design and engineering leads to technologies blind to their lived realities, turning AI into an instrument of exclusion. As stated by a D&I expert (black woman): “AI does have this bias in terms of gender and race. And because it is created in a much more masculine environment, we bring masculine biases into AI, and we don’t consider what is feminine. We need to strike a balance.” Complementing this, a transgender man argued that AI lacks “sensitivity” to understand gendered experiences: “It is the people, the designers, who must bring diversity into products and services.” This finding aligns with Bardzell’s (2010) argument that technological design is deeply intertwined with the reproduction or transformation of social inequalities. Furthermore, some interviewees highlighted that AI still cannot discern social and cultural contexts, suggesting that while AI can contribute to equality, “the people behind AI” are the ones who will “make the difference.” This view aligns with Ciston’s (2019) argument that intersectional strategies should be polyvocal, multimodal, and experimental, and that community-focused and artistic practices can help imagine AI’s intersectional possibilities and begin to address its biases.

Beyond social biases, interviewees identified a lack of transparency and the corporate drive for profit as key ethical inhibitors in AI development. At least eight participants pointed to limited visibility into how models are constructed and which data sources they rely on, the classic “black box” problem, as a major obstacle to ethical oversight. As Kore (2002) observes, “A lack of transparency increases the risk and magnitude of harm when users do not understand the systems they are using.” Portuguese interviewees further emphasized that AI systems embed cultural biases, as pointed by a Portuguese male AI specialist: “The problem isn’t just the model; artificial intelligence does what it does. The problem is who feeds it, who trains it, who makes it, who builds it.” Following that, Varon and Peña (2022) posit that, rather than focusing on technological “solutionism,” AI design should be guided by transfeminist, decolonial, and cooperative values, ensuring that the resulting solution respects community relations and autonomy.

Across both Brazil and Portugal, participants agreed that the speed with which technology companies race to release products and maximize profit often relegates ethical considerations to a secondary concern. This challenge is intensified by the concentration of AI development and data infrastructure among a few large corporations (Big Techs), whose agendas and inherent biases shape the global technological landscape. Participants also raised concerns regarding data security, privacy, and the misuse of technology. To counter these dynamics, interviewees implicitly point toward the need for an approach to AI design that cannot be disentangled from broader commitments to sustainability, multispecies justice, and decolonial temporalities—resonating with hooks’ (2000) call for a visionary feminism that situates technological development within a “white supremacist capitalist patriarchy” and urges the cultivation of justice-oriented, life-affirming practices.

Participants also underscored that ethics must be embedded in design practices from the outset, rather than retrofitted after deployment. Three priority areas for ethical AI were identified: (1) Team diversity (ensuring interdisciplinary, multicultural participation across design and validation stages); (2) Data quality (using socially representative datasets and synthetic data to mitigate imbalance); and (3) Transparency (promoting interpretability and explainability in AI outputs). Ultimately, the findings confirm critiques in feminist HCI and Data Feminism (Bardzell, 2010; D’Ignazio &, 2020), arguing that ethics cannot be an appendix but must be at the center of technological conception. The proposed solutions, which focus heavily on biases embedded in the data and the people who build the system, confirm that AI cannot be understood apart from the social structures that shape it.

4.4 Strategies for Fairer AI and Future Roles

Interview findings indicate three central pillars for developing fairer AI systems: regulation, team diversity, and governance. AI was broadly perceived as a transformative force within innovation ecosystems, with the potential to enhance productivity and generate new solutions, particularly in health, climate, and operational efficiency. Some participants described it as the “next boom of humanity.” However, these opportunities coexist with concerns about labor precarization, loss of creativity, and increased corporate concentration.

Regarding regulation, participants stressed the need for binding frameworks that transform ethics and diversity from optional principles into legal obligations. In Brazil, the absence of robust regulatory oversight leads local ecosystems to mirror standards from the Global North. Portuguese participants similarly emphasized enforceable governance, frequently referencing the European AI Act as a necessary safeguard. The second pillar—diversity in AI teams—was associated with expanding participation beyond engineers to include domain experts, social scientists, lawyers, and designers. This epistemic diversity was considered essential for overcoming technologically reductionist worldviews. The third pillar, governance, highlighted the importance of ethical management within organizations and ensuring that LLMs reflect local contexts and regional representations rather than relying exclusively on universalized global models.

Concerns about job displacement and power concentration were evident across genders and both countries. Participants warned that dominance by a small number of companies threatens economic and labor rights, with some arguing that unrestricted use of AI may “kill innovation” by favoring repetition over creativity. Representational risks were also emphasized: if women remain underrepresented among GenAI users, systems will be trained on datasets that insufficiently capture their needs, further widening gender disparities in adoption and economic opportunity (Otis et al., 2024). Several participants framed AI strategically not as an end in itself, but as a means, emphasizing the “orchestration” of AI through inclusive design choices from the outset. This perspective aligns with Varon and Peña’s (2022) call for critical reflection prior to system development, asking: “Why build it?”; “Is it really needed?”; “On whose request?”; “Who profits?”; “Who loses?”; and whether a system may oppress specific groups or should be developed at all.

Participants generally reported limited awareness of AI systems explicitly designed to promote diversity and inclusion, suggesting that implementation in this domain remains incipient. Women in both countries expressed cautious optimism, while some men, particularly Portuguese participants, were more skeptical, viewing AI as technically promising but insufficient to address cultural or structural inequalities. One Portuguese developer summarized this limitation: “I sincerely don’t believe that AI will solve these problems, because society’s problems are not caused by algorithms or machines, they are human problems.” Others highlighted AI’s potential as a democratizing tool, capable of expanding access to knowledge and supporting minority career development when intentionally designed for equity.

Examples cited included accessibility tools (such as real-time translation, support for people with visual or hearing disabilities, and personalized learning for neurodivergent individuals) and performance equalization within organizations, as GenAI can flatten learning curves and enable less-experienced workers to deliver results more quickly. Another proposed application positioned GenAI as a sensitization and support tool, using chatbots or intelligent agents to promote gender-neutral language, inclusive behaviors, and awareness of reporting channels, contributing to psychological safety in the workplace.

Overall, the findings indicate that AI’s future role in advancing gender equity depends less on technological sophistication than on intentional design grounded in ethics, diversity, and social responsibility. While participants acknowledged AI’s potential to expand access, reduce bias in specific processes, and democratize opportunities, they emphasized that technology alone cannot address structural inequalities. Achieving this requires robust regulation, multidisciplinary and diverse teams, and systems designed to recognize context, validate embodied knowledge, and make invisible labor visible.

5. Conclusions

This study addresses the research question, “Why is GenAI a Feminist Design matter?”, by demonstrating that GenAI is a sociotechnical artifact that codifies and amplifies structural power dynamics, translating pre-existing inequalities into technical and economic outcomes. The findings confirm that AI is never neutral: it mirrors and magnifies patriarchy, racism, and colonial legacies through homogeneous teams and market logics that automate inequality. This reinforces the need to view AI not merely as a tool for corporate efficiency, but as a critical domain of social justice.

The research reveals both opportunities and critical gaps, highlighting two key tensions central to the feminist critique. First, regarding gender and minority perception: While women and marginalized groups express cautious optimism about AI's potential to D&I proposes, they are simultaneously the most exposed to its structural harms, including job displacement and the reinforcement of harmful cultural stereotypes. In contrast, male perspectives tend to emphasize functional augmentation and efficiency, often expressing skepticism about AI's capacity to generate big cultural change. Across groups, awareness of AI tools explicitly designed to support diversity and inclusion remains limited. Second, regarding national contexts: Differences between Brazil and Portugal illustrate how local culture influences the adoption. Brazil exhibits greater visibility of gender and minority representation and a faster pace of adoption, both of which are frequently linked to product-oriented innovation strategies. Portugal, by contrast, adopts a more incremental approach, prioritizing institutional compliance and corporate efficiency. These differences suggest that the core "design issue" underlying AI's ethical failures, its lack of contextual sensitivity, is rooted in the absence of pluriversal representation in both development teams and regional datasets.

The findings demand a repositioning of GenAI: it is not an autonomous solution but a sociotechnical artifact whose impact is dictated by the ethical and political commitments of its creators and governors. By examining Brazil and Portugal, this study highlights a North-South perspective in which shared colonial histories intersect with asymmetric positions in global innovation, revealing how GenAI is governed under distinct cultural and institutional conditions. Interview-based strategies emphasize AI as an assistant—never a substitute—requiring continuous validation and responsible data handling to mitigate risks of diminished autonomy and the reproduction of hierarchies. Ultimately, articulating feminist perspectives with design transcends the mere inclusion of gender; it necessitates a radical re-evaluation of the power relations embedded in technological ontologies. Future research should apply feminist design principles to collective practices, co-creating GenAI solutions for community needs and informing policies that ensure justice within innovation ecosystems. By confronting coded systems of privilege, feminist design paves the way for technologies grounded in reciprocity, reparation, and pluriversal justice.

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Compassion, Volunteering, and Charitable Giving in Wartime Ukraine: A Gender Analysis

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Abstract: The Russian invasion of Ukraine has created suffering and destruction, but also catalyzed displays of compassion among civilians. In 2023, Ukraine was reported to have a record high annual growth in charitable activities and was ranked second globally according to the World Giving Index. This study focuses on the gender differences in compassion for those affected by war and the association between compassion, volunteering, and charitable giving in Ukraine after the beginning of the Russia-Ukraine War. The study used a cross-sectional design and employed an online survey method, conducted between September and October 2023. A total of 170 respondents took part in the study; the age range was 18 to 69 years, and the majority were female (72.9%). Participants completed measures of volunteering, charitable giving, compassion for war-affected individuals, and the standardized compassion for others (SCBCS) questionnaire. Statistical analyses included descriptive statistics, Spearman's correlations, and Mann-Whitney U tests. Women reported higher levels of compassion for others ($p = .002$, $r_s = -.24$) and for those who were affected by war than men ($p = .008$, $r_s = -.20$). No significant gender differences were found between those who participated in volunteering activities and charitable giving. Among those who volunteered, both women ($Md = 5$) and men ($Md = 5$) reported a similar amount of monthly volunteering time ($p = .673$). Compassion for others but not compassion for war-affected individuals was significantly associated with the amount of volunteering hours ($r_s = .23$). The findings suggest that despite the differences in compassion levels between genders in wartime Ukraine, both men and women display similar involvement in volunteering activities and charitable giving. Compassion for others may play an important role in civic engagement.

Keywords: Volunteering, Gender, Charitable giving, Compassion

1. Introduction

Wars bring destruction, disruption of livelihoods, and psychological scars. War atrocities and violence towards innocent citizens represent some of the worst human traits, like anger, cruelty, and revenge. On the other hand, such extreme circumstances also become a stage for the display of the most noble human qualities like compassion, selflessness, and love. The Russian full-scale invasion of Ukraine has brought pain and suffering for millions of citizens, many of whom were stricken by grief, desperation, harbored anger, and desire for revenge. At the same time, in many hearts of those affected by the war arose compassion and desire to help, which led to an unprecedented volunteering and charitable movement. For example, 86% of Ukrainian residents reported engaging in charitable giving in 2022, which was 19% more than in 2021 and 26% more than in 2019 (Zagoriy Foundation, 2022). Later in 2023, Ukraine was reported to have a record high annual growth in charitable activities, with 37% of Ukrainian adults reporting participation in volunteer activities (Charities Aid Foundation, 2023). Since then, Ukraine has been steadily ranked one of the ten most charitable countries in the world (Charities Aid Foundation, 2024).

Volunteering in Ukraine spread beyond registered NGOs and included informal networks and community initiatives (Zarembo and Martin, 2024). Many mobilized volunteers had no previous experience of civic or political participation (Stepaniuk, 2022). Such initiatives were found to be driven by mutual support and a sense of responsibility toward community well-being (Zarembo and Martin, 2024). Helping behaviour in Ukraine was also motivated by personal connection and social justice, although, for many civilians, it has also become a form of resistance (Boichak and McKernan, 2024). Furthermore, interviews have shown that Ukrainian wartime volunteering has resulted in social transformation and brought new meanings to the societal notions of solidarity and belonging (Boichak and McKernan, 2024). The research conducted among volunteers during the military operation in Israel also found that for both genders, the main motive for volunteering was social solidarity (Kulik, Bar and Dolev, 2016).

Empirical research also supports the role of empathy or compassion-related motivation in prolonged intentions to give one's efforts and time (Nowakowska, Rajchert and Jasielska, 2024). Sprecher and Fehr (2005, p. 630) define compassion as an attitude towards close others or strangers that contains feelings, cognitions, and

behaviors that are focused on caring, concern, and an orientation toward supporting and helping those suffering or in need. Based on the expansion of compassion, scholars distinguish between compassion towards family or close ones, which is commonly experienced, and compassion towards all humanity and strangers, which is less prevalent but can be developed (Ekman and Ekman, 2017; Ash *et al.*, 2021). Furthermore, compassion at an even broader scale might extend to those perceived as enemies or to individuals who have conducted cruel actions against a subject. Such compassion does not exclude the legal responsibility of the felon, or one's right to defend against such actions. Even a soldier may feel compassion towards the opponent while carrying out his/her duties on the battlefield. Such compassion heals hatred and sincerely wishes for the welfare of the world and the elimination of ignorance in the minds of those who cause harm.

At the same time, both prosocial behaviour and compassion have a considerable gender component. International research indicates that women tend to report higher levels of compassion-related constructs like empathic concern and caring values than men (Einolf, 2011; Mesch *et al.*, 2011). Research conducted in the US found that men had lower willingness to donate money or volunteer time to a poverty relief organization, which in turn was mediated by lower levels of empathy toward others in men (Willer, Wimer and Owens, 2015). Women were also found to support a wider range of charitable sectors than men, particularly animal welfare, education, and elderly support (Piper and Schnepf, 2008; De Wit and Bekkers, 2016). However, findings on gender differences in charitable giving are mixed. For example, in the US and UK, men reported giving less than women (Piper and Schnepf, 2008; Willer, Wimer and Owens, 2015), while in the Netherlands, males were found to donate higher amounts than females (De Wit and Bekkers, 2016). Meanwhile, other studies have found that gender differences in the rates of volunteering and donations were often small and inconsistent, although there were evident differences in motivation and financial resources between women and men (Einolf, 2011; Krause and Rainville, 2018). A study conducted among employees in Korea found that cognitive empathy was a strong predictor of volunteering among men, whereas affective empathy was a stronger predictor of volunteering among women (Chung, Im and Kim, 2021).

Research conducted in Ukraine since the invasion has also found various gender patterns in prosocial activity. Before 2022, women were more engaged in charity, but since then, men have increased their participation and now engage in volunteering on a par with women (Zagoriy Foundation, 2022). Women were found to donate more regularly and support a wider range of projects, while men donated larger amounts of funds (Zagoriy Foundation, 2022, 2025). Men and women in Ukraine were also inclined to different types of activities. For example, men engaged more in military aid, physical and cyber volunteering, while women were more likely than men to engage in information volunteering, organizing charity events, and helping hospitals and schools (Zagoriy Foundation, 2022).

The qualitative study conducted among Ukrainian civilian volunteers after the initial stages of armed conflict in 2015 has reported that witnessing the vulnerability of those who lost their homes and possessions elicited empathy and compassion (Stepaniuk, 2022). Furthermore, some female war volunteers even perceived combatants and internally displaced individuals as their own children, symbolizing the experiences of motherhood directed towards individuals in need (Stepaniuk, 2022). Women volunteers also reported higher emotional involvement and greater empathic engagement than men in the Israeli military context (Kulik *et al.*, 2016). Despite the growing descriptive research on volunteering in Ukraine, several gaps remain. First, limited research analyzed the relation between compassion and prosocial activity during an ongoing war. Second, while gender differences in volunteering are depicted in the literature, few quantitative studies viewed these differences through the lens of compassion in relation to actual helping behaviour. This study also distinguishes between general compassion for others and compassion specifically directed toward individuals affected by war.

1.1 Hypotheses

Based on the literature review and prosocial behaviour research conducted in wartime Ukraine since 2014, we formulated the following hypotheses:

Ukrainian women will report significantly higher levels of compassion than men during the ongoing Russia-Ukraine War.

There will be no significant gender difference in volunteering and charitable giving in Ukraine during the ongoing war.

Higher levels of compassion will be positively associated with monthly volunteering hours in Ukraine during the war.

2. Method

2.1 Procedure

The study used a cross-sectional design and employed an online survey method, conducted between September and October 2023. A survey link was distributed via social media (e.g., Facebook, Instagram, Telegram). Inclusion criteria were Ukrainian citizenship, age 18 or above, and the ability to access the online survey. Prior to the questionnaire, participants read the Informed Consent that described study procedures and purpose, risks, benefits, data protection, etc. Participants further expressed their willingness to participate or not, confirmed their understanding of the informed consent, and confirmed their age being 18 or older. The study's ethical approval was granted by the Institutional Review Board.

2.2 Participants

A total of 174 participants responded to a questionnaire, of whom 170 provided informed consent and constituted a final sample. The majority of participants were female (72.9%), with no one selecting the "other" gender option. Participants' age range was 18 to 69, with a sample average of 37.14 years ($SD = 9.2$). Almost all participants had a higher education degree (93.5%), lived in urban areas (90.6%), and 55.5% of individuals reported living with a partner.

3. Measures

Compassion for others was measured by the Santa Clara Brief Compassion Scale (SCBCS) (Hwang, Plante and Lackey, 2008). The SCBCS consists of 5 items (e.g., "I tend to feel compassion for people, even though I do not know them.") and uses a 7-point Likert scale (from "not at all" to "very true of me"). The SCBCS has previously been used in countries culturally similar to Ukraine, for example, in the Czech Republic (Novak *et al.*, 2021) and demonstrated good reliability. The Cronbach's alpha coefficient in our study was .82. The scale was translated into Ukrainian and reverse-translated into English to ensure translation accuracy. Two translators holding degrees in linguistics have verified the translation.

Compassion for those affected by the Russia-Ukraine War was assessed based on four items, each describing possible cases of people affected by war (e.g., "How compassionate do you feel towards a Ukrainian who lost someone close due to war events"). Participants used a 4-point Likert scale (from "not at all" to "very much") to indicate how compassionate they felt towards each of the cases. Higher scores indicated greater compassion for those affected by war.

Volunteering involvement was measured by the average number of hours spent volunteering each month (those who did not engage in volunteering were asked to indicate "0"). Participants also reported if the average amount of time they spend volunteering per month had changed since the full-scale war in Ukraine, with answer options being "decreased", "remained the same", "increased", "I do not engage in volunteering activities". Participants also indicated how the average amount of monthly donated funds or goods has changed compared to before and after the 2022 full-scale invasion, with answer options being "decreased", "remained the same", "increased", "I do not donate goods or funds".

4. Statistical Analysis

We used descriptive statistics to report sample demographic characteristics and changes in prosocial behaviour. The Mann-Whitney U was utilized to compare compassion scores, hours of volunteering, income, and participation in charitable giving between two groups. We used Spearman's rank-order correlation to examine bivariate relationships between compassion scores and the amount of volunteering hours. An a priori analysis calculated a sample size of at least 138 respondents for a two-tailed correlation with .80 power, and a $r_s = .30$ medium effect size. The statistical significance was set at $p < .05$ for all analyses. Statistical analyses were conducted using IBM SPSS Statistics, Version 28.0.

5. Results

5.1 Demographic Characteristics and Gender

The two gender groups had homogeneous age distribution, with men reporting a mean age of 36.07 ($SD = 1.26$) and females 37.54 ($SD = .85$). Both genders predominantly had similar education levels (91.3% of men and 94.4% of women had higher education), relationship status (71.7% of men and 66.9% of women were in a relationship), and resided in urban areas (89.1% of men and 91.1% of women). Household income, on the other hand, was

significantly higher ($p = .035$) in the male group compared to females. The gender distribution across income groups is presented in Table 1.

Table 1: Household income levels across genders

Income level	Male	Female
Low (below 20 000 UAH)	19.6%	29.8%
Medium (20 to 50 000 UAH)	32.6%	40.3%
High (above 50 000 UAH)	47.8%	29.8%

5.2 Compassion

Women scored significantly higher on compassion for others than men ($p = .002$, $r_s = -.24$). Similarly, women reported significantly higher compassion for Ukrainians affected by war than men ($p = .008$, $r_s = -.20$). The gender difference was observed both in total war-related compassion score and each of the four specific cases (loss of close one, injury due to war, home damage and job loss). In contrast, no significant gender difference was found in compassion for Russians affected by the war ($p = .481$), both in total score and each of the four items (loss of a close one, someone close injured due to war, job loss, and being forced to leave Russia). The gender distribution of war-related compassion responses is presented in Table 2.

Table 2: Gender difference in compassion felt towards Ukrainians and Russians affected by the war

	not at all		a little		more than a little		very much	
	M	F	M	F	M	F	M	F
Compassion for a Ukrainian who(se):								
Lost someone close due to war	.0%	.0%	13%	6.5%	21.7%	10.5%	65.2%	83.1%
Was injured due to war	.0%	.0%	10.9%	3.2%	26.1%	13.7%	63.0%	83.1%
Home was damaged due to war	.0%	.0%	15.2%	4.8%	21.7%	20.2%	63.0%	75.0%
Lost his/her job due to war	8.7%	1.6%	30.4%	19.4%	32.6%	33.1%	28.3%	46.0%
Compassion for a Russian who(se):								
Lost someone close due to war	73.9%	70.2%	17.4%	17.7%	2.2%	4.0%	6.5%	8.1%
Someone close was injured due to war	80.4%	88.7%	10.9%	7.3%	8.7%	2.4%	.0%	1.6%
Lost his/her job due to war	87.0%	95.2%	8.7%	2.4%	4.3%	1.6%	.0%	.8%
Had to leave Russian due to war	82.6%	74.2%	13.0%	19.4%	4.3%	4.8%	.0%	1.6%
M = male, F = female								

5.3 Volunteering

Overall, 47.6% of respondents reported engaging in regular volunteering. The percentage of volunteering women (50.8%) was higher than that of men (39.1%), although this difference was not statistically significant ($p = .177$). Almost all participants (95.7% males and 94.4% females) reported conducting charitable giving since the onset of full-scale invasion. Regarding the changes in volunteering intensity since the beginning of 2022, 30.4% of males and 25.8% of females reported an increase in hours of volunteering, while 8.7% of males and 16.1% of females reported a decrease. Meanwhile, 58.1% of women and 54.3% of men reported an increase in the average charitable giving amount, while 22.6% of women and 17.4% of men reported a decrease. There was no significant gender difference in hours of volunteering either in the total sample ($p = .216$) or among those who engaged in volunteering ($p = .673$, $Md = 5$ hours/month for both women and men). The amount of monthly volunteering hours correlated with compassion for others ($r_s = .23$) and age ($r_s = .24$), but did not have a significant relation with compassion for Ukrainians affected by the war ($r_s = -.04$).

6. Discussion

In the context of the ongoing war, women reported higher levels of general compassion towards others than men. These findings were consistent with prior literature conducted in peaceful environments (Einolf, 2011; Mesch *et al.*, 2011; De Wit and Bekkers, 2016). Women also reported greater war-specific compassion for Ukrainians affected by war than men. These findings reconfirm that women may have a stronger compassion motivation factor regarding prosocial activities. On the other hand, no gender differences emerged in compassion for Russians affected by war. Low scores in this variable are understandable, as finding compassion for the citizens of the attacking country is a rare possibility for only a few people. Perceiving the suffering of others, which is a component of compassion, in this case, may be influenced by belonging to another group. While gender differences were prominent in compassion for those in the same group, these differences were absent in compassion for those in the out-group.

Despite the differences in compassion, we found no significant difference in levels of volunteering and charitable giving between women and men, although a higher percentage of women participated in volunteering than men. A substantial part of the sample reported an increase in the amount of monthly volunteering. Such an increase, especially in men's involvement, may be explained by viewing volunteering as a form of resistance (Boichak and McKernan, 2024). For example, research conducted in the US has shown that when poverty was framed as a problem that negatively affects the entire nation, men were willing to donate more towards poverty relief efforts (Willer, Wimer and Owens, 2015). This shows that rather than compassion, men are more likely to be driven by the interests of the country. Another explanation for the equal prosocial engagement of men and women might be men's higher income, which balances women's stronger prosocial motivation (Einolf, 2011).

Another dimension of this research addressed compassion in action. The general compassion for others was found to be associated with the hours of volunteering, while compassion for those affected by war in Ukraine was not. This distinction suggests that prolonged pro-social engagement is related to the general compassion trait, rather than context-specific compassion. Data suggests that compassion felt for Ukrainians might not translate into action as much as compassionate love for others, measured by the standardized scale. Our data also confirms that those with higher education engaged in volunteering more. To compare, the Charities Air Foundation report shows that 37% of Ukrainian adults participate in volunteer activities (2023), while this study sample, which constitutes predominantly those with higher education, reports 47.6%.

7. Limitations

The overrepresentation of participants with higher education degrees limits the generalizability of the study. When measuring the charitable giving activity, we have not captured the actual financial amount or equivalent of donated funds or goods, which may be studied in future research. The cross-sectional nature of the study does not allow for causal inferences regarding the relationship between compassion and the amount of volunteering. Finally, the self-report nature of the measurement suggests that there might be instances of social desirability influencing participants' responses, as prosocial activity is considered valued and respected. Future research should aim for more representative samples, enabling gender analysis at young, midlife, and senior age stages (Kulik, 2017). Another avenue for future research is the inclusion of variables such as cognitive and affective empathy, self-compassion, and compassion received from others. Self-report measures may be complemented by data triangulation, such as verified volunteering hours and peer reports, to ensure scientific rigor.

8. Conclusion

This paper addresses an inspiring topic of compassion, giving, and sharing, even in a hostile environment. Despite the difference in the level of compassion and financial resources, both women and men in Ukraine participate in volunteering and charitable giving at similar levels. This work shows how two genders come together in an attempt to contribute to society and help those in need. General compassion for others was related to hours of volunteering, unlike the compassion for Ukrainians affected by war, pointing to the role of a long-lasting compassion trait in prosocial behaviour.

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Ethics Declaration. All procedures and materials in the current study were approved by the authors' Institutional Ethics Committee (number IEC_SSBS_AL-CWEGE-AVV_059) and were in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

AI Declaration. No artificial intelligence tools were used in this research work. All ideas, interpretations, content, and conclusions are the work of the authors.

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‘I Don't Want Someone to Speak on my Behalf’, Co-designing Relationship Education Resources with Pupils in Special Educational Needs Schools

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Abstract: This paper draws on the authors' experience of working with special educational needs and disabilities (SEND) school pupils on a research project about domestic abuse and healthy relationships. The focus is on work with pupils in four SEND schools. Disabled women in the UK are more than twice as likely to experience domestic abuse compared to women who are not disabled. The abuse they face usually lasts for a longer period and with greater severity. Research shows that school staff are often reluctant to talk with disabled young people about relationship education and relationship abuse. This means pupils' views and opinions often go unheard and undervalued. Pupils with SEND needs can be particularly vulnerable to abusive relationships, so a focus on friendships and healthy relationships and how this impacts on emotional wellbeing is important in teaching relationship and sex education (RSE). Teaching RSE became compulsory in UK schools in 2020. The paper considers how creative methodologies can be used in the classroom to listen to and respect the voices of pupils and to ensure that their participation is integral to research. It explores how creative research methods can be adapted to diverse participants, including those with SEND requirements, in particular, pupils with visually and sensory impairments, to enable the creation of a co-designed resource on relationship education. There is increasing recognition of the need for a whole school approach to prevent gender-based violence, and the need to equip school staff to feel more confident teaching relationship education to SEND pupils. However, there is little research on how effective current resources are for pupils with disabilities. This paper demonstrates the importance of co-designed resources tailored specifically for use by pupils with disabilities to learn about domestic abuse and healthy relationships.

Keywords: Special educational needs, Domestic abuse, Creative methods, Relationship education

1. Introduction

The UK education system is structured into five key stages within the National Curriculum, with higher education typically beginning at age 18 and above. Education is compulsory until the age of 16, with mandatory participation in education or training continuing until age 18. Mainstream education provides standard provision for the majority of pupils, while alternative provision is available for those with special educational needs and disabilities (SEND). These settings are commonly referred to as SEND schools. In the UK, disability is defined as a physical or mental impairment that has a substantial and long-term adverse effect on an individual's ability to carry out normal day-to-day activities. According to Zylbersztejn and Lewis et al (2023) a third of all children in the UK have are recorded as having special education needs provision during their school life.

Porter, the lead researcher (LR) is both an academic and an artist who using creative participatory methods in her research (Porter & Standing 2025). The power between child participants and adult researchers is key to positive outcomes not only for the researchers but to the learning outcomes for the child (Davidson 2017). With pupil outcomes key to this research project the LR delivered a relationship education research project in secondary schools (pupils aged 11-19) in the Greater Merseyside area of the UK between 2012-2020. The project delivered relationship education workshops in 24 schools, four of which were SEND schools. Ethical approval was through Liverpool John Moores University (LJMU). Informed consent for the participant was sought from each school's principal in loco parentis, however pupils had the right not to participate in the project and could leave the project at any point.

During the eight years of the project the research team delivered the programme workshops 34 times. The programme was delivered more than once in six schools to different academic year groups and different years of delivery during the course of the eight years of the project, including 4 SEND schools (Table 1). The project was delivered to SEND pupils in mainstream schools, however the data for this cannot be extracted for the purpose of this paper. The workshops consisted of 10 hours of relationship education delivered to school pupils by the Lead author supported by undergraduate students from her institution and a member of school staff. Workshops were either delivered over a two-day period or weekly over 10 weeks. In total 912 pupils participated directly in the workshops, with these pupils delivering a school assembly to their year group about relationship education. 3,293 pupils in total attended the assemblies. 559 school staff received training on healthy relationship. The project was initially funded by the Tender and took a gendered approach to relationship

education. The project was designed to be taught in mainstream schools but during the early stages of the project it became apparent that provision for SEND pupils had not been considered. Funding was secured to enable expansion of the project scope from Children in Need, a UK based charity.

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
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

Reference: Porter & Standing 2025

This paper presents the findings of working with the four SEND schools between 2013-2019: one of the schools received the project twice (school T, table 2). Pupils ranged in age from 13-19 and were all attending mixed sex schools: three of the schools were state SEND schools and one was a Roman Catholic mixed sex SEND school. The school's included a specialised community special needs school, a specialist school for sensory impairment and other needs, a school for complex learning difficulties and autism spectrum disorder (ASD) and a school for pupils with moderate to complex SEND, including autism and learning difficulties. 106 pupils in SEND schools received the relationship education project, with the same pupils observing each other in peer led assemblies on relationship education. For the purposes of this paper, pupils' gender cannot be disaggregated within the dataset. However, it is estimated that, of the 106 participants, there was an approximately equal distribution of male and female pupils. While this limits detailed gender-based analysis, it remains important to acknowledge gender as a key factor shaping young people's experiences and understandings. The total number of school staff trained on relationship education in SEND schools was 127. The pupils' artworks were used within the school staff training to share the learning experiences of the school pupils (Figures 1).

Table 2: SEND Schools type and delivery

School	Gender	Pupils Age	Type of School	Times Visited	Year of Delivery	Number of Pupils	Number in Assembly	Staff Trained	Parent Attended Staff Training
D	Mixed	13-14	SEND	1	2013	12	12	9	0
T	Mixed	13-19	Catholic SEND	2	2015 2019	57	57	30	1
W	Mixed	14-15	SEND	1	2019	26	26	11	0
X	Mixed	13-15	SEND	1	2019	11	11	77	0

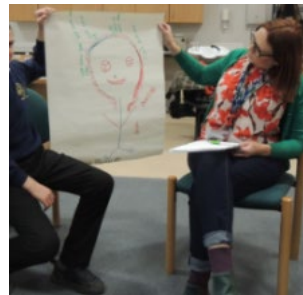


Figure 1: Pupil sharing and discussing their artwork to their peers school X, 2019, image ©Porter

This paper aims to share the findings from use of creative methods as an effective tool to engage pupils in SEND schools with relationship education. It will also justify the need to develop co-designed resources tailored for use by SEND pupils in both SEND school and mainstream schools as a vital asset for pupils to learn about domestic abuse and healthy relationships (Porter & Standing 2024) (Figure 2 and 3).



Figure 2: Pupil using braille to read co-designed scripts on a healthy relationship School T, 2015, image ©Porter

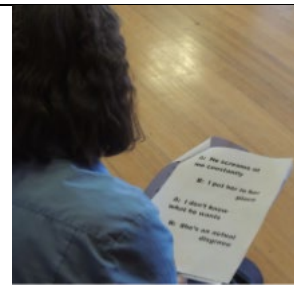


Figure 3: Pupil using large print to read co-designed scripts on a healthy relationship School T, 2015, image ©Porter

2. Background to the UK Policy of Relationship Education

The UK definition of Domestic Abuse (DA) was amended in 2013 to include young people aged 16 and 17. DA is defined as 'Any incident or pattern of incidents of controlling, coercive or threatening behaviour, violence or abuse between those aged 16 or over who are or have been intimate partners or family members regardless of gender or sexuality. This can encompass, but is not limited to, the following types of abuse: psychological, physical, sexual, financial and emotional (GOV.UK, 2013). This amendment to include young people age 16 and 17 meant young people of this age could be legally recognised as being involved in DA incidents whereas previously they had not. Additionally, the offence of 'controlling or coercive behaviour' was introduced under the Serious Crime Act 2015 (Bishop & Bettinson, 2018). Legislation under the UK government in 2012 also brought changes to definitions of the criminal offences of DA crimes.

Globally, 1 in 3 women worldwide will experience intimate partner violence in their lives either physical and or sexual intimate partner violence (WHO 2024). 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). Relationship and Sex Education (RSE) became compulsory in all UK primary and secondary schools in September 2020. It is considered 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 in school training for school staff to teach RSE. However, little research exists on how effective the resources are for pupils with disabilities. Feminist disability theory (Garland-Thomson, 2005, Mays, 2006), integrates analysis of gendered violence, and the social model of disability and underpinned our work SEND schools, exploring how relationship education can be effective and accessible to all. Previous research (Stanley et al 2015) has identified a need for interventions for children with disabilities, and we attempt to address some of these issues in this paper

3. Domestic Abuse and People with Disabilities

Disabled people experience much higher rates of DA than non-disabled people. Disabled women are two times more likely to experience abuse than non-disabled women (Safe Lives 2019). Research by The Office of National Statistics quote 1 in 7 (14.1%) of disabled adults age 16-59 experience DA in the years ending 2019 compared with 1 in 20 (4.4%) of non-disabled adults. (ONS 2019). According to Public Health England disabled people are significantly more likely to be sexually assaulted by intimate partners or strangers and experience physical, sexual, emotional and financial domestic abuse than people without disabilities (Public Health England 2015). Young people ages 12-19 with disabilities report violence more than twice the rates of those without a disability (Rand and Harrell 2009). Online abuse, such as sexting is a key issue for young people, with girls experiencing sexualized technology abuse at a higher rate than boys: 16% of girls compared with 6% of boys (ONS 2021). Despite these high numbers, only 33% of teenagers involved in a violent or abusive relationship talk to someone about it (Barter et al 2009). There is little research about disability and GBV despite the high statistics and its known prevalence (MacIntyre & Stewart 2022). This gap in the literature is a failure of researchers and advocates rather than children and young people with disabilities to meaningfully contribute and communicate about their experiences (Robinson et al, 2013), and SEND schools often miss out on opportunities for external visitors/trainers. Research shows that often adults (including teachers, researchers, practitioners, and policymakers) are reluctant to talk with young people with disabilities about RSE and relationship abuse (Robinson et al 2023.) This means their views and opinions often go unheard and undervalued (Robinson & Graham, 2020; Moore et al., 2020).

4. ‘I Don’t Want Someone to Speak on my Behalf’: Participatory Arts Based Methods

Using creative methods and action-based research (ABR) in SEND schools the LR aimed to maximise her outputs for maximum reach and inclusivity for all pupils. (Porter & Standing 2023). ABR is collaborative, inclusive, interdisciplinary and engaging (Finley 2008, 71). Evidence shows that a variety of creative methods are an effective tool in DA intervention and prevention (Hester and Lilley, 2014; Sander-McDonagh et al., 2016, Stanley et al. 2015). The arts-based methods used within the project consisted of drawing, poster making, poetry and rap writing, singing and role play. These varying methods were all piloted in each school prior to the delivery of the project and were adapted to suit not only the schools' needs, but their pupils' needs too. The focus of delivery for the research project was on healthy and unhealthy relationships and aimed at reducing teenage intimate relationship abuse. The project was proactive in that it was in part co-designed by the pupils and delivered to their peers in schools.

The research team co-designed resources with pupils, supported by school staff, to ensure full inclusion and to meet the varied access needs of all pupils. It was vital that the voice of the pupils could be heard in both the research design and workshop delivery. Co-design research is an increasingly popular methodological approach, with the primary intention to include relevant stakeholders meaningfully in design and implementation so that research processes and outcomes are relevant, valuable, and acceptable to those who engage with them (Moll et al., 2020). Co-design approaches can improve the capacity of systems and services to meet diverse needs through partnership(s) with people typically marginalised and excluded, such as SEND pupils (Robinson et al 2023).

Pupils were central in the design of script writing relationship scenes (table 3). The co-development of scripts for pupils with visual impairment was particularly significant not only in the designing of the scripts but also because the scripts could be used as a research tool in itself (Porter & Standing, 2020). Pupils, working alongside the researchers to co-design materials, felt an incredible sense of ownership whilst it was invaluable as a way for school staff to understand the sensitivities amongst pupils about teenage intimate partner relationships. As Davidson (2017) would argue, honesty, inclusivity and, importantly, the humour that can come from this approach to research was powerful.

Table 3: Scene D: Visual Impairment Scene

Person A: hey please could you come and help me make a cup of tea because I don't know where everything is in your kitchen
 Person B: no, I'm busy
 Person A: well, if you change your mind let me know
 Person B: just have some water or something instead
 Person A: well, I just wanted a cup of tea but never mind sorry for bothering you
 Person B: stop going on about it you are boring me now
 Person A: *starts to cry* I wish you weren't so horrible to me all the time, like I always help you I wish you would help me as well
 Person B: oh, give over crying all the time it's so annoying I was only joking chill out
 Person A: you always say you're joking, but you don't understand how much you upset me
 Person B: I didn't even say anything bad anyway I don't know what you're talking about so just chill out you're overreacting like you always do it's only a cup of tea

The research team valued the pupils' insight and supported them to engage fully with the project. Pupils began peer on peer support, encouraging each other not only to write the scripts but to act them out as well in the form of role playing. The performative element of this project offered pupils the use of drama, music, song, rap and role play: these methods gave the pupils the opportunity in some cases to act out lived relationship experiences. The knowledge the pupils gained while attending the project workshops was not only shared in formal assemblies but lived on through the school corridors with pupils sharing what they had learnt with peers in breaks between lessons. *'I don't want someone to speak on my behalf'* are the words of a 15-year-old female pupil with a visual impairment after she had learnt about relationship education. She wanted to be her own advocate; she had knowledge she wanted to use to make decisions about her relationships going forward. The methods in this research project identified to enable pupils to learn about relationships and relationship abuse also proved an effective tool for the research team to understand what existing knowledge pupils had (Porter & Standing, 2023).

Teaching notes were developed as prompts for workshops to support the co-developed scripts not only with the research team but also for use by school staff after the life of the project (table 4). These were a guide for pupils to reflect on the scenarios they had written yet they began to offer some explanation as to how their lived experience may have been different if they had questioned those relationships earlier on. This led to conversations about early warning signs in unhealthy relationships. The pupils used the scripts to question each other about what they considered was healthy or unhealthy. Supported by the research team pupils were able to identify what was considered controlling behaviour in a relationship.

Table 4: Scene D Visual Impairment Scene, Teaching Notes

What's happening in this scene?
 • Is this normal in a relationship?
 • What are the early warning signs of an unhealthy relationship in this scene?
 • Who has the power in this scene?
 Exercises:
 • Change the scene so that person B is being kind: how does this change how this scene feels?
 • Change the scene with person A telling person B about how they feel about the way they are being treated.
 • Discuss if should person A leave this relationship if person B does not change.
 Early warning signs present in the scene: Minimising and Denying:
 • Making light of the abuse and not taking concerns about it seriously.
 • Isolation.
 • Controlling what another does by limiting their independence as they are unable to have a cup of tea without assistance.
 • Emotional abuse.
 • Making person A feel bad about themselves.
 • Putting them down

To ensure full accessibility to the project for all pupils the research team worked with school staff to develop a variety of accessible tools. One of these, the Pod book, a visual book specifically designed for each pupil's needs, was essential in one school for a non-verbal pupil (figure 4). The pupil in question worked alongside their peers who used spoken language to communicate as well as drawings (figures 5 & 6).

	
Figure 4: Using a Pod Book with a pupil to discuss healthy and unhealthy relationships drawing School W, 2019 Image ©Porter	Figure 5: Pupil drawing unhealthy relationships School W, 2019, image ©Porter



Figure 6: Pupil discussing their unhealthy relationships drawing School W, 2019, image ©Porter

'I love him I love him I love her' are the words written in a poem about an unhealthy relationship by a female pupil age 14 in one of the mainstream schools. The poem became central to reading in all the participant schools: it became the poem that spoke loudly to the pupils. A short film was made about the project, and these words became the title of the film. 'Creativity' is defined as working within certain boundaries while, at the same time, somehow changing them (Jones, 2017). The curious nature of the LR enabled the boundaries of creativity to be tested with methods of engagement adapted by the research team not only to increase knowledge of the pupils but to add simple fun to what is a sensitive subject of domestic abuse and GBV. *'I've heard the pupils talking about the project and what's been happening it's lovely to hear talk going on and the pupils looking forward to it next time so that for me is impact ...what I've liked about it is that there is some strong academic underpinning in how it's been delivered,'* (SEND school principal 2016).

5. Ethical Considerations

As the project progressed the LR amassed a vast amount of creative data that had not originally been intended. This included drawings, posters, poems and raps all created by the pupils. Pupils were given the choice to keep their artwork or offer it to the research team as part of their data collection. This data gave the LR an opportunity to negotiate with the school staff about the ethics of creativity. The project was initially for mainstream pupils in mainstream schools, so the research teams had to apply for an amendment to their ethics application to deliver to pupils with an upper age limit of 19. Head teachers provided consent in loco parentis for their pupils; however, all pupils had the right to attend and or leave the project at any point. A staff member was present during all the workshops given the sensitive nature of the workshop content, DA and unhealthy relationships. In all the SEND school additional staff members were required to support the learning needs of their pupils. Some SEND school staff were reluctant for us to work with their school because of the physical and emotional needs of pupils. The research team took their time establishing relationships of trust not only with the pupils but also with school staff. We met numerous times with school staff and delivered a staff training session on relationship education. Staff were able to see the value of the research project not only for the pupils but also for themselves.

Informed consent from all participants, schools and partners had been obtained by the research team prior to the project. However, consent is not a one-off thing (Scherer 2016), but a process of constant negotiation and

renegotiation between partners. Researchers can rarely predict what the full outcomes of participation will be, especially in ABR, and consent in qualitative research is negotiated and processual. We had to re visit issues of ethics throughout the project, and respect for participants' competency, agency and resistance in the research process was key (Miller & Ben 2002).

It was vital that the voice of the pupil was not only heard but also respected in the data produced. This advocacy of pupils' knowledge exchange was the strength of the project: it enabled school staff to appreciate and understand that pupils do have an opinion and know how best to share their knowledge with their peers. The LR's belief and high expectations of her pupils was the key to enabling school staff to fully engage with the project (Porter 2025). According to the GOV.UK Families and Children's Act (2014), professionals who elicit the voice of children and young people with SEND requirement have a commitment to ensure a person-centred approach.

6. Conclusion: Generating a Positive Change with Young People as a Researchers

Although the funding sources of the project limited it to a narrow geographical region: Greater Merseyside UK the project shed a light on the importance of early intervention in both mainstream and SEND schools in enabling young people to understand the difference between healthy and unhealthy relationships. The success of the creative methods incorporated into the design of the project led to pupils feeling comfortable to talk about relationships and therefore learn to look out for the early warning signs of unhealthy relationships. The whole school approach meant that all staff in school had the opportunity to attend a staff training on relationship education: this in turn enabled increased support for the project and the pupils themselves. Arts-based methods were effective when researching sensitive subject areas with pupils in schools and proved a positive way to allow for rich data to not only be gathered for research dissemination but also allowed the pupils creativity and ownership of their data. The healthy relationship project has shown that respecting pupils enabled them to be heard throughout project design and delivery which led to significant positive results not only in impact on pupils but also on the staff. Pupils as agents of change had the confidence to rewrite scripts, perform in front of their peers, school staff and the research team while constantly evaluating their knowledge of and attitudes towards romantic relationships. Co-designing scripts about relationships with and for young people is the key to learning about healthy relationships. This research has proven that working alongside young people, pupils in schools, extends the impact of their learning beyond the classroom. The quote below was from a letter sent to the research teams via a school they had delivered in from a parent of a pupil who attended the project. This quote captures the the impact of the project beyond not only classroom by the school itself. The project impacted the pupil and in turn their family and friend networks.

My daughter attended the (relationship education) course and I can't believe the difference it has made. She has changed her attitude, been more respectful and also has more confidence. It has made such a huge difference for the better for the whole family. (parent of pupil aged 14 who attended the relationship education project 2013)

Adaptability and co-design were essential for the success of the project. The researchers adapted workshop content and methods in a creative way to engage all pupils in activities, and to develop age and ability appropriate methods with pupils in SEND schools. We believe that including pupils with SEND in the designing of workshop materials is essential to achieving positive outcomes, particularly when addressing healthy and unhealthy relationships shaped by gender norms. Pupil's ability to learn is centred around them feeling safe and respected however when they codesign the resources the impact is maximised.

Table 5 illustrates the Action–Empowerment Wheel (Porter, 2024). This cyclical model of action, which actively engages young people in and through research, must be embedded from the outset of the research design. To ensure meaningful engagement and impactful outcomes, particularly in relation to how gender shapes young people's experience, the following actions must be recognised, valued, and systematically integrated into the research process.

ethics-action-participant-youngpeople-creativity-learning-empowering-equal-researchers-research-data-dissemination-action

Table 5: The Action-Empowerment Wheel. Janette Porter 2024 Sharing Research in Real Terms Guided by its Participants



I don't want someone to speak on my behalf' offers a small snapshot into the voices of the young people involved in the project. Throughout, young people were treated with respect and as equals, which supported them in understanding their rights and building the confidence to have their voices heard, Action = Empowerment (Porter, 2025). This approach highlights that all pupils, all genders all schools need inclusive age and ability appropriate relationship ad sex education.

Ethics Declaration: Middlesex University UK received the approval for the Healthy Relationship project to be delivered as part of the Tender, Acting Against Abuse National Partnership programme. Ethics reference ST003 – Middlesex University 2024. LJMU granted approval for an ethics amendment to the Middlesex approved ethics application for working with an upper age of 19 in 2017. Ethics reference 17/HSS/011 - LJMU

AI Declaration: Artificial intelligence (AI) tools were utilised to assist in the organisation and formatting of references.

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An Inquiry into the Socio-Political and Economic Challenges of Women Entrepreneurs in Pakistan through the Lens of Feminist and Achievement Theories

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Abstract: The role of women's entrepreneurship in achieving a gender-inclusive society and economic growth is undeniable. However, women entrepreneurs in Pakistan, despite several supporting initiatives by the government and NGOs, continue to face numerous socio-political and economic challenges, hindering their participation in business activities. This study aims to uncover these multifaceted challenges and the strategies to overcome them. Drawing on Liberal Feminist Theory and McClelland's Need for Achievement Theory, this qualitative, phenomenological study captures the voices of 36 women entrepreneurs across major metropolitan cities in Pakistan. Findings reveal that participants struggle with entrenched patriarchal norms, gender discrimination, limited mobility, restricted access to finance, and other barriers. Despite these constraints, they demonstrate resilience through networking, mentoring, skill enhancement strategies, social media engagement, and innovative business practices. This study sheds light on how women entrepreneurs transform adversity into opportunity, offering valuable insights for policymakers and scholars seeking to promote gender equity and entrepreneurial inclusivity in emerging economies.

Keywords: Women entrepreneurs, Social barriers, Political barriers, Economic barriers, SDGs

1. Introduction

Women entrepreneurship is one of the drivers for economic progress that opens avenues for sustainable development by offering inclusivity, gender equality, and wellbeing (GEM, 2023). However, despite having an evenly distributed population of women and men in the South-East Asia, a significant gender disparity hinders women participation due to various constraints and challenges imposed by society (Agarwal and Lenka, 2018). Specifically, in Pakistan, where women are already marginalized, several socio-political and economic barriers make more difficult for women to step into entrepreneurship as a career (Umar, Ali and Sial, 2022). Consequently, the entrepreneurial potential of women remains underutilized (Jehan *et al.*, 2024).

In addition to limited women's participation in business, it is alarming to note that more than ninety percent of new businesses startups in Pakistan fail each year, including those established by women entrepreneurs. Notably, only five out of three hundred (<1%) new businesses initiated by women in Pakistan achieve success (Mir, 2022). In a broader context, social conventions, cultural expectations, and numerous other factors limit participation of women in business activities (Nawaz, 2018; Yunis, Hashim and Anderson, 2018). However, there remains limited understanding of the specific socio-economic and political factors shaping these outcomes, and make it a researchable topic.

In addressing this gap, this study aims to answer the following research question by looking the pressing issue through the theoretical lenses of Gilligan's *liberal feminist theory*, positing that there is no inherent difference between men and women and norms, institutions, and discriminatory laws limit women's participation in society, and McClelland's *need for achievement theory*, suggesting that human motivation, irrespective of gender, is derived from three needs, namely achievement, power and affiliation. By integrating these theoretical perspectives, this study aims to make a theoretical contribution by offering novel insights from a framework that has rarely been applied in qualitative research (Lagrasta, Scozzi and Pontrandolfo, 2024).

RQ: What are the socio-political and economic barriers impeding women in Pakistan to become entrepreneurs and how these barriers can be overcome?

2. Literature Review

The concept of "entrepreneurship", a process of starting or managing a new enterprise, underwent significant evolution throughout the nineteenth century. Nevertheless, it was not until the final decade of the twentieth century that the phenomenon of women's entrepreneurship began to get considerable attention and recognition (Diandra and Azmy, 2020; Picciaia, Terzani and Mari, 2024) and the contribution of women entrepreneurs to economic development, through their entrepreneurial endeavors alongside their male

counterparts, is indispensable (Claire, Lefebvre and Ronteau, 2021). The 1970s marked a significant shift in scholarly attention toward the importance of female entrepreneurship. Indeed, entrepreneurship has been mostly considered a male phenomenon globally (Jennings and Brush, 2013). Although research on female entrepreneurs is still in its infancy, most studies carried out in Western context, highlighting the need for significant progress in this field (Deng *et al.*, 2021). Additionally, the unique economic, cultural, institutional, and social conditions in Asia demand more academic attention (Katharina *et al.*, 2022). Women entrepreneurs in Asia continue to face several obstacles that are potentially unique to their social and cultural context as are not yet widely understood (Baral *et al.*, 2022). Nonetheless, the motivations that drive female entrepreneurs in Asian countries are somewhat different from those that drive them in the West (Wu, Si, and Wu, 2016). They have limited financial autonomy and usually do not make financial decisions independently. This situation negatively impacts their progress in society (Field, Jayachandran and Pande, 2010).

Article 25 of the Constitution of Pakistan ensures equal rights for all people, irrespective of sex, ethnicity, or class (Khan, 2018). Government of Pakistan initiates many projects to support women's participation. In doing so, government developed the National Financial Inclusion Strategy in 2015 to offering significant opportunities to women entrepreneurs (Government of Pakistan, 2022). Nonetheless, a highly conservative and exclusionary environment impedes women from enjoying liberty and freedom (Noreen *et al.*, 2026). Despite constitutional provisions, women in Pakistan are deprived of their fundamental rights, including social, political, economic, and legal rights (Batool *et al.*, 2018). Numerous socio-religious factors impede women's participation in society (Zada, 2018). For example, women receive limited access to education and career opportunities (Mahsud and Ali, 2020); consequently, their engagement in socio-economic activities is significantly restricted (Ali, Topping and Tariq, 2010). In addition, the male-dominance in society is instrumental in restricting women's activities beyond their domestic role (Safdar and Yasmin, 2020).

Women in Pakistan predominantly rely on male figures, such as fathers or husbands or brothers, who are also responsible for making significant life decisions regarding education, health, economic participation, and marriage. According to a United Nations report, most men leading a traditional family, influenced by normative standards that restrict women to domestic roles, prevent them from working outside (UN, 2023). Although Islam, as the state-religion, does not prohibit women from pursuing business as a career (Zeb and Kakakhe, 2018), Pakistan's deeply embedded discriminatory socio-cultural norms surpass the religious teachings (Roomi and Parrott, 2008). Even if some of the women are able to start a business, they encounter several challenges (Goheer, 2003). Therefore, it can be concluded that the robust patriarchal structure of Pakistan is shaped by cultural norms and incorrect interpretation of the religious doctrine. Women's confinement to a subordinate domestic role under strict cultural traditions is one of the hurdles to encouraging women entrepreneurship (Nasir, Iqbal and Akhtar, 2019), making the achievement of the UN Agenda 2030 more difficult. The paucity of literature regarding the specific socio-cultural and economic factors shaping pathways for women entrepreneurs demand more focussed research (Hossain *et al.*, 2025). Specifically, in Pakistan, addressing these barriers could enable policymakers to devise strategies making the entrepreneurial journey easier for aspiring business women (Qamar and Tanveer, 2025).

3. Research Methodology

This study follows the qualitative, interpretivist research design that allows to seek the answer for research questions or to understand the reality that individuals perceive or apprehend in their social context (Barbour, 2014). Following qualitative method, this study utilizes a phenomenology, a paradigm that seeks to get a complete comprehension of a phenomenon (Alsaigh and Coyne, 2021), positing that individuals' perceptions and lived-experiences are the principal resources for comprehending social events (Mack *et al.*, 2005; Chang and Wang, 2021), making it the most appropriate method to analyze the lived experience of women entrepreneurship.

The target population for this study are women entrepreneurs (owners/CEO) in the service sector of Pakistan, which accounts for 58% of Pakistan's GDP (Hassan, 2024). The sampling technique employed is purposive sampling, which is the most often utilized sampling technique in qualitative research (Ahmad and Wilkins, 2025). Regardless of the lack of consensus on what constitutes a perfect sample size, there is almost an agreement on the data collection till saturation in a qualitative research (Fugard and Potts, 2015). Data saturation refers to reiteration of responses (Fusch and Ness, 2015). For this study, thirty-six women entrepreneurs (data have reached a level of satiation to this point) were interviewed, and each session took 40 to 60 minutes on average, during which open-ended questions were presented in the English language. The

questions have been approved by the ethics committee. The data were analyzed using NVivo that allows thematic coding and visualization of qualitative data (Phillips and Lu, 2018).

4. Results

Women entrepreneurs were asked to relate their experiences to identify the primary social, political, and social challenges they encountered during their entrepreneurial endeavours, and the tactics they used to overcome them. The primary theme Socio-political and Economic Barriers was derived from the sub-themes, as seen in Figure twenty, and are elaborated below.

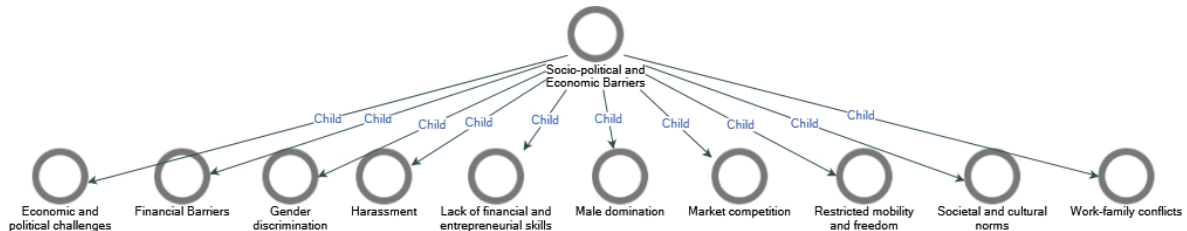


Figure 1: Socio-political and Economic Barriers and its child-themes

4.1 Socio-Political and Economic Challenges

4.1.1 Male domination

About one-third of respondents considered the society as patriarchal, male-dominant and characterizing males as narrow-minded. This prevalence is quite extensive. Males not only intervene in business-related issues but also considerably in personal matters. They exhibit intricate conduct aimed at surpassing women in many aspects of life, including business. This position is directly aligned with the Liberal Feminist Theory's focus on challenging patriarchal systems and supporting equal treatment (R4, R5, R10, R11, R18, R19, R20, R24, R32, R33, R35).

4.1.2 Societal and cultural norms

Just over half of the study participants reported experiencing social pressure. The unsupportive culture constrain them in several ways. People exhibit negativity and jealousy towards their advancement. They articulated that the familial culture is exclusive and oppressive towards women, making them feel disheartened. They are obliged to conform to societal norms, culture and religion. This observation reinforces the perspective of Liberal Feminist Theory that questions the societal norms that restrict women to fully participate in the workforce and supporting women's autonomy in choosing paths without societal restraints (R1, R2, R7, R8, R9, R11, R12, R13, R14, R15, R16, R17, R19, R20, R21, R22, R23, R25, R26).

4.1.3 Gender discrimination

One-quarter of the female participants in the study asserted that they experience gender-based discrimination in society. They complained about the restricted access to markets, financial resources and trade prospects. They said that trust on them is precarious. Individuals often disregard their opinions and underestimate the significance of their role in society (R2, R4, R6, R14, R15, R23, R27, R35).

4.1.4 Restricted mobility and freedom

The respondents indicated that they experience constrained mobility and limited freedom. They encounter limitations in choosing careers, traveling, and experiencing liberty. They also expressed their concerns regarding insufficient transit infrastructure and travel safety (R8, R9, R12, R13, R14, R22, R23, R31).

4.1.5 Financial barriers

The financial barrier was the primary obstacle encountered by two-thirds of the research participants. They said that their access to finances is restricted. The processes for obtaining loans from governmental and private institutions are long and complicated. They said that institutions are reluctant to provide funding owing to a lack of confidence in women. (R1, R2, R3, R6, R7, R8, R10, R12, R13, R16, R18, R19, R21, R23, R24, R25, R27, R28, R29, R31, R32, R33, R34, R35). Linking these findings with the McClelland's Need for Achievement Theory, it can be argued that the aspiring women entrepreneurs with a high need for achievement may overcome these financial challenges through perseverance, resourcefulness and risk-taking behaviors.

diminishes obstacles. Networks provide a platform for collaboratively addressing issues and discovering numerous solutions to challenges (R1, R2, R7, R9, R12, R23, R25, R32).

4.2.2 Perusing mentoring

Five respondents revealed that they pursue mentorship when they face any challenging situation. One respondent shared that “I seek mentorship in difficult situations” (R1). Respondent then disclosed that “soliciting mentoring from experts” (R10) further one respondent added that “Acquiring mentoring and assistance has been essential in navigating these obstacles” (R13) finally one interviewee added that “I prioritize to establish connections with networks that empower women (R18).

4.2.3 Social media

Five participants added that they take help from social media to overcome some barriers to their business one participant revealed that “social media enables you to amplify your voice. I regularly engage in social media by posting every day about my business, which has increased my visibility and profitability” (R1). One other respondent unfolded that “I enhance my sales using social media as well as addressing challenges in business” (R8). One more interviewee underlined “I use social media to redress my grievances” (R9) One participant spotlighted “I engaged in social media marketing to flourish business” (R18) finally one responder added “I have created social media pages to post reviews to highlight challenges, enhancing business and taking feedback from clients of my services” (R29).

4.2.4 Strategies to mitigate harassment

One-quarter of the respondents in the research said that they had used different techniques to reduce harassment. They wear Hijab/Abaya and exhibit professionalism. They own personal mobile phones, other than from those used for business purposes, to maintain their tranquillity after working hours. They are attentive to their attire and are vocal when encounter any challenging situation. They deter malicious intents with their vocal behavior, gestures, and postures. They prohibit individuals to intervein in their personal space and refrain them from any unnecessary talks (R4, R5, R6, R7, R8, R14, R33, R35, R36).

4.2.5 Overcoming competition

Two participants shared that to stay competitive in the market, they rely heavily on innovation. They explained that continuously improving and refreshing their ideas helps them stand out. By focusing on enhancing the quality of their services, they aim to meet evolving customer expectations. For them, innovation isn’t just a trend; it is a core strategy to survive and grow in a competitive environment. They believe that staying ahead requires constant effort to do things better and differently. This proactive approach helps them maintain relevance and attract loyal clients (R9, R13).

4.2.6 Overcoming financial barriers

To overcome financial obstacles, Forty-one percent of respondents said that they had engaged with overseas customers to make money in foreign currency. They use funds efficiently and effectively to manage their working capital. They allocate their funds and reinvest their earnings. They use economical methods. They outsource their tasks to achieve cost efficiency. They find investors within and outside the family. They use inventive cost-reduction strategies and dispose of personal assets, including gold and jewelry, as necessary (R2, R6, R7, R8, R10, R16, R17, R19, R28, R31, R33, R35, R36).



Figure 4: The most frequent words used in response to answer the strategies to encounter socio-political and economic barriers

5. Discussion

This study's findings are in line with and extend prior findings on the structural barriers that women entrepreneurs face in developing countries (Musaigwa and Nojiyeza, 2025). Consistent with previous studies, the results reveal how deeply embedded socio-cultural expectations limit women's autonomy, restrict their access to resources, and cause entrepreneurial failure (Rita, Rabiah and Fahlevi, 2019; Parveen *et al.*, 2020; Guelich *et al.*, 2021; Badghish *et al.*, 2023). However, this study adds novelty by highlighting how these barriers intersect with broader political, social and cultural factors in Pakistan, including regulatory inefficiencies and governance challenges. This intersectional perspective advances existing discussions by demonstrating that women's entrepreneurial constraints are not only gender-specific but also embedded within fragile institutional environment. Consequently, the study stresses the need for policy responses that simultaneously address gender inequality and institutional inefficiencies, particularly through reforms that simplify financial access to resources, improve regulatory effectiveness and strengthen legal protection against harassment in business environments.

Furthermore, the findings contribute to the existing literature by highlighting the adaptive strategies women entrepreneurs employ to sustain and grow their businesses despite structural constraints. The reliance on support networks, mentoring relationships, and digital platforms resonates with prior findings that social capital and entrepreneurial ecosystems are critical for women's business survival and growth (Neumeyer *et al.*, 2019; Chowdhary *et al.*, 2025; Van der Westhuizen and Mdlalose, 2025). Specifically, the emphasis on social media as a mechanism for voicing concerns reflects an emerging dimension of digital empowerment in the given context.

Findings of this study offer practical implications for governments, such as streamlining licensing, registration, access to credit through one-stop digital platform to reduce bureaucratic barriers. Additionally, facilitating access to social media and online platforms support through encouraging digital literacy and e-commerce training can extend the women entrepreneurs' reach to the market. Last but not the least, women-focused incubation centres and collaboration between universities and financial institutions can create sustainable entrepreneurial ecosystems (Salamzadeh, Salamzadeh and Hadizadeh, 2025). For scholars, the results suggest that future research should further explore the interplay between gender, institutional environments, and digital entrepreneurship in emerging economies through the lens of mixed-method research. Additionally, comparative study between South Asian countries can help understanding cultural and institutional variations.

The findings of this study also offer important theoretical implications by reinforcing the central tenet of liberal feminist theory that gender inequality is the product of discriminatory social structures rather than differences in capabilities (Ahl and Marlow, 2012). Recent literature on how institutional and cultural biases systematically limit women entrepreneurs reinforce feminist theoretical perspectives (Vuciterna *et al.*, 2024; Nguyen *et al.*, 2025). Similarly, the strategies adopted by women entrepreneurs, for example building support networks,

seeking mentorship and leveraging social media, illustrate a strong orientation toward achievement and self-improvement. This behavior resonates with McClelland's argument that individuals with a high need for achievement are motivated to overcome obstacles, pursue challenging goals and continuously improve their performance in spite of environmental constraints (Collins, Hanges and Locke, 2004). In this sense, the findings extend the theoretical debate by illustrating how gendered institutional constraints and achievement motivation interact in shaping women's entrepreneurial journeys, particularly in the context of Pakistan, where socio-cultural restrictions coexist with growing opportunities for entrepreneurial activities.

5.1 Conclusion

Despite persistent structural constraints, the experiences of women entrepreneurs demonstrate remarkable determination and adaptability in manoeuvring complex entrepreneurial environments. Their journeys reflect a continuous battle between societal expectations and personal ambition. Supporting women entrepreneurs through inclusive policies, institutional reforms, and enabling ecosystems is essential to unlocking their potential and fostering broader socio-economic progress. A women-centric leadership model based on the themes emerged in this study open avenues for future research. Finally, one of the limitations of the study is the dearth of research culture in Pakistan, requiring extensive efforts to persuade participants for interviews.

Ethical Consideration: This study sought prior consent from the participants. They were allowed to discontinue or postpone taking part in the interviews at any time if they feel uncomfortable. Since the study participants were adults, their parents' or guardians' agreement was not required (Mack *et al.*, 2005). They were also informed that there would be no undue risk to them and that participation in the research is completely optional. The permission form duly signed by the participants explicitly mentioned that the audio recording would not be shared with any other parties and the participants' confidentiality will be ensured. All steps of the revised guidelines of the American Psychological Association have been followed for the study (APA 2017). Finally, this study has not received funding from any institution, resulting in a financial impediment to its execution.

AI Declaration: AI has been used in some part of the paper to remove grammatical errors.

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Sex Work in Peru: Social Challenges, Regulatory Framework, and Economic Contributions

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Abstract: Sex work in Peru lies at the intersection of public health, labour rights and legal regulation, in a context marked by stigmatization and regulatory gaps. This study explores, in a qualitative and narrative manner, the available evidence on the main social challenges, the regulatory framework, and the potential economic contributions of sex work in the country, based on secondary academic and institutional sources published between 2019 and 2025 in Spanish and English. Through a narrative analysis of scientific literature and regulatory documents, patterns, tensions and thematic gaps related to the issue were identified. The findings show that most research focuses on the health sector and reveals barriers to accessing services, experiences of violence and stigmatization processes, as well as the persistent regulatory ambiguity surrounding the practice. The economic dimension is based mainly on international comparative studies and grey literature, revealing a scarcity of verifiable local estimates. Overall, the review suggests that sex work in Peru poses multidimensional challenges that demand informed public policy responses, with an emphasis on human rights, health, and progressive regulation. This article offers narrative and analytical inputs useful for authorities and social organizations, as well as a research agenda aimed at strengthening understanding of this complex phenomenon.

Keywords: Sex work, Qualitative analysis, Narrative, Public health, Regulation, Public policy

1. Introduction

Sex work is a social phenomenon present in many societies and historical contexts and has been examined from social, legal, economic and public health perspectives. At the international level, academic literature indicates that this activity often develops within contexts of social, economic and gender vulnerability, where many individuals turn to it as an alternative in situations of poverty, social exclusion or limited employment opportunities (Trujillo-Florián, Vargas-Chaves and Arévalo-Buitrago, 2020). These dynamics suggest that sex work should not be understood solely as an economic activity but as a complex social phenomenon shaped by structural conditions that influence the labour trajectories and living conditions of those involved.

From a public health perspective, several studies identify individuals engaged in sex work as a population exposed to significant health risks, particularly sexually transmitted infections (STIs). The incidence of these conditions is frequently associated with social, economic and labour factors that increase vulnerability and limit access to prevention programs and healthcare services (Jiménez-Morón et al., 2021). Research also indicates that sex work often occurs in contexts characterized by structural inequality, labour precariousness and economic deprivation. These circumstances may be linked to forms of social and institutional violence and to processes of stigmatization that restrict the social inclusion of individuals engaged in this activity (Almanza Beltrán, 2022).

In Latin America, the treatment of sex work varies between countries depending on regulatory frameworks and public policy approaches. While some states have developed mechanisms aimed at recognizing labor rights or implementing health controls, in other contexts the activity operates mainly within informal sectors. In Peru, sex work occurs in a context marked by social stigma, informality and limited regulation.

In light of this context, the present study seeks to answer the following research question: What are the main legal, social and structural barriers faced by individuals engaged in sex work in Peru, and how do these conditions influence their vulnerability and access to rights?

2. Methodology

This study is a qualitative narrative review of the existing literature on sex workers in Peru and the social challenges they face, with the main purpose of compiling, critically evaluating, and synthesizing the available information on the regulations governing this activity, as well as the social and economic implications derived from it. An interpretative approach was adopted, prioritizing academic and institutional sources, including

databases recognized for their scientific and academic rigour, as well as regulations and institutional reports that provided contextual and conceptual evidence relevant to the subject of study.

2.1 Search Strategies

The time frame analyzed is 2019-2025, were consulted 36 academic databases such as Google Scholar, PubMed, Scopus, JSTOR, EBSCO, Redalyc, Scielo and university repositories. Strategic keywords reflecting the central aspects of the research were defined for the literature search: "sex workers," "prostitution," "social challenges of sex work," "sex work regulations," and "public policies on sex work in Peru." These keywords were combined using Boolean operators to optimize the search and ensure the inclusion of relevant studies that addressed the topic from different perspectives, including economic, social and regulatory.

2.2 Selection Criteria

The inclusion criteria considered studies and documents published in Spanish that specifically addressed sex work in Peru, as well as international research related to the topic, with the aim of comparing experiences, identifying proposals and placing the Peruvian reality in a broader regional context. The selected studies were evaluated using rigorous criteria that took into account the quality of the content, methodological validity, soundness of the arguments, and originality of the contributions, ensuring that the evidence collected was reliable and relevant for comparative analysis. Articles without full access, duplicate documents, and those focused solely on contexts of forced sex work were discarded.

2.3 Data Analysis

The analysis was carried out in four stages:

- **Selection:** Sources published between 2019 and 2025 were included, mostly in Spanish, supplemented by some articles in English that provided relevant perspectives. Thematic relevance was prioritized over language, provided that the documents offered useful evidence for interpretative analysis.
- **In-depth reading:** Each source was analyzed using open coding, extracting categories related to sex work, access to basic services, structural barriers and regulations.
- **Narrative synthesis:** The information was organized into five thematic areas: (i) historical trajectories, (ii) socio-cultural factors and stigma, (iii) legal and regulatory framework, (iv) economic dimensions (v) health risk, violence and vulnerability.
- **Interpretative analysis:** An integrative narrative was developed that links findings, tensions, and gaps, highlighting the relevance of an intercultural and sensitive approach to the topic analyzed.

3. Context and Narrative Findings

3.1 Historical Trajectories of sex Work in Peru

Sex work has been present in various societies throughout history and, although each country has regulated it differently, all experiences share tensions linked to public health, morality, gender and rights. Internationally, some countries such as the Netherlands and Germany have opted to recognise it as a form of labour, incorporating licensing systems and health controls (Servicio de Investigación Parlamentaria, 2022). In contrast, in regions such as Northern Asia, the colonial period in British India imposed registration requirements and medical examinations to control the sex trade, while in Latin America, regulatory and restrictive models coexisted (UGT, 2021).

In Peru, these global dynamics interact with a national trajectory marked by social and moral tensions dating back to the Inca period, where practices of sexual exchange with economic and social implications existed (Ministerio de Cultura, 2019). With colonization, such practices began to be interpreted through European moral frameworks, associating prostitution with public health risks and promoting the earliest mechanisms of surveillance over women's bodies (Drinot, 2022). During the nineteenth and twentieth centuries, the Peruvian State reinforced this approach through mandatory registration, medical examinations and the establishment of designated zones such as the Huatica district, created in 1928 (Ministerio de Cultura, 2019). Although these measures were presented as protective, they reproduced stigma and limited the agency of sex workers.

The closure of Huatica in 1956, driven by feminist and human rights movements, heightened legal insecurity: adult sex work is not a crime, but it is not recognized as formal employment either (Drinot, 2022). This history reveals that international tensions, including stigma, health controls and moralization, remain present in Peru.

Today, these continuities continue to affect those who engage in sex work, who still face inequality, lack of protection and moralizing narratives inherited from these historical practices.

3.2 Sociocultural Factors and Stigma

Sexism is a central pillar in Peruvian society and sustains its traditional character. This pattern, still present today, reflects sociocultural factors that directly influence the public perception of sex work as an “immoral” practice, which contributes to the social stigmatization of sex workers. The cultural and religious norms surrounding prostitution shape not only society’s view, but also the self-image of sex workers, reinforcing their social discrimination (Roldán and Carbajal, 2023). These traditional values linked to marriage, purity and the control of the female body reproduce a moral condemnation that portrays them as adulterous or libertine.

Furthermore, psychosocial research shows that factors such as authoritarianism, conservative political ideology and religious beliefs predict prejudice towards sex workers (Imhoff, Dreisik and Brussino, 2022). This combination of moral prejudice, lack of legal protection and institutional rejection deepens the stigma and hinders these women’s access to their fundamental rights.

From a contemporary theoretical perspective, these dynamics can be better understood through gender studies and the intersectional approach. Authors such as Patricia Hill Collins and Sirma Bilge (2020) explain that systems of oppression, including machismo, religious conservatism and traditional moral norms, do not operate in isolation; instead, they intersect and mutually reinforce one another, generating specific forms of inequality. Applied to the context of sex work in Peru, this means that sex workers are discriminated against not only because of their occupation, but also because of their gender, their socioeconomic position and their place within hierarchical social structures that reproduce inequality. Thus, social condemnation of sex work cannot be understood solely as a moral judgement, but as the result of interconnected systems that regulate the female body, restrict autonomy and perpetuate structural inequalities.

3.3 Legal and Regulatory Framework

The legal framework for sex work in Peru is fragmented and does not recognize autonomous sex work as a labour activity. The regulations are divided between criminal, health, municipal and labour laws, but none of them establish rights or guarantees for those who voluntarily engage in this activity. In general, the focus is on preventing trafficking, exploitation, infections and maintaining public order, so it remains more punitive and health-oriented than labour- or human rights-oriented. (MINSA, 2020; SUNAFIL, 2023).

In the criminal sphere, the Peruvian Criminal Code establishes penalties for trafficking, sexual exploitation and pimping; however, it does not criminalize the voluntary practice of sex work, which creates a regulatory vacuum with regard to its recognition as a remunerated activity (Ministry of Justice, 1991). At the same time, the Ministry of Health is developing regulations aimed at addressing sexual violence and preventing STIs and HIV, without incorporating a differentiated approach for sex workers or considerations related to working conditions (MINSA, 2021).

At the local level, several municipalities have issued ordinances that associate sex work with moral risk or public disorder and that prohibit or seek to eradicate its practice in public spaces. This reinforces dynamics of stigmatization and clandestinely (Municipality of El Agustino, 2019). On the other hand, labour inspections carried out by SUNAFIL are aimed at identifying forced labour, but do not establish parameters that differentiate coercion from autonomous sex work (SUNAFIL, 2023).

In terms of health, policies focus on the prevention and treatment of STIs and sexual violence, contributing to improvements in public health, but without recognizing the labour autonomy of the group (MINSA, 2020; 2021).

Table 1: Relevant regulations related to sex work in Peru

Regulation	Level	Main content	Actors involved	Gaps	Implications
Penal Code (arts. 153, 179-183)	National	Criminalises trafficking, exploitation and pimping	Public Prosecutor's Office, PNP, Judiciary	Does not recognize independent sex work	Protects against exploitation, but maintains a legal vacuum
R.M. 649-2020-MINSA	National	Care for victims of sexual violence	MINSA, CEM, Public Prosecutor's Office	Victim-centred approach, without labour rights	Improved post-violence healthcare
R.M. 450-2021-MINSA	National	SRH guidelines for STIs/HIV	MINSA, health establishments	Lack of a differentiated approach	Prevention and care without recognition in the workplace
R.D. 105-2025-ENSAP-MINSA	National	Training on HIV care	ENSAP, DPVIH	Does not address working conditions	Improves healthcare quality without regulatory impact
Ord. 669-2019-MDEA	Municipal	Prohibits sex work	Municipality, PNP	Moralizing approach	Reinforces stigmatization
Ord. 11-1999-MPT	Municipal	Eradicates street prostitution	Municipality, PNP, M.P.	Punitive approach	Increases clandestinity
Dir. 001-2023-SUNAFIL/DINI	National	Inspection of forced labour	SUNAFIL, PNP, municipalities	Does not distinguish between coercion and autonomy	Allows intervention in cases of exploitation
D.S. 007-2023-IN	National	Intersectoral protocol against trafficking	MININTER, SUNAFIL, PNP	Lack of differentiation in sex work	Strengthens inter-institutional coordination

Source: Own elaboration

These regulations address sex work through criminal, public health and municipal control approaches, without adopting a labour rights perspective, which perpetuates its informality and vulnerability (Ministerio de Justicia, 1991). From a comparative standpoint, countries are generally situated within three models: the prohibitionist model, which criminalises the activity; the abolitionist model, which permits sex work but does not recognise it as employment; and the regulationist model, which formally incorporates it into the labour framework. Within this typology, Peru aligns with an abolitionist approach, as it does not criminalise the voluntary exercise of sex work but neither does it recognise it as autonomous labour, maintaining an emphasis on public health, public order, and crime prevention rather than on the protection of labour rights.

3.4 Economic Dimensions of sex Work

The economies of many countries depend on various productive activities that influence macroeconomic indicators, but these only reflect the formal sector and leave out the informal sector, despite its real impact. Sex work is one example: it is practiced without recognition or regulation, especially in developing countries in Latin America, which limits its economic visibility and reinforces social exclusion. In contrast, in some regions of Asia and Europe, this activity has already been incorporated into formal economic frameworks.

(Huertas Castillo, 2022), the productive supply of the sex market in these countries is considered a legitimate source of income, contributing to the growth of their economies and the recognition of the labour rights of sex workers. According to (Sanchis and Serra, 2011), the sex work market in Spain generates a considerable amount of money each year, estimated at around 2.5 billion euros, which shows that when this activity is analyzed as a productive sector, it has a much more significant financial impact than is usually assumed in public debate. r

estimations of this type show that when sex work is recognized and regulated, it can become a significant source of income and tax revenue.

(Fernández, et al., 2025) In Latin American countries such as Colombia and Chile, policies of coexistence and regulation for sex work have begun to be considered, which can be interpreted as an acceptance that this activity, beyond needing attention for its workers, can also be a source of income for the country's economy when regulated.

Peru should not be oblivious to the responses adopted by neighbouring countries, as it faces a similar and even more critical situation in terms of informal employment. The Ministry of Labour and Employment Promotion, (Ministry of Labour and Employment Promotion, 2022), revealed that the informal employment rate exceeded 70%, with Metropolitan Lima being the region with the highest incidence. By occupational category, self-employed workers accounted for the largest proportion, a group within which it is reasonable to assume that sex workers are also included. According to (Peruvian Institute of Economics, 2025), informality reached 71%, confirming the structural persistence of the problem. If the country were to take the practices of its peers within the legal and economic system as a reference, it could generate a substantial increase in GDP.

The Peruvian economy, based on public and private capital, includes activities that are not regulated for moral reasons, such as prostitution. This lack of legitimacy not only keeps the activity outside the legal and tax framework, but also indirectly contributes to phenomena such as an increase in human trafficking, gender violence and other associated crimes. Cases of trafficking increased by 12.4% compared to the previous year, and reports of missing women also increased in 2023 (National Institute of Statistics and Informatics, 2023).

Sex work can combine formal and informal sectors, such as hotels, restaurants, bars, and warehouses. This activity could represent a significant source of income and consumption, currently invisible due to its informal nature. (National Institute of Statistics and Informatics, 2025). Although it is true that in the Peruvian context there are no official estimates of its contribution to the Gross Domestic Product (GDP), it is possible to consider an estimate of its magnitude through hypothetical revenue scenarios that allow its economic potential to be gauged.

In a hypothetical conservative scenario, approximately 20,000 sex workers generate an average monthly income of S/ 2,000, which would result in an annual flow of S/ 480 million. This figure is not an official statistic, but rather an analytical approximation based on general assumptions, used solely to gauge the potential economic magnitude of an activity that currently operates largely in the informal sector. This exercise shows that, without labour recognition or tax registration, this economic flow remains outside any social protection, state supervision or health control mechanisms. Precisely for this reason, the possible regularization of sex work would not only broaden the tax base, but also open the door to safer and more regulated conditions, benefiting both those who engage in this activity and the general population.

3.5 Health Risks, Violence and Vulnerability

3.5.1 Risks to physical and mental health

The stigma faced by sex workers goes far beyond physical abuse and social exclusion, due to the negative view that others have of them, believing that they deserve to endure all of this and even blaming themselves for the difficulties they face. This distorted perception is compounded by the lack of opportunities offered to them by the state and society, which creates vulnerability in their physical and mental health. They face significant risks to their physical and mental health due to constant exposure, lack of access to medical services, and the social stigma surrounding them. (Rangel, et al., 2021) refers to the fact that the health risks faced by sex workers continue to increase, with their mortality rate being 40% higher than that of the rest of the population. As part of the population vulnerable to sexually transmitted diseases (STDs), which can be fatal if not diagnosed and treated in time. According to the Ministry of Health (, in Peru, more than 8,000 new cases of sexually transmitted infections were diagnosed in 2024, mainly in the 20-29 age group, with a higher concentration in urban areas.

The Ministry of Health (2024) reported that more than 15,000 free tests were carried out for men who have sex with men, sex workers and transgender women. Even so, many people do not access these services due to lack of information, fear of discrimination, or lack of resources when testing is not free. Even so, many people do not access these services due to lack of information, fear of discrimination, or lack of resources when testing is not free. In this sense, the health risks emerge from the context of informality, stigma, and exclusion, not from the activity itself. A rights-based approach highlights that formalizing and regulating sex work would reduce these

vulnerabilities by ensuring safe working conditions, non-discriminatory healthcare, and access to systematic prevention and monitoring services.

3.5.2 Violence and vulnerability

In Peru, as in many parts of the world, sex workers face a wide variety of forms of violence due to the prejudice and stigmatization associated with their employment. In response to this situation, Law 30364 was implemented in November 2015, with the aim of preventing, punishing and eliminating abuse against sex workers and their families, identifying all forms of violence against sex workers. The enactment of this law marks a significant step forward in the battle against the sexual abuse of women's rights (International Organization for Migration, 2023)

. This perspective is supported by Law No. 30364, Article 8, which establishes that there are four types of violence that are particularly important for understanding the experiences of sex workers. These include physical violence, mental violence, financial violence and sexual violence.

These attacks can come from clients, pimps, or other people seeking to exercise control, and are exacerbated by stigma, secrecy, criminalization, and lack of protection and support.

4. Discussion and Policy Implications

Academic literature shows that comprehensive regulation of sex work, articulated with public health, labour rights and citizen security, can reduce violence, exploitation and stigma, while also generating sustainable social and economic benefits (Aguayo, Westwood and Calderón Hernández, 2020). International experiences such as Tijuana's Zona Norte, which has operated for more than seven decades, demonstrate positive results in organizational management and sanitary control (Hernández Hernández, 2022). In Singapore, the Geylang district maintains authorized brothels subject to municipal licensing and health supervision (James et al., 2021). In Germany, the 2002 Prostitutionsgesetz recognizes sex work as a legitimate activity with access to social security and legal protection (Bundesministerium für Familie et al., 2007), while the Netherlands and Japan have established regulated tolerance zones that have helped decrease violence and improve state oversight (Mena Roa, 2021; Kastoryano, Bisschop and van der Klaauw, 2015). Although these experiences offer relevant insights, their transferability to the Peruvian context is limited by socioeconomic, institutional and cultural differences.

Building on these international references, the creation of regulated zones for the exercise of sex work in Peru is proposed, located in non-residential areas with potential for economic development. Evidence suggests that such zones could reduce the stigma associated with the activity, improve access to healthcare through periodic check-ups and appropriate infrastructure, and contribute to labour formalisation through voluntary registration and social protection mechanisms. Various studies agree that any regulatory model must be grounded in a rights-based approach that prioritizes the autonomy of sex workers and incorporates effective social protection measures, considering the informality, stigmatization and lack of adequate infrastructure present in the Peruvian context (Aguayo et al., 2020; Fiolka, Marshall and Kramer, 2022). Before implementing these zones, it is essential to develop a regulatory framework adapted to local dynamics with active participation from sex worker organizations and civil society, ensuring that regulation does not generate urban ghettos or forced displacement. International evidence indicates that, under appropriate state supervision, regulated zones can significantly reduce sexual violence and associated crimes (Kastoryano, Bisschop and van der Klaauw, 2015), although their implementation must be socioculturally adapted to Peruvian realities.

From a theory of change perspective, the necessary inputs for this proposal include the formulation of a national regulatory framework, budget allocation for infrastructure and oversight, and the training of technical staff in health and safety. The planned activities include participatory urban planning, the issuance of licenses, the implementation of sexual and reproductive health campaigns, and the creation of safe channels for reporting and monitoring. The expected outputs include an increase in formalized sex workers, improved access to medical services and the consolidation of registered establishments operating under sanitary and human rights standards. However, risks such as gentrification, corruption in licensing processes and the expansion of sex tourism must be considered. To mitigate these risks, urban impact studies and rent control policies in regulated zones are proposed, along with the creation of an independent oversight system with social participation, a strict sanctioning regime against exploitation and trafficking, and awareness campaigns on human rights and responsible tourism (Scarlet Alliance, 2024). With these measures, regulation would have greater potential to reduce stigma, improve healthcare access and contribute to labour formalisation within a human rights framework.

5. Limitations

The proposal has limitations due to its reliance on secondary literature, which may restrict the analysis of the Peruvian reality due to the scarcity of recent studies and local economic data on sex work. Furthermore, much of the evidence comes from research conducted in Lima, which introduces a geographical bias that limits the generalization of the findings to regions with different socio-economic and cultural dynamics.

6. Conclusions

The evidence of social inequalities and lack of tolerance among citizens themselves is latent. Prostitution will never be a job, nor the dream profession in a conservative society. However, it is the reason why a large group of women can survive and have a certain quality of life despite lacking access to labour rights linked to any work activity.

Thousands of women in Peru and around the world continue to be part of the sex trade. Some countries in Europe and parts of Latin America have set aside moralistic criticism and embraced opportunities for growth, recognizing that this activity is not going away and can contribute to GDP like any other economic activity.

Prostitution is not exclusive to one gender continuing to marginalize, it means not considering this activity as an economic source. By emphasizing regulation and control, progress will be made in the different economic sectors involved and, above all, in protecting those who engage in it.

Paying attention to health needs, formalizing employment, and controlling and reducing illegal activities such as human trafficking, kidnapping, and bribery will allow for an effective contribution to the country's economy, guaranteeing above all equal rights and economic contribution, thus minimizing the gaps and inequalities suffered by those engaged in this activity.

Ethics declaration: Respectful and non-stigmatizing language was used, focusing on the work they do. The limitations inherent in the exclusive use of secondary sources were recognized, and the reproduction of stereotypes or judgements about the cases analyzed was avoided

AI declaration: An artificial intelligence tool (ChatGPT) was used solely as a support for reviewing the wording, ensuring the correct use of punctuation marks and translating fragments previously written by the authors. The tool did not generate original content; its intervention was limited exclusively to linguistic corrections and spelling adjustments.

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Narrative Study of Sexual Violence Impacts on Indigenous Girls in Peru

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Abstract This article presents a qualitative narrative analysis of the mental health of girls and adolescents who are survivors of sexual violence in Peru, based on academic literature and policy documents reviewed between 2019 and 2024. The objective is to identify the main psychological consequences, barriers to accessing care services, and sociocultural determinants that influence institutional revictimization. Fifteen academic and institutional sources were reviewed and organized thematically for analysis. The findings reveal severe trauma such as anxiety, depression, and post-traumatic stress disorder, along with fragmented care pathways that perpetuate revictimization. Factors such as poverty, rural environments, cultural practices, and institutional weakness limit the effective protection of girls' rights. In Amazonian indigenous communities, such as Awajún and Wampís, territorial inequality, language barriers, and the absence of the state exacerbate vulnerability and hinder access to mental health care and justice. The study is based on a human rights and trauma-sensitive approach that recognizes girls as subjects of law and promotes coordinated and culturally relevant institutional responses. From feminist perspectives, sexual violence is understood as a mechanism of patriarchal and macho control (Kelly, 1988; Herman, 1992), reinforced by rape culture, which normalizes these attacks and reinforces impunity (Buchwald, Fletcher & Roth, 1993). Intersectionality (Crenshaw, 1989) allows us to analyze how gender, age, ethnicity and territory intersect in the experience of survivors, showing that sexual violence cannot be addressed solely from universal frameworks. This work provides narrative and analytical inputs for the formulation of public policies centred on human rights, sensitive to trauma and respectful of cultural diversity. It highlights the urgent need to strengthen intersectoral coordination, design culturally relevant interventions and promote a research agenda that evaluates existing practices and reduces institutional revictimization.

Keywords: Child sexual violence, Mental health, Trauma, Gender, Intersectionality, Peru

1. Introduction

Sexual violence against children and adolescents (NNA) represents a serious violation of human rights. Globally, more than 370 million girls and women have been victims of sexual abuse before the age of 18 (UNICEF, 2024). In Peru, the Ministry of Women and Vulnerable Populations (MIMP, 2024) reported 32,900 cases of NNA attended at the Women's Emergency Center during 2024, with higher incidence in rural areas of the Amazon. In indigenous communities such as the Wampís and Awajún, some cases were categorized by authorities as "cultural practices," revealing a troubling institutional normalization.

The psychological consequences of abuse include anxiety, depression, and post-traumatic stress disorder, yet there remains a scarcity of studies analyzing these outcomes from qualitative and narrative approaches. Care pathways are often fragmented, with limited intersectoral coordination and insufficient trauma sensitivity.

Sexual violence against NNA cannot be understood merely as isolated incidents, but rather as part of patriarchal structures and sexist practices that reproduce the subordination of female childhood. From a gender perspective, it is essential to apply the concept of intersectionality (Crenshaw, 1989) to analyze how age, gender, ethnicity, and territory intersect in the experiences of indigenous girls, who face a double vulnerability marked by poverty and discrimination. This phenomenon directly affects the exercise of sexual and reproductive rights, limiting autonomy and perpetuating cycles of inequality (UNICEF, 2023; WHO, 2021). Situating the Peruvian case within this framework allows dialogue with global debates on child sexual violence and gender, highlighting the need for trauma-sensitive and culturally relevant public policies.

This article proposes a qualitative narrative analysis of the mental health of NNA survivors of sexual violence in Peru, based on eighteen academic, normative, and institutional sources reviewed between 2019 and 2024. The objective is to understand the psychological sequelae, barriers to accessing services, and sociocultural determinants that perpetuate institutional revictimization, providing inputs for human rights-centered public policies.

2. Theoretical and Conceptual Framework

This study is based on a human rights approach, recognizing girls as subjects of law and promoting person-centered language, avoiding stigmatizing expressions and using ‘girls who are survivors of sexual violence’, according to UNICEF.

Child sexual violence causes consequences such as anxiety, depression and post-traumatic stress disorder (PTSD), influenced by family, institutional and socio-cultural factors. From a trauma-sensitive approach, which recognizes the impact of harm and seeks emotional safety by avoiding revictimization (SAMHSA, 2014), the need for coordinated, sustained and culturally relevant responses is emphasized.

Feminist perspectives (Kelly, 1988; Herman, 1992) interpret sexual violence as a mechanism of patriarchal control over female bodies. Within this framework, rape culture emerges, understood as beliefs and practices that normalize violence and reinforce impunity and blame (Buchwald, Fletcher & Roth, 1993). According to ENDES 2024, 1.5% of abused women did not seek help because they felt guilty and 43.6% considered it unnecessary to report the abuse, highlighting cultural patterns that sustain violence and influence the institutional response.

The intersectionality approach (Crenshaw, 1989) allows us to analyze how gender, age, ethnicity and territory intersect in the experience of indigenous girls. In Amazonian communities such as Awajún and Wampís, these dimensions are reflected in territorial inequalities, language barriers and limited state presence, which hinder access to health and justice, favoring the normalization of abuse and deepening vulnerability. These conditions show how child sexual violence is not an isolated event, but part of a structural framework that requires comprehensive and context-sensitive responses.

To delimit the key concepts used in this analysis, the following glossary is presented:

- **NNA (children and adolescents):** Persons between 0 and 17 years of age, according to the Convention on the Rights of the Child and the Peruvian Code of Children and Adolescents.
- **Sexual violence:** Any act or attempted sexual act carried out through coercion, without consent, in any setting or relationship. Includes rape, unwanted touching, and other forms of sexual assault (WHO, 2021).
- **Child marriage:** A formal or informal union in which at least one of the parties is under 18 years of age, considered a form of structural violence that violates the rights of NNA (UNICEF, 2023).
- **Revictimization:** Additional psychological impact experienced by survivors when the justice, health, or education systems act with insensitivity, negligence, or lack of preparation, forcing them to relive the trauma (Save the Children, 2020).

3. Methodology

This study corresponds to a qualitative narrative review aimed at identifying structural barriers and psychological sequelae in children and adolescents (NNA) survivors of sexual violence in Peru. An interpretive approach was adopted, prioritizing academic, institutional, and normative sources that provide contextual and conceptual evidence.

3.1 Search Strategies

The time frame considered was 2019–2024, using academic databases such as Scopus, Alicia, SciELO, EBSCO, IDEHPUCP, and university repositories. Boolean operators were applied, combining keywords such as: “sexual violence in NNA,” “NNA mental health,” “institutional revictimization,” and “child marriage Peru.”

3.2 Selection Criteria

Inclusion criteria comprised studies and documents published in Spanish or English, focused on NNA, sexual violence, and mental health; institutional sources with official data; and current regulations. Exclusion criteria included articles without full access, duplicates, and those focused exclusively on adults or non-comparable contexts. The process was systematized in the following table:

Table 1: Information record of selected sources

N°	Autor/es	Año	Tipo de documento	Hallazgo
1	Murillo et al.	2019	Artículo científico (SciELO)	El abuso sexual temprano afecta el bienestar psicológico y social de NNA en la adultez.
2	Elizabeth, C.V.J.	2019	Tesis o artículo académico (Alicia)	Aumento de casos y deficiencia legal en Lima.
3	Franco-Jaen, S.; Rodríguez, J. y Javier del Río, F.	2020	Artículo científico (SciELO)	El abuso sexual en NNA puede generar adicciones en la adultez.
4	Arteta Maza, Bertha Andrea	2021	Tesis o artículo académico (Alicia)	Necesidad de terapias eficaces para NNA víctimas.
5	Macedo et al.	2021	Artículo académico (Alicia)	Nuevos enfoques para tratar el TEPT infantil.
6	Bárbara et al.	2022	Artículo científico (Scopus)	La detección temprana permite prevenir casos sin lesiones visibles.
7	Tuya, G.	2022	Artículo científico (SciELO)	Perfil de agresores útil para la prevención.
8	De la cruz et al.	2022	Artículo académico (Biblioteca UPN)	Competencias parentales ayudan a prevenir el abuso.
9	Gasco A.; Lujan E.; Aldair F.	2022	Artículo académico (EBSCO)	Factores de riesgo vinculados a violencia doméstica y social.
10	Perú. MINEDU, Lazo Landívar, R.J.; Arredondo Villar, C.; Atamain Uwarai, Y.	2022	Libro institucional (Repositorio MINEDU)	Relatos intergeneracionales de mujeres awajún evidencian patrones de violencia sexual normalizada y silenciamiento cultural en el corredor Chiriaco-Imacita.
11	Yáñez L.; García L.; Rey C.	2023	Artículo científico (Scopus)	La violencia en el noviazgo impacta negativamente la salud mental de los jóvenes.
12	González, M. et al.	2023	Artículo científico (Scopus)	Propuesta de trabajo colaborativo y formación profesional en reparación psíquica.
13	Farfan, M. de los M. and Quezada, A.R.	2024	Tesis (Alicia)	Se analizan patrones relacionales entre NNA sobrevivientes y agresores desde la perspectiva adolescente.
14	Serrano, A.	2024	Artículo científico (Scopus)	Las zonas rurales presentan desigualdad en el acceso a servicios de salud mental para NNA.
15	IDEHPUCP	2024	Boletín (IDEHPUCP)	Casos de violación sexual de NNA en los pueblos indígenas Wampís y Awajún.

Source: Own elaboration

3.3 Data Extration and narrative synthesis

The analysis was carried out in four stages:

- **Selection:** Sources published between 2019 and 2024 were included, mostly in Spanish, complemented by some articles in English that provided relevant perspectives. Thematic relevance was prioritized over language, as long as the documents offered useful evidence for interpretive analysis.
- **In-depth Reading:** Each source was analyzed through open coding, extracting categories related to psychological sequelae, access to services, structural barriers, and regulatory frameworks.
- **Narrative Synthesis:** The information was organized into five thematic axes: (i) traumatic sequelae and comorbidities, (ii) barriers to access and revictimization, (iii) sociocultural determinants, (iv) regulatory framework and gaps, and (v) interventions and lessons learned.
- **Interpretive Analysis:** An integrative narrative was developed that connects findings, tensions, and gaps, highlighting the relevance of an intercultural and trauma-sensitive approach.

Table 2: Distribution of sources by database

Database	Number of articles	Percentage
EBSCO	1	7.1%
IDEHPUCP	1	7.1%
Repositories	2	13.3%
Scielo	3	21.4%
Scopus	4	28.6%
Alicia	4	28.6%
TOTAL	15	100%

Source: Own elaboration

The table shows the distribution of the 14 selected articles. Most come from Scopus and Alicia (28.6% each), reflecting a balance between international scientific sources and national repositories. SciELO contributes 21.4%, reinforcing the regional focus. The other databases (EBSCO, IDEHPUCP, Repositories) have lower representation (7.1% each), but provide key normative and technical documents.

This distribution demonstrates a diverse and strategic search, consistent with a qualitative approach that combines academic literature with institutional sources relevant to the analysis of mental health in NNA survivors of sexual violence in Peru.

4. Findings: Narrative Analysis

4.1 Cultural Determinants and Gender Norms

Cultural practices continue to influence rural and Amazonian areas, where some girls are pressured to join or marry early. These gender norms, rooted in community structures, combine with poverty and territorial inequality, increasing the vulnerability of indigenous adolescents.

In 2024, 37.0% of girls between the ages of 0 and 17 live in poverty (INEI, 2024). The situation is more critical in indigenous communities: 55.0% of poor children and adolescents have an indigenous language as their mother tongue. This poverty is concentrated in the Sierra (40.0%) and the Selva (38.4%), regions with a high indigenous presence and limited state coverage, which reinforces exposure to early unions and sexual violence.

Each year, more than 56,000 girls see their life plans compromised by child marriages and unions, which reproduce cycles of inequality and violence (UNFPA, 2024). Although Law No. 31948 prohibited child marriage

in 2023, previous records show its persistence: between 2013 and 2022, RENIEC documented marriages from the age of 11, evidencing its normalization in certain contexts (La República, 2023).

This problem is not unique to Peru. In India, girls are forced to marry to preserve 'family honor', while in South Sudan the 'exchange of girls' persists as a practice linked to extreme poverty. The comparison places the Peruvian case in a global context where sexual violence against children and adolescents takes on cultural variations but shares structural roots.

From a feminist perspective, rape culture explains how these practices are socially sustained, placing responsibility on girls and making it difficult for them to report abuse. Analyzing the persistence of child marriages and unions from this perspective shows that gender, poverty, ethnicity and territory are part of a broader structural pattern connected to international debates on sexual violence and human rights.

4.2 Psychological Sequelae

Child sexual abuse in Peru generates profound sequelae in girls and adolescent women, such as anxiety, depression, PTSD, and dissociation, negatively impacting their emotional, social, and academic development (Murillo et al., 2019; Bárbara et al., 2022). These effects worsen in the absence of family support or when the environment reproduces dynamics of victim-blaming (Elizabeth, 2019).

From the trauma-informed care perspective, these sequelae should not be understood merely as clinical symptoms, but as responses to harm in unsafe contexts. Repeated exposure to recounting the abuse and lack of institutional support intensify PTSD, manifested in flashbacks, constant fear, and social withdrawal (Macedo et al., 2021). Connecting these findings with the theoretical framework highlights that recovery requires safety, psychosocial repair, and empowerment, especially for indigenous girls facing ethnic and territorial discrimination.

4.3 Institutional Barriers and Revictimization

Care pathways show fragmentation and revictimization, forcing victims to repeatedly recount events in slow and traumatic judicial processes (IDEHPUCP, 2024). In police and prosecutorial settings, adult-centered and sexist approaches persist, minimizing violence, especially when perpetrators are authority figures or family members. Institutional tolerance is greater when the victim is a girl than when it is a boy, reflecting a gender bias that perpetuates impunity.

In health services, psychological care is limited, uncoordinated, and lacking specialization in child trauma (Serrano, 2024). This lack of articulation between justice and health prolongs suffering and fosters impunity (Murillo et al., 2019; González et al., 2023). From trauma-informed care and restorative justice perspectives, these institutional practices not only reproduce the initial harm but also intensify psychological sequelae and limit comprehensive reparation for survivors, particularly in contexts of poverty and ethnic discrimination.

4.4 Structural Determinants and Legal Framework

This form of violence is linked to structural determinants such as poverty, territorial inequality, machismo, and cultural normalization of violence (Gasco et al., 2022; Defensoría del Pueblo, 2022). In rural and Amazonian areas, state absence and cultural patterns hinder reporting and foster silence (Tuya, 2022; Serrano, 2024). Indigenous girls, such as the Wampís and Awajún, also face ethnic and gender discrimination, aggravating their vulnerability (IDEHPUCP, 2024). These factors create an environment where sexual violence becomes part of everyday life, especially in school contexts without effective supervision.

4.5 Normative Framework

Although Peru has laws that criminalize sexual violence and prohibit child marriage (Law No. 31192), their implementation is deficient and lacks effective monitoring mechanisms (Congress of the Republic, 2021). Regulations are not applied with a gender or intercultural approach, limiting their effectiveness in rural and indigenous communities (IDEHPUCP, 2024). Victims are often blamed or left unprotected by the system, and weak oversight reinforces impunity (Murillo et al., 2019; Defensoría del Pueblo, 2022). Despite normative advances, institutional gaps and lack of training in justice and health persist.

4.6 Trauma-Sensitive Interventions

There are intervention experiences led by NGOs, community networks, and some public entities, focused on psychological repair and psychosocial support (González et al., 2023; Arteta Maza, 2021). These initiatives promote trauma-sensitive approaches but have limited coverage and lack systematic evaluation (Macedo et al.,

2021; Farfán & Quezada, 2024). The absence of sustained public policies and intersectoral coordination prevents scalability. In addition, gaps are identified in professional training for specialized care of NNA survivors (De la Cruz et al., 2022).

4.7 Case of Sexual Violence Against NNA in Wampís and Awajún Communities

In 2024, at least 524 cases of sexual violence against girls from the Wampís and Awajún indigenous peoples, perpetrated by teachers in Amazonian communities, were publicly reported. The magnitude of these events generated strong social reaction, revealing that this form of violence not only persists in urban settings but also reproduces in rural and indigenous school environments, where access to justice and protection is even more limited.

According to IDEHPUCP (2024), many of these cases remain unpunished due to lack of articulation between community justice and the ordinary judicial system, as well as the absence of effective mechanisms for psychosocial reparation. Affected girls face barriers to reporting, institutional revictimization, and structural silencing. This case exposes normative gaps, institutional weakness, and intercultural tensions that hinder effective sanctioning of perpetrators, even when they are public officials such as teachers

4.8 Other Cases of Sexual Violence

Two cases of child survivors of sexual abuse generated international concern. UNICEF (2023) classified the Peruvian State's responses as a violation of the rights of children and adolescents (NNA), noting that a pregnancy resulting from rape is not consensual and undermines integral, physical, and mental development.

Camila, a girl from Apurímac abused by her father since the age of 9, became pregnant at 13. She was denied medical care, worsening her condition and putting her life at risk. She expressed her desire to commit suicide to avoid continuing the pregnancy, but medical staff insisted on prenatal check-ups, harassing her at home and school, which led her to abandon her community. After a spontaneous abortion, she was accused and convicted of self-induced abortion without evidence, being held responsible for the event. The judicial and medical process revealed severe institutional revictimization and the State's failure to provide solutions.

Mila, an 11-year-old girl from Loreto, became pregnant by her stepfather, who had abused her since the age of 7. She also reported previous assaults by her uncle. Authorities released the stepfather due to alleged lack of evidence. At the Regional Hospital of Loreto, she was denied therapeutic abortion, arguing that rape cases are not included in the protocol. Tello (2023) warned that the risk of death in an 11-year-old girl due to pregnancy complications is even higher, rejecting the medical board's decision.

These cases highlight institutional negligence and a structural pattern of violence and abandonment toward NNA in Peru. Female victims are forced into motherhood without physical or emotional capacity and judged if they decide to terminate the pregnancy. This imposition generates extreme stress which, given the shortage of mental health professionals, further fragments the psychological well-being of minors.

5. Discussion

5.1 Contributions to Research on Gender and Trauma

The findings of this narrative review allow for an understanding of the complexity of sexual violence against NNA in Peru, showing how psychological, institutional, structural, and normative dimensions interact. Consistent patterns of severe emotional impact, long-term sequelae in integral development, and persistent practices of revictimization were identified. These results align with Latin American and international literature on child trauma (Murillo et al., 2019; Bárbara et al., 2022), reaffirming that childhood sexual violence affects multiple spheres of life. However, it is evident that widely disseminated approaches such as trauma-informed care or survivor-centered justice (Macedo et al., 2021; González et al., 2023) have not yet been systematically integrated into national interventions, revealing a gap between theoretical frameworks and their real application in contexts of inequality and high vulnerability.

5.2 Implications for Public Policy and Institutional Practice

Despite normative advances by the Peruvian State, the reviewed evidence shows that institutional responses remain fragmented, reactive, and insufficiently sensitive to territorial and cultural specificities. The review confirms the urgency of strengthening articulation among the justice, health, and education sectors, and consolidating protocols with a gender approach, intercultural relevance, and effective rights protection. Cases such as those of Wampís and Awajún girls reveal gaps in coordination between community justice and the

ordinary judicial system, as well as the absence of psychosocial reparation mechanisms. The cases of Camila and Mila, in turn, expose institutional negligence and serious failures in health and judicial care, including denial of therapeutic abortion, undue judicialization, and revictimization. These findings underscore the need for sustained political will to monitor the implementation of existing laws and allocate structural resources that guarantee comprehensive, culturally appropriate interventions free from institutional violence.

5.3 Methodological Considerations

This review presents limitations derived from the exclusive use of secondary sources, which prevents access to direct testimonies or exploration of subjective experiences of NNA survivors. Moreover, most reviewed studies focus on urban contexts or general analyses, with limited representation of rural, indigenous, and diverse identity populations. The inclusion of the Wampís and Awajún case sought to highlight this gap by incorporating an intersectional perspective that problematizes how gender, ethnicity, poverty, and rurality overlap in the production of and response to sexual violence.

5.4 Future Research Lines

Several areas of necessary research are identified: qualitative studies with direct participation of NNA survivors under strict ethical standards; impact evaluations of trauma-sensitive interventions; comparative analyses between urban, rural, and indigenous contexts; and exploration of best practices in intersectoral and intercultural coordination. These lines would deepen available knowledge and contribute to more effective, inclusive, and sustainable public policies.

The evidence analyzed shows that child sexual violence in Peru acquires particular characteristics when observed from an intersectional perspective, where gender, territory, ethnicity, and structural inequality decisively intertwine. Documented cases in urban areas and, especially, in indigenous Amazonian communities reveal that girls' vulnerability intensifies in contexts where historical discrimination, institutional precariousness, and intercultural tensions converge. The magnitude of abuses committed against Wampís and Awajún girls, as well as Camila and Mila's experiences within the health and justice systems, identify a structural pattern in which revictimization, absence of trauma-informed approaches, and lack of cultural relevance severely weaken the State's response.

This panorama is particularly significant for international debates on child protection and gender-based violence, as it shows that such violence cannot be understood or addressed solely through universal frameworks. Instead, it requires considering how trauma, racism, territorial inequality, and institutional fragility operate simultaneously. The Peruvian case provides critical elements to rethink child protection systems in culturally diverse societies, highlighting the urgency of comprehensive responses that integrate justice, health, and reparation through approaches sensitive to context and the lived experiences of girl survivors.

6. Conclusions

Sexual violence against children and adolescents (NNA) in Peru continues to be marked by structural gaps that limit access to protection and recovery. This demands public policies capable of strengthening care pathways, ensuring their enforcement throughout the territory, and guaranteeing mental health services that truly reach those in need, especially in rural and indigenous contexts where state responses are weaker. At the same time, working with NNA survivors requires professionals trained to intervene with trauma-informed, gender-sensitive, and intercultural approaches. Without training that incorporates these competencies transversally, practices that revictimize and weaken the possibility of comprehensive reparation persist.

It is also essential to promote a research agenda that collects the experiences of Amazonian communities, evaluates existing interventions, and enables a better understanding of how inequalities sustain this form of violence. The production of situated evidence is key to guiding policies that are more relevant and sensitive to diverse contexts.

Protecting NNA from these forms of violence is a public and ethical responsibility that will only be effective if sustained through coordinated actions, culturally respectful approaches, and measures aimed at restoring the dignity and well-being of affected girls and adolescents.

Ethical Sensitivity: Respectful and non-stigmatizing language was used, focusing on survivors. The limitations inherent in the exclusive use of secondary sources are acknowledged, and the reproduction of stereotypes or judgments about the communities analyzed was avoided. The report was written in a clear and accessible style, with a focus on the human dimension of the issue.

AI Declaration: No artificial intelligence tools were used in the development, analysis, or writing of this work.

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Women's Experiences of Work and Leadership in Mexico: Structural and Emotional Barriers Across Sectors

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Abstract: Women remain underrepresented in senior roles in Mexico despite important progress in education and labour-market participation. Research on gender and work has often examined structural barriers in organizations and labour markets separately from emotional barriers such as self-doubt or fear of failure. Drawing on Acker's concept of gendered organizations, this paper explores how these barriers come together in women's experiences of work and leadership in Mexico. The study uses data from a cross-sectional survey conducted in 2024–2025 with 1,020 professional women from education, health, financial services, technology, retail, and other sectors. Participants held roles ranging from early-career positions and entrepreneurship to middle management, directorships, and senior executive positions. The survey included socio-demographic questions, a checklist of emotional obstacles reported as either already overcome or not yet overcome, and open-ended questions about relevant workplace experiences. The findings show that women frequently report self-doubt, fear of failure, pressure linked to traditional family expectations, work-care tensions, and the need to constantly prove competence in male-dominated environments. Several of these obstacles appear in both response categories, suggesting that they do not simply disappear but often return at different moments in a woman's career. Age comparisons indicate that self-doubt and fear of failure are more common among younger respondents, while qualitative responses show that senior women also continue to face isolation, bias, and work-family tensions. The paper contributes evidence from Mexico to the gender and work literature by showing that structural and emotional barriers are closely connected. It also suggests that leadership-development efforts should move beyond a "fix the woman" approach and pay more attention to organizational culture, evaluation systems, and support structures.

Keywords: Gender and work, Women in leadership, Mexico, Emotional barriers, Structural barriers, Gendered organizations

1. Introduction

Women's participation in paid work has expanded across Latin America, but this has not translated into equal access to leadership positions. Mexico reflects this pattern clearly. Women have made important gains in education and professional participation, yet they continue to face barriers in promotion, recognition and access to senior roles. Research has shown that occupational segregation, unequal care responsibilities and gendered expectations still shape women's career opportunities. At the same time, many women who seek leadership positions describe internal struggles such as self-doubt, fear of failure and tension between being seen as competent and being seen as likable.

These are often treated as separate issues. Structural barriers are discussed in terms of institutions, hierarchies and discrimination, while emotional barriers are framed as matters of confidence or personal development. In practice, however, these experiences are closely connected. Feelings such as fear of failure or the need to constantly prove one's value do not emerge in a vacuum. They are often shaped by workplace cultures, evaluation systems and everyday interactions.

This paper focuses on women's experiences of work and leadership in Mexico. Although the broader Latin American context is relevant, the evidence presented here is specifically Mexican. This is important because much of the research on women's leadership comes from Europe and North America, often from single organizations or from corporate leadership programmes. We still know less about how women in Mexico describe both structural and emotional barriers across sectors and at different career stages.

The paper draws on Acker's (1990) concept of gendered organizations. This perspective is useful because it helps explain how organizations reproduce inequality through roles, expectations and apparently neutral procedures. It also helps us understand that emotional barriers should not be interpreted only as individual weaknesses. In many cases, they are responses to gendered environments.

The purpose of this paper is threefold. First, it describes the profile of the women in the sample and the sectors and roles they occupy. Second, it identifies the emotional barriers women most frequently report as already overcome and not yet overcome. Third, it interprets these patterns in light of gendered organizations and women's leadership identity work. The paper contributes empirically by providing cross-sector evidence from Mexico, and conceptually by arguing that emotional barriers are often recurrent rather than once-and-for-all challenges.

2. Literature Review

2.1 Gendered Organizations and Women's Careers

Acker (1990) argued that organizations are not gender-neutral. Gender is built into their structures, routines and assumptions about who the ideal worker is. In many workplaces, that ideal worker is imagined as someone fully available for paid work and largely free from care responsibilities. This model tends to fit men's traditional life patterns more easily than women's, especially in contexts where women continue to carry most domestic and caregiving work.

Later research has shown that gendered processes operate in many subtle ways: through promotion criteria, access to informal networks, performance evaluation, and expectations about how leaders should behave. These insights are especially relevant in Mexico, where labour-market inequality coexists with strong cultural expectations around family and caregiving. Regional reports from the International Labour Organization and UN Women have consistently shown that women perform a disproportionate share of unpaid care work, and that this affects their access to stable, well-paid and promotable jobs. The Economic Commission for Latin America and the Caribbean (ECLAC) has also highlighted how the organization of care is central to understanding gender inequality in the region.

From this perspective, women's underrepresentation in leadership cannot be explained only by individual decisions or aspirations. It is also shaped by institutional arrangements and organizational cultures that make advancement easier for some than for others.

2.2 Emotional Barriers and Leadership Identity

A second body of literature focuses on women's emotional experiences in relation to leadership. Clance and Imes (1978) described the impostor phenomenon among high-achieving women who doubt their competence despite evidence of success. Eagly and Carli (2007) later argued that women's path to leadership is better understood as a labyrinth than as a single barrier, because the obstacles they face are varied, subtle and ongoing. Ely, Ibarra and Kolb (2011) further suggested that leadership development involves identity work: women must come to see themselves as leaders in settings that may not fully recognize them as such.

This literature is useful, but it also carries a risk. Emotional barriers can easily be framed as individual shortcomings that women must solve through confidence-building or resilience. That interpretation is too narrow. Self-doubt, fear of being judged too harshly, or anxiety about balancing work and family may be deeply connected to organizational environments in which women are held to different standards. For this reason, emotional barriers should be analysed in relation to context rather than as purely private struggles.

2.3 Research gap and Analytical Focus

Existing studies often emphasize either structural constraints or women's internal emotional experiences. Fewer studies examine both at the same time using cross-sector evidence from Mexico. There is also limited attention to whether women experience barriers as definitively resolved or as challenges that reappear over time. This paper addresses that gap by analysing responses that distinguish between obstacles women feel they have already overcome and those they feel they have not yet overcome. That distinction offers a useful way to explore whether barriers are linear, cumulative or cyclical.

3. Method

3.1 Design and Sample

This study is based on a cross-sectional survey. Data was collected between March 2024 and September 2025 through an online questionnaire distributed through professional networks, social media and organizations interested in women's leadership. Participation was voluntary and anonymous, and no financial incentives were offered.

The final sample includes 1,020 women in Mexico. The sampling strategy was non-probabilistic and based on convenience, so the results cannot be treated as statistically representative of all women in the country. Even so, the sample includes women from different age groups, sectors, educational backgrounds and hierarchical levels, which makes it valuable for exploratory analysis.

3.2 Measures

The questionnaire included three main sections. The first gathered socio-demographic and occupational information, including age, education, sector and hierarchical level. The second included a checklist of emotional obstacles to career progression. Respondents marked which obstacles they had already overcome and which they had not yet overcome. The items included self-doubt, fear of failure, pressure linked to family expectations, work-family conflict, fear of being seen as too aggressive or too soft, pressure to prove competence, discrimination, lack of mentors and isolation in leadership roles. The third section included open-ended questions that invited respondents to describe other important workplace challenges or experiences.

3.3 Analysis

The quantitative analysis is descriptive and exploratory. Because respondents could select multiple items, frequencies and percentages are reported by barrier rather than as mutually exclusive categories. Age comparisons focus on two not-yet-overcome barriers that appeared frequently in the data: self-doubt and fear of failure. The qualitative responses were examined through thematic coding to identify recurring issues such as work-family tensions, discrimination, organizational culture, support networks and personal growth.

4. Sample Profile

Table 1: Sample characteristics (N = 1,020)

Variable	Category	n	%
Education	Bachelor's degree	622	61.0
	Postgraduate degree	204	20.0
	Engineering degree	92	9.0
	Basic education	71	7.0
	Other	31	3.0
Sector	Other sectors	367	36.0
	Education	163	16.0
	Health	153	15.0
	Financial services	143	14.0
	Technology	112	11.0
	Retail	82	8.0
Age	Under 25	326	32.0
	26–35	173	17.0
	36–45	184	18.0
	Over 46	337	33.0

The sample also includes women at different hierarchical levels. The most frequent categories reported were entrepreneur or business owner (204), section head (156), area manager (133), department director (115), and senior executive roles such as CEO, CFO or COO (86). The original categories in the survey were in Spanish and have been translated here for clarity.

5. Findings

5.1 Main Emotional Barriers

The barriers most frequently selected in the already-overcome category were pressure to comply with traditional family and social expectations (55.8%), doubts about self-confidence and personal worth (52.1%), fear of failure and of not meeting leadership expectations (51.0%), difficulty balancing professional and family

responsibilities (50.2%), fear of being perceived as too aggressive or too soft (47.5%), and constant pressure to prove competence (46.5%).

A similar pattern appears in the not-yet-overcome responses. Fear of failure and of not meeting leadership expectations was selected by 42.0% of respondents, followed by difficulty balancing work and family responsibilities (34.5%), fear of being perceived as too aggressive or too soft (34.0%), pressure to prove competence (33.4%), self-doubt (33.2%), and pressure to comply with traditional expectations (32.1%).

Table 2: Main emotional barriers reported as already overcome and not yet overcome

Barrier	Already overcome %	Not yet overcome %
Pressure from traditional family/social expectations	55.8	32.1
Self-doubt and personal worth	52.1	33.2
Fear of failure / not meeting expectations	51.0	42.0
Difficulty balancing work and family	50.2	34.5
Fear of being too aggressive / too soft	47.5	34.0
Pressure to prove competence constantly	46.5	33.4

What stands out most is the overlap between the two categories. Several of the same barriers appear among those women who say they have overcome and among those they say they are still dealing with. This suggests that these difficulties do not simply vanish. They may return to different forms at different moments in a woman's career.

5.2 Age Differences

The age comparisons point in the same direction. Younger women are more likely to report self-doubt and fear of failure as ongoing barriers, but these challenges are still present among older women.

Table 3: Selected not-yet-overcome barriers by age group (%)

Age group	Self-doubt	Fear of failure
Under 25	41.5	49.1
26–35	46.3	51.4
36–45	29.3	40.3
Over 46	20.5	31.0

These figures suggest that emotional pressure is especially strong in early and mid-career stages, when women are trying to establish credibility, seek advancement, and often navigate major life transitions. At the same time, the continued presence of these barriers among women over 46 shows that experience does not remove them entirely.

5.3 Qualitative Themes

The open-ended responses add nuance to the quantitative findings. Four broad themes appeared repeatedly.

The first was work-family tension. Many respondents described the difficulty of being expected to perform as committed professionals and as primary caregivers at the same time. Guilt, exhaustion and the sense of never doing enough appeared often in these comments.

The second was organizational culture and bias. Respondents referred to machismo, sexist comments, exclusion from decision-making, unequal recognition and blocked promotion opportunities. Several explicitly said that they had to prove more than men in order to be taken seriously.

The third theme was support and isolation. Some women highlighted the positive role of mentors and supportive supervisors, while others described feeling alone, lacking guidance or experiencing competition rather than solidarity. A few mentioned tension among women themselves, especially in environments where leadership opportunities are limited.

The fourth theme was growth through difficulty. Many respondents described learning to set boundaries, ask for help, trust their own judgment or recognize their accomplishments. These reflections do not suggest that barriers are unimportant. Rather, they show that agency often develops in the middle of constraint.

6. Discussion

This study set out to examine how structural and emotional barriers interact in women's work and leadership experiences in Mexico. The findings support three main points.

First, emotional barriers are better understood as recurrent than as fixed. The overlap between already-overcome and not-yet-overcome barriers suggests that women do not simply solve a problem once and leave it behind. Similar fears and tensions may resurface during promotions, changes in role, motherhood, conflict with authority figures or entry into male-dominated environments. In that sense, the findings are consistent with the idea that leadership is not a straight path but an ongoing negotiation.

Second, structural and emotional barriers are tightly linked. Fear of failure, self-doubt and the pressure to prove competence are not merely personal feelings. They are connected to work environments in which women may face biased evaluation, stronger scrutiny, reduced access to influence, or less flexibility around care responsibilities. Acker's theory is useful here because it reminds us that emotions are not outside organizational life. They are often produced and shaped within it.

Third, the Mexican context matters. The prominence of family expectations, care burdens and machismo in the data suggests that women's leadership experiences are shaped by local cultural and institutional conditions. This does not make Mexico an exceptional case, but it does show why country-specific evidence matters. Gendered barriers are not abstract. They take shape in concrete social settings.

The paper's conceptual contribution lies in reframing emotional barriers as relational and cyclical. Rather than treating self-doubt or fear of failure as traits that belong to women as individuals, the findings suggest that these experiences often reflect women's encounter with gendered settings. This helps bring together two conversations that are still too often separated in the literature: organizational inequality and women's emotional experience of leadership.

7. Implications

The findings have practical implications for organizations, leadership-development initiatives and future research.

For organizations, the results suggest the importance of looking beyond representation targets. Transparent promotion criteria, fairer evaluation systems, mentoring opportunities and safer climates for disagreement and visibility matter. Work-family tensions also require structural responses. In Mexico, parental leave is partly defined by legal frameworks, but organizations still have room to complement these provisions through flexible arrangements, support for caregivers and managerial practices that do not penalize caregiving.

For leadership-development programmes, the findings support approaches that combine skill development with space for reflection on gendered experiences. Women do not simply need more confidence. They also need environments that make leadership more accessible and less costly. Programmes that ignore context risk individualizing what are often organizational problems.

For research, the distinction between already-overcome and not-yet-overcome barriers appears especially useful. It opens the door to studying whether barriers are episodic, cumulative or cyclical. Longitudinal work, cross-country comparisons and more intersectional analysis would be especially valuable in future studies.

8. Limitations

This study has several limitations. The sample is non-probabilistic and likely overrepresents women who are already connected to professional or leadership-development networks. The design is cross-sectional, so change over time is inferred from self-report rather than directly observed. In addition, the structural measures used here are relatively limited, focusing mainly on sector and hierarchical level. Future research could incorporate organizational size, employment arrangements, family situation and more detailed measures of workplace policy and culture.

9. Conclusion

This paper examined the work and leadership experiences of 1,020 women in Mexico across sectors and career stages. It showed that self-doubt, fear of failure, work-family tension, pressure from traditional expectations and the need to prove competence remain central parts of many women's career experiences. These barriers are best understood not as isolated emotional weaknesses but as recurring responses to gendered organizational and social conditions. By placing Mexico at the centre of the analysis, the paper contributes context-specific evidence to the gender and work literature and argues for interventions that address structure, culture and emotion together.

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Gender Stereotypes in Nonprofit Governance: The Case of Nonprofit Sports Organisations

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Abstract: This study addresses the issue of a “lack of diversity” in nonprofit sports organisations, where gender stereotypes influence social expectations regarding who should hold leadership positions. By reflecting normative notions of femininities and masculinities and disseminating generalised opinions about what men and women are like, gender stereotypes often contribute to discrimination and prejudice. According to gender role congruence theory, leadership traits such as assertiveness and individualism are considered masculine and incompatible with female gender role traits, which are expected to be collaborative and sensitive. As a consequence, women face more barriers than men when climbing organisational hierarchies. The nonprofit sector is not immune from gender stereotypes that can limit women’s access to governing boards. This paper uses the lens of gender role congruence theory to explore the relationship between gender and governance in the domain of nonprofit sports organisations. Although sports do not have inherent gender characteristics, gender stereotypes often operate in this field, resulting in women being underrepresented on boards. The aim of the study is answering the following questions: To what extent are women represented on nonprofit boards? How likely are they to reach leadership positions (e.g. president) on the board? Does women’s representation vary according to the sport that nonprofits focus on? The findings confirm that, on average, board membership and leadership are still skewed towards men. Nonprofit sports organisations have more men than women in their boardrooms. Women are less likely than men to hold the position of president/chairperson of a nonprofit sports organisation. When sports are classified according to gender stereotypes (e.g. softball and volleyball are considered female sports; rugby and baseball are identified as male sports; swimming and running are neutral sports that can be played by both genders), women hold the majority of board and president positions only in nonprofits that focus on female sports.

Keywords: Governance, Stereotypes, Gender, Nonprofit boards, Sport

1. Introduction

Interest in the representation of women in leadership roles within the governance of public, private and nonprofit organisations continues to grow alongside the greater demand for social justice, equity, and the advancement of gender minorities. Although the proportion of women on boards has increased, particularly in countries where gender quotas were mandatory, they often have limited access to top positions and less influence over board decisions than their male counterparts (Revillard and Tuffy, 2023).

Many barriers hinder substantive women’s involvement in leadership roles (Elkhwesky, Salem and El Manzani, 2025), including the persistence of gender stereotypes that disseminate simplified ideas about what men and women are like. By perpetuating an image of women as caregivers and men as breadwinners, gender stereotypes end up having a prescriptive role and depicting what women and men should be like (Heilman, Caleo and Manzi, 2024). This often generates gender bias and results in consequent gender discrimination.

According to gender role congruity theory (Eagly and Karau, 2002), gender stereotypes contribute to explaining why women face more barriers than men when climbing organisational hierarchies. Leadership traits such as competitiveness, assertiveness, individualism and independence are considered masculine and incompatible with female gender role traits, which are expected to be nurturing, collaborative, gentle, sensitive and soft (Kobutary, Syed and Haloub, 2019). Nonprofit organisations are not immune to concerns regarding gender stereotypes, despite values such as representation, equality and inclusivity being at their core (Piatak, McDonald and Mohr, 2022). Simplified and generalised opinions about women’s characteristics and abilities limit their access to governing boards and often relegate them to symbolic roles (Evans and Knepper, 2022).

This paper uses the lens of gender role congruity theory to explore the relationship between gender and governance in the domain of nonprofit organisations, focusing specifically on the sports sector. Although sports do not have inherent gender characteristics (Alsamih, 2024), gender stereotypes often operate in this field, resulting in women being underrepresented on boards and confined to expected, socially congruent gender roles within the governance of these organisations (Burton, 2015; Knoppers et al, 2022).

Specifically, the study poses the following research questions:

RQ1: To what extent are women represented on nonprofit boards?

RQ2: How likely are they to reach leadership positions (e.g. president) on the board?

RQ3: Does women's representation vary according to the sport that nonprofits focus on?

The findings reveal gender patterns diffused among the boards of nonprofit sports organisations, and confirm that, on average, board membership and leadership are still skewed towards men.

By exploring gender stereotypes, this paper positions itself at the intersection of sports management research and nonprofit board governance theory. It shows that gender is a powerful factor in the social processes that shape the governance of nonprofit organisations, influencing beliefs about role congruity that legitimise specific governance behaviours. As gender stereotypes affect the perception of board effectiveness, they can be included among the factors that influence “widely accepted notions of how a nonprofit board of directors should operate” (Miller-Millesen, 2003, p. 525).

The paper is structured as follows. Section 2 provides the theoretical underpinnings for the study. These are then laid down in the context of nonprofits in Section 3, with a particular focus on sports organisations. Section 4 outlines the methodology employed for the empirical analysis, the results of which are presented in Section 5. Finally, Section 6 provides a discussion of the findings and offers some concluding remarks.

2. Gender Stereotypes and Role Congruity Theory

Stereotypes are simplified and generalised images or ideas of a group of people who share certain characteristics (Rosenthal and Overstreet, 2016). Based on widely held and often unconscious mental models, they affect how people think and act. Among the most common are gender stereotypes, which reflect normative notions of femininities and masculinities. “Gender stereotypes are the widely shared conceptions about the attributes of men and women, and they include personality, cognitive, and physical attributes as well as attributes related to interests and abilities” (Heilman, Caleo and Manzi, 2024, p. 167). Based on common assumptions, gender stereotypes attribute a set of characteristics to women that encompass kindness, concern for others, sensitivity, and helpfulness. On the negative side, women are thought to be passive, compliant and insecure. Men are typically viewed as being competent, independent, productive, and assertive, but also competitive, controlling, aggressive and arrogant. By disseminating generalised opinions about what men and women are like, gender stereotypes play a prescriptive role. Men are expected to take charge and get things done, while women are expected to build relationships and take care of others (Hentschel, Heilman and Peus, 2019). Stereotypical female and male roles translate into expected organisational roles, which perpetuates the disparities between women and men in the workplace and boardrooms, and amplifies the differentiation of their skills through gendered divisions of labour (Heilman, Caleo and Manzi, 2024).

According to gender role congruity theory (Eagly and Karau, 2002), women face more barriers than men when climbing organisational hierarchies due to gender stereotypes. These barriers stem from a perceived mismatch between the gender of a person who has to cover a certain role and the stereotyped idea about the characteristics required for that role. The mismatch is a product of social conditioning and expectations, which lead to bias against individuals who do not fit the stereotype for a given role. A lack of fit typically occurs when women are evaluated for leadership positions. Leadership is a gendered role, which is stereotypically expected to be filled by men. Although this is less the case than in the past, it is assumed to require masculine qualities (Kobutary, Syed and Haloub, 2019). Men are believed to succeed better in power positions because they are “seen as more similar to the leader stereotype than women are, producing disadvantage for women” (Koenig et al, 2011, p. 617). Therefore, prejudice and barriers against women in leadership roles usually stem from perceptions about their gender rather than their actual ability to perform leadership tasks.

Although the growing complexity of organisational environments has led to the development of a less masculine model of leadership, based on relationships, participatory decision-making and delegation (Kolpakov and Boyer, 2021), recent empirical studies conducted worldwide confirm that gender biases and stereotypes are among the most persistent challenges faced by women in the boardroom (Elkhwesky, Salem and El Manzani, 2025). The “think manager–think male” paradigm (Schein, 1973) is difficult to overcome, and women continue to discount two forms of prejudice against them as leaders. On the one hand, they appear less natural in most leadership roles, and on the other, they are often perceived as arrogant when displaying the agentic traits required by these roles (Ma, Rosette and Koval, 2022). As a consequence, even when women reach leadership positions, they are often excluded from the upper echelons, which tend to remain the domain of men.

3. Women's Representation in Nonprofit Boards

Nonprofit organisations are not immune to concerns regarding gender stereotypes (Kolpakov and Boyer, 2021), despite representation, equality and inclusivity being core values of such organisations and forming the basis of

good governance practices (Ortega-Rodríguez et al, 2024). Representative and inclusive boards reflect the diverse demographic characteristics (e.g. gender, age and race) of the communities they serve, thereby contributing to the perception of nonprofits as symbols of local identities (Abzug and Galaskiewicz, 2001). A wealth of research shows that gender diversity on boards matters for reasons beyond its representational and inclusive value, ultimately enabling the organisation to fulfil its mission (Azevedo et al, 2021; Evans, Kuenzi and Stewart, 2025; Holgersson and Hvenmark, 2023). Having a diverse board of directors can help nonprofits to manage relationships with multiple stakeholders, build networks, improve decision-making, and acquire resources, among other things.

Nevertheless, despite the increased number of female leaders over the past few years, women are still underrepresented in boardrooms, suggesting that the glass ceiling has not been broken; it has simply been moved higher. Although nonprofit organisations are female-dominated and women comprise the majority of the workforce (Evans and Knepper, 2022), the nonprofit sector becomes less diverse at leadership level. In the U.S., for example, national data show that women hold 52% of board positions (Clerkin, Diomande and Koob, 2024), which suggests favourable career prospects for women. However, data should be interpreted carefully for at least two reasons. First, unlike companies, the vast majority of nonprofit board members are not paid, or paid less than their counterparts in the for-profit sector. This makes leadership positions less appealing to men and more accessible to women (Feng and Greenlee, 2024; Finley, Hall and Marino, 2022). Second, women are, on average, better represented than men only in smaller organisations (Piatak, McDonald and Mohr, 2022). In large nonprofits with expenses above \$25 million, women remain in the minority at the leadership level (44% of board members). This confirms the “glass escalator” effect, whereby men in female-dominated fields rise more quickly to senior leadership positions.

There are a number of reasons why women are underrepresented on nonprofit boards, including stereotypical interpretations of social order that see women’s roles in nonprofits as more about support than leadership. (Evans and Knepper, 2022). When current leaders become the archetype of what and who leaders are, the risk is perpetuating the gender gap in nonprofit leadership positions (Piatak, McDonald and Mohr, 2022), as archetypes “serve as filters, screening out everyone but those who meet the accepted standards; therefore, the leaders remain the same and so do the standards” (Stivers, 2002, p. 72).

Gender stereotypes affect many nonprofit organisations, including those operating within the sporting arena (Burton, 2015). “Sports institutions are important upholders of the privileging of men and masculinities” (Alsarve, 2024, p. 286; Anderson, 2009). Although sports do not have inherent gender characteristics, women are more likely to be equally represented in the governance of sports organisations that are perceived as feminine (Elling, Hovden and Knoppers, 2018). Tennis, basketball, swimming and running are usually considered gender-neutral. Conversely, football and boxing are typically masculine, while gymnastics, volleyball, cheerleading and ballet are typically considered feminine (Alsamih, 2024). In contexts where their presence is unusual, women are more likely to be affected by the use of gender stereotypes and tend to be underrepresented on boards (Eime et al, 2021; Heilman, Caleo and Manzi, 2024; Knoppers et al, 2022). The result is that gender and cultural divides persist, with male and female leaderships dominating gender-separate male and female sport organisations (Alsarve, 2024). This ultimately hinders the board’s ability to perform to its full potential, as “women may bring qualities and values to sport boardrooms that men are less likely to possess” (McLeod et al, 2025, p. 552) and vice versa. Overcoming gender stereotypes and allowing for greater gender diversity has been reported to enhance stakeholder engagement, risk management, and strategic planning and policy (McLeod et al, 2025; Wicker, Feiler and Breuer, 2022).

4. Methodology

To address the study’s research questions, this paper focused on U.S. nonprofit sport organisations. According to the research protocol, the list of organisations was obtained using the Internal Revenue Service’s Tax Exempt Organization Search tool. From a total list of 481 organisations with the activity code “Sports, Athletic Recreational and Social Activities”, only those with a mission that was clearly related to sports and athletic activities were selected (N = 192). After excluding those with unavailable Form 990 or incomplete data on board composition and roles within the form (N = 16), the final sample included 176 organisations.

Although gender is often understood in broader terms, this study employed a binary gender classification and measured gender as either woman/man or female/male, depending on the board members’ names (Holgersson and Hvenmark, 2023). This approach was adopted for the pragmatism it affords during analyses, in line with previous studies (McLeod et al., 2025).

Three analyses were performed. The first aimed to understand the extent to which women are represented on the boards of nonprofit sport organisations, which are stereotypically considered to be the domain of men and masculinity (Alsarve, 2024). To this end, the data analysis focused on the percentage of women serving on each board. As researchers have warned about the risk of women being relegated to a mere symbolic presence (Wicker, Feiler and Breuer, 2022), particular attention was paid to women reaching a critical mass. This “is typically identified as being around three members or constituting 30% of the total board composition” (McLeod et al, 2025, p. 550). The second analysis investigated how many women reached leadership positions within the board, such as president/chairperson, thereby breaking down gender stereotypes associated with these roles (Elkhwesky, Salem and El Manzani, 2025). The third analysis aimed to determine whether the representation of women differs in nonprofit sports organisations depending on the sport they focus on and the gender stereotypes usually associated with it (Knoppers et al, 2022). To this end, sports were categorised according to the gender classification proposed by Sobal and Milgrim (2019). Sports not included in it are classified as N/A. The label “General” indicates nonprofits that offer multiple sports (Table 1).

Table 1: Sports’ gender-typing

Male sports	Female sports	Neutral sports	N/A
Baseball	Equestrian	Basketball	Bridge
Boxing	Gymnastic	Chess	General
Football	Softball	Cycling	Pickleball
Hunting	Volleyball	Golf	Shooting
Hockey		Lacrosse	Soaring
Karate		Rowing	
Rugby		Running	
Water Polo		Sailing	
Wrestling		Soccer	
		Swimming	
		Tennis	

5. Findings

With a total number of 1,659 directors, the board sizes of nonprofit sports organisations range from 1 to 48 members. 50% of boards have between 5 and 9 members. This percentage rises to 84% when considering boards with 3 to 12 members. The average board size is 9 people (median = 9).

As for nonprofits in general (Clerkin, Diomande and Koob, 2024), board size varies substantially by organisational size (as measured by annual expenses), with larger organisations that tend to have more members on their boards (Figure 1).

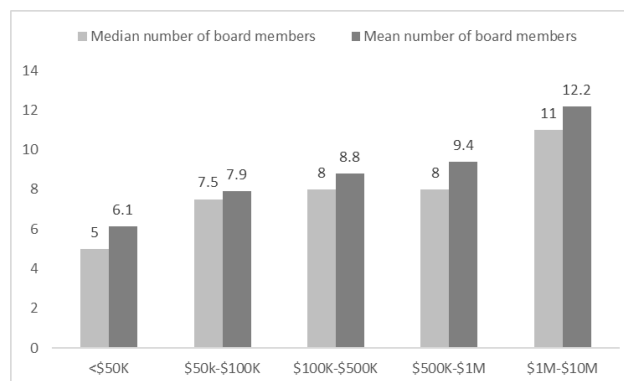


Figure 1: Average board size by organisational size

5.1 To What Extent are Women Represented on the Boards of Nonprofit Sports Organisations?

Nonprofit sports organisations have more men than women in leadership roles. Women hold only the 32% of board positions, compared to 52% for the whole nonprofit sector (Clerkin, Diomande and Koob, 2024).

Beyond this average figure, the representation of women on boards varies significantly. Figure 2 shows the percentage of nonprofit sports organisations by share of women on their boards.

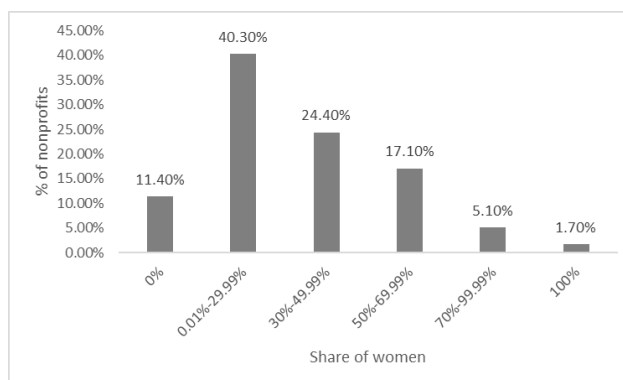


Figure 2: Representation of women on boards

In 52% of cases, women are far from reaching critical mass in boardrooms, staying largely below the threshold of 30% of board positions (McLeod et al, 2025). For men, this only happens in 7% of cases. More than 11% of nonprofit sports organisations have no women directors, compared to less than 2% of boards that are entirely female-held. Balanced boards with a share of women between 40% and 60% (Wicker, Feiler and Breuer, 2022) only represent the 20% of cases.

Figure 3 shows the average number of board members by gender, depending on the organisation's size. For example, on average, organisations with expenses between \$50,000 and \$100,000 have a board of 7.9 directors, of whom 2.2 are female and 5.7 male. The gender gap is greatest for organisations with expenses of less than \$50,000, with men outnumbering women by an average of 3.7 times in the smallest nonprofits. Although the gap narrows as organisations grow, men always outnumber women by a ratio of two to one.

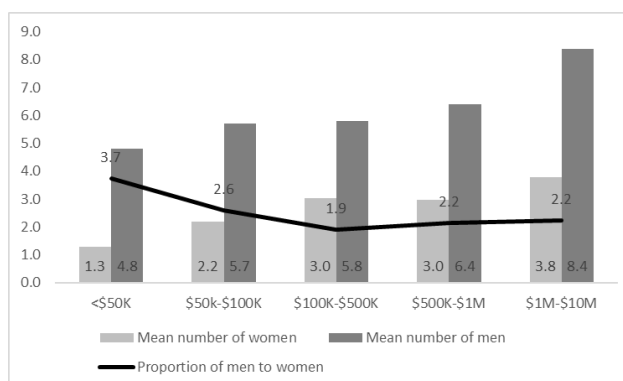


Figure 3: Average board gender representation by organisational size

5.2 How Likely are Women to Reach Leadership Positions Within the board of Nonprofit Sports Organisations?

Men are more likely than women to hold the position of president/chairperson of a nonprofit sports organisation. Only 44 of the 176 boards are chaired by women, accounting for 25% of the total. This figure varies depending on the size of the organisation, with the share of female presidents increasing from 14.3% to 28.6% for organisations up to \$500,000 (Figure 4). For larger organisations, the gender breakdown fluctuates.

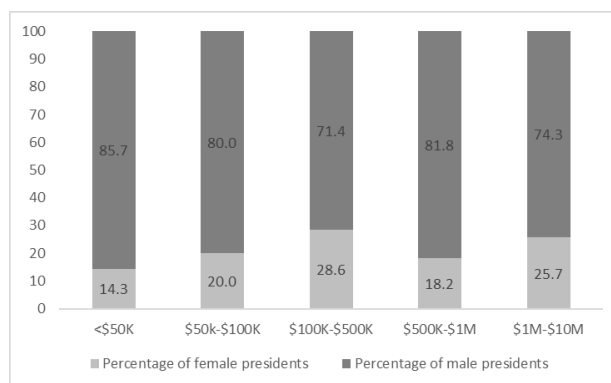


Figure 4: Percentage of presidents/chairpersons by gender and organisational size

As was to be expected, the likelihood of having a female president increases significantly with the growing number of women on the board (Figure 5). However, balanced boards with a share of women between 40% and 60% (Wicker, Feiler and Breuer, 2022) are led by a woman only in one third of cases.

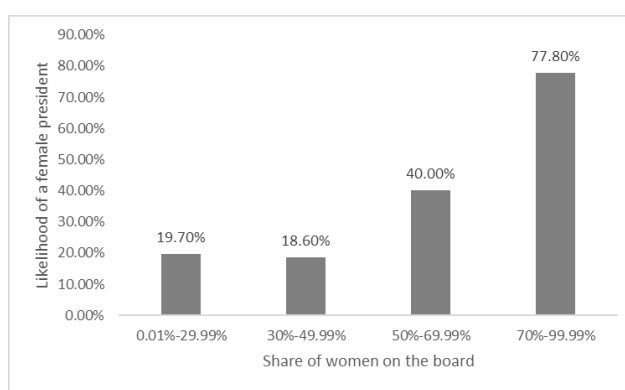


Figure 5: Female president likelihood by % of women on board

5.3 Does Women's Representation Vary According to the Sport that Nonprofits Focus on?

When sports are classified according to gender stereotypes, women hold the majority of board positions only in nonprofits that focus on female sports (e.g. softball, volleyball). In all other cases, men dominate the boardrooms, outnumbering their female colleagues by a ratio of three to one in male sports and two to one in gender-neutral sports or N/A sports (Figure 6).

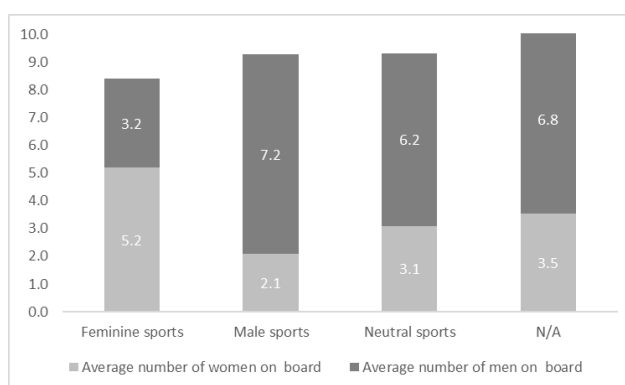


Figure 6: Average board gender representation by sport gender-typing

Some organisations that typically focus on male-gendered sports (e.g. rugby or wrestling) have no women on their boards (Figure 7). Conversely, men are always represented in the boardroom, with at least one director.

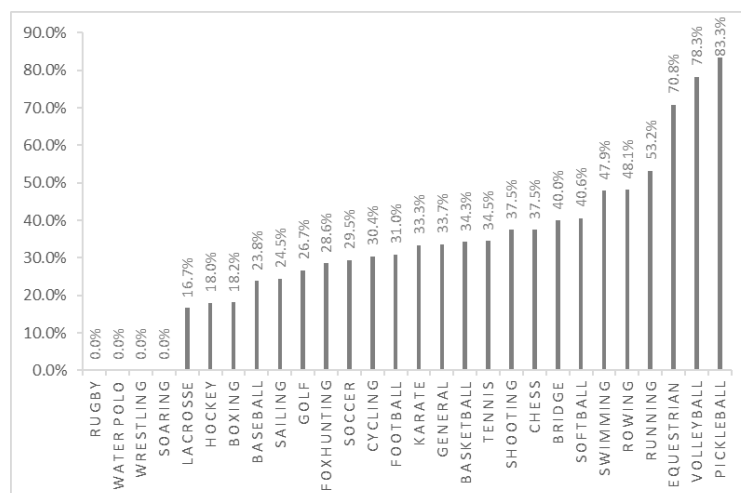


Figure 7: Average percentage of women on the board, by sport

When it comes to presidents/chairpersons, women have the same likelihood as men of leading the board (50%) only in the case of female-gendered sports (Figure 8). In the other cases, the likelihood of a female president is rather low. Interestingly, despite being the only woman on the board, six women reached upper leadership positions within nonprofits focused on male (i.e. baseball, hockey), neutral (i.e. soccer, swimming) or N/A (i.e. general) sports. The same does not apply to men.

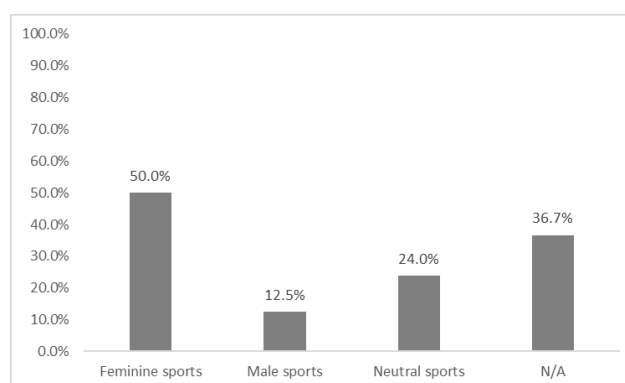


Figure 8: Female president likelihood by sport gender-typing

Figure 9 provides a highlight of the frequency of female presidents by sport.

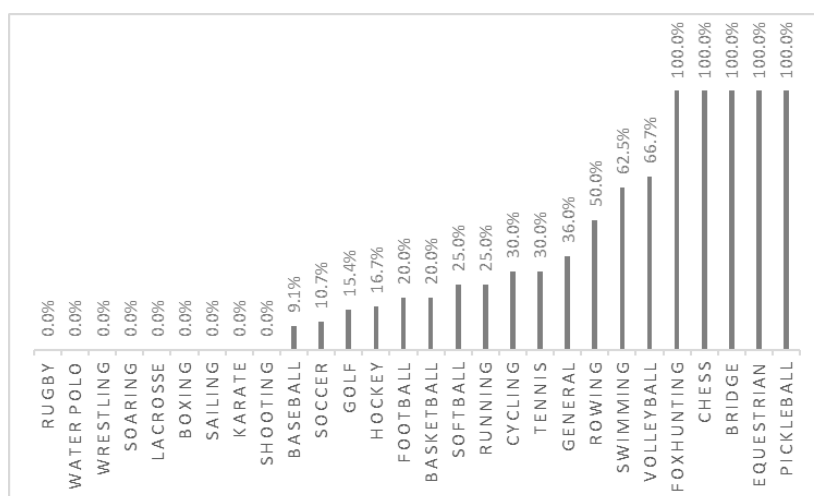


Figure 9: Female president likelihood by sport

6. Discussion and Conclusion

In a context where research on gender diversity has increased significantly in line with broader societal movements advocating for gender equality (McLeod et al, 2025), this study examined women's access to the governance of nonprofit sports organisations. Although sports do not have inherent gender characteristics (Alsamir, 2024), gender stereotypes often operate in this field, resulting in women being underrepresented and often precluded from holding apical leadership positions within the boardrooms (Knoppers et al, 2022).

The study's findings confirm that the governance of nonprofit sports organisations is typically male-dominated (Alsarve, 2024), thus perpetuating the conservative and stereotypical perception of sport as a masculine institution (Anderson, 2009). The gender disparity in leadership positions is evident, with men holding over two thirds of board seats. While previous studies have found that women hold the majority of board positions in smaller nonprofits (Clerkin, Diomande and Koob, 2024), the boards of sports organisations consistently favour men over women representation. Despite women on average reaching the critical mass of 30% or more of total board positions in the sector, they actually constitute a mere symbolic presence in more than half of nonprofit sports organisations. This jeopardises their capacity to make a meaningful contribution to board decisions and could hinder the board's ability to perform to its full potential, as it would not benefit from the combined qualities that women and men could bring to the boardroom (McLeod et al, 2025; Wicker, Feiler and Breuer, 2022).

Even when women reach leadership positions, they are often excluded from the upper echelons and most influential board roles (Eime et al, 2021; Wicker, Feiler and Breuer, 2022). Although the likelihood of having a female president increases with the growing number of women on the board, data show that only a few women chair nonprofit sports organisations, thereby confirming that breaking down gender stereotypes associated with these roles is difficult (Elkhwesky, Salem and El Manzani, 2025). However, a few cases show that discriminatory behaviour towards women is neither ubiquitous nor inescapable (Heilman, Caleo and Manzi, 2024), and that women can reach senior leadership positions even in male-dominated boards.

Finally, the data show that women are more likely to be underrepresented in the governance of sports organisations that are perceived as masculine, whether as board members or presidents/chairpersons (e.g. wrestling and rugby). This finding seems to support the assumption that gender stereotypes affect women more in contexts where their presence is unusual (Eime et al, 2021; Heilman, Caleo and Manzi, 2024; Knoppers et al, 2022). Conversely, women tend to be better represented in the governance of sports organisations that are perceived as feminine, such as volleyball (Elling, Hovden and Knoppers, 2018). The risk is that gender and cultural stereotypes persist, with male and female leadership dominating separate male and female sports organisations (Alsarve, 2024).

The findings of the study contribute to the understanding of gender representation at board level, which is important because directors control their organisation's direction, act as its most visible representatives, and secure its funding. Board gender diversity benefits the organization in many ways including financial, human and social capital (Wicker, Feiler and Breuer, 2022). Therefore, avoiding significant gender-imbalances within the boardroom can be a way to improve the effectiveness of decision-making processes.

On average, board membership and leadership of nonprofit organisations are still slightly skewed towards men, and the imbalance is even greater in the sports sector, where gender stereotypes often hinder the emergence and success of female leaders. Some gender equality practices, such as gender quotas, may facilitate the emergence and potential of female leaders, even in a masculine-dominated environment. However, these practices do not always work as intended and can sometimes have the opposite effect, such as perpetuating the stereotypical belief that women require intervention because they lack adequate competence (Alsarve, 2024; Poma and Pistoresi, 2024; Verge and Lombardo, 2021). Therefore, a change in cultural beliefs that underpin gender stereotyping may increase women's opportunities to hold leadership positions (Kobutary, Syed and Haloub, 2019).

Extensive research shows that changing gender stereotypes is a slow and complex process (Eagly et al 2020; Heilman, Caleo and Manzi, 2024). However, examples and stories of successful women can help accelerate this process by boosting other women's self-confidence and increasing acceptance of them as effective leaders.

Ethics declaration: Ethical clearance was not required for this research.

AI declaration: AI tools were not used to create this paper.

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When Women Athletes Speak: How Activism Shapes Brand Attitudes and Purchase Intent

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Abstract: Sport shapes everyday routines and identities while serving as a stage for community-building and political expression. As the sector expands and social media amplifies campaigns, brands like Nike, Adidas, Puma, and New Balance command vast cultural reach and face intensified scrutiny of their value-driven messaging. Athlete activism is now a visible feature of this landscape, yet reactions are polarized. Gender magnifies this divide. Female athletes who advocate for pay equity, bodily autonomy, LGBTQ+ inclusion, and protection from abuse often face disproportionate skepticism and gendered backlash, even when celebrated in marquee campaigns (e.g., Serena Williams). These double standards pose strategic and ethical questions for sponsors: Does endorsing female athlete activism strengthen or jeopardize brand attitudes and purchase intentions across consumer groups? Despite rising commentary, rigorous evidence on consumer responses to female-led activism remains limited, which is an important gap for marketers engaging digitally savvy, values-oriented audiences. This study examines how female athlete activism shapes consumer responses to sponsoring brands. Grounded in the Theory of Planned Behavior, Elaboration Likelihood Model and Social Identity Theory, it was hypothesized that featuring activist female athletes in brand communications would enhance brand attitudes and purchase intentions. A cross-sectional online survey of a culturally diverse sample (n = 112) assessed consumers' brand attitudes and purchase intentions in the context of campaigns featuring female athletes engaged in activism. Results indicate that female athlete activism positively influences both outcomes. Contrary to common assumptions, moderation tests show that respondent gender and purchase-decision involvement do not significantly condition these effects. The findings extend research on activism in sport marketing by centering consumer responses to female athletes—a group that has historically faced gendered scrutiny—and by demonstrating that activism can generate favorable evaluations across consumer segments. Practically, the results suggest that brands can integrate female athlete activism into campaigns to strengthen brand evaluations and purchase intentions without differential risk across genders or involvement levels, while also contributing to more inclusive social narratives around women in sport.

Keywords: Female athlete activism, Gender bias, Sport marketing, Brand, Social identity Theory, Elaboration likelihood model (ELM)

1. Introduction

Sport plays a pivotal role in contemporary society, shaping daily routines and identities while providing a platform for community-building and political expression. Beyond athletic performance, sport increasingly serves as a cultural arena where social values are debated and contested. Global sports brands such as Nike and Adidas frequently endorse social causes to enhance brand image and drive purchase intent (Grönroos, 1989; Westwood, 2022). As the industry expands and digital media amplifies brand messaging, these brands command significant cultural influence by spotlighting issues such as gender equality, environmental sustainability, and racial justice (Agyemang et al., 2020; Seo et al., 2024).

Athlete activism has become a defining feature of this evolving landscape, with figures such as Colin Kaepernick and LeBron James leveraging their platforms to challenge systemic inequities (Cooky & Antunovic, 2020). Yet, public responses to athlete activism remain deeply polarized (Agyemang et al., 2020). While activist athletes are celebrated by many fans, they also face backlash and harsh criticism, including negative chants during competitions (Kaufmann, 2008). For sponsoring brands, the stakes are considerable as well (Kim, 2024; Mudrick et al., 2019; Sappington et al., 2019; Seo et al., 2024). On one hand, activism can signal authenticity and resonate with values-oriented consumers; on the other, it may provoke resistance among audiences who perceive such messaging as politicized or divisive.

Gender further amplifies these divisions, introducing unique challenges for women athletes. Despite growing scholarly interest in athlete activism, much of the existing research has concentrated on male athletes and their influence on consumer perceptions (Cooky & Antunovic, 2020). Male-centric sports media and entrenched gender norms have contributed to the limited visibility of female athlete activism, both in public discourse and scholarly research. Women athletes who champion causes such as pay equity, bodily autonomy, LGBTQ+ inclusion, and protection from abuse frequently contend with disproportionate skepticism and gendered backlash, even when featured in high-profile campaigns, as illustrated by Serena Williams

(Kaufmann, 2008). These double standards, rooted in sexist media narratives and persistent societal expectations, mean that women's contributions to social movements often fail to receive the recognition they deserve.

This narrow focus leaves important questions unanswered about how activism by women athletes is received and whether gendered dynamics shape consumer responses to sponsoring brands. Empirical evidence on consumer reactions, particularly to female-led advocacy, remains scarce. This gap is especially salient for marketers seeking to engage digitally connected audiences who increasingly expect brands to reflect social commitments. Against this backdrop, a critical question arises: Does featuring female athlete activism in brand communications enhance or undermine brand attitudes and purchase intentions across diverse consumer segments? Addressing this question is essential for understanding how gender intersects with activism in sport marketing and for guiding brands that aim to balance commercial objectives with inclusive social narratives. In doing so, this study contributes to the ongoing debate surrounding the representation of women in sport.

2. Theoretical Framework

2.1 Sports Marketing, Brand Activism and Gender

Despite the vast size of the global sports industry and its significant economic, social, and cultural impact, sports marketing remains a dynamic field without a universally agreed-upon definition (Fullerton & Merz, 2008). Broadly, scholars distinguish between marketing *of* sports and marketing *through* sports. The former refers to promoting sport-related products or services such as shoes, apparel, and equipment while the latter encompasses marketing activities that leverage the brand equity of sports entities to promote non-sport products. This study focuses on traditional product marketing strategies employed by sports brands, which exert considerable influence on consumer perceptions and purchase decisions (Felbert & Breuer, 2020; Kim, 2024).

Within this context, athlete endorsement represents a cornerstone strategy, defined as “a product endorsement in which a sports celebrity promotes a company's product or service” (Felbert & Breuer, 2020, p. 590). As a form of celebrity endorsement, its purpose is to transfer positive associations and perceived qualities from the athlete to the advertised product (Veda & Sathish, 2024; Kim, 2024). Partnerships with well-known athletes are strategically deployed to enhance brand equity, increase visibility, and drive sales (Felbert & Breuer, 2020). Endorsement effects typically draw on three dimensions: (1) athletic performance, (2) physical attractiveness, and (3) off-field attributes of the athlete (Arai et al., 2014). The latter has gained particular importance amid the rise of authenticity and value-driven consumption (Kim, 2024; Lee & Koo, 2015; Lou et al., 2024).

This shift brings athlete activism into sharper focus. Activism is defined as “the behavior of advocating some political cause [...] via any of a large array of possible means, ranging, for example, from institutionalized acts such as starting a petition to unconventional acts such as civil disobedience” (Klar & Kasser, 2009, p. 757). Sport has long served as a political platform, and athletes today advocate for causes such as gender equality, equal pay, racial justice, mental health awareness, LGBTQ+ rights, and environmental sustainability (Agyemang et al., 2020). While athlete activism is distinct from brand activism, the two often intersect when brands publicly support athletes and their causes. Leveraging an athlete's brand equity and activism can offer advantages: activist messages from athletes are perceived as more impactful than similar messages from brands (Dunn & Nisbett, 2023), and consumers often associate the endorsed product with the athlete's positive attributes (Kim, 2024). However, these benefits are not without risk. Consumers frequently link an athlete's political stance to the sponsoring brand, which can backfire when activist athletes face backlash or criticism (Brown et al., 2022; Dunn & Nisbett, 2023; Sappington et al., 2019).

Female athlete activism, referring to women athletes engaging in advocacy, introduces additional complexity. While activist athletes of all genders may encounter resistance, women often face heightened scrutiny when they speak out (Cooky & Antunovic, 2020; Kaufmann, 2008; Seo et al., 2024). Persistent double standards shape how female athletes' emotions and behaviors are judged in the media (Kessel, 2018). These challenges are deeply rooted in societal norms and reinforced by stereotypes and long-standing gender biases. In sport, women remain a minority, and many domains, including media coverage, sponsorships, and endorsements, are still male-dominated. This structural imbalance places female athletes at a disadvantage and intensifies scrutiny when they engage in activism (Sappington et al., 2019). While these realities underscore the importance of brands supporting female activist athletes by amplifying their visibility and providing platforms,

brands must also weigh potential consequences, particularly the backlash that women athletes frequently experience.

2.2 Hypothesis Development: Female Athlete Activism and Consumer Behavior

Having established the relevance of female athlete activism within sports marketing, the next step is to examine its impact on consumer behavior, namely the formation of brand evaluations and purchase intent. Attitude toward the brand (ATB), first conceptualized by Mitchell and Olson (1981), refers to an individual's internal evaluation of a brand and is widely recognized as a strong predictor of consumer behavior (Mitchell & Olson, 1981; Spears & Singh, 2004). Although attitude formation is theoretically multidimensional (encompassing cognitive, affective, and behavioral components), the construct is often operationalized as a unidimensional summary measure in marketing research (Spears & Singh, 2004). Recent studies indicate that ATB is highly responsive to social and cultural influences, including athlete activism. While several studies report that activism tends to enhance brand attitudes (Lou et al., 2024; Kim, 2024), others suggest a potential negative association (Cho et al., 2025). Overall, the findings underscore the complex and dynamic interplay between activism and brand evaluations. Given these insights, and considering the historical underrepresentation of female athlete activism in scholarly research, it is essential to examine whether featuring female athletes engaged in activism affects consumer perceptions of sponsoring brands. Accordingly, the following hypothesis is proposed:

H1: The attitude towards female athlete activism in sports marketing influences consumer attitudes toward the brand endorsing them.

While attitude formation is important, marketing success is ultimately measured in sales. Thus, marketing professionals must understand what drives consumers to purchase their products or services. Purchase intent is widely regarded as one of the strongest predictors of actual sales (Grönroos, 1989; Westwood, 2022). It describes an individual's tendency to buy from a specific brand or the likelihood of purchasing a product after evaluation (Spears & Singh, 2004; Yoo et al., 2021). While attitudes represent a summary evaluation of a brand, purchase intent reflects a concrete behavioral intention (Spears & Singh, 2004). The Theory of Planned Behavior (Ajzen, 2011) offers a useful framework for understanding purchase intent, suggesting that behavioral intention is shaped by attitudes toward the behavior, subjective norms, and perceived behavioral control. In this context, consumers who view activism positively are more likely to intend to purchase from brands endorsing activist athletes (Lou et al., 2024; Mudrick et al., 2019), whereas misalignment between consumer values and activist messaging can reduce purchase intent (Kim, 2024). Drawing on these insights, this study posits that featuring female athlete activism in brand campaigns will affect consumers' purchase intentions. Accordingly, the following hypothesis is proposed:

H2: The attitude towards female athlete activism in sports marketing influences purchase intent of the brand endorsing them.

Besides understanding how behavioral intentions are formed, it is equally important to examine how consumers engage with and process marketing messages. The Elaboration Likelihood Model (ELM), introduced by Petty and Cacioppo in the 1980s, offers a comprehensive framework for explaining how individuals process persuasive information (Kitchen et al., 2014). ELM posits two distinct routes to persuasion: the central route, which involves careful and systematic evaluation of message content, and the peripheral route, which relies on superficial cues such as attractiveness, emotional appeal, or brand familiarity. Attitudes formed via the central route tend to be more enduring, whereas those formed through the peripheral route are typically temporary and less resistant to change (Kitchen et al., 2014). The activation of a persuasion route depends on multiple factors, most notably the consumer's level of involvement in the purchase decision process (PDI). Mittal (1989) defines PDI as "the extent of interest and concern that a consumer brings to bear upon a purchase-decision task" (p. 150). Consumers with high PDI are motivated to process brand messages critically, making them more likely to engage with value-driven content such as activism. For these consumers, a brand's support of female athlete activism may add perceived value to the purchase, reinforcing positive attitudes and increasing purchase intent (Lou et al., 2024). Conversely, consumers with low PDI are less inclined to evaluate activist messaging and instead rely on peripheral cues such as design or celebrity appeal (Kim & Sung, 2009). For this group, activist content may have little impact or even go unnoticed, resulting in weaker effects on purchase intent. Based on these insights, this study proposes:

H3: Purchase involvement (high vs. low) moderates the impact of female athlete activism in sports marketing on purchase intent.

Gender introduces another layer of complexity. Female athletes who engage in activism often challenge entrenched stereotypes of women as passive or apolitical, which can evoke polarized reactions (Kaufmann, 2008). These dynamics are illuminated by Social Identity Theory (SIT), which posits that individuals derive part of their self-concept from group memberships and tend to favor in-group members over out-group members (Lange et al., 2012). In sports marketing, consumers who identify with an athlete's social values or demographic characteristics are more likely to form positive attitudes toward the athlete and the endorsing brand (Mudrick et al., 2019; Kim, 2024). For female consumers, campaigns featuring female athlete activism may foster feelings of representation and solidarity, strengthening brand evaluations and purchase intentions. Male consumers, however, may experience more ambivalent responses, particularly when activist messages challenge traditional gender norms or social hierarchies. These considerations suggest that gender may moderate the relationship between female athlete activism and consumer responses. Specifically, women may exhibit stronger positive reactions to activist campaigns than men, though individual differences remain likely. Accordingly, the following hypotheses are proposed:

H4: Gender moderates the impact of female athlete activism in sports marketing on attitudes toward the brand endorsing them.

H5: Gender moderates the impact of female athlete activism in sports marketing on consumers' purchase intention.

3. Methodology

This study employed a quantitative, cross-sectional research design using an online survey as the primary data collection instrument. Data were collected in early 2025 over a period of a few weeks. Participants accessed the survey via a secure link and provided informed consent before proceeding. After that, they were prompted to read a short and neutral explanation of the concept of female athlete activism, offering contextual background and ensuring that all respondents understood the key concepts of the study. All responses were anonymous, and no personally identifiable information was collected.

The online survey was created using the Tivian platform and consisted of 11 questions (some with multiple items) organized into thematic sections. The measurement of the main variables relied heavily on existing, pre-tested scales to improve reliability and validity (see table 1).

Table 1: Operationalization of variables

Variable	Example Question and Scale	Cronbach's Alpha	Source
Attitude toward Female Athlete Activism (AtFAA)	It bothers me when female athletes speak out on political or social issues. Strongly Disagree - Strongly Agree with neutral option (1-5)	10 items; $\alpha = .89$	Attitudes Toward Athlete Activism Questionnaire (ATAAQ), Sappington et al. (2019) (Adapted to focus solely on female activism, individual sports, shortened)
Attitude toward Brand (ATB)	What's your general impression of brands that support female athletes who speak out on social or political issues in their marketing? Unlikable - Likeable with neutral option (1-5)	5 items; $\alpha = .97$	Spears & Singh (2004) (Adapted for more general application without a stimulus)
Purchase Intent (PI)	Think about brands that support female athletes [...] How likely are you to purchase a product from such brands? Probably not – Probably buy it with neutral option (1-5)	3 items; $\alpha = .93$	Spears & Singh (2004) (Shortened)

Variable	Example Question and Scale	Cronbach's Alpha	Source
Purchase Decision Involvement (PDI)	Imagine you purchase a product from a sports brand. How important would it be for you to make the right choice for this product? Not at all important – Extremely important with neutral option (1-5)	3 items; $\alpha = .79$	Kim & Morris (2007) Mittal (1989)

The instrument was pre-tested with 12 respondents to ensure clarity and validity, resulting in small changes regarding wording and structure. A combination of convenience sampling and snowball sampling was utilized, drawing on the personal and professional networks of the principal researcher. The survey link was distributed through publicly accessible online platforms such as Microsoft Teams, Instagram, and WhatsApp. Eligibility criteria required participants to be adults aged 18 and above and agreeing to the consent form.

A total of 112 respondents completed the survey; incomplete responses were excluded automatically from the analysis. Data were exported to SPSS for analysis. Descriptive statistics were computed to summarize demographic characteristics. Composite variables were created for the variables presented in table 1, using their respective items. All underlying statistical assumptions (normality of continuous variables, linearity, homoscedasticity, and absence of multicollinearity) were checked. Inferential tests (linear regression and hierarchical regression analysis) were conducted to examine relationships between variables. Significance was assessed at a stringent alpha level of 0.01.

4. Findings

4.1 Descriptive Analysis

The final sample comprised 112 respondents. Gender distribution was 65.2% female ($n = 73$), 32.1% male ($n = 36$), and 1.8% non-binary ($n = 2$). Participants were predominantly young adults (range: 18–69 years; $M = 28.94$, $SD = 8.10$). Nationality was diverse (28 countries represented), though most respondents were from Germany (33.9%), Australia (25.0%), and the Netherlands (13.4%). Sports engagement was generally high: 74.1% reported participating in or watching sports at least once a week. This suggests a sport-interested sample, which is coherent with the study context. A majority perceived gendered differences in public approval of activism: 52.7% ($n = 59$) indicated male athletes receive more approval; 36.6% ($n = 41$) were unsure; 8.9% ($n = 10$) perceived equal approval; and 1.8% ($n = 2$) believed female athletes receive more approval. All focal constructs showed acceptable central tendencies consistent with a values-oriented sample. On average, respondents reported favorable attitudes toward female athlete activism ($M = 4.14$, $SD = 0.69$) and supportive brand evaluations ($M = 4.18$, $SD = 0.88$). Purchase intent was moderately high ($M = 3.73$, $SD = 0.87$), and purchase decision involvement was high ($M = 4.02$, $SD = 0.8$).

4.2 Hypothesis Testing

A simple linear regression tested whether attitudes toward female athlete activism predict attitudes toward brands supporting such activism. Results indicated a strong, positive relationship: $B = 0.94$, $\beta = 0.73$, $t(110) = 11.11$, $p < .001$, explaining 52.9% of variance in brand attitude ($R^2 = .53$, $F(1,110) = 123.37$, $p < .001$). More favorable attitudes toward activism were associated with more positive brand evaluations. The effect was both statistically significant and practically meaningful, supporting H1.

A second regression examined whether attitudes toward female athlete activism predict purchase intent. Findings showed a significant positive effect: $B = 0.81$, $\beta = 0.64$, $t(110) = 8.76$, $p < .001$, accounting for 41.1% of variance ($R^2 = .41$, $F(1,110) = 76.74$, $p < .001$). Respondents with positive attitudes toward activism reported higher purchase intent. Although variance explained was lower than for H1, the relationship remained strong and reliable. Thus, H2 was supported.

A hierarchical regression tested whether purchase decision involvement (PDI) moderates the relationship between attitudes toward female athlete activism and purchase intent. In Step 1, attitudes toward activism and PDI explained 41.5% of variance in purchase intent ($R^2 = .42$, $F(2,109) = 38.63$, $p < .001$), indicating significant main effects. In Step 2, adding the interaction term contributed only 0.6% additional variance ($\Delta R^2 = .006$, $F(3,108) = 26.10$, $p < .001$), and the interaction was not significant ($B = -0.20$, $\beta = -0.10$, $t(108) = -1.02$, $p = .312$). This suggests PDI does not moderate the effect of activism on purchase intent. H3 was not supported.

A hierarchical regression tested whether gender moderates the relationship between attitudes toward female athlete activism and brand attitudes. In Step 1, activism attitudes and gender explained 54.5% of variance in brand attitude ($R^2 = .55$, $F(2,109) = 63.38$, $p < .001$), indicating significant main effects. Adding the interaction term in Step 2 increased explained variance by only 0.1% ($\Delta R^2 = .001$, $p = .590$), and the interaction was not significant ($B = 0.10$, $\beta = 0.06$, $t(108) = 0.54$, $p = .590$). This suggests gender does not moderate the relationship; effects were similar for male and female respondents. H4 was not supported.

A hierarchical regression tested whether gender moderates the relationship between attitudes toward female athlete activism and purchase intent. In Step 1, activism attitudes and gender explained 47.7% of variance in purchase intent ($R^2 = .48$, $F(2,109) = 48.27$, $p < .001$), indicating significant main effects. Adding the interaction term in Step 2 did not increase explained variance ($\Delta R^2 = .00$, $p = .763$), and the interaction was not significant ($B = 0.06$, $\beta = 0.04$, $t(108) = 0.30$, $p = .763$). This suggests gender does not moderate the relationship; effects were similar for male and female respondents. H5 was not supported.

5. Discussion

5.1 Main Findings

This study demonstrates that attitudes toward female athlete activism strongly predict both brand evaluations and purchase intentions, confirming the central role of value alignment in shaping consumer responses. These findings support Ajzen's Theory of Planned Behavior, which posits that attitudes influence behavioral intentions, and extend prior research (Kim, 2024; Lou et al., 2024) by showing that activist messaging resonates in the context of female athletes. Importantly, the effect was consistent across genders and involvement levels, indicating that socially charged marketing messages may override traditional segmentation assumptions.

The absence of moderation by purchase decision involvement challenges the Elaboration Likelihood Model, which predicts stronger effects under central-route processing for highly involved consumers. Similarly, the lack of gender moderation contradicts expectations based on Social Identity Theory, suggesting that shared values, rather than demographic identity, drive consumer reactions. These results point to a cultural shift toward inclusivity and normalization of feminist discourse in marketing, where gender-based backlash appears less pronounced than previously assumed.

Despite the non-significant moderation effects, descriptive findings revealed that most respondents perceive male athletes as receiving greater public approval for activism. This highlights persistent double standards and systemic bias, echoing concerns raised by Kaufmann (2008). While these perceptions did not translate into differential behavioral outcomes in this study, they underscore the need for brands to provide greater visibility and support for female athletes, addressing structural inequalities in sport and marketing.

5.2 Practical Implications

For sports brands, these findings offer clear guidance: supporting female athlete activism can enhance brand image and drive purchase intent, provided campaigns are authentic and aligned with brand values. The lack of gender and involvement effects enables broader targeting strategies, reducing reliance on segmentation and allowing for more inclusive, cost-efficient campaigns. However, authenticity and consistency remain critical to avoid perceptions of opportunism (Lee & Koo, 2015; Seo et al., 2024). Brands should invest in long-term partnerships with activist athletes, reinforce values across all touchpoints, and anticipate potential backlash through proactive communication and campaign testing.

5.3 Future Research

Future studies should employ qualitative or mixed-method approaches to uncover why and which consumers respond positively to female athlete activism and examine drivers such as perceived authenticity, value alignment, and social identification. Expanding the model to include additional moderators and mediators (e.g., age, education, political orientation, moral identity, and brand credibility) would provide a more nuanced understanding of consumer behavior. Improved measures of purchase decision involvement, using multidimensional scales or scenario-based items, are recommended to capture real-world complexity. To address the intention-behavior gap, future research should incorporate longitudinal designs and field experiments, leveraging digital analytics (e.g., click-through rates, purchase data) and emerging technologies such as AI-driven consumer tracking. Comparative studies between male and female athlete activism using experimental designs could clarify gender-based differences and enable stronger causal claims. Additionally,

exploring intersectionality, such as race and socioeconomic status, would shed light on how overlapping identities influence consumer perceptions.

Further research should also examine the impact of media framing and delivery formats, testing how tone, visual framing, and platform-specific content (e.g., TikTok, Instagram Reels) affect message effectiveness. Beyond campaign-level outcomes, longitudinal studies should assess how consistent, authentic activism influences brand loyalty, trust, and equity over time. Finally, expanding research beyond the sports industry and across cultural contexts will enhance generalizability and provide actionable insights for brands seeking to integrate activism into their broader identity and marketing strategy.

5.4 Limitations

This study's findings should be interpreted in light of several limitations. First, the cross-sectional design and reliance on self-reported data limit causal inference and may be affected by social desirability and the intention-behavior gap. Second, the sample size was relatively small and skewed toward younger, female respondents, reducing generalizability. In addition, the small sample size may limit the statistical power of the tests employed. This raises the question of whether the lack of moderating effects is a result of insufficient sample size. Third, the measurement of purchase decision involvement was simplified and may not capture its full complexity. Finally, while established theories such as TPB and SIT provided a strong conceptual base, they may oversimplify responses to socially charged marketing messages. Future research should address these limitations through larger, more representative samples, mixed-method designs, and longitudinal approaches.

6. Conclusion

This study investigated how attitudes toward female athlete activism influence consumer responses in sports marketing. Results demonstrate that stronger support for activism predicts more favorable brand evaluations and higher purchase intent, highlighting the strategic potential of cause-driven campaigns. These findings should be interpreted conditionally: they reflect relationships within the sample rather than the prevalence of positive attitudes in society. Consequently, the conclusions apply when consumers already hold favorable views of activism, not as evidence of widespread endorsement.

Importantly, these effects were consistent across genders and purchase involvement levels, challenging assumptions that male consumers respond less favorably to feminist messaging or that high-involvement consumers process activism differently. This suggests that value alignment may override demographic segmentation in shaping consumer reactions, at least within the studied context.

Beyond commercial implications, the study underscores the evolving role of brands as cultural actors. By authentically supporting female athletes, companies can strengthen brand equity while contributing to more inclusive narratives in sport. However, these benefits depend on genuine alignment between brand values and activist messaging; opportunistic or inconsistent approaches risk backlash and reputational harm. Ultimately, this study reinforces that sport and activism are not opposing forces but complementary drivers of social change, where gender equality represents both an ethical imperative and a strategic opportunity for brands willing to engage authentically.

Ethics declaration: Ethical clearance was not required for the research. The study adhered to ethical guidelines for research involving human participants. Participants were informed about the study's general purpose, participants' rights, and ethical guidelines.

AI declaration: Microsoft CoPilot was used to improve flow and academic tone in several sections of this paper.

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Tackling the Generic Masculine: Evaluating Gender Neutrality of German AI-Generated Texts

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Abstract: When using large language models (LLMs)—artificial intelligence (AI) systems trained to generate and interpret human language—gender-specific biases in AI-generated text represent a key challenge. Particularly in grammatically gendered languages such as German, this often results in texts outputs using the so-called generic masculine as an allegedly gender neutral default form. Consequently, generated text is neither neutral nor inclusive, and gender stereotypes are perpetuated. Organizations seeking to offer LLM-based systems that generate inclusive language by default typically rely on system prompts or specific model configurations to steer the model’s responses. However, for German, methods for automatically, systematically, and objectively assessing whether such approaches enhance gender neutrality and inclusivity remain limited and underexplored. To address this gap, a framework was developed that applies the concept of LLM-as-a-judge. This approach involves using an LLM to systematically evaluate the outputs of another, thereby enabling automated and replicable assessments of features such as gender neutrality and inclusivity. The paper presents the development and evaluation of a prototype of this framework, designed specifically for German, following a Design Science Research approach. Using the framework, the effectiveness of configurations or system prompts can be evaluated. To enable this in a systematic and replicable manner, a catalogue of 150 prompts in German was developed, adapting and extending approaches from other languages. The outputs generated by an LLM in response to these prompts are then assessed by an evaluation module: Linguistic analysis identifies gendered forms and grammatical structures, while scoring metrics quantify the degree of gender neutrality and inclusivity. To demonstrate the framework, it was applied in several test runs using an iteratively developed system prompt designed to elicit gender neutral responses. The resulting metrics allowed assessment of whether a given prompt effectively enhances the neutrality of generated outputs and reduces gender-specific bias. Potential applications of the framework in organisational settings, as well as its relevance for the development of responsible AI systems, are outlined.

Keywords: Artificial intelligence, Gender neutrality, Large language models, Fairness, Ethics, Responsible AI

1. Introduction

Large language models (LLMs) are increasingly being used to generate texts for communication, education and the public sector. They learn statistical patterns from their training corpora, which include prevailing linguistic conventions and social biases (Zhang, 2024). In grammatically gendered languages like German, this includes the supposedly neutral generic masculine. As a result, LLMs often generate the generic masculine, thereby reproducing and reinforcing the underlying gender bias found in the data. Consequently, women and non-binary people are referenced less and mainly through masculine-marked expressions, reducing linguistic visibility and reinforcing stereotypes (Misersky et al., 2019; Sczesny et al., 2016). In light of these effects, gender neutrality is understood linguistically: personal expressions are formulated to avoid morphological male or female markers wherever possible. In German, this mainly concerns personal names, pronouns and gender markers, and differs from broader social or identity-related concepts of gender.

Responsible use of LLMs requires promoting gender-neutral or inclusive language directly at the system level. In practice, two approaches are common: system prompts, i.e., persistent, top-level instructions setting the LLM’s role, tone, and constraints (e.g., “avoid the generic masculine and consistently choose inclusive expressions”), and model configurations, i.e., the settings and policies that steer generation (e.g. preferred or blocked terms). Evaluating their effectiveness requires automatic, objective, reproducible measurement of gender neutrality (Doyen & Todirascu, 2025). Although benchmarks and classifiers assess gender bias in German and other languages, none measure grammatical gender neutrality in open-ended German LLM outputs, a gap repeatedly noted in recent work (Doyen & Todirascu, 2025). Existing German benchmarks target gender bias in model predictions but neither evaluate the grammatical gender neutrality of generated text nor provide fully automated, reproducible procedures (Kraft *et al.*, 2022; Satheesh *et al.*, 2025). English approaches don’t transfer because grammatical gender in German is morphologically encoded and affects core linguistic structures (Diewald and Nübling, 2022). Consequently, no systematic method exists to evaluate or optimise gender neutrality in German LLM outputs. The research presented addresses this gap by introducing a framework for the automated measurement of gender neutrality in German-language LLM outputs. With this aim in mind, the paper is organised as follows. Section 2 outlines the methodology. Section 3 reviews the linguistic and empirical

background. Building on these foundations, the framework is presented and evaluated in Section 4. Then, section 5 discusses results and limitations. Section 6 outlines potential applications, and Section 7 concludes.

2. Methodology

As outlined in the introduction, there is a need for approaches that can evaluate gender neutrality in German-language LLM outputs automatically and in a way that reflects the specific linguistic properties of German. Given that LLMs themselves can serve as evaluative tools, this leads to the central research question:

How can LLMs be used to automatically and objectively evaluate the gender neutrality of German text outputs using suitable metrics?

Addressing this research question requires the development of a suitable artifact. Accordingly, this research follows the principles of design science research (DSR) according to Österle et al. (2010), in which the design, justification, and evaluation of an artifact are integral to the research process. This approach is appropriate because no established solution exists for this task. Based on this rationale, the development followed the phases of the DSR cycle.

In the analysis phase, the problem space and the need for a German-specific evaluation approach were clarified. This involved reviewing existing frameworks and benchmarks that analyse gendered language in LLM outputs and clarifying how gender neutrality should be conceptualised for German. The key findings are presented in Section 3. Based on potential application scenarios in the researchers' organisation, relevant stakeholders were identified and prioritised, and their needs were translated into functional and non-functional software requirements for the artifact. These requirements were made testable through general acceptance criteria and requirements-engineering techniques. While this software-engineering process is not the focus of the paper, it ensured that the artifact was developed on a sound and transparent methodological basis. In the design phase, the conceptual structure of the artifact—later named GenScore-DE—was developed and the artifact was implemented in two iterations as a working prototype. Its architecture and the different components will be presented in detail in Section 4. In this phase, the identified requirements were translated into a coherent framework suited to German linguistic patterns. In the evaluation phase, the artifact was then reviewed against the defined requirements and its usefulness validated through end-to-end runs, including test-retest checks and documentation of all results. In this way, the framework is developed as a proof of concept that is both theoretically sound and practically applicable. The subsequent diffusion of the artifact included making the framework available on GitHub and presenting it in various formats.

3. Gender Bias in German AI-generated Text

The theoretical foundation of the framework combines linguistic insights into how German encodes gender, empirical findings from research on gender bias in language use and in LLMs, and methods for automatically analysing and evaluating text.

3.1 Linguistic Structures That Promote Bias

The German language categorises gender on three linguistic levels:

- grammatical gender (Genus) as a formal, non-biological characteristic of nouns,
- biological gender (Sexus) as a biologically determined characteristic independent of grammar, and
- social gender (Gender), which expresses roles, identities, and expectations (Diewald, 2018; Diewald & Nübling, 2022).

While gender is grammatically marked by articles (der, die, das) and suffixes, sex and gender refer to the semantic level (Diewald and Nübling, 2022). Since a noun can be grammatically masculine without referring to a male person, this distinction makes gender neutrality in German particularly complex (Diewald, 2018; Diewald & Nübling, 2022). Due to this interaction, formally masculine forms may be intended as generic, yet they are not empirically interpreted as neutral. Although these categories differ, grammatical gender cues (articles, endings) influence how personal expressions and pronouns are interpreted in context (Stahlberg and Sczesny, 2001; Braun, Sczesny and Stahlberg, 2005). This interplay is crucial for assessing gender neutrality in LLM outputs.

In German, gender is expressed through several linguistic markers. This study distinguishes between the following forms: neutral forms without gender markers (e.g., Lehrkraft [teacher], Mitarbeitende [employee]), inclusive forms that explicitly refer to multiple genders (e.g., Lehrer:innen, Lehrer*innen), binary forms that are

morphologically masculine or feminine (e.g., Lehrer, Lehrerin), and paired forms (e.g., Lehrer & Lehrerinnen) (Ivanov, Lange and Tiemeyer, 2018; Diewald and Nübling, 2022).

These markers reveal how gender is encoded and enable systematic, sound evaluation of gender neutrality in model outputs. A further mechanism particularly relevant in German is the generic masculine: masculine nouns function as unmarked generic forms, regardless of their actual gender. However, they are read as male in practice, reducing linguistic visibility of women and non-binary people and reinforcing gendered perception patterns (Stahlberg and Sczesny, 2001; Braun, Sczesny and Stahlberg, 2005; Misersky, Majid and Snijders, 2019).

3.2 Reproduction of Gender Biases by LLMs

LLMs are trained on extensive text collections that reflect social norms, historical perspectives and traditional role models. As a result, LLMs often reproduce existing stereotypes and imbalance (Gonen & Goldberg, 2019; Zhang, 2024). For example, technical or analytical roles are more often associated with men, whereas caregiving or communicative roles tend to be assigned to females. These biases are also evident in competency assessments which often favour male personas (Bartl & Leavy, 2024; Chen et al., 2025; Kotek et al., 2023; Ranjan et al., 2024). In German, this effect arises from the grammatical system, and in particular from the generic masculine (Stahlberg and Sczesny, 2001; Braun, Sczesny and Stahlberg, 2005; Misersky, Majid and Snijders, 2019). As a result, LLMs generate male designations by default, such as the developer, the doctor, the teacher or the employee, even though neutral alternatives would be possible (Doyen & Todirascu, 2025). This can set up a self-reinforcing pattern: because the generic masculine is prevalent in German source corpora and common in everyday usage, users often prompt with masculine forms, and LLMs mirror that style, making inclusive variants rarer and therefore less likely to be produced. Such AI-generated text may enter future training data, for example via AI-generated text published on websites or logged interactions used for fine-tuning, perpetuating the dominance of the masculine form in German (Drake, 2025).

3.3 Evaluation of Gender Neutrality

Gender-neutral language aims to avoid privileging any specific gender through grammatical marking and to minimise gender-specific linguistic forms. Several international benchmarks can be used to analyse gender-specific language patterns, including OCCUGENDER (Chen *et al.*, 2025), GenderPair (Tang *et al.*, 2024) and GG-BBQ (Satheesh *et al.*, 2025). They provide structured test scenarios that reveal how gender is expressed in model outputs, and which linguistic phenomena must be considered in systematic evaluations. Each benchmark has a distinct focus: OCCUGENDER examines job and role descriptions, GenderPair targets stereotypical role attributions and contrasting pairs, and GG-BBQ addresses everyday scenarios and pronoun resolution. Although these benchmarks are designed for English or multilingual contexts, they offer useful methodological guidance. A German evaluation framework should capture the same core dimensions. Moreover, automatic evaluation of gender neutrality requires clear, operational criteria defining what counts as a gendered expression. In German, gender is often marked on the surface level of words as discussed in Section 3.1., and these cues (masculine/feminine morphology, typographic inclusives, and neutral forms) must be detected consistently and independently of any specific LLM. These aspects form core requirements for the framework developed.

4. The GenScore-DE-Framework

The artifact produced through the DSR methodology is a framework, which enables automated and objective evaluation of gender neutrality in German-language LLM outputs. The name GenScore-DE reflects its core intention: ‘Gen’ stands for gender neutrality, ‘Score’ for the quantitative evaluation of linguistic characteristics, and ‘DE’ for the fact that the framework was developed specifically for the German language.

4.1 Overview of the Framework

To illustrate how the framework operates, a typical application scenario is considered. Suppose the aim is to introduce a system prompt that increases gender neutrality in an LLM’s outputs. First, a baseline is established without any system prompt, forming the reference for later comparison. In a second run, the system prompt is added, and the results of both runs are compared. Each run follows the same procedure: all prompts from the standardised prompt catalogue are sent to the LLM, which generates an output for each prompt. These outputs are then classified by the evaluation module, and scores are computed for defined metrics. As both runs are processed in exactly the same way, it can be directly assessed whether and to what extent the optimised system prompt increases the gender neutrality of the LLM outputs. This results in a standardised and reproducible evaluation process, which is depicted in Figure 1.

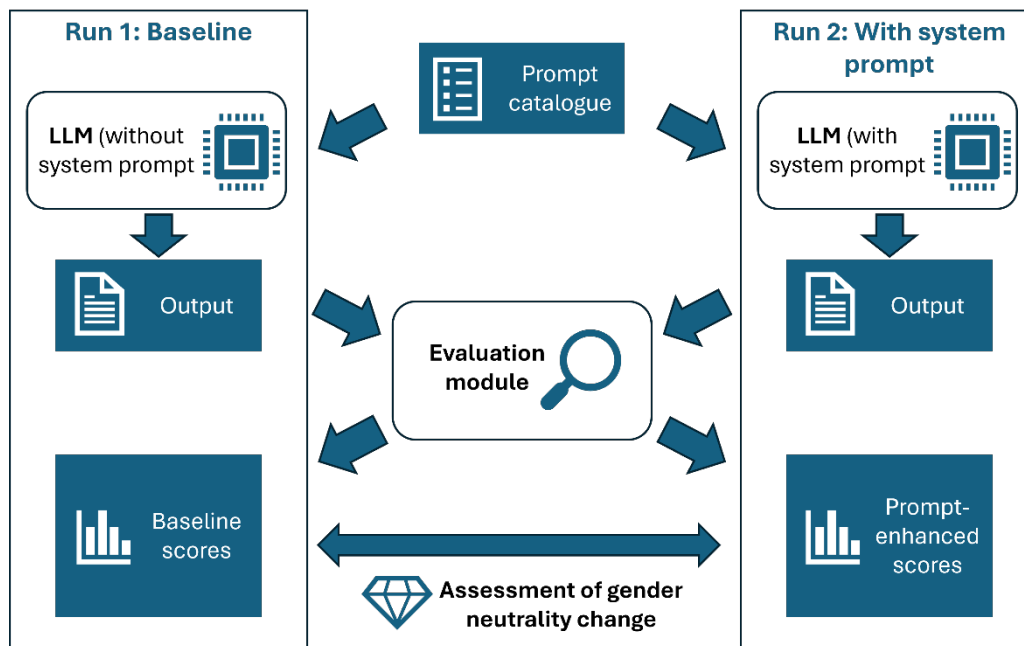


Figure 1: Overview of the framework

The GenScore-DE framework is designed in a modular way. The current version of the framework comprises the following implemented components: the curated, standardised prompt catalogue, the evaluation module that classifies the LLM outputs, an orchestration layer that runs the evaluation steps in a consistent order, and structured data storage to keep all results transparent and traceable. Details on the prompt catalogue and evaluation module are provided in the next sections. The assessment of the evaluation results still has to be carried out manually, but it could be automated in a future iteration of the DSR methodology. The modular structure ensures flexibility for future adjustments, allows the use of different LLMs, and keeps every step well documented. In this way, the framework meets scientific standards of validity and reliability, as well as practical requirements such as extensibility and reusability.

GenScore-DE is available as open-source resources on GitHub under the MIT licence: <https://github.com/Lacotto/GenScore-DE>. The GenScore-DE framework is implemented as a functional prototype. The prompt catalogue, evaluation module, orchestration logic and data storage are implemented in Python with fixed decision rules in prompts and reproducible execution. All components are available in the associated GitHub repository (including scripts, evaluation logic, and sample runs), demonstrating that the framework is fully functional and not just conceptually defined.

4.2 Standardised Prompt Catalogue

The prompt catalogue provides a uniform test basis for all evaluations. It builds on insights from existing studies of gender expression in LLM outputs, as discussed in Section 3.3 and covers 50 situations across 5 categories that represent typical contexts in which gender neutrality plays a role. Including prompts from different domains is essential because varying scenarios and framings can activate different linguistic structures. Based on the international benchmarks, the following categories were defined:

- Work context (cf. OCCUGENDER)
- Professional roles (cf. OCCUGENDER)
- People and characteristics (cf. GenderPair)
- Everyday situations (cf. GG-BBQ)
- Personas and roles (This category captures prompts that explicitly assign the model an identity or interaction role (e.g., “You are a student ...”, “As a teacher ...”), which can influence whether gender-marked role nouns appear in the output.)

Note that the category ‘Personas and Roles’ does not originate from an existing benchmark, but from general prompt design. This category was introduced specifically in GenScore-DE because it is close to everyday life and thus reflects more realistic usage behaviour.

The prompt catalogue builds on prior analyses of gender expression in LLM outputs, which informed the selection of linguistic structures. For each of the 50 situations (10 per category), masculine, feminine, and neutral variants are formulated, resulting in 150 prompts that are submitted to the LLM that is going to be tested for gender neutrality. This approach was conceptually derived from German language theory, not from benchmarks. It ensures that gender marking can be experimentally isolated. Having both gendered and neutral prompts ensures that the model can be tested across different linguistic conditions specific for the German language as Section 4.3.2 will show. Although GenScore-DE is designed for German, a short comparison with English shows how it works. In English, there is no gender marker for nouns, yet gender bias is evident in job titles such as actor vs. actress (Kotek, Dockum and Sun, 2023). A comparable prompt from the prompt catalogue in the ‘Professional Roles’ category would be:

- ‘Describe the daily tasks of an actor.’ (male)
- ‘Describe the daily tasks of an actress.’ (female)
- ‘Describe the daily tasks of a performer.’ (neutral)

This comparison shows why German needs a more comprehensive catalogue. In English, gender is mainly marked by individual words, whereas in German it is encoded through grammatical patterns like word endings. Because such gender marking is the norm rather than the exception (Diewald and Nübling, 2022), broad coverage of relevant linguistic structures is essential, and systematic test coverage is particularly important.

4.3 The Evaluation Module

The GenScore-DE evaluation module works in two steps. First, linguistic classification is performed using an LLM-as-a-Judge procedure. In the second step, metrics for gender neutrality are calculated.

4.3.1 LLM-as-a-judge

LLMs are increasingly used not only to generate text but also to perform evaluation tasks. This approach is referred to as LLM-as-a-Judge. It uses an LLM as an evaluator that classifies outputs based on predefined criteria, providing a scalable and automated alternative to manual assessments while retaining semantic flexibility (Gu *et al.*, 2025). As research has shown that LLMs can achieve high consistency with human judgements in standardised linguistic evaluation tasks (Li *et al.*, 2025), this approach is adopted in GenScore-DE to classify gender markers in German LLM outputs.

The Judge-LLM processes the 150 text snippets generated as response to the standardised prompt catalogue. Based on explicit linguistic rules encoded in the evaluation prompt, it assigns each snippet to one of four categories, masculine, feminine, neutral and mixed. The rules reflect the German linguistic structures described in Section 3.1: Morphological masculine or feminine forms are classified as such, gender-unmarked forms such as ‘Studierende’ [student] or ‘Lehrkraft’ [teacher] are categorised as neutral, and typographical variants and paired forms are classified as mixed but not neutral. To ensure consistent behaviour, the evaluation prompt sets fixed rules for decision-making that the Judge-LLM must follow. This rule-based structure supports reproducible classifications and reduces variation between runs.

4.3.2 Metrics for gender neutrality

Two metrics were developed specifically for assessing gender neutrality. Because each prompt in the catalogue exists in masculine, feminine, and neutral variants, the following two dimensions can be evaluated independently.

- Gender Prompt Match (GPM) measures how well the output follows the gender specification given in the prompt—namely, whether the model uses the gendered form requested. Therefore, the metric compares the gender indicated in the prompt (masculine, feminine, or neutral) with the gender category assigned to the output by the Judge-LLM.
- Gender Neutrality Score (GNS) measures whether the output adopts grammatically gender-neutral forms (neutral) or explicitly gender-inclusive strategies (inclusive) regardless of the prompt’s instruction. It reflects the grammatical gender neutrality category assigned by the LLM-as-a-Judge component. The GNS acts as an aggregate metric, it records both neutrality (using invariant forms like ‘Lehrkraft’) and inclusivity (using typographic markers like ‘Lehrer*innen’). While theoretically distinct, both strategies serve the common goal of reducing masculine defaults in the framework’s scoring

Using these metrics, changes in output behaviour—whether between runs with and without a system prompt or between different system prompts—can be recorded objectively and translated into quantitative indicators.

4.4 Evaluation

To evaluate the functionality of the GenScore-DE framework, test runs were conducted. Two open-source LLMs were used: a Mistral model (mistral:7b) for text generation and a Meta model (llama-3.3-70b-instruct) as the LLM-as-a-Judge, combined with varied system prompts. All GenScore-DE outputs, i.e., generated texts, results of the LLM-as-a-judge and calculated metrics, were then systematically analysed to assess the framework's ability to capture differences in gender neutrality. Across all test runs, the GenScore-DE framework revealed clear differences between the baseline outputs and those generated with an optimised system prompt.

The following end-to-end run serves as an illustrative example. Two conditions were tested: a baseline without a system prompt and an optimised condition using a gender-neutral system prompt instructing the model to avoid the generic masculine, favour gender-neutral German structures, specifically substantivized participles (e.g., 'Mitarbeitende' or 'Studierende'). Unlike the generic masculine, these plural forms are grammatically neutral in German as they are derived from the present participle and do not carry a gendered suffix. Additionally, the prompt required balanced naming (i.e., when first names are required, providing an equal number of female and male names). All 150 results were processed without technical errors, automatically classified and manually checked for plausibility. Results show that the model without a system prompt predominantly used gender-specific formulations. The gender neutrality score (GNS) was only 12%, while gender prompt consistency (GPM) was comparatively high at 47%. With the system prompt, the output behaviour changed markedly. The GNS increased to 42%, while the GPM fell to 24%, as expected. The frequency analysis confirmed a substantial rise of neutral and mixed forms and a corresponding decrease in generic masculine formulations. A test-retest check produced 99% identical classifications, confirming the reliability of the evaluation module.

5. Discussion

Applying GenScore-DE across several test runs has revealed consistent patterns. In their baseline state, the tested LLMs frequently produced gender-specific forms, especially the generic masculine, a pattern already well documented in previous research (Kotek et al., 2023; Ranjan et al., 2024). At the same time, neutral forms remain underrepresented. Consequently, LLMs often reproduce or amplify gender-typical patterns present in their training data (Gonen & Goldberg, 2019). Through systematic analysis of generated texts and their classifications, it can be analysed under which conditions LLMs choose gender-specific forms. This contributes to an objective discussion on gender-neutral language, whose effect on perception and inclusion has been empirically demonstrated (Stahlberg and Sczesny, 2001; Braun, Sczesny and Stahlberg, 2005; Sczesny, Formanowicz and Moser, 2016).

While the baseline behaviour reveals systematic patterns, the analysis also shows that these patterns can be modified. A system prompt requiring gender neutrality significantly increased the number of neutral or mixed outputs. As neutrality increased, compliance with prompts decreased, illustrating the expected trade-off: greater neutrality typically reduces adherence to explicitly gendered instructions.

The test–retest comparison conducted showed a high level of consistency in the classifications. This demonstrates the robustness of separating the LLM-as-a-Judge classification from the rule-based scoring. It also reduces dependencies on the specific evaluation model. Overall, the framework produced a stable, data-based picture of the distribution of masculine, feminine, neutral, and mixed forms in the LLM outputs.

The framework has certain limitations. It deliberately remains analytical and focuses on superficial linguistic gender markers rather than semantic or implicit stereotypes. It evaluates the degree of grammatical neutrality in the outputs, not whether a particular variant is socially 'correct'. In its current form, the framework is a working prototype that requires further development and broader testing before large-scale application. Moreover, the framework is designed specifically for German; applying it to another language would require adapting the evaluation logic and revising the prompt catalogue accordingly.

6. Implications for Practice

GenScore-DE can be used in various application contexts in which AI-supported text generation influences linguistic representation and is therefore relevant for many organisations, both in internal communication and in customer-facing applications such as chatbots, assistance systems, automated text generators, and knowledge bases. Many organisations for which linguistic consistency, fairness and compliance are key criteria already follow internal guidelines for gender neutral or inclusive language, yet they lack appropriate tools to verify whether LLM-based systems adhere to these standards. GenScore-DE closes this gap by enabling

systematic comparisons of different model configurations or system prompts. It helps identify configurations that promote gender neutral output without requiring changes to, or retraining of the underlying model. In this way, the framework supports the monitoring and refinement of language standards as well as fairness and compliance requirements. Beyond supporting organisational language practices, these functions highlight the broader value of the framework. The framework contributes to responsible AI development because it shows developers and AI specialists where and how an LLM uses gendered language, turning what was previously based on personal impressions or anecdotal evidence into clear, analysable data. This makes it possible to adjust system behaviour where necessary.

7. Conclusion

This paper demonstrates that gender-neutral language generation in German-language LLM outputs can be measured objectively, systematically and reproducibly. GenScore-DE provides an automated framework for evaluating linguistic structures such as gender markers, personal pronouns and neutral formulations using a curated prompt catalogue and a dedicated evaluation component. The application demonstrates the strong impact of system prompts on the gender neutrality. In test runs, the use of gender-neutrality-oriented system prompts markedly increased neutral and mixed forms while reducing the dominance of the generic masculine. This demonstrates that gender neutrality in LLMs is both measurable and steerable. These findings have important implications for research and practice. GenScore-DE enables data-based decisions about language settings and supports the evaluation of LLMs by making gender-related effects visible. The framework is analytical rather than normative and offers a robust basis for discussing gender-equitable AI development and the effects of linguistic interventions. Future work should examine its application to other LLMs and across different use cases. Testing the framework in public- and private-sector settings could further broaden its relevance and practical value.

Ethics Declaration: This study does not involve human participants or any personal or sensitive data. All analyses were performed exclusively on results generated by publicly available large language models using synthetic test prompts. No identifiable data was collected or processed, and the study design does not pose any ethical risks. As the work only examines the linguistic properties of AI-generated texts, no ethical approval was required.

AI Declaration: AI tools (ChatGPT-5, DeepL) were used for language editing and improving clarity. The authors confirm that all intellectual content, interpretation, and conclusions were developed by the authors and that AI outputs were reviewed and edited by the authors for accuracy and appropriateness. AI tools (ChatGPT-5, PerplexityAI) were also used to expand literature search terms, suggest related keywords, and identify candidate publications. All searches were validated through academic databases, all inclusion/exclusion decisions were made by the authors. AI was neither used for statistical analysis nor figure/table generation.

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Cultivating Belonging, Agency and Biodiversity: Transformative Learning in a Women*-Led Community Garden

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Abstract: This paper examines community gardens as socio-material learning environments that enable transformative learning under conditions of social inequality. Drawing on a participatory action research case study from the Horizon Europe project PLANET4B in Graz, Austria, we analyse the co-creation of a women*-led community garden (*GAIA Gartenberg*) within the framework of a *Bio-/Diverse Edible City*. The initiative involved women* experiencing intersecting forms of marginalisation and was intentionally designed as an inclusive, low-threshold, and care-oriented learning space. Building on transformative learning theory and informed by feminist STS perspectives, the analysis traces how learning emerged through relational, affective, and embodied practices rather than solely through cognitive knowledge transfer. Empirically, the paper reconstructs the gradual formation of a learning community through phases of contextualisation, trust-building, experiential co-creation, and the transition toward collective stewardship. Participatory and arts-based methods enabled participants to engage with biodiversity and diversity as lived and situated concerns embedded in everyday practices such as gardening, food, and collective decision-making. The findings highlight the central role of facilitation, brave spaces, and supportive institutional conditions in fostering agency, belonging, and response-ability. We argue that community gardens, when understood as socio-material infrastructures rather than solely as food-producing sites, can support transformative learning processes that connect personal change with broader socio-ecological transformation, while remaining highly context-dependent.

Keywords: Transformative learning, Co-creation, Community gardening, BIODIVERSITY, INTERsectionality

1. Introduction

In recent years, increasing attention has been directed toward educational initiatives addressing ecological crises such as climate change and biodiversity loss. Many of these initiatives aim to promote behavioural change by encouraging more sustainable lifestyles and consumption patterns. Yet, despite growing awareness, a persistent discrepancy remains between individuals' values and their actual behaviours. This so-called *knowing–doing gap*, or *attitude–behaviour/value–action gap*, has been extensively examined in environmental psychology (Bentler et al., 2023).

STS and feminist scholars have long argued that such gaps cannot be understood solely as cognitive failures but must be analysed through the socio-material and affective conditions that shape possibilities for action (Haraway, 1988; Suchman, 2007). From this perspective, knowledge, agency, and behaviour emerge through relations among bodies, infrastructures, tools, institutional arrangements, and more-than-human actors. The focus thus shifts from individual deficits to the relational, material, and political conditions that enable or constrain engagement with ecological issues, including structural inequalities, institutional path dependencies, and symbolic orders that shape participation and whose knowledge counts (Jasanoff, 2004).

Against this backdrop, the article examines the *Bio-/Diverse Edible City Graz* case study within the Horizon Europe project PLANET4B. The study employed a participatory action research approach and initiated learning communities (LC) at two interconnected scales. At the meso-level, a policy learning community engaged stakeholders from municipal administration, education, environmental sectors, social work, and the arts. At the micro-level, which represents the focus of this article, a community garden (*GAIA Gartenberg*) was co-created by and for women* from diverse backgrounds, many of whom were experiencing intersecting forms of marginalisation. Our analysis focuses on the conceptualisation and implementation of this co-created learning environment, exploring how biodiversity-related issues can become more accessible and meaningful within everyday contexts. We conclude with reflections on how researchers can design inclusive, experiential, and co-creative learning spaces that foster agency and support long-term socio-ecological transformation.

1.1 Inequalities in Access to (Edible) Urban Nature

The ecological and social value of urban green spaces has been widely recognised across urban planning, community development, and public health (Kumar et al., 2025). Ecologically, gardens and green corridors provide habitats for biodiversity (Goddard et al., 2010), mitigate urban heat (Bowler et al., 2010; Wang & Ren,

2025), improve air quality (Nowak et al., 2006), and enhance water retention critical for climate adaptation (Gill et al., 2007). In edible urban landscapes, they also support pollination and local food production (Lin et al., 2015).

Socially, green spaces promote physical and mental health (van den Bosch & Sang, 2017), facilitate informal learning (Adams & Branco, 2017), and strengthen social cohesion through participatory practices (Rogge et al., 2020). Community-managed spaces such as urban gardens can foster local identity, intercultural exchange, and empowerment, particularly among marginalised groups (Anguelovski, 2013; Ilieva et al., 2022).

However, access to these benefits is uneven. Urban green spaces are shaped by contested power relations and intersecting inequalities related to class, gender, migration status, and ability (Haase et al., 2017; Crenshaw, 1989). Beyond physical access, symbolic dimensions such as cultural practices, perceptions of safety, and senses of belonging are equally decisive (Steinwender et al., 2023). Even well-intentioned sustainability initiatives can reproduce exclusion or fuel green gentrification (Anguelovski et al., 2022), while shifting responsibility to citizen volunteers often mirrors broader neoliberal governance dynamics (Mayer, 2012). These tensions are especially pronounced in the context of edible cities.

1.2 The Bio-/Diverse Edible City

Urban food-related practices are described through a range of concepts, including urban gardening, urban agriculture, and the edible city. Among these, the edible city concept is particularly comprehensive. Edible City Solutions (ECS), as defined by Säumel et al. (2019), encompass diverse practices ranging from community and school gardens to rooftop farms, aquaculture, and high-tech forms of urban agriculture.

Beyond food provision, the edible city also functions as a narrative framework for urban transformation. Similar to the Transition Movement (Hopkins, 2008), it mobilises hopeful imaginaries of community-based sustainability (Barry & Quilley, 2009). Building on this idea, we introduce the concept of the “Bio-/Diverse Edible City”, foregrounding both biodiversity (“bio”) and social inclusion (“diverse”). Our focus on women* reflects persistent gendered inequalities and disproportionate exposure to material and social disadvantage (Statistik Austria, 2023). While food poverty has been analysed elsewhere (Lampl et al., 2024), this paper examines how the Bio-/Diverse Edible City, as both a material and narrative framework, can support deeper processes of learning and change through transformative learning.

1.3 Transformative Learning

Transformative learning (TL), introduced by Mezirow (1990; 2000), refers to processes of critical reflection that reshape individuals’ frames of reference. Over time, TL has developed into a diverse field of theory and practice (Austrian Commission for UNESCO, 2024). It involves reconfiguring deeply embedded meaning structures that are often resistant to change (Schneidewind et al., 2016). Phase models typically describe TL as beginning with disorienting experiences, followed by reflection, dialogue, and experimentation, leading to new perspectives (Grund et al., 2024). These processes emphasise the relational and social dimensions of learning, challenging individualistic interpretations.

Situated within emancipatory pedagogies, TL also addresses systemic transformation by promoting participatory and experiential approaches that question dominant norms and support the co-creation of alternative futures. In sustainability contexts, emotions play a central role, requiring pedagogical spaces characterised by trust and supportive relationships (Grund et al., 2024).

Here, the concept of the “*brave space*” is particularly relevant (Arao & Clemens, 2013). *Brave spaces* invite learners to engage holistically, including with emotional and contradictory aspects, and support both personal and collective transformation (hooks, 1994). Co-created and flexible environments enhance agency and ownership (Casanova et al., 2023), embedding transformation in everyday practice (Singer-Brodowski, 2023). Trust, co-agency, and meaningful participation are therefore key conditions for transformative learning.

1.4 Community Gardens as Spaces for Transformative Learning

Community gardens are increasingly recognised as fertile spaces for transformative learning that engages cognitive, emotional, social, and ethical dimensions. Through experiential practices and collective decision-making, participants connect to local ecologies and food systems, develop critical awareness of social and environmental injustices, and build practical skills and ecological literacy (Mezirow, 2000; Aiken, 2016; Egerer et al., 2019). Their communal and dialogic character facilitates reflection, empowerment, and intergenerational learning, particularly in contexts where access to green spaces, healthy food, and participatory governance is limited (Okvat & Zautra, 2011; Pudup, 2008). As such, community gardens function as transformative learning

environments where knowledge is co-created through embodied interaction with land and community (Sipos et al., 2008).

2. Methodology

Our case study followed a participatory action research (PAR) approach that intertwined the co-creation of a community garden with iterative research interventions and continuous qualitative reflection. The methodological design was grounded in transformative learning theory and further informed by STS perspectives on co-production and care practices. In this paper, we reflect on the learning environment created through the *GAIA Gartenberg* community garden and on the learning processes.

2.1 Case study Description

2.1.1 Context: Urban gardening and the bio-/diverse edible city in Graz

In recent years, over 30 publicly accessible community gardens emerged in Graz, alongside an unknown number on private or semi-public housing estates. Most are community-driven or embedded in neighbourhood work initiatives and receive varying levels of municipal support under sustainable gardening guidelines. While food production is visible, these spaces primarily function as sites of social exchange and informal learning.

Although the idea of an “*Edible City Graz*” has been adopted by some municipal actors, including the Department of Green Spaces, implementation remains fragmented, and ecological and social dimensions are rarely integrated into a coherent strategy.

Against this backdrop, the PLANET4B case study was built on these local developments and prior action research on social access to green space (e.g. *Social Gardening*, *RESISTIRÉ*). We introduced the concept of the “*Bio-/Diverse Edible City Graz*” as both a guiding vision and a pilot intervention. The approach aimed to explore how ecological concerns, particularly biodiversity, can be meaningfully connected to social issues such as unequal access to food and green infrastructure.

To operationalise this approach, two interconnected learning communities (LCs) were established: a policy LC focusing on governance processes and institutional perspectives, and a citizens’ LC centred on the co-creation of a women*-led community garden. This paper focuses on the latter.

2.1.2 Case study design and research implementation

The citizens’ LC was implemented between March and September 2024 in Graz, Austria, and focused on the co-creation of the *GAIA Gartenberg* women’s community garden, developed through close collaboration between IFZ researchers, practitioners from Forum Urbanes Gärtnern (FUG), and 10–15 participating women*. Weekly meetings were held on Fridays for three-hour sessions, primarily on-site and occasionally at a nearby community centre.

The garden was intentionally designed as a women*-only space and co-facilitated by pedagogically trained female gardeners from FUG. Facilitation was guided by principles of *brave spaces*, accessibility, and care. Weekly sessions combined gardening activities with collective decision-making, reflection exercises, shared meals, and structured research workshops addressing biodiversity, food systems, and diversity.

A series of structured research interventions was embedded in the ongoing gardening practice to support learning and generate empirical material. Initial community-building activities were led by FUG and expanded through co-creative research units. These included a nature experience stroll at the future garden site, storytelling, community mapping to identify needs and barriers (Talip & Ismail, 2023), and socio-scientific inquiry workshops (e.g. on apple varieties; Zeidler & Kahn, 2014) addressing biodiversity, seasonality, labour conditions, and food system dynamics. An additional workshop focused on diversity, accessibility, and inclusion, linking personal experiences to broader questions of justice.

Co-creative processes were central to the study design. Participants jointly developed the garden design, established, e.g. a thematic Milpa or “Three Sisters” bed inspired by Kimmerer (2013), and collectively named the garden *GAIA Gartenberg*.

All weekly meetings followed a recurring structure of check-ins, gardening work, shared meals, reflective discussions, and check-outs (Krause et al. 2024). These elements functioned both as pedagogical tools and as integral components of the research design, enabling the generation of rich qualitative insights into learning processes, collaboration, and the socio-material dynamics shaping engagement with biodiversity.

2.1.3 Data sources

In addition to the methods implemented to address several aspects of biodiversity with the women's group as part of the case study, as described above, three methods for assessing our activities were conducted as a post-process evaluation.

First, we examined the reflection protocols and research notes from each meeting or gathering, as well as the associated research units held with the women's group. These protocols were initially created by the FUG team members, who guide the women* through the process. The IFZ research team contributed additional information when they participated, including notes from the debriefings conducted and documented immediately after each event.

Second, we conducted interviews with the women* (7 out of 15 participants) to explore their experiences, perceptions, and the outcomes of their engagement.

Third, we conducted three workshops involving members of both the policy LC and the citizens LC, using the '*Systematisation of Experiences*' method (Herout & Schmid, 2015). This method enabled individuals to reflect on shared experiences and learn collectively. Central to the method is recognising those who have actually lived the experience, aiming to create a space for sharing interpretations and feelings without fear or shame. Rather than merely extracting lessons, the method seeks to foster participatory and emancipatory learning, empower participants, and facilitate social transformation.

3. Results

The findings presented here trace the facilitated emergence of a learning community through urban gardening with women* in diverse and often precarious life situations. The findings are presented chronologically, highlighting key phases in the group's development: contextualisation and entry, group formation and stabilisation, experiential co-creation, and the transition toward self-organisation and stewardship.

3.1 Creating Enabling Conditions for low-threshold Participation

Before establishing the citizens' LC, we explored the setting's social context, spatial characteristics, and related factors, with support from the Eggenlend community centre. A central aim was to make biodiversity tangible and relevant for participants whose everyday lives were shaped by economic precarity, caregiving responsibilities, linguistic barriers, food security, and social participation.

To enable meaningful and sustained participation, appropriate framework conditions were established. Reflecting on this phase, we identified key resources at multiple levels.

1. *Physical resources* included a dedicated garden plot (slightly remote but easily accessible and sufficiently large) provided by the city administration, along with essential infrastructure such as water, soil, compost, tools, and storage space, enabling safe and continuous gardening and learning.
2. *Financial resources* from the PLANET4B project covered material needs as well as process facilitation, childcare, translation, and other measures enhancing accessibility and continuity.
3. *Personal and social resources* were crucial for understanding the local context and reaching participants. Community workers, neighbourhood organisations, and practitioners in community-based work acted as trusted intermediaries, using established networks and trust-based relationships to engage women* from diverse, often marginalised backgrounds and to lower initial participation barriers.
4. *Symbolic and institutional resources* included the absence of local resistance and general goodwill from municipal actors, particularly in green space and urban development. Explicit political support for urban social gardening and minimal administrative or social obstruction created a symbolic space to experiment, fail, and grow without excessive scrutiny.

Together, these conditions enabled low-threshold participation and flexible responses to participants' needs.

Early engagement formats were deliberately designed to foster connection and reduce participation thresholds. Activities such as a "nature experience walk" served as relational entry points into biodiversity, inviting participants to share personal memories of plants, food, and places. Rather than being didactic, these moments supported meaning-making grounded in lived experience. Structural and emotional barriers, including language, prior negative institutional experiences, or unfamiliarity with environmental topics, were addressed through multilingual facilitation, informal settings, and an appreciative approach to existing knowledge and practices.

3.2 Group Formation and Emergence of Self-organisation

Over the first weeks, the group gradually developed into a cohesive learning community. Group formation did not build on pre-existing networks but emerged through facilitated relational processes. Regular rhythms, shared meals, check-ins, and check-outs supported continuity and trust, while facilitation practices allowed space for ambivalence and negotiation.

A formative moment occurred during the construction of the garden fence. Although some participants initially suggested involving male relatives, the group decided to build it themselves despite limited technical experience. This collective effort became a symbolic act of claiming the space and was later described by participants as pivotal in shifting their relationship to the garden from something provided to something owned.

As confidence grew, participants increasingly initiated ideas, such as composting systems, storytelling areas, and thematic beds, and assumed responsibility for planning and decision-making. Facilitation gradually shifted from leading to enabling. Challenges related to weather, scheduling, and uneven participation were addressed through collectively negotiated solutions. Shared symbols, rituals, and appreciation practices helped stabilise the group and sustain engagement.

3.3 Experiential Learning and Co-creation

In later phases, learning became more explicitly co-creative. Biodiversity and diversity moved from peripheral topics to shared objects of inquiry, emerging through embodied practice rather than predefined curricula. Several sessions were framed as research units facilitated by IFZ staff and local experts in environmental education, diversity, and participatory art.

Participatory methods supported inquiry-based learning. Community mapping helped participants explore spatial dimensions of biodiversity while articulating situated knowledge. In another session, socio-scientific inquiry using apples as an everyday object enabled reflection on ecological, cultural, and economic dimensions of agrobiodiversity. Across these activities, biodiversity was approached not only scientifically but also emotionally, culturally, and aesthetically, enhancing its relevance to participants' everyday lives.

3.4 Taking Responsibility and Looking Ahead

By mid-summer, a core group began expressing interest in taking long-term responsibility for the garden. This shift from participation to stewardship had been anticipated and gradually supported by the facilitation team. A follow-up community mapping played a key role in envisioning future uses of the site, particularly given uncertainty about long-term land access.

None of the participants had prior experience managing a community garden or founding a civic association. The process of establishing a nonprofit organisation, therefore, became a learning process in itself, conducted collaboratively and grounded in shared values. Legal and organisational aspects were addressed in accessible ways, with a focus on capacity-building rather than compliance alone.

Beyond securing the garden's future, this process stimulated broader civic aspirations. Several women* expressed interest in continued engagement with urban development and environmental issues, marking an expansion of agency beyond the garden itself.

4. Discussion

The engagement with the citizens' learning community highlights the transformative potential of inclusive urban gardening initiatives, while also revealing their tensions and conditions of possibility. Transformation unfolded across intrapersonal, interpersonal, and collective levels, shaped by affective, relational, and socio-material dynamics.

At the intrapersonal level, participants' understandings of biodiversity shifted from abstract notions of "nature" toward meanings grounded in everyday practices such as food preparation, sensory engagement, and garden care. This confirms the importance of embodied and experiential learning for rendering ecological issues relevant in contexts shaped by precarity and competing everyday demands. Notably, many women* did not initially identify as structurally disadvantaged. Experiences of marginalisation surfaced only gradually, particularly in reflective interviews, underscoring the need to approach vulnerability as relational and emergent rather than as a fixed category.

Interpersonal transformation proved equally significant. While some participants brought prior gardening experience, collective gardening and shared decision-making were new to most. Practices such as co-planning,

shared responsibility, and the collective construction of the garden fence fostered trust, ownership, and agency. The decision to cultivate shared rather than individual plots reinforced a collective ethos and supported mutual learning.

Establishing the garden as a brave space was central to these dynamics (Arao & Clemens, 2013). Such spaces allow for vulnerability, emotional engagement, and the negotiation of difference, enabling participants to navigate cultural, linguistic, and generational diversity while fostering belonging and co-agency. Transformative learning thus emerged not as a linear process of knowledge acquisition, but as a relational and affective process grounded in shared experience.

Participatory and arts-based methods further supported reflection-in-action and anchored complex issues of biodiversity and diversity in everyday relevance. By offering multiple entry points into learning, these approaches enabled participants to engage with ecological questions through emotional, cultural, and practical lenses. Over time, participants' sense of self-efficacy deepened, culminating in a transition from participation to stewardship as a core group assumed responsibility for the garden and co-developed a nonprofit association. The facilitation of legal and organisational processes in accessible ways highlights the importance of capacity-building for sustaining engagement beyond project timelines.

At a structural level, the case points to key conditions for just transitions. Emotionally safe environments, low-threshold access, multilingual facilitation, and alignment with participants' lived realities were foundational rather than supplementary. While the material space of the garden was crucial, symbolic and institutional spaces that allowed experimentation, recognition, and failure were equally important. These findings align with feminist and critical pedagogies that conceptualise learning as situated, relational, and power-sensitive (Haraway, 1988; Calderwood & Rizzo, 2023). As Singer-Brodowski (2023) and Casanova et al. (2023) argue, when learners actively shape their learning environments, transformative change becomes embedded in everyday practice.

Ultimately, *GAIA Gartenberg* functioned less as a food-producing site than as a socio-material learning environment cultivating belonging, co-agency, and response-ability. Its significance lies in demonstrating how community gardens, when intentionally designed as inclusive and relational spaces, can support transformative learning processes that link personal change with broader socio-ecological transformation.

5. Conclusions

The *Bio-/Diverse Edible City Graz* case demonstrates how transformative learning can emerge through the co-creation of inclusive, experiential environments when supported by enabling institutional and social conditions. Two factors were particularly decisive.

First, the broader political and institutional context proved supportive. Municipal objectives aligned with citizen-led urban greening, and community gardening benefited from explicit political backing. Combined with funding and institutional support from the PLANET4B project, this created material, symbolic, and process-related resources that enabled experimentation and continuity.

Second, facilitation and local partnerships were central. The expertise of the facilitation team and local actors in environmental education, participatory methods, and socially sensitive engagement enabled an adaptive and responsive process. Challenges such as delayed land access and language barriers were addressed through flexible arrangements, including real-time translation tools, highlighting the relational and co-creative nature of the learning environment.

Within this context, the *Bio-/Diverse Edible City Graz* functioned as a low-threshold entry point into biodiversity and ecological questions, grounded in familiar practices such as gardening, food, and storytelling. These embodied and relational activities enabled participants to connect abstract environmental concerns to lived experience, fostering agency, belonging, and response-ability. The garden's significance thus lay less in food production than in cultivating socio-material spaces where new ways of knowing, relating, and acting could emerge.

The initiative also generated broader effects beyond the immediate learning community. Cooperation with the municipal green space department laid the foundation for ongoing support and future activities in the surrounding area, positioning the *GAIA Gartenberg* as a nucleus for further socio-ecological engagement. At the same time, the case illustrates the limits of transferability: without comparable time, funding, facilitation capacity, and political support, similar initiatives may be difficult to replicate.

Rather than offering a universal model, this case provides a context-sensitive example of how transformative learning can take root when social, material, and institutional conditions align. It underscores that transformative learning is not a fixed method but an emergent process embedded in everyday practice, collective agency, and the co-creation of spaces that enable just and sustainable transitions.

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Ethics Declaration: This research followed ethical standards for participatory qualitative research, as defined in the [PLANET4B Data Management Plan](#). Participation was voluntary and based on informed consent. Confidentiality and anonymity were ensured, and particular care was taken to address power asymmetries and accessibility in working with women* in precarious life situations.

AI Declaration: Parts of the writing process were supported by AI tools: ChatGPT (v4) was used to refine language and phrasing based on author-provided drafts. The final text was carefully revised and proofread by the authors.

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A Viral Moment that Made History: Gendered Reactions to a Spontaneous Event at a Coldplay Concert

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Abstract: The fairness of gender representation in media remains a strong concern in contemporary public debate and is visible in scholarship. This paper presents a case study examining a spontaneous social phenomenon that unfolded on 16 July 2025, during a Coldplay concert, when the romantic relationship between a male company CEO and a female head of human resources—colleagues of comparable social, marital, and professional backgrounds—was unexpectedly revealed in public. The event, entirely unplanned and unmediated, rapidly went viral, generating vast amounts of user-generated content (UGC) and embedding itself into popular culture. Due to its exceptional virality and enduring cultural resonance, it can be regarded as a historical moment in the post-digital sphere, exemplifying how gendered narratives are constructed, amplified, and memorialised online. This study employs a quantitative content analysis of Instagram posts related to the event, complemented by qualitative reflections that illuminate underlying attitudes and symbolic gender framings. This mixed approach enables both the systematic mapping of engagement patterns and the interpretive understanding of how users ascribe meaning and moral value to male and female figures in comparable circumstances. Findings show that, despite the protagonists' similar social and professional standing, gendered asymmetries persist in public perception. The male figure was frequently represented through narratives of leadership, charisma, and professional success, while the female counterpart was disproportionately subjected to moral judgment, emotional stereotyping, and scrutiny of personal integrity. The study concludes that spontaneous viral events such as this offer unique insight into unfiltered digital storytelling, revealing how collective narratives of gender continue to reproduce structural inequalities even in seemingly organic contexts. As part of a broader research project on storytelling for gender equality, this paper contributes to understanding how viral, unscripted events both reflect and shape contemporary gender discourse in online culture.

Keywords: Gender representation, Social media, Post-digital storytelling, Virality, Spontaneous event, User-generated content, Instagram, Coldplay concert

1. Gender Representation in Media

The fairness of gender representation in media remains a strong concern in contemporary public debate. However, high-level scholarly discussion on this issue still lags behind. Surprisingly, gender representation has not received a broad attention within the wider field of gender equality research. Existing studies have examined it mainly through specific lenses, such as journalism (Iranzo-Cabrera, 2020), online presence (Lagrange et al., 2024), leadership positions (Lyubykh et al., 2024), news reporting (Mostafa Taha & Fahmy, 2023), and sports (Alkhamash, 2021).

Within sport media, research has highlighted disparities both in the quantity of coverage (Alkhamash, 2021) and in the quality of gender portrayal (Antunovic & Cooky, 2024). In journalism studies, gendered patterns in general media coverage have been also addressed (Iranzo-Cabrera, 2020; Mostafa Taha & Fahmy, 2023; Antunovic & Cooky, 2024). These works note, for instance, the persistence of traditional gender roles (Mostafa Taha & Fahmy, 2023), while Antunovic & Cooky (2024) go further by calling for quantifiable accountability measures within the media organisations to ensure balanced, non-stereotypical representations and the inclusion of diverse voices in both production and leadership roles.

Overall, previous research has predominantly adopted an organised, top-down perspective on gender representation in media. In response, this study contributes to the literature by analysing a social media case that illustrates a bottom-up form of representation. An additional value of this research lies in our comparative analysis of male and female representation, in contrast to studies that focus on only one gender's portrayal.

The aim of this paper is to reveal underlying attitudes and symbolic gender framings within the contemporary cultural climate, using a case study of a spontaneous viral event involving both a man and a woman. First, we assess the cultural significance of the selected event. Next, we compare the representation of the male and the female involved. Third, we examine how male and female publishers have presented the gendered situation of this event. Finally, we analyse the perspective of anonymous publishers on this spontaneous viral phenomenon.

2. Case Study Design

The chosen case study concerns the public exposure of a romantic affair between Andy Byron, the CEO of a company, and Kristin Cabot, the head of human resources of the same company, during a Coldplay concert held on 16th July 2025. The company, Astronomer, operates in the STEM industry. The event spread rapidly across social media, resembling an unstoppable tsunami.

This specific event was chosen for analysis because it represents a natural occurrence—it was not organised to elicit a societal reaction—and provoked spontaneous responses. These reactions were shaped by underlying attitudes towards men and women, as content creators prepared posts expecting them to be popular among social media users. Therefore, the event provides an appropriate case for examining underlying attitudes and symbolic gender framings in the contemporary cultural climate.

This study employs a quantitative content analysis of social media posts related to the event, complemented by qualitative reflections. This mixed approach enables both the systematic mapping of engagement patterns and the interpretive understanding of how users ascribe meaning and moral value to male and female figures in comparable contexts. Given the event's rich potential for visual representation, a visual-based social media platform was chosen: Instagram. The study analysed creative expressions of content creators on this social media, in the form of images, videos, or a combination of both, and only publicly accessible posts were included.

Posts were collected between 29th July 2025 and 3rd August 2025. Sampling social media content on Instagram presents methodological challenges, as the platform does not provide a finite or easily retrievable population of posts and content circulation is shaped by algorithmic visibility and hashtags rather than by clearly defined categories. For this reason, posts related to the event were collected iteratively and analysed as they appeared during the observation period. Within the resulting dataset, 40 distinct accounts were identified, representing six different industries, which ensured a heterogeneous sample of content creators and communicative perspectives. Data collection continued until saturation was reached, that is, until additional posts no longer introduced new relevant patterns of representation or engagement. The final sample consisted of 161 posts (n=161).

As the naturally accruing (hi)story of attitudes towards gender and symbolic gender framings is perceived via general storytelling framework, we considered Berger and Milkman's (2012) emotional coding of the message, Connell and Messerschmidt's (2005) narrative roles, and, for gender portrayal, works of Entman (1993) and Suico (2007). While we drew on the terminology and categorisation suggested by these authors, we allowed the data itself to guide the development of categories in this case study.

We collected formal and content information of the posts in the sample in the following areas:

1. Information about the publishing of the post: name of the account, date of publishing, business branch of publisher (entertainment, media/news, etc.), information on the person (male, female, organisation, etc.)
2. Information about the medium used. Instagram offers four options of medium: picture, video, multiple items with picture or video as a title item.
3. Formal structure of the post. We started with the categories "plain original" and "original with a caption". The following categories were added during data collection: "Original with caption" are the posts that include the still frame or video from the event with a caption, "original+" are the posts that include still frame or video of the event and a non-event-related photo, "inspired by" are the posts that are originally created with the event at heart, "reenactment" are the posts including the copied behaviour on jumbotron at other events or "the cheaters' hug" in a different context, "no visual reference to original" are the posts that refer to this event only per words in caption (none of the original visual material is used).
4. Information on likability of the post was observed by recording likes of the posts.
5. Information of the target of the post.
6. The visible intent of the post.
7. The emotional frame of the post.
8. Narrative roles we observed for the male in the affair (hereinafter, He/Him), the female in the affair (hereinafter, She/Her), His wife and Her husband.
9. Gender portrayal of Him, Her, His wife and Her husband.
10. The use of infidelity tropes for Him, Her, His wife and Her husband.

11. Positivity direction in the caption for Him, Her, His wife and Her husband. Observed options: positive, neutral, negative, and no mentioning.
12. Designations of Him and Her in the caption were collected.

The collected data allowed us to see the sample as a reflection of the contemporary cultural climate regarding men and women, as it consists of posts by contemporary creators intended for a contemporary audience. We first present gendered framing by comparing posts published by female and male creators. Subsequently, we analyse the posts from anonymised accounts, enabling a comparison with the male/female analysis. The separate examination of anonymised posts was guided by Suler's Theory of the Online Disinhibition Effect. Suler (2004) argues that anonymity, invisibility, and asynchronicity in online environments reduce social restraints, prompting individuals to express hostility and aggression that they might suppress offline. Together, these analytical steps enable the extraction of core themes and underlying perceptions of the male and the female.

We acknowledge the limitations of the study, as the analysis is restricted to posts published only on one social media platform, Instagram. Furthermore, because the event did not have an event-specific hashtag, a comprehensive collection of all posts related to the event could not be obtained within the scope of this research.

3. Findings of the Case Study

The selection of posts offers a broad perspective on the case. Among the 161 collected posts there are 22 (13.66%) from male accounts, 13 (8.07%) from female accounts, 36 (22.36%) from accounts where gender is not specified, and 90 (55.90%) posts from accounts that belong to organisations.

The sample represents six industries: 86 posts (53.42%) from accounts that belong to media or news organisation, 69 posts (42.86%) from accounts that belong to entertainment providers, 2 posts (1.24%) from accounts in the food industry, 2 posts (1.24%) from an account of a mortgage broker, 1 post (0.62%) from an account of a car rental company, and 1 posts (0.62%) from an account of someone in crafts.

The 161 posts were posted by 40 different accounts. Some accounts posted multiple times, while others posted only once. Accounts that posted repeatedly tended to distribute their posts over time; therefore, the greatest diversity of accounts publishing occurred in the days immediately after the event, when the overall volume of posts was at its highest (see Fig. 1)

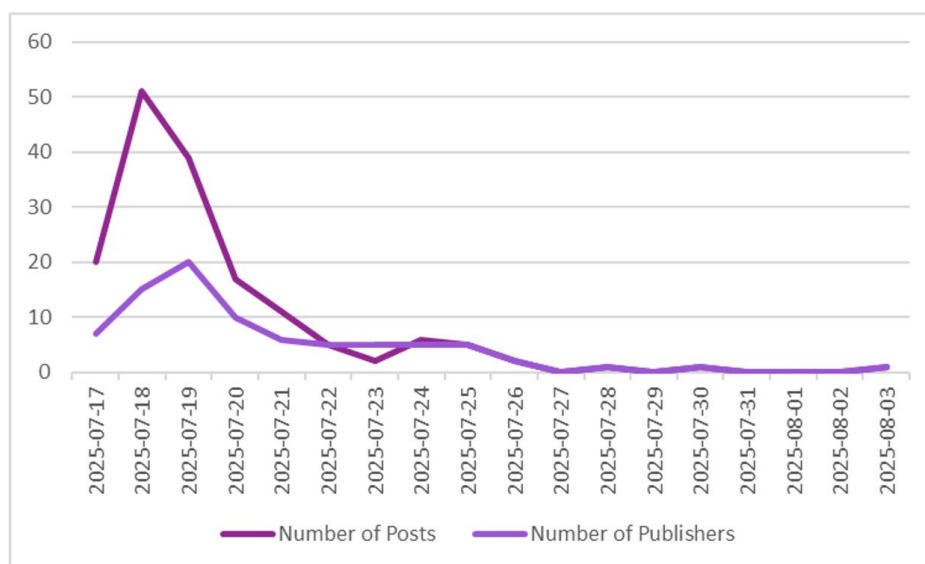


Figure 1: Frequency of posts by day between 17th July 2025 and 3rd August 2025

For a medium-related variety, we examined four types of posts: single photo, single video, multiples items with photo as a title item, and multiple items with a video as a title item. There are 67 single-photo posts (41.61%), 71 single-video posts (44.10%), and 22 posts of multiple items with a title photo (13.66%). No posts consisting of multiple items with a video as a title item were found.

We were able to distinct five types of formal structure of the posts: original with caption; original+ (e.g. original photo accompanied by a caption and a non-event-related photo); inspired by; reenactment; no visual reference to original. Initially, we expected to find posts of plain reshare of the original still frame of video, but none of was found. Unexpectedly, as many as 26 posts contain no visual reference to the event at all (see Fig. 2).

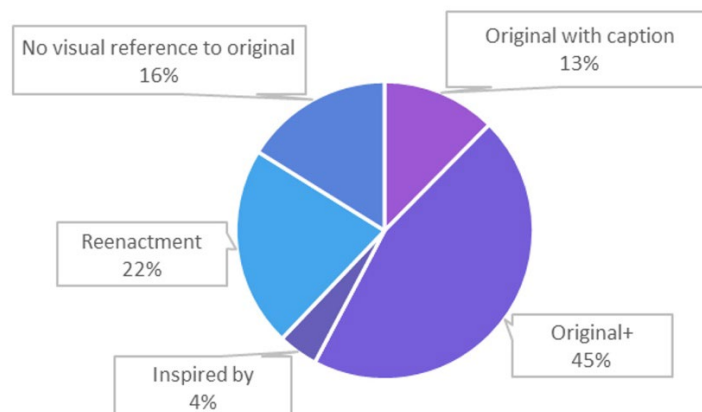


Figure 2: The variety in the formal structure of posts

Statistics of engagement suggest varying yet steady involvement. The lowest number of likes is 48 (an “original with caption” post using this event to illustrate unwise mortgage choices), while the highest number of likes is 3,432,594 (the post is given in Fig. 3). The average number of likes is 152,808.4 likes, and the median of likes is 8,645.5 likes. Seven posts were excluded from these descriptive statistics, as their likes were not publicly available.

A more reflective presentation of engagement can be achieved through intervals: no posts receive single-digit likes; 1 post (0.62%) receives likes in tens; 25 posts (15.53%) in the hundreds; 53 posts (32.92%) in the thousands; 37 posts (22.98%) in the tens of thousands; 33 posts (20.50%) in the hundreds of thousands; and 6 posts (3.73%) in the millions. The posts with likes in the millions were published during the first week of the event and originated by media/news and entertainment accounts.

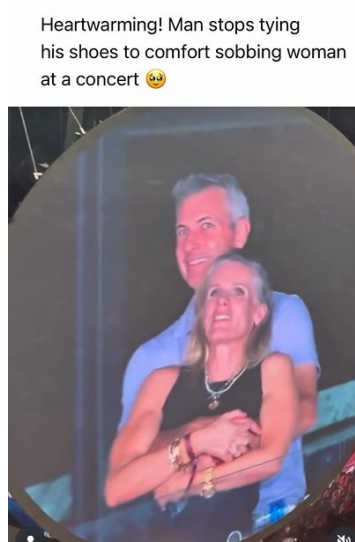


Figure 3: Most popular post in the sample (posted by @fuckboyproblem.s on 18th July, 2025)

Posts related to this event are not limited to those concerning the two main individuals involved (see Fig. 4). In total, 280 instances of targeting are identified, of which 17 posts (10.56%) target only Him and 2 posts (1.24%) target only Her. The most frequently targeted persons are He, She, they as a couple, his wife, and her husband. Other targets include the music band Coldplay and its lead singer individually, the secretary and other non-

specific employees at the company Astronomer, the company Astronomer itself, Donald Trump, a Coldplay fan, and Jada Pinkett Smith.

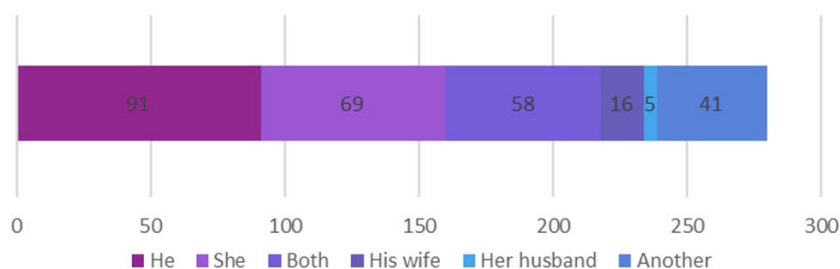


Figure 4: Targeted persons in posts

The intent of the publisher of the posts seems to be primarily to humourise the situation (105 posts, 65.22%). Nevertheless, in 22 posts (13.66%), the aim is to denounce the behaviour, in 18 posts (11.18%) to purely inform the viewers about the developments in the event, and 44 posts (27.33%) are classified as “intent to take advantage of virality”, as they do not contribute substantively to the discourse and/or are completely outside the usual scope of the publisher. Accordingly, most posts employ an emotional frame of amusement (147 items, 91.30%), with 4 (2.48%) conveying anger, 3 (1.86%) showing disgust and 8 (4.97%) remaining neutral.

Analysis of narrative roles for the most frequently targeted persons shows a significant focus on the male and his family, rather than on the female and her family (see Table. 1). He was more often presented as an active participant of the affair than she was, whereas his wife was presented as a victim four times more often than her husband.

Table 1: Narrative roles for mostly targeted persons

	He	His wife	She	Her husband
Perpetrator	116 (72.05%)	0	89 (55.28%)	0
Victim	5 (3.11%)	19 (11.80%)	5 (3.11%)	5 (3.11%)
Bystander	0	0	2 (1.24%)	0
Judge	0	0	0	0
Blame attribution	8 (4.97%)	0	7 (4.35%)	0
None	32 (19.88%)	142 (88.20%)	58 (36.02%)	156 (96.89%)

Gender portrayal was observed for the four most frequently targeted persons (see Table 2). The total of number of attributions may exceed 161 as each portrayal could encompass more than one quality. He was more often attributed with beauty and strength than she was, but also, he was more often attributed with the immoral behaviour than she was. This further supports the view that she is presented as a less active participant in the affair.

Table 2: Gender portrayal of most frequently targeted persons

		He	His wife	She	Her husband
1	Physical beauty	14 (8.70%)	1 (0.62%)	11 (6.83%)	1 (0.62%)
2	Strength/Power	48 (29.81%)	3 (1.86%)	17 (10.56%)	4 (2.48%)
3	Emotionality	3 (1.86%)	3 (1.86%)	5 (3.11%)	0
4	Immorality	113 (70.19%)	0	89 (55.28%)	0
5	Morality	0	1 (0.62%)	0	0
6	None	37 (22.98%)	152 (94.41%)	68 (42.24%)	156 (96.89%)
	Total attributions (1-5)	178	8	122	5

The analysis of fidelity tropes indicates that publishers mostly do not orient themselves towards any specific trope (see Fig. 5). Although the comic treatment trope is the most frequently observed, most posts do not conform to a particular trope and instead simply address the situation as a clear-cut example of bad behaviour being exposed.

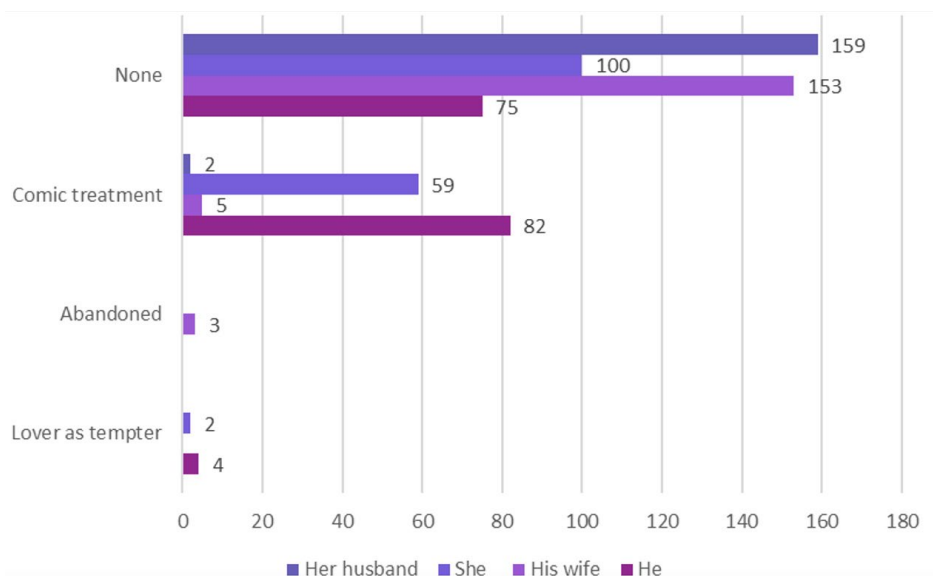


Figure 5: Fidelity tropes among most frequently targeted persons

Caption analysis was conducted in two ways: examining the direction of positivity and the style in which the person is mentioned in the caption. Overall, the positivity of the captions is in general remarkably low (see Table 3); even the spouses who were cheated on have received negative mentioning in the caption.

Table 3: The direction of positivity in the caption, in numbers of posts

	He	His wife	She	Her husband
Positive	3 (1.86 %)	9 (5.59%)	1 (0.62%)	0
Neutral	10 (6.21 %)	2 (1.24%)	8 (4.97%)	1 (0.62%)
Negative	105 (65.22 %)	3 (1.86%)	78 (48.45%)	2 (1.24%)
None	43 (26.71 %)	147 (91.30%)	74 (45.96%)	158 (98.14%)

The analysis of the style of mentioning the person in the captions was carried out for him and her. He was mentioned in 73 posts in 11 different ways, while she was mentioned in 45 posts in different 20 ways (see Table 4). He was mostly referred to by only his professional title (82.19% of designations included his professional title), whereas she was mostly referred to by both her professional title and her name (77.78% of designations included her professional title). He was never assigned designations that she did not receive. Conversely, she was the only one to be referred to as a general employee, through a non-personified mention, or as a part of an affair.

Table 4: Types of mentioning and specific designations in absolute numbers and percentage in the sample (n=161)

Type of mentioning	Of Him		Of Her	
Pure professional title	CEO (31), Tech CEO (1).	32 (19.88%)	Head of HR (7), HR Chief (2), HR exec (1).	10 (6.21%)
Professional title and name	CEO Andy Byron (27), Chief executive <...> Andy Byron (1).	28 (17.39%)	HR Chief Kristin Cabot (6), Head of HR Kristin Cabot (4), HR exec Kristin Cabot (2), Chief HR Officer Kristin Cabot (1), Chief people officer Kristin Cabot (1), HR head (1).	15 (9.32%)
General employment mentioning	x	0	HR lady (3), employee (2), Colleague Kristin Cabot (1).	6 (3.73%)

Type of mentioning	Of Him		Of Her	
Name	Andy Byron (4), Andy (1).	5 (3.11%)	Kristin Cabot (6), Kristin (1).	7 (4.35%)
Gendered mentioning	Man (3), He (2), Father (1), Guy (1).	7 (4.35%)	Woman (2), She (1).	3 (1.86%)
Colloquial	Workhusband (1).	1 (0.62%)	Workwife (1).	1 (0.62%)
Non-personified mentioning	x	0	A part of "their" (1).	1 (0.62%)
As a participant of an affair	x	0	HR-chief 'mistress' (1), Kristin Cabot "the side piece" (1).	2 (1.24%)

Within the sample, He was mentioned in 45.34% of the posts, whereas She was mentioned in only 27.95% (see Table 5). A surprising 49.69% of posts mentioned neither of the two, suggesting that the focus was on the common foul behaviour rather than on a specific person.

Table 5: The number of times he and she are mentioned in the posts

	Number of posts	Percent
Only he is mentioned	36	22.36
Only she is mentioned	8	4.97
Both are mentioned	37	22.98
Neither is mentioned	80	49.69

As previously mentioned, there are 22 posts from male accounts and 13 from female accounts. Given this small number of posts, meaningful statistical analysis is not feasible. However, visible trends among the posts in each group can be observed:

- Male posts exhibit greater diversity in medium than posts from female accounts.
- In terms of formal structure, male posts also exhibit greater diversity.
- Posts created by male publishers receive higher likeability rates.
- In targeting individuals, the male publishers focus primarily on the persons involved in the affair, whereas the female posts display a wider diversity in targets.
- The male accounts mostly tend to humourise the situation, including 6 posts classified as taking advantage of virality and 2 posts seeking to denounce; in contrast, female accounts employ all five observed intent types.
- Posts from male accounts use only the emotional frame, whereas female accounts use four out of the five observed frames.
- The assignment of the narrative roles for Him, His wife, Her and Her husband is broadly similar across posts from male and female publishers, with the exceptions of one male account assigning a victim role for Him and two female accounts assigning a victim role to Her husband.
- Gender portrayal is rather similar, apart from one female account attributing beauty to Him, and two female accounts attributing strength to Her.
- The fidelity tropes seem to be handled by male and female accounts in rather the same way, except for one male account attributing the "Lover as tempter" trope to Him and two male accounts attributing the "commit" treatment to His wife.
- Regarding of positivity direction in captions, His wife, She and Her husband are treated pretty much the same by male and female accounts, whereas He has much more diversity among posts from male accounts (in posts by female accounts he is assigned only negative or no mention).
- Designations in captions are not controversial: when mentioned, both Him and Her are generally referred to in the same manner, e.g. "CEO Andy Byron | Head of HR Kirstin Cabot" or "workhusband | workwife". All designations are respectful.

The rest 126 posts are from anonymised publishers (35 from private publishers with no clear identification and 91 post from a company account). As 126 items is still a small amount for a statistical analysis, and in favour of easier comparability with information given above, we present the trends among the posts:

- The diversity in the choice of the medium among anonymised publishers is high as photo, video and multiple photo collection are used multiple times, with single photos being the dominant medium (56 posts).
- Among the types of formal structure, the type “Original+” type is dominant (59 posts).
- Likability rates among posts of anonymised users vary considerably, ranging from 48 (the lowest) to 3,432,594 (the highest), which correspond to the lowest and highest values in the entire sample.
- In targeting individuals, anonymised publishers focus on all observed categories: 67 posts target Him, 47 target Her, 51 target them as a couple, 13 target His wife, 4 target Her husband, and 28 target other persons.
- Humour is the main intention of their posts by anonymised publishers (79 posts); nevertheless, three other notable intentions are observed: to take advantage of virality (34 posts), to inform (16 posts), and to denounce (15 posts).
- Regarding emotional framing, amusement predominates (114 posts), with 3 posts being anger-based and 2 expressing disgust. In total, 7 posts did not employ any emotional frame.
- The assignment of the narrative roles for observed persons is largely consistent with the roles assigned by males and females publishers: Him (97 posts) and Her (70 posts) are usually presented as perpetrators, while His wife and Her husband are typically assigned no role or, in some cases, the role of the victim.
- Gender portrayal among posts from anonymised publishers is more diverse; nevertheless, the dominant traits are strength and/or physical beauty of the targeted person, along with high levels of perceived immorality for Him (90 posts) and Her (73 posts).
- Fidelity tropes, when used (none in 56 posts), are mostly presented as comic treatment. Even His wife received comic treatment in 3 posts, and Her husband in 2 posts. “Lover as tempter” trope was assigned to Him (3 posts) as well as to Her (2 posts).
- Regarding of positivity direction in captions, He and She mostly receive negative or neutral captions; His wife received all four observed types of captions (positive, neutral, negative or no mentioning at all), whereas Her husband received mostly no mentioning, but one neutral and two negative mentions.
- Among the words of designation towards Him and Her in the captions, there is a high variety. All types of designations from Table 4 (except workhusband/workwife) are found among anonymised publishers.

4. Conclusions

During the jumbotron camera time at Coldplay concert, a cheating affair was revealed, which led to the event being humourised to the point of ridicule on the social media platform Instagram, even producing several widely recognisable novel memes and popular culture references extending beyond social media. This spontaneous event thus became not only an entertaining viral moment but also a culture-forming phenomenon in the post-digital era context. In this sense, the case illustrates how gender representations circulate and evolve within participatory digital environments, complementing previous research that has primarily examined gender representations through more institutionalised media contexts such as journalism or sport coverage (Iranzo-Cabrera, 2020; Alkhamash, 2021; Mostafa Taha & Fahmy, 2023).

A spontaneous event that establishes new popular culture references related to male and female representation also anchors perceptions of men and women. Although the couple’s behaviour was unanimously condemned, He received visibly more attention than She did, and His legitimate relationship attracted more focus than Her legitimate relationship. Moreover, She received a wider variety of verbal designations than He did, being the only one to receive disrespectful or undermining designations. This observation supports the findings of Jane (2016) and aligns with broader evidence on the prevalence of online misogyny, showing that women are disproportionately targeted by hate speech and harassment in digital environments. More broadly, these results resonate with previous studies on gender portrayal in media, which have documented the persistence of gendered framing and unequal representation across different media domains (Mostafa Taha & Fahmy, 2023; Antunovic & Cooky, 2024).

In terms of gender representation, an important question is how each gender represents not only themselves but also the other gender. Comparison of male and female publishers’ perspective on the case suggest that female publishers tend to display greater diversity in their posts, whereas male accounts are more clear-cut on their approach. In this case, no harsher treatment of the other gender was observed. This finding nuances

previous scholarship that often focuses on structural imbalances in representation (Antunovic & Cooky, 2024), suggesting that user-generated environment may produce more heterogeneous expressive patterns even when broader gendered narratives persists.

Anonymous publishers exhibit the widest range of expression across all observed areas, which aligns with the theory presented by Suler (2004). The protection afforded by anonymity allows for a more authentic expression of oneself, especially on controversial issues. Therefore, the discourse initiated by anonymous publishers is just as valuable as the discourse initiated by strong male or female individuals. Although this raises an ethical concern regarding the risk of crossing the boundaries of respect.

The findings highlight how online narratives construct and reinforce the roles of men and women, with attention, framing, and verbal designations shaping public perception and storytelling. Often produced by anonymous individuals, these narratives provide a genuine reflection of societal attitudes and invite reflection on gender equality. By analysing a spontaneous viral event, this study therefore complements existing research on gender representation by showing how similar dynamics of framing and symbolic positioning also emerge within everyday social media interactions, not only within professional media production. Future research can expand to other cases of gender representation in order to further understand how traditional stereotypes and roles persist in online discourse.

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AI Declaration: AI tools were not used in this research except for grammatical correction of the text.

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Imagining Otherwise: Atwoodian Dystopias, Gender, and Narrative Imagination

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Abstract: This contribution examines how fiction can foster both imaginative engagement and critical reflection on social structures. I focus on (1) narrative imagination, as conceptualized by M. Nussbaum, i.e., the capacity to enter the experiences of others through literature, and (2) utopia/dystopia, understood as a narrative experiment that imagines “what could be otherwise.” Looking into segments of Margaret Atwood’s utopian/dystopian works (*The Handmaid’s Tale* and the first part of the *MaddAddam* trilogy, *Oryx and Crake*), I investigate how Atwood’s works cultivate empathy while simultaneously prompting critical reflection on power, oppression, and social inequality. Atwood’s characterization of her novels as “speculative” rather than science fiction, grounded in extrapolations from existing realities, might encourage readers to more easily connect the imaginative scenarios with their own moral and social worldviews. I foreground selected moments that bring gendered power dynamics into sharper view. I also engage with critiques of narrative imagination that highlight both its limitations and its potential to reproduce, rather than disrupt, existing social hierarchies. This is why I introduce the concept of posthumanist reading as a way to move beyond humanism and anthropocentrism, and as a suggestion for rethinking interpretative practices through a decentred, more-than-human perspective. A further dimension of this reflection is its pedagogical application. I explore how Atwood’s work can be incorporated into classroom practice across literary and civic education. Key questions include: how can students be encouraged to inhabit the experiences of women living under patriarchal or otherwise oppressive structures? How does imaginative engagement with dystopian worlds challenge readers’ ethical, political, and gendered understandings? What are the benefits and challenges of teaching gender through utopian/dystopian literature? I conclude by positioning Atwoodian dystopias as a compelling site for exploring the interplay of narrative strategies and social possibilities.

Keywords: Utopia/dystopia, Narrative imagination, Posthumanist reading, Gender, Margaret Atwood, Education

1. Introduction: Alignments of the Text

My contribution is situated at the intersection of gender and literary studies, examining how works of fiction can foster both imaginative engagement and critical reflection on social structures. I am particularly interested in the relationship between narrative imagination, as conceptualized by Martha Nussbaum (2003), and (2) utopia/dystopia, understood as a narrative experiment that imagines “what could be otherwise.” Narrative imagination is defined here, in short, as the capacity to inhabit the experiences of others through literature, to empathize with them, and to envision alternative social worlds. Central to this inquiry is the question of how these two frameworks might intersect with gender and contribute to the critique and reconfiguration of social norms.

To illustrate that, I aim to draw upon some of the Canadian writer Margaret Atwood’s dystopian works, among which the most well-known are: *The Handmaid’s Tale*, with its sequel *The Testaments*, and the *MaddAddam* trilogy, consisting of *Oryx and Crake*, *The Year of the Flood*, and *Maddaddam*. I will dedicate most attention to the first two novels from each body of work, that is, *The Handmaid’s Tale* (hereafter THT) and *Oryx and Crake* (OAC). I see Atwood’s work and Atwoodian dystopias as a persuasive site for exploring the interplay of gender, narrative strategies, and social possibilities. It is particularly relevant how Atwood plays with ambivalence, meaning that there is no simple utopia; instead, she shows dystopian control and hints of alternative futures.

Atwood’s narrative strategies cultivate empathy while simultaneously prompting critical reflection on power, oppression, social inequality, and, last but not least, show how the uses and abuses of science alter our social worlds, even our humanity, and human-ness. As regards the latter, her *MaddAddam* trilogy envisions a post-anthropocentric world that raises questions about the kind of humanity we are moving toward, the role of scientific explorations, and the extent to which we must remain humane. Together, THT and its sequel, *The Testaments*, and the *Maddaddam* trilogy, “represent a synthesis of her political, social, and environmental concerns” (Howells, 2006a).

Especially, but not exclusively, due to the environmental issues I introduce the concept of posthumanist reading, which on one hand complements the concept of narrative imagination, and, on the other, carries a critique of it, as it expands the reader’s empathy into the realm of “solidarity with the non/human’ (i.e., with both humans and nonhumans and their mutual rearticulations)” (Herbrechter, 2025). This means stepping away from humanism and androcentrism into the realm of entanglements with the nonhuman (animal, machine,

environment) and, more importantly, into feminist research that has for quite some time deconstructed the idea that Man is the measure of all things.

A further dimension of this reflection is its pedagogical application. I am interested in how Atwood's work can be incorporated into classroom practice, both in literary education and in civic education. Some of the key questions could be: how can students be encouraged to inhabit the experiences of women living under patriarchal oppressive structures? How does imaginative engagement with dystopian worlds challenge readers' ethical, political, and gendered understandings? What are the benefits and challenges of teaching through utopian/dystopian literature, particularly at a time when "the separation between science-fictional visions of virtual futures and our social reality is becoming more difficult to uphold" (Braidotti, 2019)? This does not hold only for the impact of technological advances on humans, but is also appropriate in other society-related contexts.

In other words, as put by Atwood herself in the context of writing OAC, but all too relevant for our gendered worlds and women's rights: "Trends derided ten years ago as paranoid fantasies had become possibilities, then actualities" (Atwood, 2005). The question: *Is anyone going to believe this?* (Atwood, 2011), related to the writing of THT, seems somewhat erroneous in light of the continuous push to withdraw or minimize the reproductive rights of women. The same is equally apparent in the case of environmental issues.

2. Clarifications: on SF with Atwood and Haraway

First, I would like to turn to (1) the title of my contribution and (2) the acronym SF. The latter usually stands for "science fiction", but we will look into other possibilities, with the help of Margaret Atwood, the writer, and Donna Haraway, the cyborgian theoretician (among other things). This will help us to better articulate our "imagining otherwise" and to outline possible approaches to the educational process, while also addressing the question of how and why SF can contribute to it.

First to the title. To those familiar with Atwood's work, it is clear that the worlds she depicts are harsh and ruthless, but not for all, not for the privileged minority. It may be that one person's dystopia is another one's utopia. I am aware that this treatment of the subject is somewhat preliminary. For example, in THT, handmaids, women of childbearing age, are totally powerless in a totalitarian patriarchal Republic of Gilead. They are forced to produce children for the ruling class of Commanders, and that is all they are allowed to do. They are denied any other agency. The Commanders, on the other hand, are obviously having the time of their lives. It is about the same fictional coin with two different sides.

That is why Atwood has coined the word "ustopia", which is the imagined perfect society and its opposite, "each contains a latent version of the other" (Atwood, 2011). Atwood explains it thus: "[...] dystopia contains within itself a little utopia and vice versa. What, then, is the little utopia concealed in the dystopic THT? There are two: one is in the past – the past that is our own present. The second is placed in a future beyond the main story" (Atwood, 2011), the future being the one when the tyrannical republic of Gilead and its patriarchal control of women has ended.

Another example could be from OAC. This time, this is a biotechnology-ruled (and maybe not-so-far-away) future where genetic modifications of biological beings are quite common, and to the advantage of the privileged and segregated community. But the apocalypse that happens changes things drastically. Neither the pre-apocalyptic society governed by total surveillance nor the post-apocalyptic one, in which most of the population has been wiped out by a human-made virus, can be described as particularly utopian, at least not for the deprived majority.

I cannot go into more detail as to the typology of "-topias" – there are heterotopias, anti-utopias, eutopias, and so on. What I would like to touch on is the question of whether ustopias are more a part of science fiction or speculative fiction. Atwood is decisive on this point. She characterizes her work as speculative fiction. The difference between the two, in her opinion, is that the former is about things we cannot do (yet), and the latter is about employing the means more or less at hand (Atwood, 2022). I find Atwood's definition pertinent and handy, though it is not unanimously valid. Differences are above all found in the part about the things "at hand". For example, Sarah Truman refers to speculative fiction's freedom to imagine entities such as a dog with wings (Truman, 2018), a suggestion that clearly diverges from Atwood's narrative and conceptual framework.

Everything presented in THT had already been done by humankind, although not at the same time (for more, see, e.g., Atwood, 2011). Many of the scientific applications of the *Maddaddam* trilogy are present today and were well researched by Atwood before writing the trilogy (the novels were published in 2003, 2009, and 2013,

if you want to make a comparison with the actual technological advances). It is a pick on existing potentialities and an extrapolation based on “things that really could happen but [haven’t] completely happened” or the “seeds of what might become the future” (Atwood, 2011). This perspective helps consider why science fiction may constitute an important component of civic education.

Donna Haraway takes the acronym play of SF further. SF, she writes, is science fiction, speculative fabulation, speculative feminism, science fact, among others (Haraway, 2016). What is particularly salient is Haraway’s definition of SF: “SF is storytelling and fact telling; it is the patterning of possible worlds and possible times, material-semiotic worlds, gone, here, and yet to come (Haraway, 2016). This aligns well with Atwood’s work and her perspective on the possibilities opened for humans to embark on (or not).

As put by Atwood, clarifying the famous “what if” motto of some of her works: “What if we continue down the road we’re already on? How slippery is the slope? What are our saving graces? Who’s got the will to stop us?” (Atwood, 2005). Indeed, how slippery is the slope? There has been some dissent about which slippery slope Atwood had in mind: either consumerism, where everything is reduced to a commodity, including nature, animals, and so on; or the environmental question, female discrimination, and (bio)ethical concerns (Mosca, 2013). I do not think it is either-or, but both, with bioethical concerns at the forefront, which, in turn, cannot be separated from consumerism or the interests of capital.

All the meanings of SF, described by Haraway, are relevant and interconnected: story and fact, possibility and actuality, present and future. One of the central points to stress is that SF is, in fact, about the present – about what troubles us now and where we imagine ourselves to be heading. “Crucial to dystopia’s vision in all its manifestations is this ability to register the impact of an unseen and unexamined social system on the everyday lives of everyday people. Again and again, the dystopian text opens in the midst of a social ‘elsewhere’ that appears to be far worse than any in the ‘real’ world” (Moylan, 2000). It is, as one might say, a cautionary tale. Perhaps the primary function of a dystopia, states Coral Ann Howells (2006a) “is to send our danger signals to its readers”.

Considering these two bodies of Atwood’s work raises questions in at least two areas: the societal and gendered, and the scientific and humane. Atwood has moved “through political and social satire to satire against mankind”, says Howells (2006b), and claims that the dystopian vision has darkened. It is hard to evaluate that, unless, of course, the possible end of humanity eradicates all other evils, among them, the rights denied to half of humanity. There is, of course, a significant difference between a dystopian narrative told by a marginalized woman (Offred in THT) and one by a man (Jimmy, later nicknamed Snowman, in OAC), who is, presumably, the Last Man alive (Howells, 2006a). I say presumably, because it later turns out this is not the case, but that is another story, namely the story of *The Year of the Flood*. Incidentally, OAC breaks the Atwoodian line of female protagonists (Offred of THT, of course, included) and employs a primary male protagonist (Jimmy) (Tolan, 2007).

Both bodies of Atwood’s work raise the question of what it means to be human and where our humanity lies. This is not the question only at the core of OAC, which is “in many ways, simply a broadening of the earliest feminist investigations into gender and essentialism” (Tolan, 2007). Underlying THT, there is also an interrogation of the “generic human” of humanism, which, as we now well know, excludes all sorts of “human others”, although allegedly speaking in a “unified voice” for all of them.

3. How to Approach Possible Worlds: Reading Otherwise

In this part, I would like to look into the possibilities of “reading otherwise”. That is why I chose to introduce and, to a certain extent, compare two concepts:

1. Martha Nussbaum's narrative imagination, rooted in humanism and the idea of shared humanity. Narrative imagination is an anthropocentric model grounded in empathy and rational moral agency. For Nussbaum, narrative imagination cultivates the ethical capacity to see the world from perspectives other than one’s own, fostering empathy and civic responsibility. Literature, in her opinion (basing on Aristotle), is “more conducive to general human understanding” because it “acquaints us with ‘the kind of things that might happen,’ general forms of possibility and their impact on human lives” (Nussbaum, 2003). She, in short, opts for the development of the world citizens and warns against the spirit of identity politics (I must leave aside the question of how extensive self-knowledge can be.)

Yet there are some cautions against taking this claim at face value. Empathy does not automatically lead to political transformation, attempts to imaginatively “know” the other risk appropriating or simplifying the other’s

experience. It connects to the classical humanist stance. The focus lies in another *human's* perspective. In the words of Rosi Braidotti: "humanistic Man — as the universal measure of all things — defined himself as much by what he excluded as by what he included in his rational self-representation (Braidotti, 2016).

2. Stefan Herbrechter's somewhat less humanistic-oriented posthumanist reading. I say "less" because posthumanism does not exclude human; it does, however, deny them a central position on the world's stage. Posthumanism is not about a chronological progression; it both transgresses (not discards) and includes humanism, as the prefix "post-" implies. So, it is not a break with humanism, but a rethinking of epistemological and ontological questions related to "being human" (Pedersen, 2010), about moving forward, thereby exposing humanism's (many) contradictions.

To read in a posthuman way, write Stefan Herbrechter and Ivan Callus (2008), is "to read against one's self, against one's own deep-seated self-understanding as a member or even representative of a certain 'species'. It is already to project an otherness to the human [...]." The question is whether this "against one's self" poses an impossibility if taken to the letter, but we must insist on its being (Herbrechter and Callus, 2008).

The important thing is that they both value imagination as crucial for ethical reflection of us humans. They both try to move beyond self as the centre of understanding the world, beyond self-centeredness, whether of the individual or the human. Whereas narrative imagination steps into "another's shoes" (i.e., another human being's), posthumanist reading attempts to reach beyond human and humanist imagination. Whereas the first stresses "our common humanity", the second inquires into possibilities to go beyond that.

Moira Von Wright, basing her reflection on Hannah Arendt's work (Von Wright, 2002), says that although we are always trapped within our subjective selves, and although it might appear that we cannot (or hardly ever) take a position outside ourselves, it is possible to think "with an enlarged mentality", taking into account the perspective of others and their circumstances. This means to train one's imagination to go visiting (Arendt, 1992, in Von Wright, 2002). Or, in the words of Martha Nussbaum (2003), go on a fictional exercise of imagination.

But both readings have their own flaws or lacks. Perhaps the greatest of the number one is that it is based on universalism and anthropocentrism, thus putting (only) the human into the forefront. While I fully acknowledge the importance of striving to understand our shared humanity and vulnerability, I question the assumption that such awareness is easily achieved and that it naturally translates into compassion. Compassion, says Nussbaum (2003), "requires demarcations which creatures am I to count as my fellow creatures, sharing the possibilities with me?" And this is debatable, not only from the human point of view (do I care for the situation of women?), but also from the posthumanist point of view (do I see animals as actors in an anthropocentric world?).

The number two could be criticised on the same grounds as number one, but from a reverse angle: of not putting humans in the forefront *enough*. If everything (machines, animals, environments) is agentic, the specific moral responsibility and accountability of humans may be blurred. This is especially, but not exclusively, troubling in the case of, e.g., gender-based violence or discrimination. Also, there is colonial dispossession, environmental disregard, class exploitation, and the like. In these cases, it is humans who clearly benefit, harm, dominate, or oppress.

So, agreed, decentering the human too quickly can erase the specific histories of oppression and dilute the political specificity of human suffering. On the other hand, the staple of posthumanist thinking is not "to 'overcome' the human but to challenge its fundamental humanism, including its theoretical and philosophical underpinnings and allies (e.g., anthropocentrism, speciesism, universalism)" (Herbrechter and Callus, 2008).

I would suggest, at least for the time being, that we strike a critical balance between humanistic empathy and posthumanist skepticism. Or, that we understand posthumanist readings as a sort of necessary extension of the narrative imagination reading, which traces connections across species and technologies. An attempt should be made to bridge those two concepts and so make a tentative link between the human-centered stories and posthumanist concerns that human-centeredness is not enough.

To be responsive to the posthuman condition is to "acknowledge our unavoidable interconnectedness with non-humans, including inanimate objects. Importantly, acknowledging the non-humans does not mean to stop caring about people" (Monforte, n.d). This is the door through which nonhuman actors may enter, potentially guiding us toward the pursuit of "multispecies ecojustice" (Haraway, 2016). Not only are identification and moral sensitivity taking place, but also the awareness of relationality, power, and entanglement with the nonhuman.

This is thin ice, and I am aware of it as literature, as put by Stefan Herbrechter (2025), "is a humanist institution whose main purpose either explicitly or implicitly has always been to show a human reader what it is to be

human". In the case of a posthumanist reading (not the literature of the posthuman!), one "tries to identify, analyse and emphasise those 'moments' in texts that challenge and/or (re)confirm humanist assumptions" (Herbrechter, 2025). At the same time, we must foreground human responsibility, as power relations with nonhuman agents remain profoundly asymmetrical, and traditional hierarchies of being persist.

Atwood's work could be placed precisely between the two paradigms, the narrative imagination perspective and posthumanist readings. Atwood is perfect for exploring this tension, especially in gendered violence and biopolitical control. We could trace the narrative line from Nussbaum's humanist empathy (gender oppression) towards a posthumanist ethics of entanglement (pre- and postapocalyptic dystopias).

4. How to Inhabit the Experiences of Others: Imagining Otherwise in the Classroom

Let us look at some examples of how to approach Atwoodian universes in the educational process. Importantly, when focusing on the content, I certainly suggest not losing the aesthetic dimension and the narrative techniques of the text from sight altogether. But, at the same time, in reference to Nussbaum, it needs to be understood that aesthetic experience is not enough, if that means the detachment from civic and political concerns (Nussbaum, 2003).

Teaching gender through utopian/dystopian literature could be quite an influential pedagogical strategy. Such works (let us name them SF, no matter how we understand the acronym, see above) are inherently experimental, boundary-testing, and opening the way to transgressions.

Both THT and OAC engage with gender roles through biological frameworks, among other dimensions. In the first, women's roles are pushed to the extreme – they are made "walking uteruses"; in the second, the Crakers, a new human race, are bioengineered to have all the human "flaws" removed. Their reproduction is technical and devoid of any human emotions. Students realize that the seemingly familiar and taken-for-granted things are, in fact, strange indeed.

This is the way to go on a thought experiment of "what if": what if things were different, what kind of consequences would that bring, etc.? What if women's worth would only lie in their fertility, as in the case of *Handmaids of THT*, or in their use for domestic labour, as is the case with *Marthas of THT*? Both categories of women, together with Wives, who are of higher status, exist only in relation to men.

A narrative imagination perspective would then encourage empathy with women under patriarchy, whereas a posthumanist reading would expose systemic control of bodies and reproductive technologies.

The next step would be to pose the question of what gender looks like and how it can be changed. Students can see that gender norms are contingent. So herein lies the possibility of envisioning alternatives, at the same time, thinking of real-world gender issues, such as patriarchy and reproductive control, but looking at them through a fictional distance. This would entail at least touching upon feminist theory, biopolitics, posthumanism, etc. Ideally, it would connect to other curricular areas, such as civic education. For example, one could expose the fragility of rights – they are not guaranteed and not won once and for all. Rights we take for granted can disappear quite quickly, under the guise of security or crisis response.

To take the matter further, we might introduce intersectional issues and demonstrate that gender-based control and violence are never isolated phenomena; rather, they intersect with class (*Marthas* in *THT* and the poor living in an environmentally devastated pleeblands in *OAC*), technology, the environment, and other factors, depending on whether our reading is human-centered or posthumanist.

5. Conclusion

I tried to position Atwoodian utopias as a generative site for exploring the entanglement of gender, narrative, and social possibility. I tried to make a case for both Atwood's work being used in the classroom and for the themes she investigates being explored further. I contend that Atwood's characterization of her work as "speculative" rather than science fiction, grounded in extrapolations from existing realities, might encourage readers to more easily connect the imaginative scenarios with their own moral and social worldviews.

I focused on selected moments where gendered power dynamics were visible, opening up a space for educational engagement with – and further development of – the themes presented. As it appears, the narrative imagination framework needs to be expanded, complemented, or rethought in light of emerging approaches to "reading otherwise" (i.e., posthumanist reading).

By way of conclusion, I would like to connect this contribution to the present moment. A situation of autumn 2025 is this: some of Atwood's books have been banned from public and school libraries. The latest is the ban of THT in the Canadian province of Alberta, purportedly due to the explicit sexual content (see Cecco, 2025). This mirrors the numerous bans in U. S. public schools (including OAC).

The question is: what should the role of literature be in democratic societies? Books are "not merely objects of consumption; they are laboratories of thought. By restricting what young people can read, societies risk stifling curiosity, empathy, and the ability to imagine alternatives to the present" (Speakeasy News, 2025). These banned titles address the very issues young people need to understand. They challenge, as the role of art should be, conventional wisdom and values.

Martha Nussbaum has this on the matter (2003): "We ought to protect the opportunity of the arts to explore new territory with broad latitude, and we should protect the right of university teachers to explore controversial works in the classroom, whether or not we ourselves have been convinced of their lasting merit."

As can be inferred from many of Atwood's works, oppression is most effective when it governs not only bodies but also narrative itself.

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Gender and the Perception of the Dark Side of Entrepreneurship: Associations with Self-Efficacy and Entrepreneurial Intentions

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Abstract: Research on entrepreneurship increasingly recognizes the need to understand its psychological, ethical, financial, and social costs. This study investigates how gender role orientation (GRO) relates to perceptions of two dimensions of the dark side of entrepreneurship: financial and structural burdens, and work-life and emotional imbalance, as well as to entrepreneurial self-efficacy (ESE) and entrepreneurial intentions. Data were collected from 721 final-year university students in Poland. The dark side dimensions were measured using an instrument developed for this study, informed by prior work on negative entrepreneurial experiences; other constructs were assessed with validated scales. Results show that masculine GRO is positively associated with ESE and entrepreneurial intentions, whereas feminine GRO relates positively only to ESE. Feminine GRO is also linked to stronger perceptions of both dark side dimensions, while masculine GRO is weakly and negatively related to financial and structural burdens. These findings indicate the importance of presenting entrepreneurship in a gender-neutral way and of specific elements of dark side of entrepreneurship within entrepreneurship education.

Keywords: Gender role orientation; Dark side of entrepreneurship; Entrepreneurial self-efficacy; Entrepreneurial intentions

1. Introduction

Entrepreneurship is often portrayed in research as a universal tool of development—a generator of economic growth, innovation, employment, and local activation. Its social functions also include strengthening individual agency and creating new pathways of advancement for marginalized groups. However, contemporary literature increasingly emphasizes that this positive image is only part of the reality. Along with the growing popularity of entrepreneurship studies, a range of mechanisms and consequences has been revealed that challenge its unequivocally optimistic interpretation. The “dark sides” of entrepreneurship include, among others, overload resulting from the accumulation of professional and family roles, chronic financial uncertainty, pressure for growth and self-sufficiency, as well as institutional barriers that hinder access to financing or markets. Research also highlights negative psychosocial consequences, such as stress, a sense of isolation, burnout, and even deterioration of physical and mental health that may accompany running a business.

From an equality perspective, many of these burdens are felt particularly strongly by women. This is due both to entrenched social norms regarding the division of labour within the household (Poggesi, et al. 2019) and to structural inequalities in access to capital (Edelman, et al. 2018, Koziol, Schmitz, Bort, 2025), networks, or institutional support (Brush et al. 2019). Women entrepreneurs more often operate under conditions of role conflict, limited resources, and additional social pressure, which may intensify stress and reduce satisfaction with running a business. As a result, increasing attention is being paid to the need to analyse not only the promotion of entrepreneurship as a development pathway but also the costs that may discourage young people, both women and men, from undertaking entrepreneurial activity.

The results of a meta-analysis conducted by Haus *et al.* (2013) based on 30 studies of intention and gender revealed significant negative relationships between women and their attitudes towards entrepreneurship, subjective norms and perceived behavioural control (the three elements of Ajzen’s Theory of Planned Behaviour). However, the differences between genders were small. The lower level of women’s entrepreneurial intentions is also confirmed by the results of research by the Global Entrepreneurship Monitor (Boutaleb, 2023). However, previous empirical studies (e.g., Maheshwari, et al. 2023) have not provided conclusive evidence concerning how gender affects entrepreneurial intentions and their psychological antecedents. One of the limitations of those studies is to focus on biological gender not the social one. Most existing studies rely on a binary classification of biological sex, with gender frequently operationalized simply as a dichotomous variable distinguishing men from women (Poggesi, Mari & De Vita 2016).

Recent scholarship increasingly highlights that entrepreneurship, despite its positive portrayal, involves substantial financial, psychological, and work-life costs. These anticipated burdens can shape how individuals evaluate the desirability of entrepreneurial careers and thus influence entrepreneurial intentions (Kets de Vries, 1985). At the same time, gendered patterns remain relevant, as social expectations and internalised gendered attributes may affect how such costs are perceived. However, we still know relatively little about how gender

role orientation relates to the perception of entrepreneurship's darker aspects or how these perceptions connect to entrepreneurial self-efficacy and intentions. Addressing this gap, the present study examines the links between GRO and two dimensions of the perceived dark side of entrepreneurship, namely financial and structural burdens and work–life and emotional imbalance, and investigates their relationships with entrepreneurial self-efficacy and intentions.

2. Literature Background

In the following section, we first outline the Theory of Planned Behavior as a framework for understanding entrepreneurial intentions as a gendered phenomenon, then discuss the concept of the dark side of entrepreneurship, and finally posit the research questions.

Entrepreneurial intentions are believed to be the best single predictor of the future entrepreneurial career (Bagozzi, Baumgartner & Yi, 1989), (Ajzen, 1991), (Sutton, 1998) (Sutton, 1998). This view is also maintained in the social psychology domain, as intention is the most immediate and significant antecedent of behaviour (Sheeran and Abraham, 2003). The Theory of Planned Behaviour (TPB) is one of the most influential frameworks for predicting entrepreneurial intentions, grounded in the earlier Theory of Reasoned Action (Ajzen, 1991). The theory assumes that intentions—understood as motivational factors indicating how hard people are willing to try—predict behaviour as long as the behaviour is under volitional control.

Attitude toward a behaviour refers to *“the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question”* (Ajzen, 1991, p. 188). In the entrepreneurial context, such evaluations arise not only from beliefs about potential benefits but also from expectations regarding possible difficulties (Licznarska & Ziemiański, 2022). Anticipated financial strain, emotional pressure, or role overload form part of the behavioural beliefs that shape how individuals evaluate the desirability of entrepreneurial action. Within a TPB framework, these negative expectations constitute an integral component of ATB by reducing the perceived attractiveness of entrepreneurship. When the entrepreneurial path is envisioned as demanding or costly, these darker anticipatory elements may seriously affect the overall attitudinal assessment.

When it comes to antecedents of ESE, they are usually rooted in social cognitive theory and refer to the classical proposal made by Bandura (Bandura, 1977), including mastery experience, vicarious learning, social persuasion, and affective state.

The next concept within TPB are subjective norms which refers to what others think one should do and in other words refer to a person's perception of social pressure to perform or not perform a particular behaviour. A substantial body of entrepreneurship research demonstrates that subjective norms constitute the weakest and least stable predictor within the TPB when applied to entrepreneurial intentions (Liñán & Chen, 2009; Engle et al., 2010; Dong, Chang, 2024). Classical studies show that attitudes and perceived behavioural control consistently outperform subjective norms in explaining entrepreneurial intention formation (Krueger, Reilly, & Carsrud, 2000).

A review of research on attitudes towards entrepreneurship in the context of gender role orientation (GRO) indicates that it is not gender itself ('female' vs. 'male') but rather an individual's identification with stereotypically 'masculine,' 'feminine' or 'androgynous' traits — and how this identification overlaps with the image of an entrepreneur — that is important for entrepreneurial intention and attitudes (Perez-Quintana et al. 2017; Adamus et al, 2021).

Recent research has increasingly highlighted that entrepreneurship involves substantial psychological, social and economic costs. Scholars noted that, despite its popular portrayal as a pathway to autonomy and self-realization (Beaver & Jennings, 2005), the entrepreneurial journey is often marked by financial insecurity, emotional strain and a lack of boundaries between personal and professional domains (Shepherd, 2019; Ziemiański & Golik, 2020). Empirical work shows that entrepreneurial careers may not yield the expected financial returns: Hamilton (2000) and Lévesque, Shepherd and Douglas(2002) demonstrated that many entrepreneurs earn less than their salaried counterparts and for some long-term wealth accumulation may not be achievable. These economic uncertainties are a key part of the expected financial and structural burdens of entrepreneurship, which also carries a high risk of failure.

Beyond financial considerations, evidence also points to the emotional and relational pressures inherent in entrepreneurship. Studies have documented persistent stress, overload and loneliness (Cardon & Patel, 2015; Spivack, McKelvie & Haynie, 2014). Within a TPB framework, these negative expectations can be regarded behavioural beliefs about adverse outcomes, which influence the attitudinal evaluation of entrepreneurship.

Anticipating persistent financial strain and pressure, emotional depletion, or a destabilization of work–life equilibrium may lead individuals to view entrepreneurship as less desirable, thereby weakening their intentions to engage in it. Research on perceptions of entrepreneurial risk and cost similarly shows that unfavourable evaluations can constrain intention formation even when individuals acknowledge potential benefits (Linan & Chen, 2009; van Gelderen, Wiklund & McMullen, 2008; Licznarska & Ziemiański, 2022). Thus, the perception of the dark side can be seen not only as challenges experienced by entrepreneurs but also as a prospective attitudinal factor that influences career choices. In this study, the dark side is operationalized through two dimensions: financial and structural burdens, and work–life and emotional imbalance. These reflect the commonly discussed cost domains in prior research, including economic insecurity, administrative pressures, stress, and compromised personal well-being. As attitudinal components within TPB, they represent the negative utility aspects of entrepreneurship that potential founders are likely to take into account when forming intentions.

Research on entrepreneurial intentions among students has consistently shown that personal characteristics, such as personality traits, motivational orientations, and identity-related factors shape how young people evaluate entrepreneurship and translate these evaluations into intentions (Liñán & Chen, 2009; Wasilczuk & Licznarska, 2024). Gender role orientation (GRO), understood as the internalization of culturally embedded masculine and feminine attributes, represents one such individual difference that may influence how students appraise the idea of becoming entrepreneurs. Because GRO reflects broader characteristics related to agency, competitiveness, affiliation, or relational orientation, it can shape the way individuals interpret both the attractive and the challenging aspects of entrepreneurial activity. When attitudes toward entrepreneurship include not only perceived opportunities but also anticipated burdens, captured in this study as the dark side of entrepreneurship, GRO may become particularly relevant. Yet, although prior research has linked various personal variables to entrepreneurial intentions, little is known about whether GRO influence the negative attitudinal component associated with entrepreneurship.

This limited evidence base motivates an exploratory examination of how GRO relates to the two dimensions of the dark side identified in this study. Accordingly, the following research question is formulated:

RQ1: How are gender role orientations associated with perceptions of the two dimensions of the dark side of entrepreneurship?

RQ2: How are gender role orientation associated with entrepreneurial self-efficacy and entrepreneurial intentions

3. Methodology and Results

3.1 Methodology

This study employed a survey design to examine how gender role orientations and perceptions of the dark side of entrepreneurship relate to entrepreneurial cognitions among final-year university students in Poland. Data were collected between April and May 2025 in multiple Polish universities, primarily technical and economics-oriented institutions located in different regions of the country. Targeting final-year students was appropriate given that they are at a critical stage of career decision-making and represent a population frequently examined in studies of entrepreneurial intentions and attitudes (Krueger, 1993; Liñán & Chen, 2009;).

Participants were recruited during regular university classes or through course-related communication channels. Instructors distributed a QR code directing students to an online Qualtrics questionnaire. Participation was voluntary, the survey was administered in Polish, and the procedures followed the ethical guidelines of the authors' institution.

A total of 854 responses were initially recorded. Consistent with the adopted criterion, questionnaires containing more than 20% missing data were excluded from further analysis. This resulted in the removal of 133 cases. The final sample comprised 721 students. The sample included students from a variety of study programs, reflecting the diversity of academic fields present at the participating institutions. They primarily represented technical and economic universities.

In order to assess gender role orientation, we used a short version of the Bem Sex-Role Inventory (Bem 1974). The instrument consisted of 12 items: 6 items reflecting masculine role orientation (GRO_M) and 6 items reflecting feminine role orientation (GRO_F). Scores for the two dimensions were calculated separately. Both subscales demonstrated high internal reliability ($\alpha = 0.83$ for GRO_M; $\alpha = 0.83$ for GRO_F).

Entrepreneurial Self-Efficacy (ESE) was measured with 16 items based on McGee et al. (2009). The scale assessed respondents' confidence in their ability to perform tasks relevant to venture creation. Internal consistency was high ($\alpha = 0.89$).

Entrepreneurial Intentions (EI) were assessed using the 5-item scale adapted from Liñán and Chen (2009). Respondents indicated their agreement with statements regarding their intention to start a business. The scale exhibited excellent reliability ($\alpha = 0.94$).

Perceptions of the dark side of entrepreneurship were assessed using an instrument grounded in prior research on the financial, emotional, and structural challenges experienced by entrepreneurs. Items were rated on a 5-point Likert scale ranging from 1: "Not a significant negative aspect for me at all" to 5: "A very significant negative aspect for me". The instrument was initially developed and explored in a separate study using exploratory factor analysis. Based on those results, two theoretically meaningful dimensions were retained for the present study, as they were most closely related to gender role orientations, which are the core theoretical focus of this research. To assess whether the proposed structure replicated in the current sample, an exploratory factor analysis was conducted on the retained items. The results are presented in the next subsection.

3.2 Results

Exploratory factor analysis supported a clear two-factor structure of perceived dark sides of entrepreneurship. As shown in Table 1, all items loaded strongly on their respective factors, with loadings ranging from .45 to .75 for Financial and Structural Burdens and from .59 to .77 for Work-Life and Emotional Imbalance. No substantial cross-loadings were observed. Sampling adequacy was excellent ($KMO = .89$), and Bartlett's test of sphericity was significant, $\chi^2(66) = 2025.83$, $p < .001$. Both dimensions demonstrated satisfactory internal consistency (Cronbach's $\alpha = .77$ for Financial and Structural Burdens and $\alpha = .75$ for Work-Life and Emotional Imbalance).

Table 1: Exploratory Factor Analysis of Dark Side of Entrepreneurship Items

Item wording	Factor 1 (Financial and Structural Burdens)	Factor 2 (Work-Life and Emotional Imbalance)
The potential for bankruptcy or failure of business.	.75	
The necessity to deal with the financial consequences of business activities.	.65	
Experiencing anxiety over financial risks associated with running a business.	.71	
Having your self-worth highly dependent on the results of your business.	.65	
Dealing with disappointment related to not achieving the intended success levels.	.66	
The necessity to make impactful decisions under a high level of uncertainty.	.57	
Navigating complex and unfriendly legal regulations.	.45	
Feeling lonely due to the solitary nature of entrepreneurship.		.65
Consistently working long hours.		.59
Being unable to mentally detach from work.		.61
Neglecting personal and family relationships due to business commitments.		.77
Lacking time for hobbies and leisure activities due to work.		.77

Table 2 presents descriptive statistics and zero-order correlations among the study variables.

Table 2: Means, Standard Deviations and Correlations

Variable	M	SD	1	2	3	4	5	6
1. GRO_F	5.04	0.90	—					
2. GRO_M	4.70	0.93	-.15***	—				
3. Financial and Structural Burdens	3.69	0.63	.15***	-.08*	—			
4. Work–Life and Emotional Imbalance	3.32	0.70	.16***	-.06	.60***	—		
5. Entrepreneurial Self-Efficacy (ESE)	3.65	0.52	.08*	.47***	-.12**	-.03	—	
6. Entrepreneurial Intentions (EI)	3.35	1.11	-.02	.36***	-.12**	-.12**	.51***	—

Note. GRO_F = feminine gender role orientation; GRO_M = masculine gender role orientation. N = 719–721. *p < .05, **p < .01, ***p < .001.

The first set of correlations examined how gender role orientations relate to perceptions of the dark side of entrepreneurship. Feminine gender role orientation (GRO_F) showed positive associations with both dimensions of the dark side. Students scoring higher on GRO_F perceived stronger Financial and Structural Burdens ($r = .15$, $p < .001$) as well as higher Work–Life and Emotional Imbalance ($r = .16$, $p < .001$). In contrast, masculine gender role orientation (GRO_M) demonstrated a small negative association with Financial and Structural Burdens ($r = -.08$, $p < .05$) and was not significantly related to perceptions of Work–Life and Emotional Imbalance. These results indicate that gender role orientations are associated with how costly or demanding entrepreneurship is perceived to be.

Masculine gender role orientation (GRO_M) was strongly and positively related to entrepreneurial self-efficacy ($r = .47$, $p < .001$) and entrepreneurial intentions ($r = .36$, $p < .001$). Individuals with stronger male orientation thus expressed both greater confidence in their entrepreneurial competencies and a higher likelihood of pursuing entrepreneurship. Feminine gender role orientation (GRO_F), in contrast, showed only a weak positive and statistically significant relationship with ESE ($r = .08$, $p < .05$) and no significant association with EI, indicating that this orientation may not translate into higher motivation to pursue entrepreneurial career.

Hierarchical regression analysis was conducted to examine whether perceptions of the dark side of entrepreneurship predict entrepreneurial intentions beyond self-efficacy and gender role orientations. Results are presented in Table 3.

Table 3: Hierarchical Regression Predicting Entrepreneurial Intentions

Predictor	Model 1	Model 2	Model 3
Entrepreneurial Self-Efficacy (ESE)	.51***	.44***	.44***
GRO_F (Feminine orientation)		-.03	-.02
GRO_M (Masculine orientation)		.15***	.15***
Financial and Structural Burdens			-.01
Work–Life and Emotional Imbalance			-.09*
R ²	.26	.28	.29
ΔR^2	.26	.021	.008
F for ΔR^2	249.25***	10.66***	3.99*

Note. Standardized regression coefficients (β) are reported. *p < .05, ***p < .001.

In Model 1, entrepreneurial self-efficacy was a strong positive predictor of entrepreneurial intentions ($\beta = .51$, $p < .001$), explaining 25.8% of the variance. Adding gender role orientations in Model 2 resulted in a significant increase in explained variance ($\Delta R^2 = .021$, $p < .001$), with masculine gender role orientation emerging as a significant positive predictor ($\beta = .15$, $p < .001$). In Model 3, the inclusion of dark side perceptions led to a further

significant, though modest increase in explained variance ($\Delta R^2 = .008$, $p < .05$). Among the two dimensions, work–life and emotional imbalance was negatively associated with entrepreneurial intentions ($\beta = -.09$, $p = .030$), whereas financial and structural burdens were not significant predictors.

4. Discussion

The results obtained in this study offer insight into how gender orientations are associated with entrepreneurial perceptions and intentions. Individuals with a stronger feminine gender role orientation tended to view a wider range of entrepreneurial dark sides as potentially burdensome. What is noteworthy is that this sensitivity extended not only to work–life and emotional strains (areas traditionally associated with communal concerns), but also to financial and structural challenges, which are often framed as more agentic. This suggests that feminine (communal) orientations may heighten the perceived weight of both relational and instrumental risks inherent in entrepreneurship.

In contrast, masculine role orientation was negatively linked to perception of severity of financial and structural burdens and showed no meaningful connection to anticipated emotional or work–life strain. This pattern aligns with the view that masculine (agentic) orientation emphasize confidence, risk tolerance, and a focus on achievement, which may lower the perceived weight of potential obstacles.

The clearest relationships in the study emerged between masculine orientation and entrepreneurial self-efficacy and intentions. Endorsing more masculine traits was associated with feeling more capable of entrepreneurial action and more inclined to pursue it as a career path. Feminine orientation, by comparison, showed only a very modest link to self-efficacy and was not connected to entrepreneurial intentions, which is consistent with research conducted by Mueller and Conway Dato-on (2013).

Importantly, the regression analysis further showed the role of perceived dark sides of entrepreneurship. While both dimensions of the dark side were negatively associated with entrepreneurial intentions at the correlational level, only work–life and emotional imbalance remained a significant predictor once entrepreneurial self-efficacy and gender role orientations were taken into account. In contrast, perceived financial and structural burdens did not exhibit a significant association with intentions beyond these factors.

4.1 Theoretical Implications

The theoretical implications of our study are twofold. First, we demonstrate the relevance of the dark side of entrepreneurship by explicitly examining both financial and structural burdens as well as emotional and work–life–related costs. In doing so, we show that within the Theory of Planned Behaviour framework, entrepreneurial attitudes should not be conceptualised solely in terms of expected benefits, but also in relation to anticipated negative outcomes. These findings suggest that behavioural beliefs underlying attitudes toward entrepreneurship encompass not only perceived opportunities but also perceived costs, which may substantially shape entrepreneurial intention formation.

Second, our findings contribute to the growing body of research on gender that conceptualises gender not as a biological attribute, but as a socially constructed set of roles, identities, and expectations shaping individual behaviour and decision-making (Terpstra-Tong et al., 2022). By adopting a gender role perspective, our study demonstrates that socially constructed gender orientations provide meaningful explanatory power for individuals' evaluations of entrepreneurship, including not only positive assessments but also negative attitudinal beliefs. Specifically, we show that gender role orientation is associated with how potential entrepreneurs perceive the anticipated costs of entrepreneurship and, in turn, how specific types of perceived burdens, particularly work–life and emotional imbalance, are related to entrepreneurial intentions. These results suggest that socially embedded gendered self-concepts play a significant role in shaping entrepreneurial motivation, extending existing entrepreneurship research beyond binary conceptions of sex and highlighting the relevance of gendered identities for understanding both favourable and unfavourable orientations toward entrepreneurial careers.

4.2 Practical Implications

Our findings point to the broader influence of gendered socialisation on how individuals interpret the intentions and opportunities of entrepreneurship. They also underscore the need to rethink how entrepreneurship is framed in public discourse—moving beyond gendered stereotypes that position entrepreneurship as inherently aligned with masculine traits (Serrano-Pascual, & Carretero-García 2022). Encouraging more inclusive representations and challenging traditional gender roles may help reduce the unequal psychological barriers that different groups face when considering an entrepreneurial career.

4.3 Limitation and Further Research

This study is subject to several limitations. First, its cross-sectional design captures attitudes and intentions at a single point in time, limiting insight into their dynamic evolution; longitudinal designs would offer richer evidence but are difficult to implement with student samples. Second, the study relies on BSRI-based measures of gender role orientation, which, although widely used, have been increasingly criticised and may require further refinement (Datta, et al. 2022; Golik and Wasilczuk, 2025). Third, while entrepreneurial intentions are meaningful predictors of later behaviour, the intention–behaviour link remains imperfect and varies across studies (Liñán and Rodríguez-Cohard, 2015; Bogatyreva et al., 2019). Finally, the dark side of entrepreneurship was operationalised using a limited set of anticipated burdens and based on student perceptions, which may not fully reflect the realities experienced by practicing entrepreneurs. The study opens several avenues for future research. One direction involves comparing aspiring or potential entrepreneurs with individuals who are already running businesses to determine whether similar GRO-related patterns emerge when burdens are not only anticipated but actually experienced. Because intentions do not always translate into entrepreneurial action, future studies could also examine whether heightened sensitivity to specific burdens predicts avoidance, delay, or modification of entrepreneurial paths, and how these behaviours may be related to gender role orientation. Further work might also investigate whether gendered perceptions of entrepreneurial burdens are linked to stress, burnout risk, satisfaction, or long-term persistence in entrepreneurial careers.

5. Conclusions

The results indicate that gender role orientation, rather than biological sex, is meaningfully associated with how individuals evaluate entrepreneurship and form entrepreneurial intentions. Specifically, gendered self-concepts are linked to perceptions of the anticipated dark side of entrepreneurship, encompassing both financial–structural burdens and work–life and emotional imbalance. These negative attitudinal beliefs function as an important component of attitudes toward entrepreneurship within the TPB framework and are differentially related to entrepreneurial self-efficacy and intentions. The findings suggest that entrepreneurial intentions are shaped not only by expected benefits but also by anticipated costs, and that these evaluations vary systematically with gender role orientation. By integrating gender role orientations and the dark side of entrepreneurship into the TPB model, this study offers a more nuanced understanding of how entrepreneurial motivation is formed at the pre-entry stage.

The study was conducted in accordance with the Ethical Guidelines and Procedures of Gdańsk University of Technology.

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Unpacking Unequal Pay at Mid-life: Evidence from the British Cohort Studies

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Abstract: The gap between men's and women's hourly pay in the UK has diminished over time, while peaking in mid-life for successive cohorts. Does this peak adjusted for gender differences in individual and job characteristics signify a female pay penalty? Is any penalty confined to mothers? We compare employees in two British Birth Cohorts (NCDS and BCS70) aged 42 in 2000 and 2012. Components of the pay gap, derived from regressions of male and female pay, are constructed using Oaxaca's method. Women's education and experience gains helped narrow the later pay gap, but an unexplained component remained, even after allowing for job characteristics. The unexplained gap was not confined to parents, though wider than for others. Mothers gained little from prior experience in part-time work and faced low pay in current part-time jobs in particular occupations. Results suggest policies should address women's low bargaining power generally besides targeting mothers' low pay.

Keywords: UK gender pay gap, Part-time work, Occupation, Work experience, Mothers

1. Introduction

The 'gender pay gap' between men's and women's hourly pay, is a key feature of gender inequality and a target of equality policy. Its various components may reflect differences in men's and women's productive endowments, the jobs they perform, or unequal treatment in the labour market. It is reinforced by, and reinforces, gendered norms in society and the family.

The gender pay gap in Britain, as elsewhere, has been falling over time but rises with age. It thus has moving parts. This paper takes snapshots of these parts for two cohorts at age 42 in 2000 and 2012 respectively. To unpack the gap, we carry out a conventional decomposition analysis of micro data, selecting age 42, the lifecycle peak, to abstract from age effects.

By their early forties most workers would have embarked on family building, their labour force trajectories would bear any mark that family life may have on earnings and employment. We expect that the widening pay gap since young adulthood would reflect lower work experience of women resuming employment after being out of the labour force with young children, often returning to part-time jobs, where pay is low and earning power does not accumulate.

2000 and 2012 are situated within the secular trend towards equalization of men's and women's pay. It had started in the 1970s with the Equal Pay Act and would have been boosted by the Equalities Act of 2010. Women's education and employment were also converging on men's. Those born in 1970 were the first to enter the labour market after Equal Pay had fully bedded down. This should have limited unequal treatment, perhaps to situations affected by women's family responsibilities. Had unequal treatment become confined to parents only, or were still more pervasive social norms limiting women's ability to realise the full returns from their human capital irrespective of parental status?

While the secular downward trend of the raw pay gap can be related to changes in legislation aimed at the elimination of discrimination, and the secular erosion of gender attitudes in society at large, it may simultaneously reflect changes specifically in the gendering of human capital and the structure of employment. The British cohort studies are ideally placed to provide evidence on human capital accumulation and the jobs held by successive cohorts at the same age.

We address the following questions:

- How far do education and work histories account for the changing gender pay gap of employees aged 42 in 2000 and 2012?
- How far do gender differences in occupations and part-time work add to the account?
- How much of women's part-time pay penalty is explained by occupations?

- Is the ‘female pay penalty’ increasingly confined to mothers?

The paper proceeds with a brief review of the literature; a statement of the decomposition method used; an introduction to the data from two British Cohort studies; presentation of results, and conclusions to be drawn for our research questions.

2. Literature

A conventional approach to understanding the gender pay gap is to see how far it can be attributed to differences in men’s and women’s productive attributes (human capital), sometimes also to features of their jobs, and an unexplained residual. There are many theories and a vast literature (reviewed more fully by Blau and Kahn 2017, and Bryson et al 2020) on the interpretation of this residual, traditionally attributed to discrimination. Factors not adequately covered by regression covariates may include for example: non cognitive skills, negotiation style, mobility constraints. Sex segregation can be a source of female disadvantage if occupations are undervalued as ‘women’s work’, or if women are crowded into them (Perales, 2013). Other factors include sexual harassment (McLaughlin et al 2017), absence of female managers (Theodoropoulos et al 2022) and monopsonistic markets (Manning, 2021). Women’s preferences for job amenities such as flexibility may lead to lower pay (Rosen, 1986, Goldin 2014).

Most developing countries have witnessed declines in their gender pay gap in the decades around 2000. The gap in Britain was high, along with the USA (Kunze, 2018). Blau and Kahn (2017) analyse the gap for USA showing a declining contribution of gender differences in human capital to the statistical explanation, as women’s education and work experience grew faster than men’s, part of the Grand Convergence declared by Goldin (2014). Blau and Kahn (2017) also showed that differences in job characteristics continued to account for an unreducing component of the gap between 1980 and 2010 (around 0.12 log points). The unexplained residual had come down from 0.34 points to 0.20 in the human capital model, and from 0.23 to 0.09 in their broader model.

Various analysts of British data for workers of all ages showed ‘raw’ gaps falling from around 0.40 log points in the 1980s to around 0.20 in 2015 (reviewed by Bryson et al 2020, Figure 2). The human capital component was perhaps greater than in the US, averaging around half the total (but it also covered part-timers). Within the time trend, the pay gap also follows a life cycle pattern, widening from early adulthood to mid-life. Evidence from the British Cohort studies investigated particular ages (eg Bryson et al 2020, Joshi et al 2021, Foliano et al, 2024).

The literature has also focussed on the pay penalty of motherhood as something that may outlast the pay gap among people without family responsibilities. Some argue that the only remaining source of the gender pay gap is women’s responsibilities as mothers (Wolf, 2015). One approach to identify a motherhood gap is through the trajectory of wages before and after childbearing (Costa Dias et al, 2020). Another is to compare the wages of mothers with other women who do not have children (as reviewed by Grimshaw and Rubery, 2015). This covers various ways in which mothers’ pay lags behind those of women without children, including lost experience, part-time employment, job downgrading on return. It does not tackle the gender pay gap, as it does not compare the pay of women with no children to that of similar men, nor compare the pay of mothers with that of fathers.

3. Method

We present a descriptive decomposition of the gender pay gap at age 42 for cohorts born in 1958 and 1970. One component concerns employees’ human capital (education and work experience). The next considers job characteristics (part-time status and occupation), leaving an unexplained component which has traditionally been interpreted as capturing unequal treatment. We run regressions to compute covariate-adjusted gender pay gaps. The dependent variable, $\ln W_i$, is the natural log real hourly wage derived from reported earnings and hours worked of employees, indexed to 2000 prices. Logarithms are used, as in most of the literature, because we are interested in a relativity, not absolute amounts of money. X_i is a vector of covariates relating to human capital and job characteristics discussed further below. To understand the contribution of each set of variables to the gender pay gap we carry out a Kitagawa-Oaxaca-Blinder decomposition of the gap (Jann 2008). Models for females’ and males’ log hourly wages are subtracted from each other to decompose the mean gender pay gap into mean differences in observed characteristics (X) and differences in returns (β) to these characteristics. To define the differences in returns, one needs reference parameters. Following Jann (2008)

we take as reference parameters (β^*) the coefficients on a gender indicator from regressions pooled over males and females. The decomposition is thus:

$$\overline{\ln W_M} - \overline{\ln W_W} = (\overline{X_M} - \overline{X_W}) \cdot \beta^* + \overline{X_M} \cdot (\beta_M - \beta^*) + \overline{X_W} \cdot (\beta^* - \beta_W)$$

The first term on the right-hand side is the explained component of the gender pay gap, a weighted average of mean differences in the attributes across up to 23 covariates. The second and third terms together constitute the unexplained component: the deviations of each gender's parameters from the reference β^* s weighted by the mean of characteristics of each sample. This weighted combination of parameter gaps reflects any unequal treatment in the labour market, and any other factors differentiating the sexes (or their jobs) which may not be captured by the covariates included.

Wage regressions are run for men and women separately, in Stata. The Appendix illustrates estimates β s for selected models. To simplify presentation, some sets of explanatory variables are then grouped, to show their combined contributions. We do not treat parenthood as a covariate in the wage regression; there is little difference in the proportions of men and women employees who were parents at age 42. Instead, we recognise that the two genders have very different parameters, so we estimate models separately for men and women who were parents by age 42 and those who were not.

We ignore possible sample selection, either in survey response or employment participation. Justification for this comes from Bryson et al (2020) whose tests for selectivity of employees in NCDS and BCS across all available ages found a modest enlargement of the gender wage gap, due to women's lower participation in their twenties and thirties, but not at age 42. Foliano et al (2024) also found positive selection among employees as younger adults. Many women who had been out of employment during their thirties had returned to paid work by age 42, thus reducing the selectivity of participants. The possibility of selection into parenthood, which we also ignore, is likely to apply more at earlier ages than at 42.

Some other simplifying assumptions should be borne in mind when interpreting the results. We treat observed human capital, job characteristics and parenthood as elements of a descriptive accounting exercise, not as determined within the systems. We do not follow job trajectories before or after age 42. We simplify family responsibilities into a binary indicator of parenthood without considering the number and age of children, partnership, or elder care. We have not included the subject of qualifications, nor do we include details about the gender composition of the workplace, management, union coverage, industry, sector, or firm size which may influence gendered pay.

4. Data

The National Child Development Study (NCDS) and British Cohort Study (BCS) are nationally representative studies of people born in 1958 and 1970 (UCL 2023, a b). We estimate gender gaps in the pay of employees at age 42 in 2000 and 2012, the latest available date for a cohort at age 42. Both NCDS and BCS began with over 17,000 cohort members, of which 11,419 and 9,841 respectively remained by age 42. Not all respondents were employees at age 42. The estimation sample is still smaller due to missing data and exclusion of outliers at the top and bottom percentile of the wage distributions. The final estimation sample for men is 3,567 in 2000 and 3,099 in 2012, for women 3,464 and 3,367 respectively, see the foot of Table 1.

'Human Capital' variables are cognitive ability at age 10/11, highest educational qualification - academic or vocational equivalent with no qualifications as the reference; work experience based on months in full-time and part-time jobs separately (linear and quadratic terms); and tenure in the current job which captures firm-specific human capital. We also include a dummy for residence in London or the South East as a rough allowance for regional price levels. 'Job Characteristics' are current part-time status (less than 30 hours of work per week) and occupation. This is operationalized by the broad, mainly vertical classification of the occupation (at 1 digit level, in SOC1990 and SOC2000); and the female composition of disaggregated occupations.

'Parental Status' used to define analytical subgroups for comparison is defined as having co-resident children in the household at any point in the survey as an adult up to the age of 42. Note that the mothers and fathers in these samples do not live with each other.

Full details of all derived variables are available in the online appendix to Bryson et al (2020).

5. Results

Table 1: Description of employee samples at age 42

	Women 2000	Men 2000	Women 2012	Men 2012	Gap 2000	Gap 2012
Log real hourly pay (Dependent variable)	1.93	2.33	2.05	2.38	-0.40	-0.33
Explanatory variables						
Full-time experience (months)	157	260	174	265	-104	-91
Part-time experience (months)	62	4	69	4	59	65
Job tenure (months)	82	127	68	86	-46	-17
Highest Educational Qualification						
None	0.11	0.09	0.08	0.09	0.02	-0.01
NVQ Level 1	0.13	0.12	0.07	0.07	0.01	-0.01
NVQ Level 2	0.30	0.22	0.25	0.23	0.08	0.02
NVQ Level 3	0.14	0.20	0.15	0.15	-0.06	0.00
NVQ Level 4	0.30	0.33	0.36	0.37	-0.02	-0.01
NVQ Level 5	0.03	0.04	0.09	0.09	-0.01	0.01
Mean Maths Score at Age 10/11	17.6	18.8	45.4	47.2	-1.2	-1.8
Mean Reading Score at Age 10/11	16.6	17.0	42.9	42.2	-0.4	0.7
Proportion who live in London or South East	0.29	0.29	0.22	0.24	0.00	-0.01
Proportion who work Part-time	0.40	0.02	0.41	0.03	0.38	0.38
Proportion in 1-digit Occupation (SOC)						
Managers and Administrators	0.12	0.28	0.16	0.28	0.16	0.13
Professional	0.12	0.10	0.13	0.14	-0.02	0.00
Associate Professional and Technical	0.13	0.10	0.18	0.17	-0.03	-0.01
Clerical and Secretarial	0.27	0.06	0.19	0.04	-0.21	-0.14
Craft and Related	0.02	0.19	0.01	0.14	0.17	0.12
Personal and Protective Service	0.16	0.05	0.15	0.02	-0.10	-0.13
Sales	0.08	0.03	0.08	0.02	-0.05	-0.06
Plant and Machine Operatives	0.03	0.12	0.01	0.11	0.09	0.10
Other	0.08	0.06	0.08	0.07	-0.02	-0.01
Percentage of women by occupation¹	68	28	64	30	41	33
Ever had a child (Sub-setting variable)	0.83	0.79	0.80	0.76	0.03	0.05
Sample size	3,464	3,567	3,367	3,099		

We use two-digit occupations from SOC 1990 for 2000 data and three-digit occupations from SOC 2000 for 2012 data. This is because at this level of disaggregation there are a similar number of occupational groupings in each year, 77 in 2000 and 82 in 2012.

Table 1 presents descriptive statistics for the estimation sample. The first row shows the mean log hourly earnings (in 2000 prices) for men and women separately by cohorts. The gap between men and women aged 42 in 2000 was 0.40. Among 42-year-olds in 2012 it was 0.33, a decline of 0.07 log points. The estimates from the cohort studies for the raw gap are consistent with the official statistics for the age group nationally issued for those years.

As women have increased their productivity-enhancing characteristics and as they “look” more like men, the human capital part of the wage difference has been squeezed out, as in the USA. Women had reduced the gap

in full-time labour market experience because their months experience had risen, whereas men's was roughly stable. But they continued to hold nearly all of the part-time jobs, with the gender gap in part-time experience gap widening a little between the two cohorts. Current job tenure had fallen among both men and women, but more steeply for men, such that the job tenure gender gap closed markedly over the period.

There were signs of women 'breaking the glass ceiling'. Across the two cohorts they had improved their presence in the top occupational class, although they continued to be under-represented. They continued to be over-represented in clerical and administrative, personal services and sales jobs. If we consider female occupational segregation at a more disaggregated level we see it had fallen, although remained quite marked. In 2000 41% of women aged 42 worked in majority-female occupations, but this had fallen to 33% by 2012. Jobs were still segregated by gender but less so.

Taking only full-time workers (a subset not shown in Table 1) hardly changes the number of men in the sample but reduces the number of women by over a third. The raw pay gap is smaller, also falling over time, 0.33 to 0.23 points. Among part-timers, pay was generally lower for both sexes and the gender gap smaller (Athow 2019). Discarding part-timers clearly loses much of women's low pay, and the few men in part-time jobs are particularly low paid. As women account for around 19 in 20 part-timers in both periods, we prefer not to separate part-timers from the overall sample. Parents, who were the majority in both cohorts, showed bigger than average pay gaps in both years, 0.49 and 0.40 log points respectively. Their counterparts without children had pay levels and a raw gender gap below the average for their cohort (0.04 and 0.06 points) but showed an unexpected increase in the gender gap. The subsamples by parenthood are explored further below.

Figure 1 summarises the unpacking of the pay gap, based on regressions illustrated in the Appendix. The bars in Figure 1 contain grouped summaries of gaps in explanatory variables and of the total parameter gap (unexplained component). Beginning with the left-hand bar for 42 year-olds in 2000, our human capital model accounts for half the 0.40 log point gender pay gap. Of the 0.20 point explained gap, half is attributable to the difference in full-time employment experience between men and women. Another one quarter (accounting for 0.05 log points) is due to women having more past part-time experience than men. Inclusion of a dummy capturing current part-time employment (not shown) made little difference to the overall explanation, but it was associated with part-time experience. However, the incorporation of occupational characteristics does make a substantial difference to the decomposition. The explained component of the 0.40 log point gender pay gap rises to 0.28 log points which includes a 0.12 log point contribution linked to occupational differences in the jobs men and women perform. The introduction of occupational controls does little to the rest of the model, although it shrinks the contribution of full-time work experience marginally to 0.07 log points.

The same models for the later cohort working at age 42 in 2012 are shown in bars 5 and 6. The overall raw gender pay gap had shrunk to 0.33 log points. Again, as in 2000, around half of the gap is explained by variables in the model. Chief among these are occupational differences which account for one third of the raw gap (0.11 log points), followed by full-time labour market experience (0.07 log points).

Bars 3 and 7 in Figure 1 are confined to parents, those who had children in their home at some point (regressions not shown). Among these the raw gender wage gap fell from 0.48 log points in 2000 to 0.42 log points in 2012. In both years the biggest component in the explained gap is occupational differences across men and women (0.12 log points in 2000 and 0.13 log points in 2012), followed by full-time work experience (0.09 and 0.07 log points). The biggest difference is the shrinking unexplained gap (from 0.18 log points to 0.14 log points).

The raw gap is much smaller in both years among non-parents (bar 4 and 8). But the decomposition reveals quite different factors at work for the two cohorts. Among the earlier cohort the biggest factor is occupational differences across men and women (creating an 0.08 log point gap), which is partly offset by an unexplained gap working in favour of women. By 2012 this had reversed. The unexplained, 'unequal treatment' term was positive but not significant in 2000 and had risen, contrary to expectation, to a significant 6 log points in 2012.

Among full-timers (not plotted) the raw gap fell from around 0.30 log points in 2000 to 0.23 log points in 2012). The largest part of these gaps were unexplained (0.11 and 0.12 log points respectively. In both years, the biggest explanation was due to occupations, which also fell across to, (falling from 0.09 to 0.05 log points). The educational advantage that women had over men in the second cohort played a very minor role in closing the gender pay gap among full-timers.

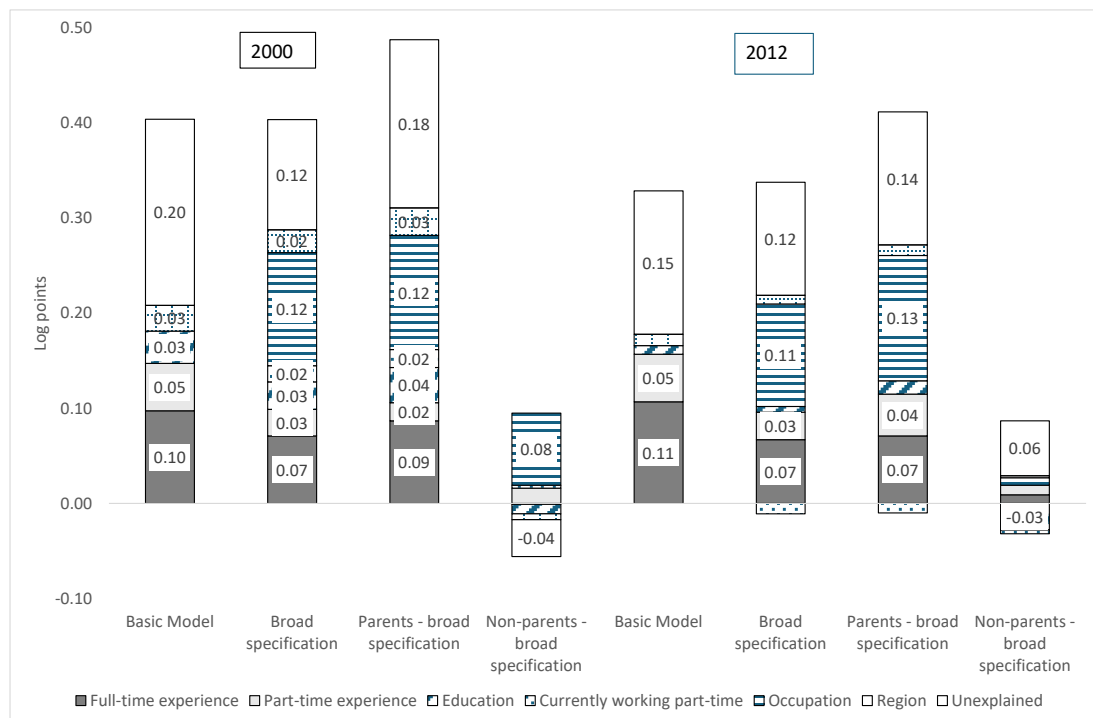


Figure 1: Decomposition of Log Real Hourly Gender Pay Gap in 2000 and 2012

Figure 2 applies the decomposition methodology to the pay gap between women aged 42 working full-time and part-time in 2000 (left-hand bar) and 2012 (right-hand bar) (regressions not shown). In both years, the average wage of part-timers was below that of full-timers by around 26 log points. In each case, the majority of the gap was explained by the covariates used in our broad model. Roughly one-third of the gap was accounted for by differences in full-time experience, with education differences also making a significant contribution. Occupational differences also mattered (consistent with their role in accounting for the part-time term in the pooled models). The size of the occupation component increased markedly between 2000 and 2012 from 0.07 to 0.15 log points thus reinforcing the association of part-time jobs with low paying, feminized occupations but not moving with the secular trend.

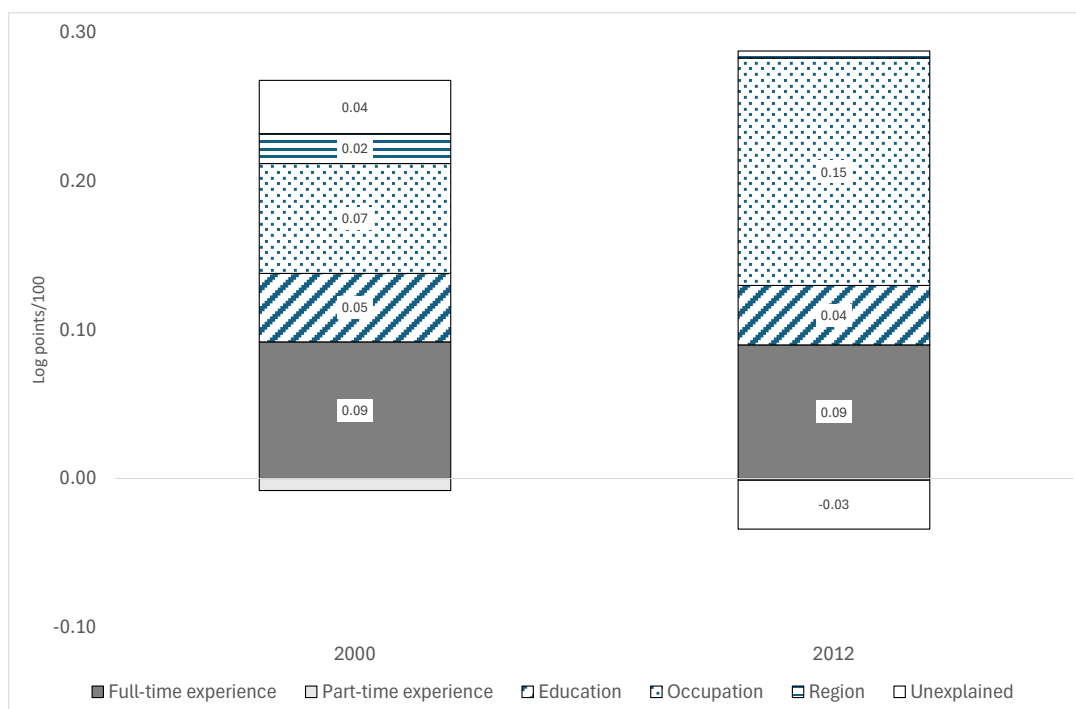


Figure 2: Decomposition of Log Full/ Part-time Pay Gap for Women in 2000 and 2012

6. Conclusion

Our exploration of gender wage gaps at age 42 confirms and elaborates existing research. Although we see positive trends in education and employment reducing the gender pay gap for these cohorts, we do not find that the gap has either been eliminated nor fully explained by the covariates we have been able to include. We find a considerable residual component remains, representing unequal pay for women, at both dates, whether or not job characteristics are included alongside human capital.

In respect of our first question, half the pay gap at mid-life remained unexplained in 2000 by our measured human capital covariates, and nearly half of the somewhat smaller gap in 2012. In both years an important contribution to the gap was the divergence of men's and women's full-time work histories over the life course, but women's greater part-time experience was not rewarded.

On the second question, we find that allowing for differing types of job, as elsewhere in the literature, reduces, somewhat the unexplained component of the gender pay gap, but it also competes with the explanations offered by the human capital model, suggesting that some of the unequal treatment inferable from the human capital model may work through the allocation of women to lower paying types of job.

On the third issue, we have investigated whether part-time jobs are an independent source of a pay penalty. Current part-time employment shows a significant mark-down on pay given education and experience. This may either be seen as an aspect of unequal treatment, if it reflects constraints on women's access to better paid occupations, or a free choice for the convenience of part-time jobs. The part-time pay penalty is almost entirely accounted for by the low level, feminized occupations associated with part-time work for these cohorts, increasingly so for the later one. While it is increasingly common to focus on the gender pay gap among full-time workers, this lowers the target, because most part-time workers are low paid women. While part-time employment may to some degree 'account' for women's low pay, to exclude it from the consideration of gender inequality in employment would be to ignore a major aspect of disadvantage.

On our last research question, we confirm that a major part of the mid-life gender pay gap in these cohorts is indeed linked to parenthood. The pay of working mothers faced a larger gender penalty compared to fathers, the consequences of their interrupted work, and relatively low paid jobs. The pay penalty for women without children did not appear to wither away. Though small, it increased over time. The pay penalty to mothers among parents is not the only source of the pay gap.

The very slow rate of change between cohorts suggests there is still scope for policies to support convergence of gender pay rates. The pay gap between mothers and fathers might have been smaller if the mothers had accumulated more experience in full-time employment (or their partners less), if they had access to better paying types of job, all of which might be facilitated by parental leave, greater availability of affordable childcare and flexible working. Policies to further reduce unequal treatment should include such provisions for parents but should not be confined to them. They would have to address discrimination and other aspects of women's low bargaining power. Without attention to the unequal opportunities facing women in general, the incentives to maintain gendered inequalities within families will persist into the next cohorts.

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Appendix A: Table - Coefficient Estimates for log real Hourly Earnings at age 42: Basic and Broad specifications

		Basic 2000		Broad 2000		Basic 2012		Broad 2012	
		Women	Men	Women	Men	Women	Men	Women	Men
Full-time experience	A	0.002*	0.003*	0.001*	0.003*	0.002*	0.003*	0.001*	0.002*
Full-time experience squared*1000	A	-0.001	-0.006*	-0.000	-0.006*	-0.001	-0.006*	-0.000	-0.004*
Job tenure*100	A	0.074*	0.048*	0.066*	0.045*	0.039*	0.039*	0.056*	0.034*
Part-time experience	B	-0.001*	-0.005*	-0.001	-0.005*	-0.001*	-0.008*	-0.001	-0.006*
Part-time experience squared*1000	B	0.007*	0.028*	0.042*	0.028*	0.069*	0.042*	0.038*	0.034*
Highest Qualification (Ref: None)									
NVQ Level 1	C	-0.034	0.100*	-0.027	0.083*	-0.029	0.016	-0.007	0.027
NVQ Level 2	C	0.058*	0.160*	0.056	0.126*	-0.019	0.000	-0.003	0.003
NVQ Level 3	C	0.131*	0.268*	0.116*	0.211*	0.027	0.127*	0.017	0.073*
NVQ Level 4	C	0.448*	0.428*	0.392*	0.352*	0.372*	0.350*	0.242*	0.211*
NVQ Level 5	C	0.673*	0.602*	0.539*	0.525*	0.593*	0.565*	0.341*	0.369*
Mean Maths Score at Age 10/11	C	0.055*	0.090*	0.041*	0.081*	0.068*	0.077*	0.046*	0.047*
Mean Reading Score at Age 10/11	C	0.023	0.047*	0.019	0.040*	0.056*	0.073*	0.022	0.047*
Current job Part-time	D			-0.036	0.004			-0.033*	0.018
Broad Occupation (SOC (Ref: Other))									
Managers and Administrators	E			0.182*	0.350*			0.580*	0.625*
Professional	E			0.270*	0.262*			0.642*	0.592*
Associate Professional and Technical	E			0.182*	0.219*			0.496*	0.481*
Clerical and Secretarial	E			0.160*	0.162*			0.316*	0.271*

		Basic 2000		Broad 2000		Basic 2012		Broad 2012	
		Women	Men	Women	Men	Women	Men	Women	Men
Craft and Related	E			0.084*	0.042			0.092	0.202*
Personal and Protective Service	E			0.025	0.183*			0.141*	0.003
Sales	E			0.026	0.129*			0.059	0.094
Plant and Machine Operatives	E			0.035	0.037			0.028	0.097
Percentage of women in finer occupation	E			-0.303*	-0.229*			-0.229*	-0.135*
London or South East	F	0.147*	0.202*	0.132*	0.182*	0.148*	0.232*	0.132*	0.179*
Constant		1.412*	1.603*	1.591	1.584*	1.443*	1.709*	1.448	1.596*
R squared		0.31	0.22	0.35	0.26	0.29	0.29	0.53	0.43

For fuller definitions of covariates, see Table 1. Column 2 shows the block in which results are shown in the decomposition. * indicates significant at $p < 0.05$

PhD Research Papers

What Makes a Modern Man? Masculinity, Morality, and Nationhood in Late-Monarchical Egypt

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Abstract: A critical analysis of masculinities is essential for understanding how power is gendered and legitimised through male-coded social norms. While Egyptian nationalism and state-building process have been extensively studied through political and religious lenses, their gendered foundations remain less explored. The primary aim of this research is to analyse how masculinity was constructed, represented, and contested within the Egyptian *effendiyya* class between 1936 and 1952 – a period that witnessed key shifts in political radicalisation and ideological formation, laying the basis for the post-revolutionary ideal of manhood and nationhood. The *effendiyya* – students, civil servants, doctors, modern-educated elites – located between traditional aristocracy and popular classes. By the 1930s, a younger and more radical generation of *effendiyya* had emerged. Their militancy was fuelled by widespread unemployment, political stagnation, and deepening economic crises and directly translated to their image of the ideal citizen. The project draws on Critical Studies on Men and Masculinities (Connell 2005) and postcolonial theory (Stoler 2002) approaching masculinity as both a discursive construct and a lived practice. It combines discourse analysis with archival research to examine Arabic-language press, memoirs, and educational manuals – many of them rarely studied – to trace how ideals of manhood circulated across institutional and popular settings. The focus on print media reflects its central role in *effendiyya* identity formation. As editors, readers, and contributors, members of this class actively used the press to debate moral, national, and gender ideals. The study analyses three interconnected arenas: (1) *tarbiya* (upbringing) and formal education as spaces where civic and moral expectations for boys were codified; (2) the male body as a site of health, discipline, militarism, and desire; and (3) Islamic models of manhood reinterpreted within nationalist and modernist frameworks. The ongoing research examines how masculinity served both anti-colonial resistance and authoritarian state-building. It expands Critical Studies on Men and Masculinities by analysing hegemonic masculinity in a specific context, beyond the usual focus on masculinity crisis or violence.

Keywords: Masculinity, CSMM, Egypt, Upbringing, Nationalism

1. Introduction

The primary aim of this research is to analyse how masculinity was constructed, represented, and contested within the Egyptian *effendiyya* class between 1936 and 1952. Understanding how this group imagined and performed masculinity is key to uncovering how gender norms shaped Egypt's path to modernity, nationalism, and authoritarian rule. In this project, masculinity is approached as both a discursive construct, produced and circulated through language, imagery, and ideology, and as a lived practice, shaped by institutional structures, bodily routines, and social expectations.

Research on gender in West Asia and North Africa (WANA) has predominantly focused on the status of women in Muslim societies and feminist movements (Badran 1995; Booth 2001; Baron 2005). In contrast, masculinity studies in the region have remained relatively underdeveloped and fragmented. Works on masculinity in the region often use ethnographic (Inhorn 2012, Naguib 2015) or literary-critical approaches (Massad 2007, Elsadda 2007, Aghacy 2009). This project builds on the existing literature by integrating discourse analysis with archival research and by situating Egyptian masculinities within both local and global frameworks of gender and nationalism.

Beyond its historiographical contribution, this study provides a framework for understanding the historical roots of gender norms that continue to shape political and social life in Egypt and the wider region. By tracing how ideals of masculinity within the *effendiyya* were tied to discipline, nationalism, and authority, it explains the cultural foundations of later state formations, including the persistence of militarised and authoritarian models of governance. This historical perspective enables a more critical engagement with contemporary political and social structures, by showing how seemingly naturalised ideals of citizenship and male authority are produced. This research also offers an alternative perspective on Arab masculinity that moves beyond reductive and stereotypical representations, highlighting its historical complexity and diversity.

The *effendiyya* (singular: *effendi*) was a social class that emerged in the Arab-Muslim world in the 19th century and persisted as a meaningful identity until the mid-20th century, when it gradually lost its distinctiveness in public discourse. Positioned between the traditional aristocratic elites and the broader popular classes (primarily *fellahin* – peasants), the *effendiyya* comprised students, modernising elites, the intelligentsia, and those employed in state administration, education, and the media. Educated mostly in Egypt's new, Western-style

school system, but often rooted in local cultural values, this group played a pivotal role in Egypt's national modernisation and anti-colonial movements.

By the 1930s, a younger and more radical generation of *effendiyya* had come of age, often originating from lower rural or urban backgrounds. Unlike their predecessors, many advocated physical resistance to British colonisation (while Britain withdrew most of its forces from Egypt in 1936, some troops were still stationing at Sinai and Egypt remained under strong British influence till 1952). The militancy of the new generation was additionally fuelled by widespread unemployment, political stagnation, and deepening economic crises. Existing scholarship on the *effendiyya* largely concludes in the late 1930s (Ryzova 2014; Jacob 2011; Kholoussy 2010). The period from 1936 to 1952 (during the reign of King Farouk) is frequently treated as transitional – merely a prelude to the 1952 revolution, when the Free Officers' coup ended the monarchy and inaugurated an autocratic military regime. This project challenges that view by demonstrating that these years witnessed shifts in political radicalisation, generational identity, and ideological formation, which laid the basis for the post-revolutionary ideal of manhood and nationhood.

This article examines three interconnected areas that were especially important for the process of making a “modern man”:

- *Tarbiya* (upbringing) and formal education as spaces where civic and moral expectations for boys were codified
- The male body as a site of health, discipline, militarism, and desire
- Islamic models of manhood reinterpreted within nationalist and modernist frameworks

I follow the International Journal of Middle Eastern Studies transliteration system for Arabic words, titles and names of the authors, unless there is a form of accepted English spelling of their name.

2. Theoretical Background

This project draws on Critical Studies on Men and Masculinities (CSMM), particularly Raewyn Connell's (2005) concept of hegemonic masculinity, which explains how dominant forms of manhood are produced within specific historical contexts through the subordination of women and alternative masculinities. Rather than being fixed or universal, hegemonic masculinities are historically contingent, reshaped by political, economic, and ideological transformations. In the Egyptian context, the figure of the *effendi* arguably embodied such a hegemonic type: central to the nationalist discourse, institutionalised, marginalising alternative types of masculinities. The link between masculinity and nation-making has been demonstrated by George L. Mosse (1996), whose work, although based on Western European examples, illuminates how ideals of manhood grew together with the nationalist projects and bourgeois respectability. Certain patterns in the construction of effendi masculinity parallel these processes, particularly in their emphasis on morals, manners, heroism, servitude to the fatherland and the processes through which the ideal of manliness were instilled in the society.

At the same time, the analysis of hegemonic masculinity in Egypt must be situated within its semicolonial political environment. Effendi masculinity emerged both as a response to the orientalist discursive emasculation of “Eastern” man (E. Said 1979) and as an instrument of nation-building. Ann Stoler (2002) demonstrated how colonial rule operated through the intimate regulation of bodies, emotions and moral discipline – domains directly relevant to the sources examined in this project. Eve Troutt Powell's (2003) analysis of Egypt's ambiguous status, as both colonised by Britain and coloniser of Sudan, further highlights in what way nationalist masculinities repurposed colonial hierarchies to assert national strength.

3. Research Methodology

The core of the research involves close reading and qualitative thematic analysis of public discourse on masculinity, particularly in print media. This includes cultural magazines, educational texts, political commentary etc. Attention is given to how masculinity was constructed in the texts and how these constructions intersected with nationalist ideology, class, religion, and colonial legacies. The emphasis on print culture reflects its central role in *effendiyya* identity formation as members of this class were the main contributors, editors and readers of the press.

To identify relevant sources, I first conducted a systematic search in major digital repositories, particularly the Ash-Sharīḥ database (Bibliotheca Alexandrina) and the American University in Cairo Digital Library. Keyword-based searches included terms related to the research questions – such as *tarbiya* (upbringing), *askariyya* (militarism), *jundiyya* (soldiery), *rujūla* (masculinity/manhood), *riyāḍa badanīyya* (physical education),

waṭanīyya (patriotism), *qawmīyya* (nationalism), *sharaf* (honour), and *ta'lim* (education) together with their morphological variants. Articles identified through these searches often led to additional recurring tropes and thematic clusters, allowing for an expansion of the corpus. Although the primary focus of the work is on the period from 1936 to 1952, it occasionally considers significant texts from earlier and later times, as the late monarchical era did not exist in a vacuum and the notion of masculinity at that time was directly linked to the early monarchical and early post-revolutionary eras.

The majority of materials derive from significant cultural periodicals such as *al-Risāla*, *al-Hilāl*, *al-Muṣawwar*, *al-Majalla al-Jadīda*, and *al-Muqtataf*, which typically blend literary criticism, cultural production, historical reflection, moral didacticism, and political analysis. Following the digital survey, I conducted initial archival and library research in Cairo at the National Library of Egypt, the Netherlands-Flemish Institute in Cairo, the Centre d'Études et de Documentation Économiques, Juridiques et Sociales (CEDEJ) and the Dominican Institute for Oriental Studies. These collections provided access to lesser-known periodicals (specialised in military training or medicine) that are largely absent from digital archives and contemporary handbooks addressing public health, modernist reforms, education, and broader social challenges.

All relevant materials were scanned or photographed and are currently undergoing systematic textual analysis. Sources are annotated thematically, and recurring themes and motifs are identified inductively. This grounded approach allows analytical categories to emerge from the terminology used within the texts themselves. By tracing these patterns across genres, the study enables a comparative understanding of how ideals of masculinity were articulated within the *effendiyya* milieu.

This study has several limitations. It relies primarily on print media produced by members of the *effendiyya* and therefore reflects elite, normative constructions of masculinity. While these sources provide insight into how the new middle class positioned itself in relation to other social strata (fellahin, working class, aristocracy), they do not capture the voices or lived experiences of those groups themselves. In addition, the qualitative and interpretive nature of analysis introduces a degree of subjectivity, as themes are identified inductively rather than through exhaustive coverage. The keyword-based search strategy may also shape the corpus by privileging texts that explicitly employ particular terminology.

4. Findings and Discussion

In late-monarchical Egypt, secular nationalists and Islamic reformists alike sought to articulate what kind of man the nation required. These were not parallel conversations but intersecting ones: both camps were politically heterogeneous, both engaged in moral and pedagogical debates, and both attempted to discipline male behaviour in the service of national renewal. For this reason, the aim here is not to classify separate “secular” or “Islamic” masculinities, but to trace the logics through which the making of a man was imagined – through education, bodily refinement, moral instruction, and civic duty. Bringing these discourses together reveals how nationalism and Islam became mutually reinforcing frameworks for constructing modern Egyptian manhood.

Writers consistently portrayed Egypt's escalating social issues (endemic diseases, food shortages, limited access to clean water, unemployment, and widespread illiteracy) as conditions that demanded comprehensive national modernisation (Barawi and 'Ali 1947; Kamil 1938). This modernisation was imagined as a multifaceted project: the more productive use of resources, expanding industrialisation, investment in science, health programs, and the arts, and ultimately the creation of a strong national army.

Fundamentally, this process relied on the proper formation of the nation's youth. Throughout the period authors emphasised the unique role of young people as the driving force of reform, attributing to them freedom of thought and dedication to the homeland (Shahata 1937, al-Tanahi 1952). Generational conflict appears subtly in these discussions, underlining the belief that only the youth at this point could engage in politics in a way that is suitable for the modern era: “The country's material and moral forces are dormant from prolonged slumber and neglect. Only youthful sensibility can stir this chronic stagnation among the people through clear advocacy, good guidance, and exemplary conduct” (al-Zayyat 1937).

Although the essentialist perspective on manhood was sometimes noticeable in these sources, the more prevalent notion was that masculinity is not innate but rather cultivated through different phases, each requiring the acquisition of specific skills, virtues, and attitudes. This idea was expressed by Ahmad Amin, a renowned Egyptian scholar and Islamic reformist, when he asked: “Who can provide us with a precise program for manhood like the program for education?” (Amin 1935). His question highlighted the perceived necessity for a structured approach to teaching masculinity. For Amin and other thinkers, the earliest stage began at home, where a child has to learn to keep his word, treat his peers with justice, and engage in play guided by ‘the spirit

of manhood'. The school stage was expected to refine these traits by teaching the boy to respect himself, avoid cheating when unsupervised, and show compassion towards the weak. Across different sources when describing the key moral qualities for a school-age boy to learn the ones that appeared the most were courage, boldness, fearlessness, individual effort for the collective good, solidarity, patience and honourable competition in which both victory and loss had to be accepted with dignity. Courage was defined as the moral capacity to make decisions confidently and stand by them, while boldness drove a person to act on his convictions regardless of the outcome ('Abd al-Bari 1936).

University was envisioned as the culmination of this process: the moment at which a young man had developed pride in himself, in his institution, and in the nation, preparing him to become a "manly judge," "manly teacher," "manly politician," and ultimately a "manly person" (Amin 1935). While professional contexts might require different forms of expression, the core of "manliness" remained constant: "self-esteem and respect, a deep sense of performing one's duty no matter how hard it is, and the protection of family, nation, and religion – advancing them, defending them, being proud of them, and rejecting injustice" (Amin 1935). The focus on shaping character was linked to a wider national goal: creating citizens who were aware of their rights, carried out their responsibilities, and directed their excess youthful energy into work that benefited society.

The power and the possibilities that Egyptian youth could bring to the country were praised, but across the various sources reviewed, in both secular and Islamic reformist writings, a common anxieties concerning the "unused youth energy" emerged. Secular publications revealed fears that undirected masculine vigour could turn into social disorder or political unrest. Islamist authors viewed youth mainly as morally vulnerable. Young men were seen as prone to recklessness, frivolity, and illicit sexual behaviour, all of which threatened both personal virtue and social order. Marriage was proposed as the main solution for managing lust and controlling sexual impulses. Departures from proper Islamic marriage were considered significant social threats. These issues are connected to the broader "marriage crisis" in the early 20th century, although by the late Farouk era, it had largely vanished from mainstream discussion (for a detailed analysis of the marriage crisis in Egypt, see: Kholoussy 2010).

Patriotic education (*tarbiya al-waṭaniyya*) was seen as a shared duty of the state and the family. Formal institutions, particularly schools, were expected to ingrain patriotic feelings through tales of national heroes, patriotic songs, and the celebration of national holidays – cultural tools that embedded love for the country in children's memories even before they fully understood its significance. Literature, children's books, and public hymns were regarded as means to foster ambition, self-sacrifice, and to promote the motto "the homeland above all" ('Abd al-Bari 1936). Simultaneously, commentators frequently criticised school curricula for not addressing children's psychological needs or making educational programs coherent and responsive to modern challenges. Collectively, these discussions reveal a belief that national renewal relied on the careful moral and patriotic development of its youth.

The home was considered the first site of education. Mothers were increasingly encouraged to understand how to raise a "modern" man. As Kholoussy (2010) notes, the growing emphasis on motherhood – over the traditional primacy of fatherhood in Islamic legal thought – was one of the markers of the modernisation project. Mothers were expected to understand new pedagogical values, apply them in daily care, and look after children's health and hygiene. The women's magazine *Bint al-Nil* (published 1945–1957) consistently featured sections on infant health, and medical journals that addressed child welfare routinely directed their guidance toward mothers. Yet this growing emphasis on motherhood did not diminish the authority of fathers, whose domestic power became a subject of critique. The socialist and secularist thinker Salama Musa (1936) argued that a man who believed his masculinity required controlling his wife, dominating his children, and exercising dictatorial authority at home would inevitably become a detrimental member of society, as somebody who is dominating at home, he warned, either sought domination over the nation or accepted domination by others. His critique linked private authoritarianism directly to political authoritarianism, presenting a radical, yet rather isolated, rethinking of patriarchal power in Egypt.

Cultivation of the "soul" (*rūh*) and the training of the "body" (*jism*) were imagined as mutually reinforcing processes in the making of modern men. Young men were described as "soldiers in the army of the fatherland", but contemporary thinkers emphasised that physical strength alone could not secure national dignity (al-Hakim 1937). On one hand, they rejected orientalist depictions of Egyptians as weak, effeminate, or undisciplined; on the other, they distanced themselves from the narrowly "muscle-bound" ideal that reduced manhood to brute strength. As Tawfiq al-Hakim (1937) observed: "a military revival by itself does not produce a respected nation, just as muscular power on its own does not make a respected man". Instead, intellectuals promoted an

integrated model of masculinity – one in which the modern Egyptian man could be both strong and intelligent, forward-looking yet respectful and knowledgeable of national traditions and the ability to maintain this balance was something that made members of *effendiyya* different from both lower classes and Westernised elites. Militarist language similarly bridged secular and Islamic visions of ideal manhood. Writers associated with the Muslim Brotherhood also described the desirable future citizen as a “noble soldier” – both strong and intelligent, dedicated to work, and ready to sacrifice everything for the nation (al-Badawi 1938).

Exercise was treated as crucial not merely for bodily growth but also for psychological well-being. This emphasis echoed an old Arab proverb, *al-‘aql al-salīm fī al-jism al-salīm* (a sound mind in a sound body) (al-Shati 1941). While access to sports facilities – either as leisure spaces or as pathways to professional athletic careers – still varied according to income and class background, even among the *effendiyya*, simple exercises that could be performed at home were widely promoted. Contemporary periodicals regularly published illustrated guides to simple physical exercise, gymnastics and hygiene routines.

Timothy Mitchell's (2002) analysis of the modern state's formation convincingly shows that to establish its modernity, the state first needed to demonstrate its ancient roots. Asserting a shared past was essential for transforming an ethnically and religiously diverse population into a unified nation. And this insistence on historical continuity with earlier Egyptian and Islamic traditions can also be seen in the writings concerning physical culture. Some authors admired the English system of physical education and youth organizations, but most of them enthusiastically emphasised that bodily cultivation was not foreign to Egypt. Sport, they argued, had been practised since the Pharaonic era and likewise held an esteemed place in early Islamic society. Muslim writers in particular praised horsemanship and swimming, which were regarded as noble pursuits and explicitly endorsed in the Islamic tradition (Abu Su‘ud 1938). This particular focus on the mentioned eras shows which elements of history were increasingly articulated as “truly Egyptian”. The gradual exclusion of non-Arab and non-Muslim communities from the emerging national sports culture reflected broader tensions in the making of a unified Egyptian masculinity (T. Sorek 2025).

5. Conclusion

The preliminary research shows that a specific model of hegemonic effendi masculinity was shared across different press sources. It was built on discipline, moral responsibility, physical strength, intellectual engagement, and loyalty to the nation. The press discourse on desirable masculine behaviours and character traits was consistent, though it was far from uniform. Examining masculinity through the lenses of upbringing and education, physical culture, and moral responsibility helps clarify what made this form of masculinity a hegemonic one. Masculinity was not fixed or natural. It was produced within specific social, economic, and historical conditions and used to support nationalist and state-building projects in twentieth-century Egypt.

Considerably more work is required to determine the full picture. Future stages of the project will include a closer analysis of consumerist behaviours promoted in advertisements, especially how commodities such as cigarettes, alcohol, and grooming products shaped aspirational middle-class masculinities. The research might also incorporate personal memoirs with particular attention to formative childhood and youth years. Finally, the project will move towards a tighter integration of postcolonial critique and Critical Studies on Men and Masculinities. This will allow for a more systematic examination of how the effendi ideal positioned itself in relation to both marginalised local masculinities and colonial forms of masculinity.

Ethics Declaration: Ethical clearance was not required for the research.

AI Declaration: AI tools were not used for the creation of the paper.

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A Feminist Discourse Analysis of Chinese Female Stand-Up Comedians' Discourse Practices

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Abstract: The rapid development of internet technology has provided a platform for marginalized groups to voice dissent and reshape cultural narratives (Liao, 2019), particularly offering new opportunities for women to achieve self-expression in public discourse. The advent of stand-up comedy in China has led to the emergence of stand-up comedians as a prominent force within the Chinese comedy landscape. Online media has become the primary channel for the dissemination, viewing, and discussion of stand-up comedy in China (Li and Guo, 2024), especially among millennials, where the online stand-up comedy competition program *Rock & Roast* has garnered widespread attention (Xu and Liu, 2024). Female stand-up comedians participating in the program have garnered significant attention for addressing issues of gender inequality and discrimination in a humorous yet incisive manner (Meng and Literat, 2023). While their performances have ignited a new wave of feminist discourse on social media, they also face pressure from the general public, who are accustomed to traditional gender norms, and from censorship systems (Li and Guo, 2024; Meng and Literat, 2023; Meng, 2024; Zhang and Zhou, 2023). This reflects the tension between progressive feminist expression and deeply entrenched patriarchal structures. This study will utilize feminist critical discourse analysis (Lazar, 2007, 2014) to explore how Chinese female stand-up comedians respond to and negotiate traditional gender norms in their performances. Through a thorough examination of their comedic narratives, this study aims to uncover the specific discursive strategies these performers employ to challenge stereotypes while navigating social expectations. By analyzing the linguistic mechanisms within their scripts, the research seeks to reveal how they deconstruct patriarchal ideologies. This research will be conducted within a broader social and power framework, with the objective of examining how Chinese female stand-up comedians engage in a subtle negotiation.

Keywords: Feminist critical Discourse analysis, Stand-up comedy, Female stand-up comedians, Feminist humor, China

1. Introduction

As the rapid development of new media technologies has decentralized discourse, the internet has evolved into a space where diverse ideas coexist (Smith and Chen, 2019), providing women with a platform for self-expression. Chinese online stand-up comedy programs play a pivotal role in this process, of which the most influential is *Rock & Roast*. Female comedians' performances sparked heated discussions on Chinese social media, resonating with female audiences who experience gender inequality in daily life (Meng and Literat, 2023). However, the rise of female voices frequently faces criticism and skepticism (Meng, 2024). Consequently, some female stand-up comedians have had to adjust their content to align with the expressive boundaries tolerated by the mainstream patriarchal system (Zhang and Zhou, 2023).

Although international research on stand-up comedy and gender has accumulated some findings (Ross, 1998), such studies are rooted in Western cultural values and thus difficult to apply to the Chinese context. Moreover, as a relatively new and evolving performance form in recent years, the academic research on Chinese stand-up comedy remains in its infancy.

This research serves as a pilot study, selecting part of the data for preliminary analysis to explore how Chinese female stand-up comedians negotiate female humor within multiple power matrices.

2. Literature Review

2.1 Humor and Gender

Humor is a pleasurable social signal, yet its precise nature remains a subject of considerable debate. Among the prevailing theories, Arthur Koestler's (1964) incongruity theory holds the most mainstream position. This theory posits that the structure of a joke comprises a setup and a punchline. The content of the joke must guide the audience to perceive a certain discrepancy or incongruity between the setup and the punchline. In other words, the punchline arises from the disassociation between the audience's expectation and the actual outcome.

Feminists argue that gender is socially constructed (Kessler and McKenna, 1978; Butler, 1988). Judith Butler's theory of gender performativity further supports this view. She contends that gender is not a fixed identity or natural inherent trait, but rather emerges through the repeated performance of gendered behaviors

constructed by discourse. Each instance of gendered behavior constitutes an 'invocation' and 'reenactment' of existing gender norms (Butler, 1990; 1993). Through such repetition, established gender norms are continually reshaped and reproduced within society. However, humor's intervention offers potential to disrupt this repetition. Research indicates that humor can function as a tool for performing gender (Chiaro and Baccolini, 2014). It can reinforce norms and stereotypes while also facilitating the performance of non-conventional gender identities. By creating semantic and logical 'incongruities,' it allows women to challenge taken-for-granted notions of masculinity and femininity through laughter.

2.2 Feminist Humor in the Chinese Context

Humor serves as both a subversive and an empowering tool for women and feminists (Case and Lippard, 2009). Recent years have witnessed a flourishing of research on female stand-up comedians (Cooper, 2019), further validating Merrill's (1988) perspective that emphasizes their use of feminist humor as a potent tool for challenging patriarchal norms and promoting self-affirmation.

Within the Chinese context, Confucian cultural norms exert significant influence on humor (Zhao, 2021). Confucian ethics demand women adhere to the 'Three Obediences and Four Virtues,' that is, submission to father, husband, and son, while exhibiting gentle, reserved, and compliant character. This is incompatible with the aggression, vulgarity, and self-assurance contained within comedic forms (Caliskan, 1995). This places Chinese women in a double bind when venturing into comedy: they seek to break their silence while simultaneously avoiding social punishment for 'crossing boundaries.' Furthermore, Western values significantly influence female stand-up comedy performances in China. Western female standards are viewed as a symbol of 'progress', while the traditional female image within Chinese families is deemed backward and conservative. Consequently, even when stand-up comedians portray 'intellectual' housewives to critique rigid gender roles, such characters are perceived as opposites to the modern 'model woman' (Cao, 2023).

From the historical perspective of Chinese comedy's development, Chinese women have undergone a challenging journey from 'exclusion' to 'subjectification.' During the early crosstalk era, performers were almost exclusively male, and their content often featured degrading and objectifying sexual humor targeting women (Tian and Wang, 2025). The rise of sketch comedy in the 1980s increased female visibility, yet female roles remained confined to stereotypical 'good wife and mother' archetypes or as supporting characters to male protagonists (Zhang, 2022; Zhang and Zhou, 2023), failing to fundamentally challenge male dominance. The recent rise of stand-up comedy marks a turning point. It has granted women unprecedented expressive space (Meng and Literat, 2023), enabling them to become the primary subjects of comedic narratives for the first time. However, to gain acceptance within the mainstream patriarchal system, Chinese female stand-up comedians have not pursued radical confrontation. Instead, their work exhibits characteristics of 'negotiated feminism.' They have devised a set of soft, safe expression strategies that both avoid direct confrontation with gender stereotypes and the patriarchal gaze, while courageously advocating for further women's rights and gender equality in China (Zhang and Zhou, 2023).

3. Theoretical Framework

Approaching stand-up comedians' discourse as practices related to power and ideology aligns with the tradition of Critical Discourse Analysis (CDA). CDA focuses on the dialectical relationship between language, power, and ideology (Fairclough, 1992). It examines not only the surface content of discourse but also delves into the underlying social structures shaping it. Fairclough (1989, 2001, 2015) divides discourse analysis into three dimensions: text, discourse practice, and social practice, thereby providing a three-dimensional approach to discourse analysis. This model comprises three dimensions: Description, Interpretation, and Explanation. Description involves analyzing the text itself, focusing on formal characteristics such as vocabulary, grammar, and rhetoric. Interpretation examines the relationship between text and interaction, treating discourse as a practice. It analyzes how discourse is produced, circulated, and ultimately consumed by audiences. Intertextuality is a core concept within this dimension. Fairclough (1992, 2003) notes that texts do not exist in isolation but are always built upon the ideas and meanings of prior texts. These connections, whether explicit or implicit, construct a network of meaning. Explanation connects language practices to broader social structures. This dimension aims to reveal how discourse is shaped by ideologies and power relations, and how it in turn reinforces or challenges these structures.

Feminist Critical Discourse Analysis (FCDA) is essentially a feminist perspective within CDA. It integrates feminist theory with CDA's core methodology to analyze how power and ideology within discourse operate to maintain hierarchical gendered social orders (Lazar, 2007). The central concern of feminist critical discourse analysts is to

critique discourses that uphold patriarchal social order. FCDA provides a valuable lens for examining how hegemonic and asymmetrical power relations systematically empower men while disempowering women as a social group. It particularly focuses on how gender assumptions, often taken for granted, are presented in discourse through explicit or implicit means. More importantly, FCDA transcends mere academic deconstruction of texts; it emphasizes social justice and transformation, exploring how discourse shapes the identities and positions of women and men within specific communities (Lazar, 2007). FCDA is considered an excellent analytical framework for this research. Its 'theoretical interdisciplinarity' enables it to 'analyze the formulation of structurally dominant discourses' and examine discursive strategies of 'negotiation, resistance, solidarity, and social empowerment' among disenfranchised women (Lazar, 2014).

To conduct a more scientific and meticulous analysis at the text level, this study will also incorporate Appraisal Theory (Martin and White, 2005) from Systemic Functional Linguistics as a specific textual analysis tool. This theory focuses on the linguistic resources employed by texts to express, negotiate, and naturalize specific intersubjective and ultimately ideological positions. Appraisal itself is divided into three interacting domains—'attitude', 'engagement', and 'graduation'. Attitude pertains to our emotional experiences, encompassing 'Judgment' of actions, 'Appreciation' of things, and 'Affect' (emotional response). Engagement involves the process of attitude formation and the discursive negotiations surrounding viewpoints within discourse. Graduation focuses on the phenomenon of gradation, where meaning is adjusted through the modulation of force (intensity) and the clarity of focus (scope). This study primarily examines the dimensions of attitude and graduation.

4. Methodology

This study will adopt a qualitative research design, employing feminist critical discourse analysis (FCDA) (Lazar, 2007, 2014) to examine the performances of Chinese female stand-up comedians, revealing how they construct gender roles and negotiate power relations through humorous discourse.

To build a representative corpus, this study will employ purposive sampling (Palinkas et al., 2015). The research sample will be drawn from the main episodes of Seasons 1 to 5 of the variety show *Rock & Roast*. The researcher will collect data on the female stand-up comedians who participated in the program and the number of episodes they appeared in, excluding those who performed in only one episode and those whose performances did not involve gender-related topics.

Research questions guiding data analysis include:

RQ1: How do Chinese female stand-up comedians use discourse to construct gender roles?:

RQ2: How do Chinese female stand-up comedians negotiate with gender norms through discourse practices?

RQ3: How do Chinese female stand-up comedians' discourse strategically adapt and breakthrough within the social construction of gender ideology?

To address the research questions, this study will also employ Fairclough's (2015) three-dimensional model as a specific analytical framework for conducting a multi-level analysis of selected female stand-up comedy performance samples. Following a logical progression from micro-linguistic to macro-social levels, this study will focus on three dimensions: a) at the text level, employing the resources of 'Attitude' and 'Gradation' from Appraisal Theory (Martin and White, 2005), combined with rhetorical analysis, to precisely capture the micro-linguistic mechanisms through which female performers construct gender identities and reinforce humorous irony; b) at the discourse practice level, examining how intertextuality (Fairclough, 1992, 2003) and FCDA discourse strategies (Lazar, 2014) interact to challenge established gender norms by creating semantic 'incongruity'; c) at the socio-practical level, situate discourse within multiple context of the social, institutional, and situational levels (Fairclough, 2015) to reveal how these humorous practices map onto and respond to contemporary gender power structures in Chinese society. This study aims to systematically reveal how female stand-up comedians navigate the dialectical tension between 'adaptation' and 'breakthrough', utilizing discourse strategies to carve out gendered spaces.

It should be noted that this research is currently in the data collection phase. This article serves as a pilot study to test the feasibility of the research framework and analytical methods. The current sample analysis draws on selected performance excerpts from one female comedian, Yang Li. Yang Li is highly representative due to her frequent engagement with gender-controversial topics in her shows, which have sparked widespread social discussions (Zhang and Zhou, 2023).

5. Sample Analysis Findings

Data Excerpt: 'The Confident but Ordinary Men' (Selected from Yang Li's performance in Season 3 of *Rock & Roast*)

Original (Chinese): '男人不光美好, 还特别神秘... 他明明看起来那么普通, 但是为什么他却可以那么自信? 你在台上看到那些奇形怪状的男演员... 他们其中没有任何一个想过说, 我这个长相... 是不得稍微整整容啊? 我从小就很困惑... 那个考 85 分的女生... 她就是不开心。但是有些男同学, 他就能考 40 分。但是他可开心了... 他能拿着那张卷子在班里来回穿梭。好像在说, 你看我就考 40 分, 你看, 我是个傻子。'

*English Translation: Men aren't just charming but also very mysterious... He looks **so** ordinary, yet why is he **so** confident? You see those oddly shaped male performers on stage... **none** of them ever thought, 'With my looks... shouldn't I get **a little** plastic surgery?' I've been puzzled since childhood... That girl who scored 85... she was just unhappy. But some male classmates, they scored 40. Yet they were so happy... They'd wave that test paper around the classroom, as if saying, 'Look, I only got 40. See? I'm a fool.'*

Yang Li first constructs gender roles through precise lexical choices. In her signature rhetorical question, 'He looks so ordinary, yet why is he so confident?', she employs the high-force graduation marker 'so' twice, amplifying the semantic tension between the ordinary 'reality' and the unfounded 'attitude' of confidence, thereby heightening the satirical effect. Her use of the highly negative-polarity descriptive term 'oddly shaped' creates deeply ironic humor, challenging patriarchal objectification of women and aesthetic privilege (Fredrickson and Roberts, 1997). Typically applied to inanimate objects, the term 'oddly shaped' is appropriated here for a man, actually mimicking the traditional objectifying gaze directed at women. By positioning the man in a scrutinized, rejected 'objectified' status, a reversal of power is achieved. The satire's potency lies in the universality of this evaluation. She again employs the high-force graduation markers 'none' and 'a little' to erase individual variation, and through irony downplays the advisory tone, thereby instead intensifying the evaluative appreciation that the other person's appearance is 'in urgent need of correction'. In this way, under the guise of 'humor,' she not only captures and satirizes men's appearance-based confidence and the appearance tolerance granted by a patriarchal society, but also prompts the audience to reflect on gendered double standards.

Meanwhile, Yang Li demonstrates a high level of skill in intertextuality. She appropriates the shared cultural script of 'school exams,' deftly employing the context of 'academic pressure' to expose the double standards embedded in gender expectations. She establishes a setup based on the joy derived from high exam scores, then introduces the 'girl who scored 85 but isn't happy' to embody the trap of female 'perfectionism.' This forms a stark contrast with the 'boy who scored 40 but is happy,' creating the punchline by subverting audience expectations. Notably, to mitigate direct confrontation risks, she positions herself as an 'observer' and 'confused party.' This negotiation strategy allows her to deliver sharp commentary with relative safety. By sharing her observations of pervasive female anxiety, she forges an emotional connection with female audiences. Through this observational lens, she invites viewers into a shared complicity of observation and deconstruction, transforming personal insight into solidarity-building discourse. By satirizing male appearance and competence while empowering women as subjects, laughter becomes a form of collective social empowerment, granting marginalized women the right to define and critique male behavior.

However, the broader social impact of this discourse reveals the intensity of contemporary gender ideological conflicts in China. When the term 'average-yet-confident man (Pu Xin Nan)' is detached from its comedic context, it rapidly transforms into a controversial and divisive social label. Its viral spread triggered significant institutional and commercial backlash, ranging from media calls to establish 'boundaries' (Beijing News, 2020) to the cancellation of brand endorsements due to male resistance (Sohu, 2023). These reactions indicate that, although this discourse helps prompt the media and the public to re-examine or engage with gender norms, deeply entrenched patriarchal ideology tends to reassert and consolidate itself when challenged.

6. Discussion and Conclusion

This pilot study employs a multidimensional analysis of Yang Li's performance excerpts to validate the effectiveness of the FCDA theoretical framework in interpreting the discourse strategies of Chinese female stand-up comedians. Sample analysis findings reveal that Yang Li's performances transcend mere humorous expressions of personal experience, constituting instead complex discourse practices that enact dynamic gender power dynamics.

First, the study demonstrates how Yang Li employs appraisal resources and rhetoric to deconstruct hegemonic masculinity, while utilizing intertextuality and discursive strategies to create 'incongruity,' thereby skillfully enacting a negotiated 'resistance' against male privilege under the guise of humor. She transforms normalized gender double standards in daily life, in which men easily gain 'confidence privilege' while women face constant 'excellence discipline,' into visible public texts. This strategy not only successfully builds an emotional community among female audiences but also secures valuable 'safe discourse spaces' for marginalized women.

However, when discourse spills over into broader social and institutional levels, analysis reveals the structural boundaries confronting challenges to established gender orders. Mainstream media attempts to reframe this structural gender critique as mere entertainment or personal 'offense' to dilute its political sharpness (Beijing News, 2020); while the revocation of commercial endorsements and intense public backlash constitute institutional punishment for women entering the public discourse sphere. This phenomenon inversely validates the defensive anxieties and reconsolidation mechanisms of patriarchal ideology when challenged.

In summary, this pilot study demonstrates that Chinese female stand-up comedians are navigating a 'negotiation' process: while employing discourse strategies to secure their right to speak, they remain subject to constant scrutiny and discipline by social power structures. This preliminary finding validates the explanatory power of our analytical framework, laying a solid theoretical foundation for subsequent comprehensive investigations with larger samples.

Ethics Declaration: This study uses publicly available data. Therefore, ethical approval was not required for this research.

AI Declaration: This paper used AI tools to search for media reports referenced in the pilot study. Based on the AI-generated search results, relevant reports were selected and retrieved from official websites.

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Masters Research Papers

The Influence of Role Models on Career Path Selection in STEM

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Abstract: This study explored the impact of role models on students' career path selection at technical universities, using Gdańsk University of Technology (GUT) in Poland as an example. It examined how both role models and anti-role models shape students' career decisions during early career-path stages in secondary school and throughout their university education, as well as the reasoning behind students' career choices. To do so, the authors conducted a qualitative, exploratory study based on semi-structured interviews with 64 GUT students (four men and four women from each of the eight GUT faculties). The results showed that the impact of role models on young people's career path selection changes as the path progresses, from helping establish goals in the earlier stages to becoming a source of knowledge and skills during university studies. Furthermore, although others' suggestions were among the most cited reasons for choosing a study, students were reluctant to admit to others' influence. So, we observed a bias: students declared full self-independence in career path selection, stating that they were primarily motivated by intrinsic factors, especially their own interests, while at the same time reporting influencers who supported their choices. So, it means that students' need for independence is extreme, and it can be a source of bias. Furthermore, students who admitted being influenced by others were most likely to follow in the footsteps of family members, mostly fathers, either working in a similar field or having completed the same major. However, later during their studies at GUT, students became more influenced by their professors than by their family, shifting the focus from perceived closeness and relatability to their role models' teaching prowess. No significant gender differences were detected in the motivations behind the choice of study, with female and male respondents showing similar likelihood of being influenced by a role model. However, male respondents seemed more likely to be positively affected by interactions with role models, while female respondents were more likely to be negatively affected by anti-role models. Students have reported being impacted by a male 2.25 times more often than by a female. This suggests that, regarding the development of STEM careers, females need not be discouraged, while males need to be inspired. Educational institutions can use the findings of this research to enhance their academic offerings, improve the efficiency of teaching methods, maximize learning outcomes, and improve communication with students. However, further research is required to make findings universally applicable.

Keywords: Role models, Anti-role models, STEM (science, technology, engineering, mathematics), Gender studies

1. Introduction

The choice of career is among the most important that one has to make during their lifetime (Ahmed, Sharif, Ahmad, 2017). The formation of the career path begins long before actually starting a job, with a university major being a crucial choice (Germeijs and Verschueren, 2006). However, not much is known about the topic in the context of Technical Universities, which in Poland are considered an elite group, with some attracting six candidates per place (GUS, 2024). Thus, the attitudes of students from a University of Technology are particularly interesting.

Consequently, the objective of this study is to explore how role models influence students' career path decisions at Polish technical universities, with the example of Gdańsk University of Technology. Formal literature proved that role models are of great importance, especially for students at the secondary school level (Germeijs and Verschueren, 2006). However, few researchers have addressed the question of the later influence of role models on students during their university education. Therefore, this study focuses on the role models occurring both before and during university studies. As others' influences can be both positive and negative, this study also examined negative characteristics that students considered discouraging about their role models. Moreover, this study also aimed to explore the motivation behind students' choice of major, as well as the connection between internal or external motivation and vulnerability to role models' influence. Finally, this study attempted to link the impact of role models on students' intentions to sustain their career path of choice. Understanding this will demonstrate the real impact of '*role models*' on students' professional lives.

2. Literature Review and Conceptual Framework

2.1 Theoretical Framework

This study was developed based on three theories: Social Cognitive Learning Theory (SCLT) (Bandura, 1977), which posits that people learn by observing others; Expectancy-Value Theory (EVT) (Eccles et al., 1983), which suggests that people choose activities they believe they can succeed in; and the Theory of Planned Behaviour (TPB) (Ajzen, 1991), which states that intentions often lead to actions. Together, these theories provide a

framework explaining how role models influence students. Following the TPB, people tend to engage in actions they see as valuable and believe they can succeed in (Lauermann et al., 2017). The primary driver behind people's actions is their intention toward specific behaviors—the desire to perform them and the effort invested—which, when strong, generally increases the likelihood of enactment (Ajzen, 1991). Role models can shape intentions and behaviors—after observing others' actions in certain situations, individuals are likely to imitate those behaviors accordingly to SCLT, especially if they have been rewarded or led to positive outcomes (Nabavi and Bijandi, 2012). Role models enhance students' expectations of success—provided the role model is attainable, the aspirant believes they are also capable of achieving similar success (Gartzia et al., 2021). Efficacy expectations, in light of EVT, significantly impact goals, activity choices, and persistence, which in turn influence occupational decisions (Eccles and Wigfield, 2002). Thus, all three theories support the idea that role models influence students—they can shape students' beliefs, task performance (Gladstone and Cimpian, 2021), career aspirations (Eccles and Wigfield, 2002), and occupational intentions. Role models contribute to a positive attitude toward certain fields, influence subjective norms and expectations regarding specific behaviors, and boost perceived behavioral control by demonstrating successful outcomes.

2.2 Role Models and STEM

Role models embody three functions: behavioural model - an example of how to perform a skill or achieve a goal, representation of the possible - living proof that the goal is achievable, and inspiration - an indication of which goals should be considered desirable (Morgenroth, Ryan, Peters, 2015). A person choosing their role model based on what they consider valuable, as well as the goals they want to achieve, is defined as a role aspirant (Morgenroth, Ryan, Peters, 2015). Given the technical character of the university, the science, technology, engineering, and mathematics (STEM) fields are of particular interest for this study, especially given their decline in career intentions (Luo et al., 2021). This is because of negative stereotypes about STEM (Van Tuijl and Molen, 2016), as well as students having doubts about their abilities to perform well in STEM-related activities and the possibility of achieving success in these careers (Luo et al., 2021). Furthermore, gender roles contribute to a psychological barrier, causing an underrepresentation of women in male-dominated fields, such as STEM and top leadership positions, as well as an underrepresentation of men in communal roles traditionally tied to women, such as healthcare, early education, and childcare (Olsson and Martiny, 2018). What is more, representatives of underrepresented genders in specific fields suffer not only from the block of interest, career performance, and advancement in those fields, but also decreased exposure to role models (Croft, Schmader, Block, 2015). However, role models can help diversify STEM, as exposure to them is motivating for students regardless of demographic (Gladstone and Cimpian, 2021). What is not known is the long-term influence of role models; thus, this study aimed to explore the impact at both the secondary school and university levels.

2.3 Career Path

The term "career path" refers to a group of individuals' career sequences—the progression of work positions within an individual's occupational history (Joseph et al., 2012). Adolescence is a vital phase in career path selection, as it is when individual career inclinations emerge (Lauermann et al., 2017). Germeijs and Verschueren (2006) found that most decision-making regarding study choice occurs during the last year of high school. Internal and external factors are both important in choosing a university, as they shape the general expectations of student life (Chapman, 1981). According to Carpenter and Foster's tri-dimensional career choice model (1977), the most important factors include: intrinsic factors, such as self-interest in the field, self-image, individual; extrinsic factors, such as the expected level of salary, job security, the possibility of career advancement; and interpersonal factors, such as influences of family, friends, and professors. So, the study methodology follows this model.

3. Methodology

The study targeted students of Polish technical universities, and, as the Author was a student of Gdańsk University of Technology (GUT), and the study was a part of the Author's bachelor's thesis, the convenience sampling method was used; therefore, data collection took place at Gdańsk University of Technology. The sample was designed so that the representation of women, men, and faculty was equal: four men and four women from all eight GUT faculties, for a total of 64 interviews. For the qualitative exploratory nature of the study, semi-structured interviews were conducted with willing participants, individually or in small groups, to align with students' convenience and availability and to secure their physical and psychological comfort. The students were asked about the reasoning behind their study choice, the presence of role models before and during university studies, as well as the presence of anti-role models, the qualities of such persons, and their

future career plans. The study level of representatives ranged from the second to the sixth semester of the first degree of studies. Data collection took place from the 25th of February to the 20th of May 2025.

The gathered data was transcribed and prepared for analysis, with the exclusion of inappropriate language and data anonymization in order to protect the identities of participants and mentioned persons. Then, the interviews were interpreted, considering the theoretical frameworks of SCLT, EVT, and TPB, and an abductive reasoning approach was applied (Magnani, 2011) to extract the meaning. After familiarizing herself with the obtained material, the author developed a coding system based on themes that were recurring in students' responses. Subsequently, after comparing with findings provided by the literature on the subject of study selection, those codes were further aggregated into categories based on the nature of the factor behind the choice.

4. Results and Discussion

Presence of role models: The author decided to distinguish between two types of role models according to their character in the study decision-making process. Those types were: pre-university role models (pre-RMs), who had an impact on students before starting their education at university and during the process of selecting their study major, and current role models identified at GUT (GUT-RMs). Pre-RMs included students' peers, past teachers, particularly secondary school teachers, and family members. Among the pre-RM category, most students considered a family member to be their role model, with the majority referring to their parents, significantly fathers, who were mentioned 3 times more often than mothers. Other family members included siblings, aunts, uncles, grandfathers and godfathers. The GUT-RM category included current professors and peers. Professors were mostly regarded in the behavioural aspects of being a role model, with students respecting their knowledge, teaching abilities, and the overall 'approach to the student'. However, peers were mostly associated with the motivational aspect of being a role model, as respondents reported being more hopeful about the possibility of achieving their educational goals after considering that their peers also managed to attain similar achievements. Moreover, the fact that someone studies among other clever colleagues increases their overall satisfaction from being one of them. At this stage, the community of exceptionally intelligent students can be seen as a large set of peers, role models inspiring one another.

Anti-role models: The author asked the respondents about anti-role models, further referred to as "anti-RMs", who were considered the antithesis of a role model and discouraged students from pursuing certain majors. The author decided not to differentiate between pre-university anti-RMs and current anti-RMs at GUT, as the educational stage in which anti-RMs occurred made no significant difference in the way that students responded to their impact. Students mostly described their experiences with anti-RMs as either personally being a victim of their unprofessional behaviour or generally assessing the area associated with the anti-RM as not appealing. The most frequently mentioned group of anti-RMs were past teachers, who often offended respondents with rude remarks suggesting their lack of ability or, more generally, warning students that their area of study is not worth pursuing because students lack the ability to pursue it. Other anti-RMs included: current professors, family members, peers, and representatives of the field. Observations suggested that female and male respondents were of similar likelihood of having a role model influence. However, male respondents seemed more likely to be positively affected by interactions with role models, while female respondents were more likely to be negatively affected by anti-role models. The majority of the role models mentioned by both female and male respondents were male, a tendency that appeared in both pre-RMs and GUT-RMs. Most of the quoted anti-RMs were also male. Students have overall reported having been impacted by a male 2.25 times more often than by a female.

Reason for study choice: In accordance with the research findings provided by Chapman (1981), two main categories were considered: intrinsic and extrinsic factors. There were no major gender differences in reason for study choice, with both female and male respondents being mostly motivated by intrinsic factors. Intrinsic motivation refers to the direct characteristics and values of the student. For the majority of the students, the reason for their study choice was interest in the subject (major being connected with personal interests and passions), as well as being curious and drawn by the study offer. Respondents motivated by intrinsic factors have been found unlikely to also consider social influences. As for external factors, those came from the student's environment, including: pragmatic factors - connected with the critical analysis of the environment, opportunities, and students' abilities, social influence - the effect of other persons on the respondent's decision-making process, institutional factors - fixed characteristics of the organization, and exploratory motivation – for students unsure about which study major to pursue. Regarding social influences, the "suggestion from others" theme appeared 2.6 times more frequently than "oppositional choice", which suggests that respondents were

more likely to be positively influenced by others, rather than react negatively and eliminate the possibility of selecting a major associated with the other person. As for institutional factors, 8 out of 64 students reported having a preference for studying at GUT, which in most cases was caused either by the perceived prestige of the university or the technical profile of the university being connected to graduating with an engineer's degree. Students have reported perceiving having a diploma of graduation from GUT as more valuable and providing more practical opportunities for future jobs than diplomas from other educational institutions in Gdańsk.

Regarding *interpersonal factors*, students reported that the exceptional quality of their peers enriches their experience and deepens their sense of the career path they have chosen and of belonging to such an intellectually prestigious community. Table 1 presents the summary of the reasoning behind the study choice.

Table 1: The number of mentions of reasons for study choice

Reason for study choice			Female	Male	Total
Extrinsic motivation	Exploratory motivation	Unplanned decision	2	2	4
		Trial	4	2	6
	Institutional factors	Localization	1	3	4
		Preference for GUT	3	5	8
	Social influence	Suggestion from others	8	5	13
		Oppositional choice	3	2	5
	Pragmatic factors	Income	3	4	7
		Similarity to preferred major	8	4	12
		Future opportunities	6	5	11
		Process of elimination	2	5	7
		Low difficulty	1	4	5
Intrinsic motivation	Long-term goal		4	6	10
	Interest in the subject		16	17	33
	Aptitude		0	2	2

Key qualities of role models. Those qualities are understood to be key factors that make a regular person be considered a role model by the role aspirant. Positive qualities of role models were comprised of five subcategories: character, referring to the role model's intrinsic characteristics; influence on the respondent, referring to the relationship between the role model and the role aspirant and how the student felt affected by the role model; relatability, referring to the perceived relatability of the role model to the student; representation of the possible, referring to the qualities regarding success that students found appealing; and competences, referring to the perception of role model as qualified and skilled. The most valued quality overall was the ability to convey knowledge, closely followed by consideration and empathy, respondents' admiration and respect, and similarity of the field. Those qualities correspond to the aspects crucial to becoming a role model: being a behavioural model, being relatable to the role aspirant, and being considered an example worth following. Table 2 shows the summary of role models' features.

Table 2: The number of mentions of role models' qualities

Role model qualities			Female	Male	Total
Positive	Competences	Interactions with students	3	0	3
		Leadership skills	0	3	3
		Ability to convey knowledge	10	7	17
		Experienced	3	3	6
		Intelligence & knowledge	6	5	11
	Representation of the possible	Engaging career	5	1	6
		Proven success	5	3	8
		Own business	3	1	4

Role model qualities			Female	Male	Total
	Relatability	Similar field	8	5	13
		Early-career relatable	0	3	3
		Shared educational background	4	6	10
	Influence on the respondent	Example to follow	6	7	13
		Educational impact	3	3	6
		Inspiration in taking new goals	3	3	6
		Motivation in hardships	3	5	8
		Admired and respected by respondent	9	7	16
		Mentorship role	4	6	10
	Personality	Attitude to teaching	7	4	11
		Considerate & empathetic	4	10	14
		Dedication to teaching	3	4	7
		Helpful & supportive	3	4	7
		Passionate about subject	8	1	9
		Amiable	2	7	9
		Charismatic presence	5	2	7

Negative characteristics of “anti-role models”: This category referred to qualities that students found unappealing about their anti-RMs, which consisted of 4 sub-categories: character & behaviour, respondent’s negative perception, incompetence, and field-related features. Character & behaviour included unprofessional and offensive behaviour, discouragement, undermining the respondent’s capabilities, lack of empathy, and narrow-mindedness. Respondent’s negative perception, referring to qualities that the respondent found unappealing but were not necessarily caused by anti-RM’s negative actions, included respondent’s lack of interest in the area of study, student’s general negative opinion of the field and its representatives, and the anti-RM being an example of undesirable outcomes. Incompetence, referring to the lack of anti-RM’s teaching power, included the lack of teaching ability, being disorganized, lack of knowledge, and unreasonable requirements regarding the subject. Factors related with the field of study rather than a specific person included: advising against a difficult field of study, and lack of career opportunities and available job positions. Among the negative features, respondents’ lack of interest in the subject was the most frequent. Other important and frequently cited issues were: advising against a difficult field, and unprofessional and offensive behaviour.

Directional alignment. Directional alignment indicated whether the career the respondent planned to pursue after graduation aligned with their current choice of study. 52 out of 64 respondents were planning to take a career related to their current major, with six students considering careers both aligned and outside of their major. In total, 10 students declared a possibility of selecting a career unrelated to their major, and eight students have not decided on their future career direction. There were no major gender differences in the directional alignment of careers.

Preferred fields. The jobs that students were planning to pursue fell into four fields based on their nature: STEM and technical fields, business and office-oriented fields, public services and specialized fields, and creative and passion-oriented fields. The majority of students chose careers in STEM and technical fields, which included: design & construction, science, transportation, IT & programming, laboratories, engineering, and industrial establishments. This field was the most cited among both female and male respondents, as well as respondents from every faculty apart from the Faculty of Management and Economics. The majority of the students were planning to pursue careers aligned to their current majors. The areas of jobs that were cited by students were predominantly connected with the specific character of the faculty to which the particular student belonged. Business and office-oriented jobs included: business, own entrepreneurship, management, and administration jobs. This field was the most popular among students from the Faculty of Management and Economics. Public & specialized jobs included students interested in careers in healthcare and the military. Contrary to the stereotype that most female STEM students end up in healthcare-related positions, this option was more popular among male than female respondents. Creative and passion-oriented jobs referred to jobs that had sources in students’ hobbies rather than their university majors. Interestingly, not every hobby mentioned was

considered a potential career path; however, the two recurring vocational themes in this area were arts and vehicles.

Career motivation. Career motivation refers to the reasoning behind students wanting to pursue a certain career. The most cited answers in this category were: a career connected to passion, high income expectations, the process of elimination, a desire for an influential position, job mobility, being inspired by university courses, and planning to work abroad. Female respondents were most likely to cite high income expectations as their motivation, while male respondents were most likely to cite a connection to passion. There were no significant differences in reasoning between faculties.

The most frequently quoted category of factors for female and male respondents was intrinsic motivation, followed closely by pragmatic factors. Most of the respondents chose their major because of their personal interest in the subject. Those students seemed unlikely to acknowledge the possibility of others' influence, suggesting that intrinsic motivations lessen vulnerability to external factors, such as role models. Despite that, others' suggestions appeared among the most common motivations. The majority of respondents reported having been impacted by at least one type of role model. Students who had a pre-RM were most likely following the footsteps of family members, while GUT-RMs were mostly university professors. Thus, at different educational stages, students' needs are changing, and so are their role models. Analysing the results revealed that there were no significant dependencies between students having a pre-RM and GUT-RM or students having been positively and negatively impacted by a role model. Most students declared their intention to pursue the career path of their choice, regardless of whether role models had influenced them in their previous decisions. However, the TPB supports the view that the intention to behave increases the likelihood of that behaviour; the strength of intention can be increased through interactions with role models, which reinforce students' self-efficacy and perceived attainability of success. There were no significant gender differences in the likelihood of having a role model. However, male respondents were more likely to have a positive role model influence, while female respondents were more likely to have a negative experience. The majority of role models mentioned by students of both genders were male, at every stage of education, as well as most anti-RMs being male. This suggests that students feel more influenced by men than women. Similar results were obtained in Germany by Steffen and Hess (2024). However, they noted that female scientists and entrepreneurs who could serve as STEM role models were underrepresented. Since women professors are present at GUT, it is not a result of a lack of opportunity to be influenced by women; it is simply that women professors at GUT do not inspire. The issue is 'why?' – further research should bring the answer.

5. Limitations, Implications, and Further Studies

It is important to recognize this study's limitations, including a small number of participants, the specific nature of the institution, and a lack of cultural diversity among students. Thus, to make the insights gained more universally applicable, large-scale, in-depth studies are recommended. First of all, a bigger sample of students would provide broader insights. Different types of universities can be compared, as can different locations and cultural backgrounds. A further study with the same sample, conducted a few years later, would verify the long-term effects of role models. A systematic literature review is also recommended to assess what is known about this subject thoroughly and to inform further studies.

The findings of this research can be helpful for academic advancement. The findings regarding reasons for study choice can be used to improve the existing educational offer. Educators can use findings on role model types and their qualities to improve the efficiency of their teaching methods, maximize learning outcomes, enhance communication with students, and avoid becoming a negative influencer. Mentoring systems could also use the collected data to guide students' decision-making.

6. Conclusions

This study revealed that the influence of role models on career path selection changes as the path progresses. At earlier stages, students look for inspiration to take on new objectives. Their family members can help them judge which careers are worth pursuing and that lead to successful outcomes. However, in later stages, such as university, when students already know which goals they are pursuing, what is more needed is motivation in the face of hardships and access to knowledge and valuable skills, which can be found in university professors. The most important qualities of impactful role models include relatability, success, the ability to convey knowledge, and competence. However, students' lack of interest in a particular field and professors' unprofessional and offensive behaviour can diminish the role model's relevance. Moreover, most students were motivated by intrinsic factors when choosing their majors, thereby reducing their vulnerability to external influences such as

role models. However, the revealed bias of 'independent career choice': students' 'need for independence' is extreme, so they declare independent choices, but at the same time can clearly name people who inspired these choices; this suggests that future studies should be designed thoroughly to detect this strong 'need for independence' bias.

In short, most students plan to pursue careers aligned with their majors, regardless of whether they have a role model. What is interesting is that, while in most cases there were no significant gender differences in students' answers, this study revealed a much greater impact of male role models — both positive and negative — than that of female role models. Thus, exploring this phenomenon more in depth is an interesting direction for future studies.

Ethics declaration: Only adults participated in the research, and they did so voluntarily; their anonymity was fully protected.

AI declaration: No AI tools were used to write this paper.

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Widowhood as Social Discipline: An Anthropological Reading of Nagesh Kukunoor's *Dor*

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Abstract: When a spouse passes away in India, the onus of sacrifice and suffering is imposed upon a widow more than a widower. This gender discrimination in the context of widowhood sheds light on the systematic normalization of misogyny in a society. Cultural texts such as cinema often capture these dynamics with sensitivity, revealing how social norms operate through everyday gestures and spaces. This paper explores the cultural, affective, and political dimensions of Hindu widowhood through an anthropological reading of the film *Dor* (2006), directed by Nagesh Kukunoor. By examining the film's narrative and visual language, the study investigates how widowhood becomes a gendered obligation and how mourning is converted into a regime of social discipline. The paper employs a cinematic reading informed by perspectives from social and cultural anthropology. Rather than treating the film simply as a narrative text, the qualitative analysis approaches it as a cultural document that reflects lived social practices. I examine the plot, key scenes, dialogues, silences, gestures, and soundscapes of *Dor* to understand how widowhood reorganizes a widow's everyday life through her body, appearance, speech, and movement within domestic and community spaces. This interpretive approach places the film in conversation with anthropological debates on kinship, embodiment, multisensory culture, and gendered discipline. The analysis shows that widowhood in *Dor* is portrayed not merely as a private emotional state but as a culturally produced social condition. Although mourning is observed by the family, the burden of sacrifice falls primarily on the widow. The film illustrates how widowhood is enacted through everyday practices such as changes in clothing, bodily presentation, and restrictions on diet, speech and movement. These practices regulate the widow's sensory and social world, transforming her identity within the household and community. Simultaneously, the narrative introduces moments where these disciplinary structures begin to loosen. Through encounters between women and the emergence of empathy and solidarity, the film opens spaces where the widow's life can be imagined differently. The findings suggest that widowhood should be understood as a culturally produced institution sustained through ritual discipline, sensory regulation, and kinship control. Yet the film also demonstrates that these structures are not entirely fixed. Through friendship, affective bonds, and acts of moral courage, there lies the possibility of transformation within restrictive social systems. Reading *Dor* as a form of cinematic ethnography therefore reveals how cultural representation can illuminate the lived complexities of widowhood while simultaneously questioning the norms that sustain it. The film ultimately encourages us to reconsider widowhood not as an immutable tradition but as a contested social practice that remains open to change.

Keywords: Widowhood, Bollywood, Kinship, Caste, Patriarchy, Agency

1. Introduction

Anthropological scholarship has long emphasized that kinship¹ systems play a central role in organizing gender relations in India. Marriage integrates women into patrilineal² households where their identities are closely tied to their roles as wives and daughters-in-law. When this marital bond is disrupted by the husband's death, the widow's position within the family becomes uncertain and often precarious. Widowhood therefore represents not only emotional bereavement but also a reconfiguration of social belonging, authority, and dependency within the domestic sphere.

Cultural representations such as cinema offer a valuable lens for examining these social dynamics. Films often depict the textures of everyday life, including rituals, gestures, domestic spaces, and emotional interactions that shape social experience. In doing so, they can illuminate how cultural norms surrounding gender and family operate within ordinary situations. Indian cinema has frequently addressed themes of marriage, kinship, and female subjectivity, making it an important cultural archive for understanding gendered social relations.

This paper examines the film *Dor* (2006), directed by Nagesh Kukunoor, as a cultural text through which the social condition of widowhood can be explored. The narrative brings together two women whose lives intersect after a tragic incident involving their husbands. Set across different regional and cultural contexts within India, the story unfolds through their journeys, encounters, and evolving relationship. Through its depiction of domestic environments, emotional struggles, and moral dilemmas, the film raises important questions about the meanings of widowhood, responsibility, and choice.

By situating the film within broader anthropological discussions on kinship, embodiment³, sensory life, caste, and gendered power, this paper seeks to examine how widowhood is represented as a socially structured condition. The analysis focuses on how cultural expectations surrounding mourning and femininity shape the

widow's everyday world and how these expectations are negotiated within interpersonal relationships and domestic spaces.

2. Methodology

This study adopts a qualitative interpretive research design based on cinematic analysis, approaching film not merely as a narrative medium but as a cultural text that reflects and refracts social realities. Rather than treating the film solely as an artistic production, it is examined as a site where regular cultural practices, moral values, and social hierarchies become visible. I analyze the film as a representational field through which broader social structures surrounding gender, kinship, and widowhood can be explored. This interpretive approach positions the film as a cultural document that offers insight into lived social worlds and the symbolic frameworks through which they are understood.

The analytical process involves a close and sustained reading of the film's narrative structure and visual language. I give attention to scenes depicting ritual practices, domestic environments, bodily comportment, and interpersonal interactions among characters. I examine elements such as dialogue, silence, gestures, costume, spatial arrangements, and soundscape to understand how widowhood is constructed and communicated through cinematic form. By attending to these sensory and narrative dimensions, the analysis traces how everyday practices of mourning, restraint, and social discipline are represented on screen. Such an approach allows me to read the film ethnographically, revealing how social expectations surrounding gender and widowhood are embedded within ordinary actions, emotional expressions, and the organization of domestic life.

The interpretation of these cinematic elements is guided by theoretical perspectives drawn from social and cultural anthropology. Pierre Bourdieu's concept of *habitus*⁴ provides a conceptual framework for understanding how widowhood can become embodied through everyday practices that shape behaviour, perception, and bodily disposition (Bourdieu 1977). Insights from Leela Dube's study of gender and kinship in South Asia offer a broader lens for examining how marital status structures women's identities and social belonging within patrilineal family systems (Dube 1997). The anthropology of the senses further informs how social hierarchies are reproduced through the organization of sensory experience, including restrictions on dress, sound, food, and movement (Porcello et al. 2010). In addition, Bhri Gupta Singh's reflections on affect and ethical relationality help illuminate the emotional dynamics that emerge between characters and the ways interpersonal relationships can generate new moral possibilities (Singh 2015). Finally, discussions of caste and social hierarchy provide contextual grounding for understanding the broader socio-cultural environment within which widowhood practices are situated (Uberoi, Sundar and Deshpande 2007). Through the integration of these perspectives, I read the film as a form of cinematic ethnography that reveals how cultural norms surrounding widowhood operate within everyday life while also exposing the tensions and negotiations embedded within them.

2.1 Kinship and the Collapse of the Marital Self

Kinship remains one of the most powerful structures through which gender is lived, felt, and enforced, and Dor captures this with unsettling precision. Meera's life unfolds almost as an ethnographic illustration of the relational kinship model described in anthropological literature. As a young bride in a conservative Rajasthani⁵ joint family, every aspect of her everyday world — the colours she wears, the jewellery she adorns, the food she eats — is organized around her position as wife and daughter-in-law. The sudden death of her husband reveals how precarious this identity truly is. Bock and Rao's observation on "the changed status of widowed women" (2000, p. 38) resonates deeply here; Meera finds herself suspended in an ambiguous social space, no longer a wife yet unable to return to the security of her natal home. Their reminder that "individuals, even if widowed, never return and reside in their natal tents" (Bock and Rao, 2000, p. 167) echoes through Meera's isolation.

Although Bock and Rao (2000) emphasize that kinship is shaped by "human emotions" (p. 3), Meera's relationship with her in-laws is a kinship drained of affect and reduced to transaction. Her father-in-law's view of her as the household's "Lakshmi"⁶ is tied not to affection but to the economic stability her husband once provided. The mother-in-law, meanwhile, communicates largely through disapproval and surveillance. Meera's emotional world, once anchored in her marriage, collapses after her husband's death. Widowhood strips her not only of a partner but of the very relational ties that once gave her life meaning and protection.

Dube's argument that kinship in India is fundamentally "androcentric"⁷ (1997, p. 155) becomes painfully visible in Meera's transformation from a joyful bride to a withdrawn widow. The domestic space of the *haveli*⁸ becomes a disciplinary landscape: inner quarters, lowered voices, and restricted mobility. Watching Meera navigate these

constricting spaces, I am reminded of how kinship systems in patrilineal Hindu households continue to define womanhood, wifehood, and widowhood through the logic of patriarchal control. The “dialectical relation between kinship and gender identities” (Bock and Rao, 2000, p. 117) is not just an abstract concept; it is lived out in Meera’s shrinking world.

2.2 Habitus and the Imposed Widowhood

Bourdieu’s notion of habitus renders a useful lens for understanding how widowhood operates far beyond a simple shift in social status. In *Dor*, Meera’s entry into widowhood feels less like a singular moment and more like an embodied re-training, a slow reshaping of her sensory world and bodily comportment. I find myself noticing how every detail — the dark blue clothing, the tasteless food, the withdrawal from music and movement — becomes part of this re-education. Dube’s reminder that “restraints on behaviour and movement are particularly stringent for pre-menopausal widows” (1997, p. 66) resonates deeply here. What Meera undergoes is, essentially, the crafting of a new habitus aligned with the disciplinary expectations of widowhood.

Meera’s habitus, though heavily shaped by patriarchal norms, is not entirely immovable. Habitus, as Bourdieu himself suggests, is durable but not immutable; it can shift when exposed to new fields of experience. Zeenat becomes precisely an inducer of happiness. Through their growing friendship, I watch Meera’s embodied world subtly expand — a hesitant smile, a moment of music, a shared plate of *panipuri*⁹. These gestures may seem small, but anthropologically they signal a significant break from the internalized scripts of self-denial and obedience. *Dor* thus reveals habitus not only as a mechanism of social reproduction but as a terrain open to quiet, affective forms of transformation.

This is where Bourdieu’s insight that the body is a deeply social body, inscribed by history, honour, and disciplinary norms, becomes especially vivid. “Intimate life,” he writes, including “feelings and passions,” is something that dominant social orders seek to veil (1977, p. 125). Meera’s journey shows how thoroughly this veiling is enforced. It also shows how the body can unlearn its constraints when exposed to alternative logics of friendship, care, and solidarity. Her transformation is not only emotional; it is profoundly physical. What *Dor* reveals is a re-education of the body itself, a gradual reorientation of habitus toward autonomy, joy, and affective freedom.

2.3 Widowhood Rituals, Multi-sensory Culture, and the Gendered Body

One of the insights from Porcello et al. is their claim that sensory perception is never neutral; it is always political. They describe the “historical and political relations between sensory orders and social orders” (2010, p. 53). Likewise, widowhood is lived through the senses through what one is allowed to wear, taste, hear, or even see. These are not merely religious prescriptions; they are political acts that discipline the body into gendered hierarchies. When Dube notes that “a widowed woman changes to a black or dark sari or dress for life” (1997, p. 114), I immediately recognize Meera’s own transformation in *Dor*. The sensory world around her collapses into monotones, and through that collapse, the film makes visible how culture scripts the body into becoming a particular kind of woman.

Dube’s observation that upper-caste widows are “ceremonially divested of the significata of the married state” and rendered “unattractive creatures” (1997, p. 114) resonates deeply with what unfolds on screen. Meera’s widowhood begins with a public and painful ritual of erasure — the breaking of bangles, the removal of jewellery and *sindoor*¹⁰, the stripping away of colour (22:14–23:03). Each item taken from her feels like a part of her identity pried loose. When I return to Porcello et al.’s statement that “the anthropology of the senses... reinserts sensorial perception as a site of knowledge construction” (2010, p. 60), I see *Dor* doing something similar. The narrative speaks back to these purificatory practices by foregrounding the emotional and political violence embedded in them.

Widowhood, as *Dor* portrays it, emerges through sensory deprivation. Meera’s new life is structured by detachment and austerity. It is a kind of social death that shadows her actual, physical existence. Her withdrawal from song, dance, festive lights, and communal joy is not merely personal grief; it is culturally mandated silence. The film itself mimics this sensory austerity: muted colours, slowed movements, long stretches of quiet. Watching her navigate this new world — the darkened wardrobe, the tasteless meals, the oppressive stillness — it becomes an anthropological cue pointing to the violence of tradition disguised as piety.

Nevertheless, what moves me most is how the film imagines sensory reclamation. The moment Meera begins to dance again (1:09:32–1:10:26), she is not simply breaking a rule; she is rewriting the sensory terms of her existence. The dance feels like a return of colour, sound, and breath — a multisensory resurrection. Even a

fleeting moment like Meera secretly eating *panipuri* with Zeenat (1:08:12–1:08:24) reads as an embodied act of choice and pleasure, a small assertion that she, too, is entitled to taste and joy. It is here that Porcello et al.'s reminder that “cinema studies engage with the senses and embodiment” (2010, p. 58) becomes especially pertinent. *Dor* does not simply depict sensory life; it uses sensory experience to mark the difference between oppression and possibility.

2.4 Caste, Political Economy and Honour

Although *Dor* does not overtly name caste, its visual and narrative textures unmistakably evoke an upper-caste, land-owning milieu. The father-in-law's refusal to sell the *haveli*, even amid escalating financial crisis, feels like what Uberoi et al. call the “unspoken advantage of caste” (2007, p. 21). It is the quiet assurance that ancestral property, status, and honour must remain intact, regardless of economic strain. His obsession with honour emerges not only from gendered authority but from the logic of brahmanical-patriarchy¹¹. Meera is expected to grieve in ways that safeguard the family's moral capital, her suffering becoming a performance that upholds caste prestige.

The moment the father-in-law attempts to barter Meera to a wealthy tenant for five lakh rupees (1:24:58–1:27:01) is chilling. It exposes the extent to which her body and identity are rendered fungible within a caste-patriarchal economy. Widowhood, in this context, is not just a personal loss but an economic category — one that transforms the widow into a negotiable asset rather than a grieving human being. When Meera finally pushes back against this dehumanizing transaction (1:34:57–1:37:07), she is challenging the very foundation of caste-based honour that has commodified her.

Caste may appear invisible in *Dor*, but it quietly structures the weight of widowhood. As Dube notes, upper-caste widows — particularly Brahmin¹² and Rajput¹³ women — have historically borne the harshest widowhood rituals, precisely because they are cast as the keepers of purity and lineage. Their sexuality and mobility must be tightly controlled to protect caste boundaries: “Restraints on behaviour and movement are particularly stringent for pre-menopausal widows... [and] proper demeanour, physical distance, and modes of speech serve as mechanisms for the management of female sexuality” (Dube, 1997, p. 66). Watching Meera move through the *haveli*'s constrained spaces, I realize how widowhood becomes a caste project, inscribing the widow's body with the purity codes of the dominant caste. Her in-laws act as custodians of this disciplinary world, ensuring that the rituals of loss also preserve the symbolic capital of their caste identity.

Widowhood is deeply precarious economically. Dube's observation that widowhood often results in “economic deprivation” and withdrawal from social life (1997, p. 115) comes alive in Meera's situation. Once her husband dies, she remains in the conjugal home, but now as a dependent without authority, income, or legitimacy. Her life is no longer hers to shape. The household finances are tightly controlled by her father-in-law, and her desires are systematically subordinated to the family's economic priorities. The political economy of widowhood becomes a quiet but persistent presence in the film, reminding that gendered vulnerability is inseparable from economic dispossession.

However, *Dor* complicates this picture through its juxtaposition of Meera with Zeenat, whose Muslim identity and mountain upbringing place her outside the world of brahmanical patriarchies. Zeenat's marriage appears grounded in mutual respect, and her journey is driven by action and agency rather than ritualized suffering. The contrast between the two women opens up a comparative lens through which the film critiques the caste Hindu construction of widowhood. Meera's suffering, the film suggests, is not some universal female destiny but a culturally and hierarchically produced one. Through this inter-religious, inter-regional pairing, *Dor* gently but powerfully exposes the specificities and the violences of caste in shaping widowhood.

2.5 Female Solidarity and Agency

Singh's work offers a lens that feels deeply resonant with the emotional core of *Dor*. His idea of “agnostic” intensities — those affective currents that exceed formal structures of kinship, caste, and religion (Singh, 2015). It explains why the relationship between Meera and Zeenat feels so transformative. Their bond does not fit neatly into any conventional category. It is not kinship by blood, marriage, or obligation; instead, it emerges from a shared vulnerability, a mutual recognition, and an unexpected ethical attachment. I find myself reading their friendship as a kind of counter-kinship, one that quietly subverts the oppressive structures that have shaped Meera's widowhood.

Zeenat's presence functions as a catalyst. She enters Meera's life not with pity but with trust, that Meera is capable of making a moral decision, and that she is more than the role imposed upon her. In the world Meera

inhabits, where every gesture is policed and every desire suppressed. On the other hand, Zeenat's companionship becomes an opening, a breach in the suffocating logic of patriarchal control. Their growing intimacy — in shared laughter, stolen moments of freedom, or simply walking together — feels like a reclamation of agency through relationality.

The grandmother-in-law's small but significant gesture of solidarity at the end of the film reinforces this reading. She advises Meera to listen to her heart and follow the *dor*¹⁴ of responsibility and forgiveness (1:37:45–1:41:03). This is an act of quiet insurgency within a heavily patriarchal household. This moment is not merely an intergenerational exchange but a feminist rupture, where widowed women begin to support one another through elective affinities rather than ritualized suffering.

Through Zeenat, Meera discovers the possibility of action — not in grand gestures but in small acts that disrupt her prescribed widowhood. Her choice to forgive Zeenat's husband becomes a pivotal moment, one that marks her shift from being acted upon to becoming an agent of her own story. It is a decision rooted not in duty, honour, or caste expectation but in an affective openness that Singh might describe as a form of ethical vitality.

Meera's final act — running away from the family, not in fear but in pursuit of a new life (1:48:40–1:50:17) — is one of the most moving scenes in the film. It feels like an embodied refusal of the social death imposed upon her. This is not an escape; it is emergence. Singh's words echo here: "When women's suppression is interpreted as related to the domain of kinship, a revolution in that domain is needed to attain women's liberation" (2015, p. 178). Meera's departure is precisely a revolution — quiet, tentative, but resolutely her own. In *Dor*, solidarity is not an abstract ideal; it is lived in gestures, choices, and shared affect. It becomes the force through which Meera reclaims her agency, and through which the film imagines new forms of kinship beyond the violence of caste and patriarchy.

3. Limitation

The limitation of the study is that it is based on the interpretive analysis of a single film. It means the findings reflect a cultural representation of widowhood rather than empirical ethnographic data from widowed women's lived experiences. The film, however, provides valuable anthropological material, illuminating the tensions between social structure and personal experience.

4. Conclusion

This paper has examined widowhood as a culturally produced form of social discipline through an anthropological reading of *Dor* by Nagesh Kukunoor. The analysis demonstrates that widowhood in the film is not portrayed merely as an emotional response to bereavement but as a socially structured condition sustained through kinship relations, caste hierarchies, ritual prescriptions, and everyday practices of regulation. Through changes in clothing, food, mobility, speech, and bodily comportment, mourning becomes transformed into a long-term social identity. The widow's body and sensory world are reorganized in ways that reproduce patriarchal and caste-based norms within the domestic sphere.

By engaging with anthropological perspectives on kinship, habitus, sensory culture, and political economy, the study has shown how these disciplinary structures operate through ordinary gestures and spaces. Reading *Dor* as a form of cinematic ethnography therefore allows us to see widowhood not as an immutable cultural tradition but as a historically produced and socially maintained institution. The film illuminates how deeply widowhood is embedded in systems of power while also suggesting that transformation becomes possible through affective relationships and ethical choice. In doing so, it invites a broader reconsideration of how gendered suffering is normalized within social life and how it might be reimagined otherwise.

Endnotes

¹Relatedness or connection by blood or marriage or adoption.

²Related to the family's line of male descendants.

³A theoretical framework in Anthropology exploring how culture, social relations, and power are experienced, lived, and expressed through the human body.

⁴"A system of durable, transposable dispositions which functions as the generative basis of structured, objectively unified practices" (Bourdieu 1972, p. vii).

⁵Relating to or characteristic of the western Indian state of Rajasthan or its inhabitants.

⁶Hindu goddess of wealth and prosperity.

⁷Focused or centred on men.

⁸A large mansion.

⁹Primarily a street food, that literally translates to “water-balls”.

¹⁰A traditional red or maroon-red powder or liquid cosmetic worn by married Hindu women along the parting of their hairline, symbolizing marital status, auspiciousness, and the blood-red colour of commitment. Also known as vermillion.

¹¹The system under which the caste hierarchy and the gender hierarchy come together, in which upper-caste men socially and economically exert control over people, especially women, from marginalized castes.

¹²The highest-ranking of the four *varnas* (social classes) in Hinduism, infamously known to be the oppressor caste.

¹³A prominent patrilineal warrior clan and landed community in northern, western, and central India.

¹⁴A thread.

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Gendering Science Diplomacy: A Feminist Critique of Science, Technology and Innovation Systems

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Abstract: Science and technology occupy a central place in contemporary societies, shaping economic development, public policy, and international affairs. Far from being external to politics, they are deeply entangled with power dynamics, informing governance structures and shaping whose knowledge is recognized as legitimate. This entanglement becomes particularly visible at the intersection between science and international relations, where scientific authority and diplomatic action increasingly overlap. While science diplomacy has traditionally been portrayed as a cooperative and technical instrument oriented toward trust-building and the provision of global public goods, more recent approaches emphasize its strategic and competitive dimensions. Although these perspectives acknowledge the political character of science, they tend to overlook how inequalities internal to science, technology, and innovation (STI) systems structure international engagement. In particular, the persistent underrepresentation of women in senior scientific roles, technological sectors, and international advisory bodies raises questions about whose expertise circulates globally and whose authority is institutionalized in diplomatic arenas. Therefore, this article asks: how do gendered hierarchies within STI systems shape science diplomacy? Drawing on a feminist epistemological framework grounded in strong objectivity, situated knowledges, and reflexivity, the paper argues that gender is not an external normative concern but a constitutive dimension of science diplomacy. By examining the three dimensions of science diplomacy—science in diplomacy, diplomacy for science, and science for diplomacy—the analysis demonstrates how inequalities in access, authority, and representation are reproduced in international settings. At a time when the neutrality and universality of science are increasingly questioned, the article contends that epistemic concern is a structural condition for the legitimacy and effectiveness of science diplomacy in global governance.

Keywords: Science diplomacy, Gender studies, Science, Technology and innovation, Feminisms, International relations

1. Introduction

Since the Enlightenment, our world is marked by an imaginary structured around “grand narratives” or “metanarratives” centred on universality, equality, reason, and citizenship (Benhabib, 1995). Its promises of historical, moral, and scientific progress consolidated metaphors and images—such as the machine, the rational and competitive individual, and society as an adjustable mechanism—that came to orient the modern understanding of the world (Midgley, 2003). Within this modern imaginary, science and technology came to occupy a privileged position, not merely as explanatory instruments, but as fundamental symbolic and institutional elements.

In the twenty-first century, it is clear to see how science and technology shape economic development, inform public policy, structure responses to global challenges, and underpin international influence. This centrality is explicitly reflected in multilateral frameworks such as the United Nations Sustainable Development Goals (SDGs), which portray scientific knowledge, technological innovation, and data-driven governance as essential instruments for achieving sustainable development.

Nonetheless, the disillusionment with narratives of continuous progress—particularly in light of wars, totalitarian regimes, technological violence, and contemporary crises—has made explicit the nexus between science, power, and politics (Benhabib, 1995). Global challenges such as climate change, pandemics, artificial intelligence, and technological security are therefore not merely technical issues; they involve disputes over epistemic authority, political responsibility, and the legitimacy of knowledge. Science, technology, and innovation (STI) systems thus emerge not as neutral domains, but as central arenas in which power and governance are negotiated domestically and internationally.

Despite this centrality, scientific systems continue to be widely portrayed as neutral, objective, and meritocratic enterprises. Such representations tend to obscure the political and institutional conditions that structure knowledge production. Scientific agendas are shaped by funding priorities, state strategies, institutional and social hierarchies, and global asymmetries. Recognizing the political embeddedness of science does not simply mean acknowledging strategic competition among states or disputes over technological leadership. It is important to argue that it also requires examining how inequalities internal to science, technology, and innovation systems shape whose knowledge is produced, validated, and mobilized.

Among these inequalities, gendered structures remain particularly persistent. Historically excluded from both formal political authority and scientific institutions, women have faced structural barriers in access to funding, leadership positions, research networks, and decision-making arenas. Although important progress has been made, women remain underrepresented in senior scientific roles, high-prestige technological sectors, and international advisory bodies. These disparities are not merely matters of representation; they influence research priorities, epistemic authority, and the global circulation of expertise. In this sense, the fragility of women's position within STI systems has direct implications for how science intersects with governance and international politics.

In this context, while the nexus between science and politics can be explored in multiple ways, it has become increasingly prominent in the domain of science diplomacy—conceived as an interface between scientific knowledge and international action. As scientific expertise and technological capacity have acquired strategic relevance in global governance, states and international organizations have increasingly mobilized research collaboration, innovation partnerships, and expert networks as instruments of foreign policy and international positioning.

Science diplomacy thus operates at the very point where national STI systems intersect with global governance structures. It is not merely a mechanism for facilitating cooperation or promoting dialogue, but a space in which epistemic authority, technological access, agenda-setting power, and geopolitical interests converge. The actors who participate in scientific advisory bodies, represent states in technical negotiations, or lead international research consortia are drawn from existing institutional hierarchies within STI systems. Consequently, science diplomacy does not stand apart from the structural inequalities that characterize science and technology; it reflects and projects them onto the international stage (Ruffini, 2017; 2020a).

Traditionally framed as guided by universal values such as neutrality, rationality, and the pursuit of the common good, science diplomacy often reproduces the broader modern representation of science as an impartial domain above political contestation. Yet its practices reveal a more complex dynamic in which cooperation coexists with competition, and universalist rhetoric intersects with asymmetrical power relations. It is within this tension that the gendered configurations of STI systems become analytically central. If women remain structurally marginalized within national and international scientific hierarchies, this marginalization is unlikely to disappear at the level of international engagement. Rather, it is rearticulated in the composition of expert panels, the circulation of knowledge, and the distribution of authority in multilateral arenas.

This raises a central question: how do gendered hierarchies within science, technology, and innovation systems shape the practices, claims to neutrality, and power dynamics of science diplomacy? While existing scholarship has highlighted the cooperative and competitive dimensions of science diplomacy, it has paid comparatively limited attention to the social structures that condition who participates in these processes and whose expertise is recognized as legitimate.

To address this question, the first section exposes how STI systems operate as gendered organizational and epistemic structures, examining how institutional norms, hierarchies of excellence, and patterns of women's underrepresentation reproduce asymmetries in authority and knowledge production. The second section turns to the field of science diplomacy, outlining its conceptual foundations and examining its dual logic of collaboration and competition. The third section then brings feminist epistemologies into dialogue with science diplomacy, demonstrating how gendered power relations shape the production, circulation, and authorization of knowledge in international arenas.

2. Science, Technology and Innovation Systems and Gendered Hierarchies

It is not difficult to map the historical underrepresentation of women in science, specially taking it as a consequence of the gendered division between the public and private spheres that structured modern societies. Drawing on Carole Pateman's (1988) critique of contract theory, the modern social order institutionalized a separation in which the public sphere was constructed as the domain of universality, reason, and productive activity, while the private sphere was associated with reproduction, domestic labor, and personal dependency. Political and scientific activities—understood as socially valuable and knowledge-producing practices—were consolidated within the public realm, whereas women were historically confined to the private domain. This structural separation did not merely limit women's formal participation in scientific institutions; it also shaped the normative and epistemic boundaries of science itself. By aligning scientific authority with ideals historically coded as masculine—objectivity, rationality, impersonality—the scientific field became institutionally and

symbolically masculinized. Women's marginalization in science was thus not incidental, but embedded in the very political architecture that organized modern knowledge production.

In the current scenario, according to UNESCO (2024), women constitute approximately one third of scientific researchers globally, a proportion that has shown minimal variation over the past decade. This imbalance becomes more pronounced at higher levels of scientific hierarchies: women account for only a small fraction of members in national academies of science and remain significantly underrepresented in senior academic and leadership positions. Disparities are particularly acute in fields central to contemporary technological transformation, such as engineering, physics, artificial intelligence and computer science, where women often represent less than one third of graduates and professionals. These patterns cannot be explained solely by individual choice or economic development levels; rather, they reflect persistent institutional, cultural and structural barriers that shape access to resources, recognition and authority within STI systems.

In this sense, Jasanoff (2004) argues that knowledge production is inseparable from power, not because science is merely instrumentalized by political actors, but because scientific practices themselves are embedded in institutional arrangements, normative assumptions, and modes of governance that shape whose knowledge is recognized, whose interests are served, and which forms of authority are stabilized. Donna Haraway's (1988) intervention allows us to deepen this structural account by drawing an analogy between gender and science as mutually constitutive systems. Both operate as symbolic orders that produce meanings—gender through cultural interpretations of sexual difference, and science through representations of rationality, objectivity, and neutrality. Both organize a social division of labour structured by hierarchies—gendered in one case, disciplinary and epistemic in the other. Both define subject positions, determining who is recognized as a legitimate bearer of authority. Both are embedded in material cultures constituted by technologies, practices, and institutional routines. Finally, both involve a dialectic of construction and discovery, in which categories are presented as natural or objective despite being socially produced. From this perspective, science cannot be understood as external to gendered power relations. Rather, it is shaped by the same symbolic and institutional logics that organize differentiation, hierarchy, and authority in broader social life.

While Haraway's (1988) framework exposes the epistemological and symbolic dimensions through which science is gendered, it is within organizational structures that these dynamics become institutionalized and reproduced. Joan Acker (1990) demonstrates that modern organizations—including scientific institutions—are not gender-neutral arenas but deeply gendered structures. Built upon androcentric assumptions, they naturalize a supposedly universal and disembodied subject who, in practice, reflects hegemonic masculinity situated in the public sphere and freed from reproductive responsibilities. Organizational processes—such as recruitment, evaluation criteria, career progression, and the allocation of authority—thus operate as mechanisms through which gender hierarchies are continuously reproduced. As Kahlert (2020) notes, scientific organizations simultaneously reproduce and constrain gender inequality, frequently under the rhetoric of neutrality and excellence. In this sense, the underrepresentation of women in STI cannot be reduced to access deficits alone; it reflects institutional arrangements that define competence, authority, and legitimacy through implicitly gendered standards.

Taken together, these historical, epistemological, and organizational dimensions demonstrate that gender inequality in STI systems is neither incidental nor residual. It is embedded in the symbolic foundations of scientific authority, institutionalized in organizational practices, and reflected in the contemporary distribution of expertise and leadership. If access, recognition, and legitimacy are structured through gendered hierarchies at the national level, these hierarchies are unlikely to remain confined within domestic scientific institutions. Rather, they travel with the actors, networks, and forms of authority that constitute international scientific engagement. Understanding STI systems as gendered architectures therefore becomes essential for examining how scientific knowledge is mobilized beyond national borders. It is precisely at this transnational interface that science diplomacy emerges as a revealing arena in which these hierarchies may be reproduced, negotiated, or potentially contested.

3. Science Diplomacy: Where Science and Technology Meet International Relations

Although the expression "science diplomacy" only gained prominence in the early twenty-first century, the entanglement between science and international politics is historically situated and far from novel. Practices that would today be categorized under the label of science diplomacy can be traced back to earlier periods. Eighteenth-century scientific expeditions undertaken by European powers, for instance, combined officially declared scientific aims—such as the exploration of territories and the collection of mineral and botanical specimens—with clear geopolitical and imperial objectives. During the Cold War, interactions between scientific

cooperation and foreign policy reached a new level of institutionalization and strategic importance, even if the term “science diplomacy” itself was not yet in use. As Ruffini (2017) notes, states have long incorporated scientific knowledge into their strategies of international projection, retrospectively revealing a continuity of practices that predate the formalization of the concept.

What distinguishes the contemporary moment, however, is the degree to which science, technology, and innovation (STI) have become structurally embedded in diplomatic practice. The consolidation of knowledge-based societies and economies has elevated scientific and technological capacity to a decisive factor in shaping relative power positions. In a context where economic growth, competitiveness, and global influence increasingly depend on the production, circulation, and analysis of information, knowledge itself has become a central strategic resource (Leijten, 2017). Scientific discoveries, technological infrastructures, and innovation networks are no longer peripheral to foreign policy; they constitute key instruments through which states pursue influence, secure access to critical resources, and position themselves within global hierarchies. Science diplomacy, in this sense, reflects the transformation of knowledge into a vector of geopolitical relevance.

In contemporary scholarship, science diplomacy is commonly understood as a broad and dynamic set of practices through which science and technology intersect with international engagement, reflecting the growing interdependence between scientific development and diplomatic action. Ruffini (2017; 2020a) revisits the typology proposed by the joint report of the Royal Society and the American Association for the Advancement of Science (2010), which identifies three main dimensions of this interaction. The first, *science in diplomacy*, refers to the use of scientific expertise in multilateral negotiations and decision-making processes on global issues such as climate change, food security, and public health. The second, *diplomacy for science*, highlights the role of diplomatic action in facilitating international scientific cooperation, supporting researcher mobility, network-building, and the development of shared research infrastructures. The third, *science for diplomacy*, emphasizes the use of scientific collaboration as a means of fostering dialogue and trust in politically sensitive contexts. Taken together, these dimensions illustrate how science and diplomacy mutually reinforce one another, positioning science diplomacy as an institutionalized feature of contemporary global governance.

Building upon this understanding, recent scholarship develops an important critique and suggests that science diplomacy operates through what Ruffini (2020b) describes as a “twofold logic,” structured by two simultaneous and often intertwined impulses: collaboration and competition. On the one hand, scientific exchange is framed as a pathway to trust-building, dialogue, and the provision of global public goods, particularly in areas such as climate change, public health, and environmental protection. On the other hand, science and technology are mobilized as strategic assets to enhance power, secure technological autonomy, and attain leadership positions within international regimes. By revealing how collaboration and competition coexist within the same practices, Ruffini demonstrates that science diplomacy cannot be understood as a neutral or purely altruistic domain of international engagement. Rather, it is embedded in strategic calculations, institutional hierarchies, and asymmetrical distributions of scientific and technological capacity.

However, when situated alongside the persistent underrepresentation of women in scientific (and also diplomatic) systems and the gendered standards that structure scientific authority, this twofold logic appears less neutral than it initially suggests. The ability to collaborate internationally and to compete for technological leadership presupposes access to resources, recognition, and epistemic legitimacy—assets unevenly distributed within scientific communities. By treating collaboration and competition as analytically given dynamics among states, the framework leaves underexplored how these dynamics are themselves shaped by historically masculinized notions of rationality, excellence, and strategic agency. Even when denouncing the strategic use of science by states, such analyses often leave intact the epistemological foundations that sustain the image of science as universal, meritocratic, and detached from social hierarchies—an image historically produced from the standpoint of a masculine, Western subject.

It is precisely this epistemic limitation that feminist scholarship seeks to address. As argued above, feminist approaches have long demonstrated that neither science nor diplomacy operates in a social vacuum; rather, both are historically constituted fields structured around particular ideals of rationality, autonomy, competition, and control that have been naturalized as universal and value-free. By exposing the androcentric foundations of these epistemic standards, feminist theories do not merely add gender as a variable to existing analyses, but offer an alternative way of understanding how knowledge, authority, and legitimacy are produced and stabilized within technoscientific governance. Feminist analysis thus involves a dual exercise: examining the place and role of women within cultural, social, and political contexts, while simultaneously doing so through gender as an analytical category.

4. Gendering Science Diplomacy

Rather than treating science and diplomacy as neutral arenas, this section argues that science diplomacy must be understood as an epistemically structured field shaped by gendered hierarchies rooted in the organization of STI systems. To make this visible, it mobilizes three core feminist concepts: (1) “strong objectivity” (Harding, 1986; 1995); (2) “situated knowledges” (Haraway, 1988); and (3) “reflexivity” (Ackerly and True, 2008). First, by challenging the notion of scientific neutrality, Sandra Harding advances a powerful critique of what she terms “weak objectivity”, namely the belief that science can be depoliticized through supposedly neutral and universal methodological procedures. According to Harding, this conception ultimately reinforces existing power structures and hierarchies by naturalizing the dominance of masculine perspectives within scientific practice. In contrast, Harding proposes “strong objectivity” as an epistemological approach that explicitly acknowledges the partiality and biases inherent in knowledge production. Scientific knowledge, therefore, must be understood as socially, politically, and culturally situated, shaped by values, emotions, and historical interests that inform its practices (Harding, 1986; 1995). Ultimately, her proposal seeks to dismantle the equation between objectivity and neutrality, thereby de-essentializing the androcentric standards that underpin modern epistemology.

Then, Donna Haraway (1988) further deepens the critique of scientific objectivity through her formulation of “situated knowledges.” For Haraway, all knowledge is produced from a specific body, position, and history, and is therefore always partial and located. This perspective rejects both relativism and the universalist pretensions of traditional science, affirming instead a feminist objectivity that recognizes science as a site of political contestation. Complementing these approaches, Ackerly and True (2008) propose feminist reflexivity as a methodological and ethical tool that renders explicit the researcher’s positionality and its implications for the production of knowledge. Reflexivity demands continuous attention throughout all stages of the research process—from the formulation of research questions to analysis and dissemination—seeking to avoid the naturalization of silences and the exclusion of marginalized groups. The authors identify four central commitments of feminist ethics: (1) attention to epistemology, which interrogates the criteria of knowledge validity and the role of power in its legitimation; (2) attention to boundaries, which problematizes disciplinary and social demarcations that produce exclusion; (3) attention to relationships, which treats power asymmetries between researcher and researched as matters of ethical responsibility; and (4) attention to positionality, which requires recognition of how one’s own trajectories and social locations shape knowledge production.

In sum, feminist theories destabilize the notion of a neutral and apolitical science by revealing that all scientific practice is embedded in relations of power and in specific historical and cultural contexts. By re-centering politics within epistemology, these approaches not only expand the scope of scientific reflection but also reaffirm the necessity of a science committed to critical responsibility and epistemic plurality. By explicitly bringing this feminist perspective into dialogue with debates on science diplomacy, this paper argues that incorporating gender perspectives into science diplomacy is essential to dismantling epistemological hierarchies that marginalize women and to genuinely promoting greater equity in international relations. From a feminist standpoint, it becomes possible to observe how the three dimensions of science diplomacy reproduce, reinforce, or render invisible gendered inequalities associated with the production and circulation of knowledge.

Within the “science in diplomacy” dimension—where scientific evidence informs multilateral political decision-making—the epistemic authority mobilized in these processes reflects a scientific field deeply marked by gender asymmetries. The persistent underrepresentation of women in scientific leadership and agenda-setting positions within STI systems—visible in authorship of major assessment reports, advisory panels, and global governance bodies—not only restricts women’s participation but structurally shapes which forms of expertise acquire international authority and circulate through diplomatic channels. While some of these exclusions intersect with racial and geopolitical inequalities, the central point remains that the scientific structures feeding into diplomacy are historically masculinized, conditioning which issues are recognized as priorities and which experiences are excluded from the definition of global problems.

Similarly, within the “diplomacy for science” dimension—aimed at expanding national scientific capacity through agreements and international cooperation—gender inequalities become even more directly observable. Academic mobility programs, international research grants, and global innovation networks often reproduce patterns of exclusion: women face barriers to entry, lower funding rates, greater precarity in careers within the “hard sciences,” and care-related inequalities that constrain their participation in extended international stays—an essential component of scientific internationalization strategies. As a result, science diplomacy, even when oriented toward strengthening national systems of science, technology, and innovation, reproduces the sexual division of scientific labor, reinforcing male trajectories as the international standard of excellence.

Finally, in the “science for diplomacy” dimension—where science functions as a tool of soft power and international projection—feminist critique highlights that a state’s ability to mobilize science as a diplomatic resource depends fundamentally on who occupies spaces of representation, leadership, and negotiation. Science diplomacy often reproduces historical patterns of traditional diplomacy, marked by strong masculinization and barriers to women’s access—particularly in strategic areas such as defense, energy, nuclear technology, and international security. Thus, even when scientific cooperation projects are presented as neutral or universal, their implementation takes place within diplomatic arenas where women’s voices remain marginal and where masculinized conceptions of rationality, expertise, and credibility shape expectations and practices. Here, feminist analysis reveals how science diplomacy can reinforce the figure of the “man of science” as its central actor, while critical female perspectives necessary for thinking science and politics in an integrated manner remain marginalized.

In this sense, feminist critique becomes indispensable for grasping the deeper layers of the relationship between science and international politics, particularly in a context marked by the growing centrality of science and technology in global debates. If women remain persistently underrepresented in senior scientific roles, high-prestige technological sectors, and international advisory bodies, this is not merely a question of descriptive imbalance. It reflects gendered hierarchies embedded in STI systems that shape whose expertise is recognized, whose research agendas are prioritized, and whose authority travels across borders. As Jasanoff (2004) compellingly argues, nothing of significance occurs in science without corresponding adjustments in social, political, and cultural arrangements, just as deeply entrenched social problems rarely yield to resolution without transformations in existing structures of knowledge. Feminist epistemologies bring this insight into sharp relief by demonstrating that the production, circulation, and legitimation of scientific knowledge are inseparable from institutionalized power relations—including those that marginalize women within scientific and diplomatic hierarchies.

5. Conclusion

Science and technology occupy a central place in modernity and contemporary life in knowledge-based societies, not only as engines of economic development and innovation, but as constitutive elements of governance, authority, and collective imaginaries. As Jasanoff (2004) observes, sustained engagement with the natural and technological world plays a central role in defining citizenship, responsibility, and the boundaries between public and private life. What societies come to know about the world is inseparable from what they understand themselves capable of doing about it—and from which actors are recognized as legitimate bearers of authority. Science and technology are therefore not external to political life; they are integral to the organization of power and to the stabilization of social hierarchies.

Within this broader landscape, the persistent underrepresentation of women in STI systems reveals how scientific authority is structured through gendered hierarchies. As feminist scholars have shown, these hierarchies are not merely descriptive imbalances but institutionalized patterns embedded in organizational practices, epistemic standards, and definitions of excellence. The marginalization of women in leadership positions, agenda-setting roles, and high-prestige technological fields shapes not only access to resources but also the content, direction, and circulation of knowledge itself.

This paper has argued that such hierarchies do not remain confined within national scientific institutions. They travel with the actors, networks, and standards of legitimacy that constitute international engagement, directly shaping the field of science diplomacy. In the dimension of science in diplomacy, gendered asymmetries condition whose expertise informs multilateral negotiations and whose perspectives are institutionalized in global governance bodies. In diplomacy for science, existing inequalities in mobility, funding, and career progression are internationalized through cooperation frameworks that often reproduce the sexual division of scientific labor. In science for diplomacy, the capacity to mobilize science as a strategic resource depends on representation and authority structures historically marked by masculinization.

Gendered hierarchies within STI systems thus shape science diplomacy by structuring who participates, whose knowledge circulates, which agendas gain priority, and how authority is legitimized in international arenas. Rather than a neutral interface between science and foreign policy, science diplomacy emerges as an epistemically structured field embedded in broader social and institutional power relations.

By bringing feminist theories into dialogue with science diplomacy debates, this paper has demonstrated that gender is not an external normative add-on but a constitutive dimension of the field. Gendering science diplomacy, therefore, is not simply about increasing women’s participation within existing frameworks. It entails

interrogating the epistemological foundations that define credibility, neutrality, and excellence in global technoscientific governance. In a context marked by contested scientific authority and complex global crises, such interrogation becomes a structural condition for envisioning more legitimate, reflexive, and socially just forms of international cooperation.

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Non Academic Papers

Embedding Inclusive Communication in Research Performing Organisation: Processes, Challenges and Outcomes

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Abstract: Inclusive language is not merely a stylistic preference but a foundational infrastructure for reliable and equitable organisational cultures. For Research-Performing Organisations (RPOs), particularly those trying to comply with the Gender Equality Plan (GEP) requirements of Horizon Europe, the operationalisation of inclusion is critical for fostering retention, driving innovation, and ensuring compliance. However, substantial barriers remain in translating these high-level mandates into daily practice. In the international research context, where English acts as the primary vehicle for scientific dissemination, researchers frequently face nuance deficits. Because English is often not the primary language of researchers and staff in RPOs, many lack the specific vocabulary to navigate evolving inclusive norms despite professional intent. This friction is compounded in bilingual institutions by the structural rigidity of heavily gendered local languages like Italian, where the transition from the neutral masculine default (*maschile sovraesteso*) to inclusive alternatives creates a high barrier to entry. Consequently, researchers often perceive inclusive language guidelines as ideological, prescriptive, or cognitively burdensome, creating a persistent gap between theoretical diversity principles and practical scientific communication. This paper presents the design, implementation, and governance of the IIT Inclusive Language Guide, a comprehensive bilingual (English and Italian) instrument developed by the Istituto Italiano di Tecnologia. Diverging from traditional compliance-based policy documents, our primary objective was usability: to design a linguistic framework that significantly lowers the cognitive load of inclusivity while maintaining the precision required in a STEM environment. To enhance adoption and global relevance, the Guide moves beyond the traditional gender binary to systematise six intersecting dimensions of inclusion: Age, Culture, Disability, Ethnicity, Gender, and Socioeconomic Status. The architecture of the Guide prioritises accessibility through a modular design and visual comparative tables that allow users to intuitively understand why and how to shift their language without disrupting their workflow. We detail the mixed-method development strategy, which combined extensive international benchmarking with a pragmatic sponsorship governance model involving co-design with senior leadership and researchers. Our analysis shows that while gender-specific policies are now common in Italy, broader inclusive frameworks are almost non-existent. This makes the IIT Guide a novelty in the field. Finally, we discuss the specific challenges of governing non-normative cultural tools in a high-performance research environment. We conclude by offering a scalable, open-access blueprint for other anglophone or bilingual institutions, demonstrating how RPOs can proactively codify their values into actionable standards that foster a more cohesive ecosystem of inclusivity.

Keywords: Inclusive Language; Gender equality plans (GEP), Intersectionality, Research-performing organisations (RPO), STEM, Organizational culture.

1. Introduction

1.1 The Institutional Context

The Istituto Italiano di Tecnologia (IIT) is a leading Italian research foundation conducting basic and applied research across computational science, life technologies (LifeTech), nanomaterials, and robotics. As a Research-Performing Organisation (RPO), IIT's primary objective is to drive technological development and high-level education in Italy, fostering the national production system while maintaining a competitive international dimension.

The operational frameworks for inclusion were formally introduced in 2020 with the establishment of the Diversity, Inclusion, and Social Impact Office (DISO). The cornerstone of this office's strategy is the Gender Equality Plan (GEP), implemented in 2021. While the DISO is mandated to embed an inclusive culture within the institute, this mission must operate alongside and support the institute's demanding core research priorities.

1.2 The Problem

Language acts not merely as a medium of expression but as a structuring force that shapes thought (Boroditsky 2001) as well as institutional and cultural contexts (Fricker 2007; Laugier 2013). Defined broadly, inclusive language acknowledges diversity, mitigates unconscious bias, and demonstrates respect through thoughtful choices of words, phrases, and other linguistic elements (Linguistic Society of America 2016). Within a research environment, such language constitutes the foundational infrastructure for equity, driving belonging, retention, and scientific excellence. However, at IIT, where international and local cultures intersect, this system faces unique friction. The institute operates bilingually: English is the *lingua franca* of research, while Italian is the

language of administration and local culture. This creates a dual challenge. English, while gender-neutral in grammar, is often a second language for staff, leading to a lack of nuance in sensitive contexts. Conversely, standard Italian relies heavily on the overextended masculine, a grammatical default that renders women and non-binary individuals linguistically invisible.

Furthermore, within the STEM (Science, Technology, Engineering, and Mathematics) community, inclusive language is often perceived as polarised, ideologically complex, or prescriptive. This perception creates a high "cognitive load" for researchers and staff, acting as a barrier to adoption. While there is an institutional desire for inclusivity, the lack of a clear, actionable framework has made the transition from intent to practice difficult.

1.3 The Goal

In 2023, the DISO and the Communication and External Relations Directorate (CERD) initiated a collaborative project to bridge this gap: the creation of the *IIT Inclusive Language Guide*. This guide was conceived with multiple strategic objectives: to operationalise the GEP's 'Inclusive Culture' area (Leone et al., 2022), to foster a research environment where all individuals are respected and represented regardless of background, and to harmonise the work of the two directorates.

Crucially, the guide was designed to be more than just linguistically correct. Adopting a user-centric approach, the goal was to lower the barrier to entry for inclusive communication. We aimed to create a practical tool that allows users to intuitively understand *why* and *how* to shift their language without slowing down their daily workflows. The guide moves beyond the gender binary to address six intersecting dimensions of inclusion and focuses on three pillars: Representation, Precision, and Freedom of Choice.

1.4 Paper Structure

This paper serves as a blueprint for creating a bilingual, intersectional guide designed not just for compliance but for usability. The remainder of this paper analyses the specific linguistic challenges of English and Italian in a STEM RPO context (Section 2), details the guide's architecture and user-centric design (Section 3), and outlines the mixed-method methodology used to co-create the tool (Section 4). Finally, we present the implementation challenges encountered (Section 5), discuss the dissemination strategy and limitations (Section 6), and offer actionable recommendations for other research organisations (Section 7).

2. The Challenge: Linguistic and Institutional Barriers at IIT

2.1 The Institutional Barrier: Resource Competition

IIT is a private foundation primarily funded by the Italian government, with a mandate focused on high-performance research. In this context, resources are scarce. Inclusion initiatives often face a prioritisation gap. Because the DISO is structurally positioned within Human Resources (HR) rather than being a directorate, inclusion is frequently perceived by researchers as a support function rather than a core component of scientific excellence. The challenge, therefore, was to demonstrate that language is not merely an HR compliance issue, but a critical tool for the research mission itself.

2.2 The Linguistic Barrier

A defining challenge for IIT is its bilingual nature. The institute faces a double linguistic problem with its two official languages, requiring distinct corrective strategies. Standard Italian that relies on the overextended masculine as the grammatical default. Shifting away from this default is cognitively demanding, as it requires overriding deeply ingrained grammatical habits. While English offers a more gender-neutral grammatical framework, it presents a trap of false neutrality. For many IIT staff, English is a second language (L2). L2 speakers often lack the cultural nuance to identify exclusionary idioms.

3. Designing for Adoption: The Guide's Architecture

3.1 Scope: Intersectionality by Design

While our benchmarking analysis revealed that the current landscape of inclusive language in Italian research is predominantly focused on gender asymmetry, we determined that a singular focus would be insufficient for IIT's complex environment. To prevent the fragmentation of resources and ensure a holistic approach, we adopted an intersectional framework (Crenshaw, 1991) covering six dimensions: age, culture, disability, ethnicity, gender, and socioeconomic status.

This decision was driven by two operational necessities. First, the diverse composition of IIT's international community requires addressing cultural and ethnic nuances that go beyond Italian norms. Second, specific research contexts dictated the scope; for example, laboratories working directly with individuals with physical or cognitive disabilities required precise, non-stigmatising terminology for daily interactions and subject recruitment. Consequently, we expanded our benchmarking beyond general inclusivity guides to include specialised documentation for less systematic dimensions such as age, disability, gender, and socioeconomic status (American Chemical Society n.d.; American Psychological Association n.d.; European Commission n.d.; European Institute for Gender Equality n.d.; United Nations Office at Geneva n.d.; Washington University in St. Louis School of Public Health n.d.; Weir 2023; World Health Organization n.d.). To avoid establishing a hierarchy of marginalisation, these dimensions are presented strictly in alphabetical order.

3.2 User-centric Design: Lowering Cognitive Load

To ensure the Guide served as a practical tool rather than a theoretical manifesto, we prioritised "cognitive fluency." The Guide addresses high-impact domains, including recruitment, leadership, and external communication, but is written in a concise, accessible style suitable for non-expert readers.

Recognising the time constraints typical of a high-pressure research environment, we minimised dense prose in favour of visual functionality. The core pedagogical tool is the use of comparative tables: tables that juxtapose common (discouraged) expressions with recommended alternatives. This visual design allows a user to scan and solve a linguistic problem in seconds, making the inclusive choice the path of least resistance.

 Avoid this	 Instead try	 Why?
• "Ladies and gentlemen"	• "Dear colleagues" • "Everyone" • "All" / "Thank you all for being here" • "Team" • "IITans"	Avoid unnecessary gendering. Inclusive greetings help everyone feel welcomed.
• Assuming pronouns or use a former name	• Ask and use the person's chosen pronouns ("they," "she," "he")	Using the correct names and pronouns affirms a person's identity and fosters respect.
• "A disabled colleague" • "A handicapped person"	• "A colleague with a disability"	Puts the person first and avoids reducing someone to a characteristic.

Figure 1: Common expressions and their alternatives in English

3.3 Standardised Architecture

To facilitate rapid information retrieval, we created a standardised architecture functioning as a reference manual rather than a linear text. Each thematic chapter follows an identical four-part template: (1) foundational concepts (glossary); (2) the rationale (sociolinguistic context); (3) practical toolkit (comparative "Avoid/Try/Why" tables); and (4) key considerations (strategic nuance). This predictable rhythm enables intuitive navigation, allowing users to quickly locate evidence-based definitions or actionable alternatives without reading the document sequentially.

4. Methodology: Co-construction and Validation

We adopted a mixed-method, iterative approach that combined international benchmarking, gap analysis of the national landscape, and multi-level internal consultation. This process was designed to ensure scientific rigour while maximising operational usability.

4.1 International Benchmarking and National gap Analysis

Our development phase began with an extensive analysis of existing guidelines, stratified into three key sectors:

- **Supranational and European bodies**, including the European Commission and UN agencies (Council of the European Union n.d.; Council of Europe n.d.; European Commission 2021; European Parliament n.d.; Publications Office of the European Union n.d.; UNICEF n.d.; United Nations Global Compact n.d.);
- **Leading international universities and RPOs**, specifically those with established inclusion frameworks (EPFL 2022; Harvard T.H. Chan School of Public Health 2021; Maynooth University n.d.; MIT Communication Lab 2023; Sheridan College n.d.; University of Cologne n.d.; Western University n.d.); and
- **Specialised associations and centres** focused on linguistics, disability, and psychology (American Psychological Association n.d.; Centers for Disease Control and Prevention n.d.; Linguistic Society of America n.d.; National Center on Disability and Journalism n.d.).

This analysis allowed us to map common terminology conventions and implementation strategies relevant to high-performance research settings.

Simultaneously, we conducted a comparative analysis of peer Italian research institutions to identify the specific gaps in the national landscape. As summarised in **Figure 2**, the prevailing focus in Italy has historically centred on gender asymmetry. Our analysis indicates that while gender-sensitive guidelines are now standard among major Italian research bodies, holistic frameworks remain rare. Most peer institutions focus exclusively on gender asymmetry; identifying comprehensive, multi-dimensional tools for the Italian research context proved difficult, positioning the IIT Guide as a distinct novelty to the national landscape.

Institution	Broader Inclusive Language Guidelines	Gender-Specific Language Guidelines
INFN	No	In Preparation (2022)
CNR	No	Yes (2024)
ENEA	No	Yes (2022)
INGV	No	No
Human Technopole	Webinar only	No
INAF	No	Yes (2017)
FBK	Yes	Yes
Fondazione Telethon	No	No
AI4I	No	No
ASVAPP	No	No
Fondazione E.Zancan	No	No
IRS	No	No

Figure 2: Comparison of inclusive language resources in Italian research institutions. June 2025

4.2 The Iterative Co-design Process

The drafting process was executed through a collaboration between the DISO and the CERD. This structure ensured the integration of specialised expertise: DISO provided the theoretical frameworks for inclusion, while CERD ensured the tone was consistent with the institute's voice. Successive drafts were refined through continuous exchange, reconciling the theoretical need for precision with the operational need for brevity.

4.3 Structured Stakeholder Validation

Once a working prototype was established, we launched a structured review process involving four distinct layers of institutional governance to stress test the Guide before release.

- **Strategic alignment (HR director):** The first review assessed the Guide's alignment with IIT's broader internal policies and values, ensuring no conflict with existing HR regulations.
- **Communicative efficacy (communication director):** This phase tested the clarity, tone, and immediacy of the text. The goal was to ensure the Guide felt "inviting" rather than bureaucratic.
- **Operational relevance (principal investigators):** To ensure the Guide resonated with the scientific community, we solicited structured feedback from four Principal Investigators (PIs) across diverse fields. PIs completed a structured questionnaire (Figure 3) assessing clarity, usability, and contextual fit. This step was crucial for identifying terminology that is useful for certain research environments.
- **Scientific oversight (scientific director):** The final review was conducted by the Scientific Director. This high-level feedback introduced critical nuances regarding forms of exclusion specific to academia, such as credentialism and subtle classism, which are often overlooked.

Section	Question	Response Options	Comments
1. Clarity and Comprehensibility	Is the language used clear and accessible?	Always, Mostly, Sometimes unclear, Often complex	
	Are the key concepts understandable even for those unfamiliar with the topic?	Yes, Partially, No	Please note any unclear or improvable sections:
2. Structure and Organisation	Is the division into thematic sections effective?	Yes, Partially, No	
	Is the guide easy to consult (e.g., when looking for specific information)?	Yes, Partially, No	Comments on structure, logical flow, and formatting:
3. Relevance to the IIT Context	Are the contents relevant to IIT's internal and external communication?	Very much, Fairly, Slightly, Not at all	
	Are there examples or terms that do not fully fit our scientific and/or multicultural context?	No, A few, Several	Comments on cultural, linguistic, or scientific adaptation:
4. Applicability and Operational Impact	Does the guide offer useful suggestions to improve communication in daily work (e.g., emails, documents, events)?	Yes in a practical way, Partially, No	
	Do any suggestions seem difficult to apply in practice?	No, A few, Several	Comments on suggestions, examples, or practices that need clarification or more practical support:
5. Topics to Deepen or Add	Which topics could be expanded or added in a future version of the guide? (e.g., international context, intercultural aspects, other biases)	[Open Text]	Write your proposals here:
6. Final Comments and General Suggestions	Any other comments, recommendations, or ideas that may help improve the guide?	[Open Text]	

Figure 3: Feedback form sent to the Principal Investigators

4.4 Evolution and Limitations

The validation process also highlighted areas for future development. Reviewers identified a need for accessible formats, such as audio versions for individuals with visual impairments and signed versions for the Deaf and hard-of-hearing community. Additionally, feedback suggested expanding the coverage of neurodivergence (e.g., ADHD, Autism spectrum). Rather than delaying the release, we utilised the Guide's modular format to treat these as planned updates, reinforcing the living document approach described in Section 5.3.

5. Implementation Challenges and Governance

5.1 Governance of Non-normative Tools: The Positioning Dilemma

A primary challenge lay in defining the Guide's status, which sat ambiguously between binding policy and informal suggestion, creating tension between calls for strict rules versus contextual flexibility. Recognising that excessive formalisation risked framing inclusion as bureaucratic control, we deliberately positioned the Guide as non-binding recommendations. To ensure institutional weight, the Scientific Director and the CERD Director, alongside key PIs, endorsed it as a shared cultural resource.

5.2 Sustainability: The Living Document Approach

Finally, a rigid implementation risks obsolescence, as inclusive language evolves rapidly. To mitigate this, we established the Guide as a living document rather than a static publication.

We recommend that institutions implement a Plan-Do-Check-Act (PDCA) cycle for linguistic guidelines. In this model, the "Check" phase involves gathering qualitative feedback from the community (as demonstrated during our PI validation phase), which directly informs biennial updates ("Act"). This iterative approach ensures the Guide remains dynamic, allowing for the continuous integration of new dimensions, such as the emerging need for neurodivergent-inclusive language, thereby maintaining its relevance as an institutional standard.

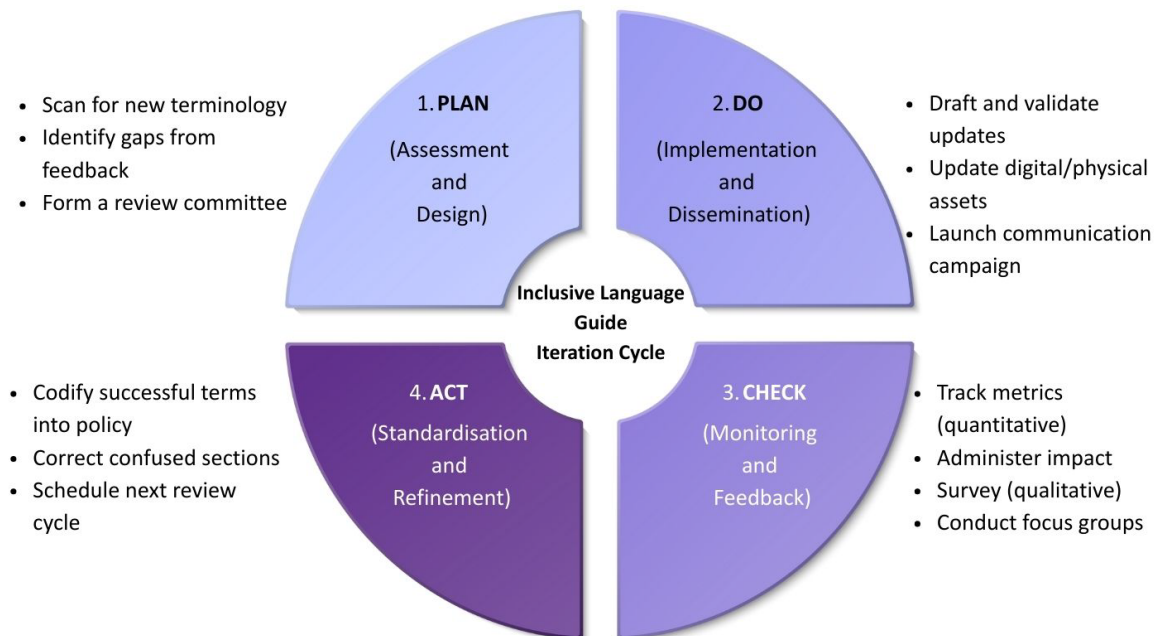


Figure 4: Application of the PDCA (Plan-Do-Check-Act) cycle to the maintenance of inclusive language guidelines

6. Discussion and Future Work

6.1 Contextual Limitations

A challenge in adapting international benchmarks to the Italian context was the categorisation of "race." In continental Europe, the term still carries heavy stigma. Consequently, we consciously excluded the term "race" in both the English and Italian versions of the Guide to avoid alienation among non-anglophone speakers. Instead, we utilised ethnicity and culture to address these dimensions, prioritising cultural receptivity over direct translation of anglosphere norms.

Regarding syntax, the Guide navigates the tension between Person-First Language (PFL) and Identity-First Language (IFL) (United Nations Office at Geneva n.d.). While we adopt PFL as the institutional default to emphasise the individual over their condition, the Guide explicitly mandates deferring to IFL when referring to communities that prefer it (e.g., the Deaf community), thereby prioritising self-determination over rigid grammatical consistency.

6.2 Dissemination Strategy

Dissemination employs a multi-channel strategy. The official launch is integrated into the Institute's annual seminar on organisational values, positioning the Guide as a core ethical tool rather than a standalone HR document. Simultaneously, visual assets (infographics and digital slides) are deployed across internal screens and intranets to maximise visibility.



Figure 5: Example of dissemination material

7. Recommendations: A Blueprint for Research-performing Organisations

7.1 Scalability and Replicability

This initiative offers a scalable blueprint for other anglophone or non-anglophone research institutions facing the dual challenge of linguistic diversity and scientific rigour. As diversity requirements become central to European funding mechanisms (e.g., Horizon Europe's GEP requirements), institutions often struggle to operationalise these mandates beyond high-level policy.

By providing an open-access, bilingual framework that addresses six dimensions of inclusion, the IIT Guide demonstrates how research centres can proactively codify their values into operational tools. We encourage other institutions not to merely translate existing anglosphere guides, but to adapt this framework to their specific cultural contexts. This approach transforms compliance into culture, creating a more cohesive ecosystem of inclusivity across the European research landscape.

7.2 Actionable Recommendations

Based on the development and implementation of the Guide, we offer four key recommendations for other RPOs:

- **Adopt an intersectional approach from the outset:** Do not separate gender from other dimensions of marginalisation. Our benchmarking reveals that addressing gender in isolation risks fragmenting

resources and overlooking overlapping identities (e.g., disability or age). A unified, multi-dimensional guide underscores a commitment to total inclusivity rather than piecemeal compliance.

- **Prioritise cognitive fluency over theory:** Scientists work under high cognitive load. Avoid dense theoretical prose in favour of modular, visual architectures (e.g., comparative tables). The goal is to lower the barrier to entry: make the inclusive choice the easiest choice to find and apply.
- **Establish pragmatic sponsorship governance:** Avoid the trap of over-bureaucratisation. We recommend that organisations (1) clarify the non-binding status of the guide to reduce resistance, (2) assign high-level institutional sponsors, and (3) define a simple validation route to prevent approval deadlocks.
- **Involve scientific leadership early:** Inclusive language is often misperceived as an administrative soft skill. To counter this, involve PIs in the validation phase. Their input ensures the guide is relevant to the laboratory context and signals to the wider community that inclusivity is a core component of research excellence.

8. Conclusion

In this paper, we addressed the specific challenge of implementing inclusive language within a bilingual RPO. Starting from the mandate of GEP, we developed the IIT Inclusive Language Guide, a tool designed to significantly lower the cognitive load of inclusivity. By prioritising cognitive fluency as a primary design goal, we decomposed the problem into intersectional dimensions rather than a monolithic set of rules. We further analysed the specific challenges related to organisational uptake and dissemination, distilling these experiences into actionable recommendations for peer institutions.

Ethics Declaration: This study did not require formal ethical approval according to IIT's and national guidelines, as it is based on the analysis of institutional documents and anonymised feedback from staff collected in the context of internal organisational development activities. No sensitive personal data were gathered, no vulnerable groups were involved, and all contributors were informed that their anonymised comments could be used for research and dissemination purposes.

AI Declaration: AI-based language tools (e.g., ChatGPT by OpenAI, Gemini by Google) were used to support text editing, paraphrasing and the refinement of structure and wording in some sections of this manuscript. It has also been used to do the design of figures 2 and 4 as well as the reference list. No AI tools were used for data collection, analysis or interpretation. The authors have critically reviewed all AI-assisted content and retain full responsibility for the accuracy, integrity and originality of the work presented.

Authors Contributions: The authors contributed equally to this work.

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TechMate: Translating Gender Equality Research into Actionable Practice for Computing Educators

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Abstract: The persistent underrepresentation of women in computing higher education remains a global challenge, with women comprising less than 20% of ICT specialists across the EU. While substantial research has identified effective interventions to support underrepresented groups, this evidence remains fragmented across academic publications, grey literature, and institutional reports. Educators seeking to implement gender-inclusive practices face significant barriers in identifying relevant initiatives, understanding implementation requirements, and accessing practical guidance suitable for their institutional contexts. This work presents TechMate, a fully operational (<https://ascnet.ie/techmate/>) web-based, open-access toolkit designed to bridge the gap between research evidence and practical implementation. The toolkit consolidates over 25 research-driven gender equality initiatives organised across four evidence-based strands: *Policy*, *Pedagogy*, *Influence & Support*, and *Promotion & Engagement*. Each initiative is presented as a discrete action with comprehensive implementation guidance, including research-driven supporting facts (Quick Facts section), step-by-step implementation approaches, institutional case studies, evaluation recommendations, and ready-to-use resources. The toolkit provides multiple pathways for educators to discover relevant initiatives: manual navigation through actions, or dynamic search and filter functionality tailored to institutional roles and resource availability. Individual action pages aim to guide users through the initial exploration, implementation planning and evaluation design. Actions range from in-class interventions (such as personalised feedback and intelligent class management) to strategic policy-level changes (including curriculum redesign and recruitment strategies). TechMate is designed for computing academics, programme leaders, and institutional diversity champions seeking evidence-informed guidance to improve recruitment and retention of women and other underrepresented gender groups in computing-related study programmes. The toolkit has undergone an evaluation with computing educators across multiple universities, demonstrating strong perceived usefulness and usability. The paper outlines the development of TechMate from prototype to current version and discusses toolkit's evaluation outcomes.

Keywords: Gender equality, Computing education, Women in technology, Best-practice toolkit, Evidence-based practice, Diversity and inclusion

1. Introduction

The underrepresentation of women in computing education persists globally despite decades of intervention efforts. In the European Union, women represent less than 20% of ICT specialists, with even lower representation in technical computing roles (Eurostat, 2025). In Ireland, only 25% of students in ICT-related third-level programmes in 2025 were women (HEA, 2025). Gender imbalance in computing has deep systemic roots extending far beyond higher education, including stereotypes (Cheryan et al., 2013), cultural factors (Frieze and Quesenberry, 2019), values and interests shaped from early educational experiences (Beyer, 2014). While third-level interventions cannot fully resolve these issues, computing educators have both responsibility and agency to implement evidence-based initiatives within their sphere of influence.

Research has documented numerous effective initiatives for supporting women and other underrepresented groups in computing education (Brodley et al., 2022, McKeever and Lillis, 2021; Siegeris, 2021). Perez-Felkner et al. (2024) show that although numerous gender-equality computing interventions exist and many demonstrate measurable success, most remain small-scale, unevenly evaluated, and poorly disseminated, limiting their translation into widespread practice and thereby sustaining gender disparities. Additionally, the evidence of success remains scattered across academic journals, conference proceedings, institutional reports, and grey literature. Research on gender disparities in computer science highlights a wide range of interacting psychological, pedagogical, and contextual factors, making it difficult for educators to identify which interventions are most appropriate or how they should be implemented within specific institutional settings (Beyer, 2014).

This paper presents TechMate, an evaluated, open-access web-based toolkit designed to translate research evidence by collating gender initiatives available and presenting them as an accessible, actionable guidance for computing educators who are aiming to implement gender balance improvements. The principal contribution is the toolkit itself, addressing the gap between fragmented research evidence and practical implementation in computing higher education. The paper is structured as follows: Section 2 reviews existing work, Section 3 describes the development process, Section 4 covers the architecture and navigation, Section 5 presents the evaluation, and Section 6 concludes with directions for future research.

2. Related Work

Various frameworks and toolkits address gender equality in computing education. The National Center for Women & Information Technology (NCWIT) developed the Undergraduate System Model (NCWITb, 2025) and Engagement Practices Framework (NCWITa, 2025). The former helps departments diagnose structural and cultural factors affecting participation, while the latter compiles research-based instructional and programme practices shown to improve inclusion. However, these resources function as conceptual guidance rather than an integrated implementation toolkit, requiring users to interpret, adapt, and operationalise recommendations across multiple documents and contexts. An additional tool, the Participant-Centred Planning Framework (Taylor-Smith et al., 2022) helps champions design and evaluate individual gender balance activities with structured checklists and participant-centred guidance, with a focus primarily on role model related activities.

International organisations have developed broader gender equality toolkits targeting policy-level interventions, including the European GEAR Action Toolbox (EIGE, 2024) and UNESCO's Resource Pack for Gender-Responsive STEM Education (UNESCO, 2017), which provide checklists, strategies, and exercises for institutional and classroom-level interventions. Disciplinary guides provide frameworks for computing-specific contexts (Moréda-Pozo et al., 2020; Spieler and Girvan, 2025), while localised toolboxes have been developed by individual institutions (NTNU, 2020; GENDIM, 2024). Informal learning communities and clubs also offer practical toolkits, such as CoderDojo's gender balance resources (CoderDojo, 2025), CAS's Inclusive Computing Resources (CAS, 2025), Girls Who Code and R-Ladies starter kits, which provide activity-based guidance and mentoring strategies (Girls Who Code, 2025; R-Ladies, 2025).

These existing resources offer valuable guidance but present limitations. Many provide high-level strategic frameworks without detailed implementation specifics (EIGE, 2024; NCWITa, 2025; OECD, 2023). Some target specific institutional/topical contexts, limiting transferability (GENDIM, 2024; NTNU, 2020; Taylor-Smith et al., 2022). Others lack direct connections to supporting research evidence (NCWITa, 2025) or while being practical, provide limited direct guidance for institutional implementation (CAS, 2025; Girls Who Code, 2025; R-Ladies, 2025). TechMate addresses these gaps by combining evidence-based initiatives, categorisation to support exploration, practical implementation guidance, direct research links, and context-adaptable resources in a single platform (TechMate, 2026).

3. Approach

TechMate is an open-access web-based toolkit. The primary target audience includes academic leads, lecturers and champions for gender equality in computing higher education sector. TechMate's development followed ISO 9241-210:2019 with human-centred design principles (ISO, 2019): design based on explicit understanding of users, tasks and environments; user involvement throughout development; design driven and refined by user-centred evaluation; iterative processes; addressing the whole user experience; and multidisciplinary design perspectives. This section describes the process through which research evidence was translated into a functional toolkit.

3.1 Core Structure of TechMate

Defining a core structure of TechMate, which shaped the information architecture of the toolkit, involved a multivocal review (Garousi et al., 2019) of academic and grey literature addressing gender imbalance in computing education. The review encompassed academic publications, institutional reports, practitioner resources, and policy documents from diverse geographic and linguistic contexts overall including over 400 sources. This approach captured valuable initiatives existing outside traditional academic channels. Each identified practice was analysed for evidence of effectiveness, contextual requirements, and implementation feasibility. Practices were categorised into four evidence-based groups of initiatives (called actions): *Policy*, *Pedagogy*, *Influence & Support*, and *Promotion & Engagement* (Berry et al, 2022) with relevant subgroups, as displayed in Figure 1.

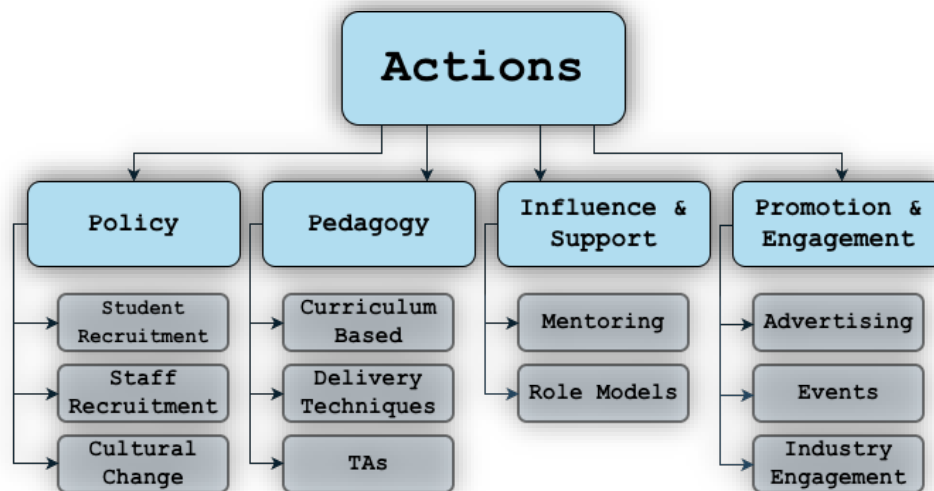


Figure 1: Categorisation of gender balance initiatives, adapted for the toolkit from Berry et al. (2022)

Policy actions require organisational-level support and potentially structural change. Subcategories are Student Recruitment Strategies, Staff Recruitment, and Cultural Change. Examples of policy actions include, gender-balanced staff recruitment, student awards programmes, marketing material redesign.

Pedagogy actions relate to curriculum, module delivery, and assessment practice. Subcategories include Curriculum Based, Delivery Techniques, and Teaching Assistants (TAs). Examples include hybrid programmes, personalised feedback in computing assignments, use of undergraduate/AI teaching assistants.

Influence & Support actions focus on inspiring women to choose computing and supporting persistence once enrolled. Subcategories are Mentoring and Role Models. Examples include buddy systems, peer mentoring programmes, industry and teaching role models.

Promotion & Engagement actions involve outreach to external stakeholders including schools, industry, and communities, as well as highlight how computing courses can be advertised to attract underrepresented gender groups in computing. Subcategories are Advertising, Events, and Industry Engagement. Examples include promotional material development, school outreach events, industry partnership sessions.

This categorisation helps educators and institutions identify which types of initiatives are feasible given their resources and constraints, guide where they want impact, and is flexible to the role of the person using the toolkit (lecturer vs. head of school).

3.2 Design Principles

Five context-specific design principles were defined for TechMate. First, *accessibility over gatekeeping* ensures research-based knowledge reaches users from the intended target audience and beyond who can benefit through registration-free access. Second, *action-orientation over theory* prioritises practical implementation guidance with ready-to-use templates, and evaluation instruments. Third, *evidence-based yet pragmatic* approaches transparently ground each action in published research with direct citation links while acknowledging contextual variation and providing flexible implementation guidance users can adapt to local contexts. Fourth, *user-centred design* accommodates diverse user types: individual lecturers, department heads, policy makers, with varied needs and familiarity levels through multiple navigation pathways and contextual filtering. Fifth, *aesthetic professionalism* ensures visual credibility and usability through clean, responsive design.

Research on educational innovation adoption identifies persistent implementation barriers, including time constraints and workload pressure (Brownell and Tanner, 2012; Henderson et al., 2011; Walczyk et al., 2007), limited institutional support (Brownell and Tanner, 2012; Henderson et al., 2011), uncertainty about effectiveness (Brownell and Tanner, 2012; Henderson et al., 2011; Prince, 2004), difficulty adapting to local contexts (Brownell and Tanner, 2012; Coburn, 2003; Henderson et al., 2011), cognitive overload and decision fatigue (Mayer, 2017; Sweller, 1994;), and lack of practical translation from theory to action (Levin, 2013; Nutley et al., 2007). TechMate's design principles directly address these barriers: modular action structure creating an action's page for even a small, potentially lightweight initiative enables selective adoption within available time

and resources; different categories of actions help users identify initiatives feasible within their authority level; transparent research grounding addresses uncertainty about effectiveness; implementation guidance that uses case studies from around the world supports adaptation to local contexts; structured navigation with consistent visual organisation reduces cognitive load and search effort; and templates with concrete guidance provide actionable resources. With the principles established as the design foundation, the following section describes how they were implemented through iterative development and prototyping process.

3.3 Development and Iterative Evaluation

A five-stage development process translated the initiative categorisation into a fully functional prototype. Stage 1 established the information architecture through structural sketching; Stage 2 tested navigation logic and content grouping via low-fidelity hand-drawn wireframes; Stage 3 inserted representative content into the design using Elementor on WordPress; Stage 4 gathered iterative feedback from eight users (specialist and non-specialist) through email, Microsoft Forms, verbal discussion, and accessibility checks; Stage 5 finalised visual styling, typography, colour schemes, and hyperlinks. A preliminary review of the interface of one page with ten TU Dublin lecturers revealed both strengths and areas requiring improvement (old vs. new version of the page is displayed in Figure 2). Participants valued the evidence-based approach, practical templates, and comprehensive evaluation guidance. However, critical usability issues emerged including dense text requiring bullet-point summaries, clunky layout with problematic contrast, small hard-to-read fonts, and insufficient immediately reusable resources. Lecturers specifically requested ready-to-use survey instruments rather than just references to published studies, visual summaries to complement text, and clearer navigation. These findings directly informed the substantial toolkit redesign including platform migration from Elementor to Divi, improved visual hierarchy and contrast, restructured layouts with progressive disclosure, larger readable text, and enhanced accessibility features. The new page (Figure 2) demonstrates improved colour contrast of the toolkit, more conventional use of fonts to improve readability, improved organisation of the information by displaying navigation on the left with content on the right and adding a specific section with downloadable resources.

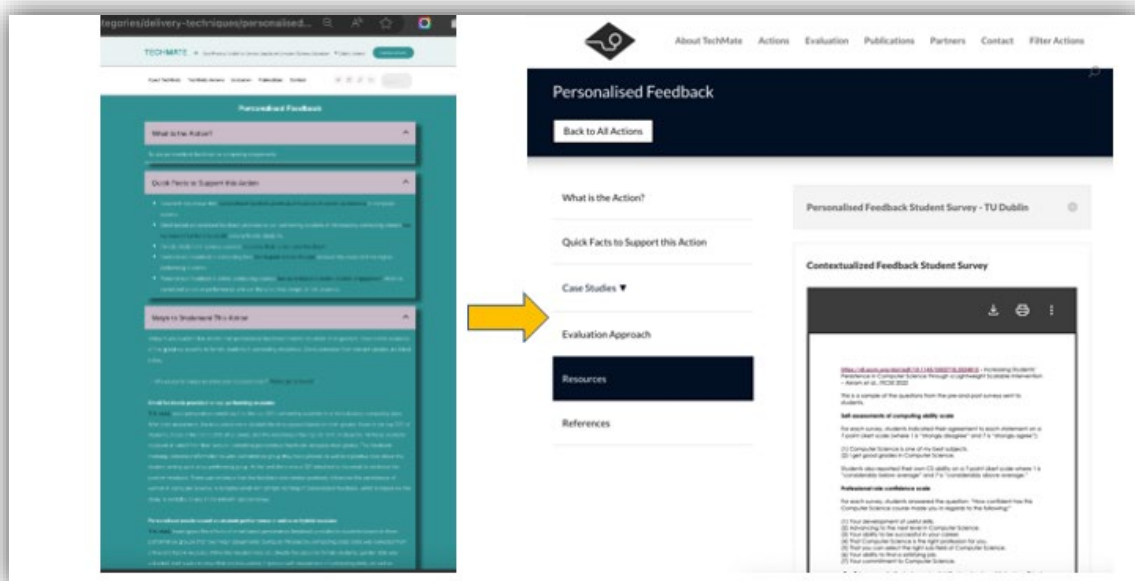


Figure 2: Personalised Feedback action's page old design vs. new, improved version

Accessibility features were designed with reference to WCAG 2.1 Level AA targets (WCAG, 2018), though initial automated checks and subsequent screen-reader testing revealed issues requiring ongoing refinement through custom accessibility plugins. Google Analytics 4 tracks usage with privacy-respecting configuration ensuring GDPR compliance.

4. TechMate's Information Architecture and Navigation

The toolkit's information architecture implements the four-strand categorisation for actions pages as established in Section 3.1. A diagram with the overall website structure is displayed in Figure 3. The Actions landing page, which is the focus of the toolkit, presents an interactive side menu displaying all four categories (as shown in Figure 4) and their respective subcategories. Currently there are 25+ actions on the website. This section describes the individual action page structure and the navigation/search logic.

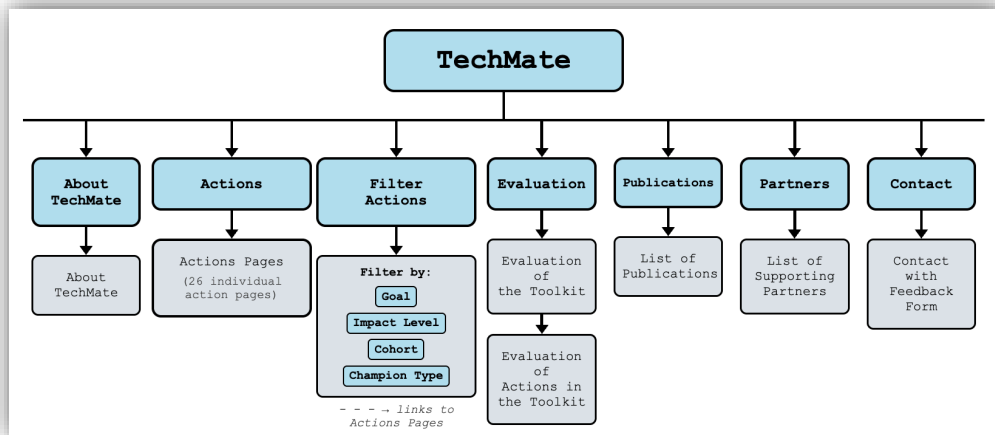


Figure 3: Structure of pages in TechMate

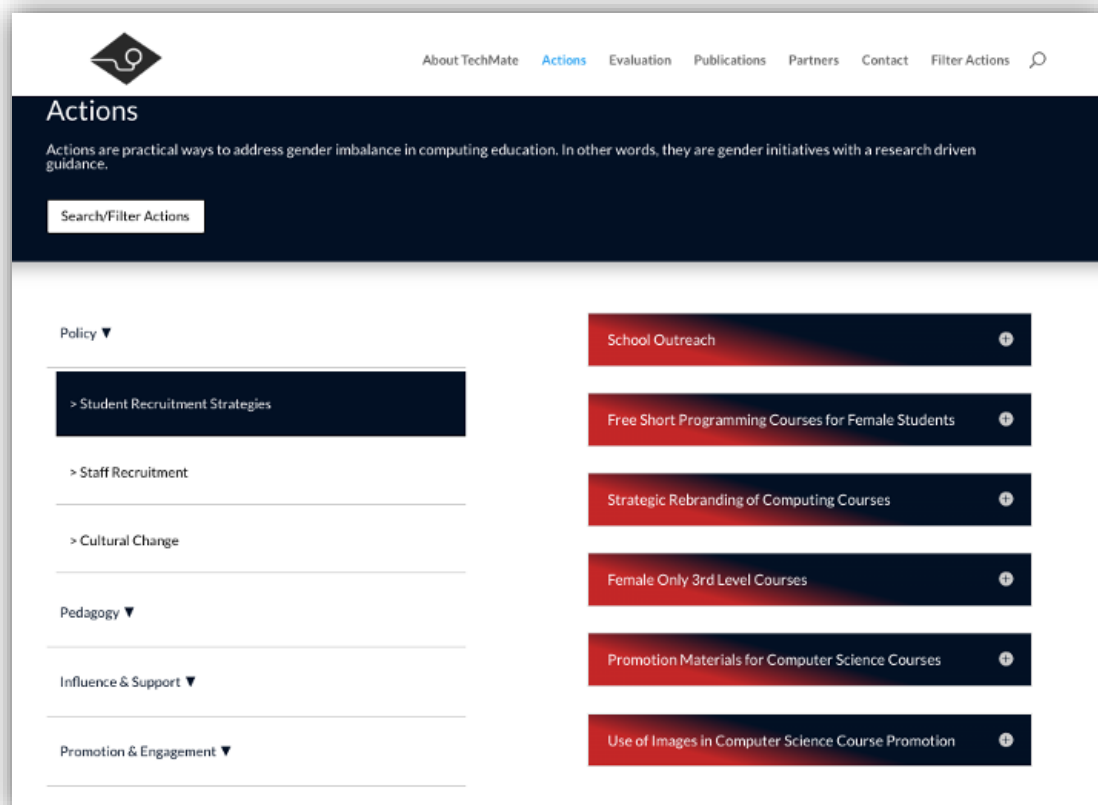


Figure 4: TechMate's Actions landing page

4.1 Action Page Structure

Each action page follows a standardised structure designed to support informed decision-making (an example of Buddy Systems' page is displayed in Figure 5):

- *What is the Action:* Concise description of the action and links to related actions where appropriate.
- *Quick Facts:* Research-derived quotes and findings supporting the rationale for the implementation , with direct links to citations.
- *Ways to Implement This Action:* Implementation approaches/ideas informed by research evidence and institutional case studies, where applicable.
- *Evaluation Approach:* Guidance for assessing the impact of the initiative, including ready-to-use survey instruments where available.
- *Resources:* Templates with ready-to-use guides or questionnaires, where available.
- *References:* Direct links to supporting academic publications and practitioner resources.

4.2 Navigation and Discovery

TechMate provides two ways of discovering relevant initiatives, accommodating different user preferences and expertise levels: the category-based navigation, and the filter-based search.

The Actions landing page presents all initiatives organised by category and subcategory. Users explore categories through an interactive left-side menu as discussed earlier and presented in Figure 4, with relevant actions displayed in the main content area. This approach suits first-time users and those seeking comprehensive understanding of available initiatives. Tooltip descriptions provide contextual information about each category and subcategory. Actions may appear in multiple categories where contextually appropriate (e.g., School Outreach appears in both Student Recruitment Strategies and Events).

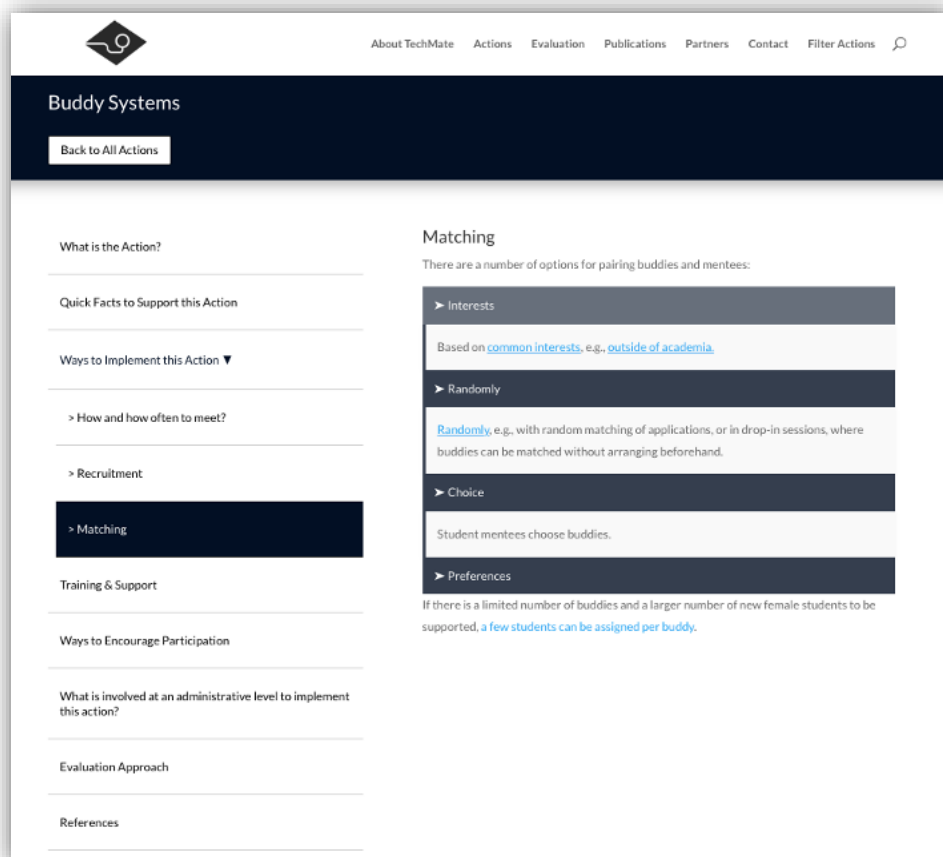


Figure 5: Buddy Systems action page

The Filter Actions page (Figure 6) enables targeted search. Users specify criteria across four dimensions:

- *Ultimate Goal*: Student recruitment or retention
- *Level of Impact*: Short-term or long-term initiatives
- *Student Cohort Targeted*: New students, undergraduate students, or postgraduate students
- *Role Required*: Lecturer, Manager, Policy Maker, or Other

This functionality supports returning users and those seeking initiatives matching specific user goals or needs.

5. Evaluation of TechMate

This section describes the evaluation design, participant sample, and findings for both perceived usefulness and usability of TechMate.

5.1 Methodology

The TechMate evaluation used a mixed-methods approach examining perceived usefulness and usability. Usefulness was operationalised through four theory-driven attributes — *novelty*, *relevance*, *trustworthiness*, and *actionability* — aligned with Perceived Usefulness (Davis, 1989) and Performance Expectancy (Venkatesh et al., 2003). Usability was assessed via effectiveness, aesthetics, navigation, terminology (Nielsen, 1993; Norman, 2013), and user satisfaction (ISO, 2018), collectively informing Perceived Ease of Use (Davis, 1989). Eighteen computing educators (11 women, 7 men) from eight Irish universities participated in facilitated observational sessions of 30–90 minutes. Using a think-aloud protocol, participants completed two tasks — identifying an immediately implementable initiative and selecting the most promising initiative assuming unlimited resources — followed by semi-structured interviews. Transcripts were analysed through extraction of 869 deductively coded meaningful units assigned to predefined attributes, and 158 inductively coded units capturing emergent themes (Braun and Clarke, 2006). Three independent coders scored each unit on a 5-point Likert scale, with scores averaged per participant per attribute.

Transcripts underwent systematic analysis through three complementary methodological phases, ensuring both depth and reliability of findings. Meaningful units—coherent textual segments capturing discrete ideas relevant to the evaluation objectives (Braun & Clarke, 2006) – were extracted first. Each unit represented a single, complete thought from participant discourse. This process resulted in 1027 units, with 869 then being deductively assigned to the predefined usefulness or usability attribute. Three coders independently scored each unit on a 5-point Likert scale (with 1 – “Very Negative” to 5 – “Very Positive”), with a discussion that followed between the coders to resolve ambiguities. Scores were individually averaged per participant per attribute. Finally, remaining 158 units were coded inductively using thematic analysis by Braun & Clarke (2006).

The screenshot shows the 'Filter Actions' page of the TechMate application. The page has a navigation bar at the top with links: About TechMate, Actions, Evaluation, Publications, Partners, Contact, and Filter Actions (which is highlighted). Below the navigation bar, the main content area is titled 'Filter Actions'. On the left, there is a list of actions: 'Undergraduate Student TAs - Action', 'Revising Modules - Action', and 'Buddy Systems - Action'. Each action has a brief description and a 'Read more...' link. On the right, there is a filter sidebar with several sections: 'Are you looking to recruit or retain underrepresented gender groups?' with checkboxes for 'Recruit' and 'Retain'; 'What level of impact is required?' with checkboxes for 'Short-term impact' and 'Longer-term impact'; 'What student cohort is being targeted?' with checkboxes for 'New students', 'Undergraduate students (any level)', and 'Postgraduate students'; and 'Who needs to be involved to start a gender initiative?' with checkboxes for 'Lecturer/Academic', 'Managerial role', 'Policy maker', and 'Other (external role possible)'. At the bottom of the filter sidebar is a 'Search' button.

Figure 6: Filter Actions page with sample results

5.2 Results

Participants selected 18 of the 26 available initiatives (69%), demonstrating broad relevance across roles ranging from junior lecturer to academic leader. Action selections clustered strongly around low-cost, immediately implementable practices. The most frequently chosen initiatives were Gender Balanced Participants at Computing Events, Class/Lab Setup, Family Friendly Course Schedule, and Buddy Systems. Table 1 presents the key frequency distribution of selected actions. Notably, 28% of participants (n=5) made unprompted statements indicating intent to implement a selected action immediately or within weeks, without requiring institutional support or additional budget. 44% (n=8) expressed clear implementation intent.

Table 1: Key action selections: frequency and implementation context (n=18)

Action	Category	n	%	Why it stands out
Gender Balanced Participants at Computing Events	Promotion & Engagement – Events	5	28%	Most frequently selected action overall; achievable by adjusting existing event recruitment with no additional budget
Class/Lab Setup	Pedagogy – Delivery Techniques	4	22%	Requires no policy change; within individual lecturer control
Buddy Systems	Influence & Support – Mentoring	4	22%	Low-cost support structure; can be built on existing student societies with no dedicated budget line
Short Meetings with First Year Students	Influence & Support – Mentoring	3	17%	Explicitly cited for immediate implementation by 2 participants; requires no budget or approval
Role Model Delivering a Guest Lecture	Influence & Support – Role Models	3	17%	Deliverable within existing timetable; potentially low cost
Family Friendly Course Schedule	Policy – Cultural Change	4	22%	Highest-selected policy action; requires institutional coordination but no direct budget

Quantitative evaluation showed consistently positive perceptions across all attributes. Actionability received the strongest feedback for usefulness, with 83% of participants rating it positively or very positively. Novelty and relevance were rated positively by at least 78% of participants, and trustworthiness by 72%, largely attributed to the inclusion of research citations. Usability attributes received positive ratings from approximately two-thirds of participants, with 95% reporting positive overall user satisfaction. Qualitative analysis further revealed that participants valued TechMate as a tool for overcoming practical barriers such as time constraints, institutional resistance, and student isolation, by providing concrete implementation examples, ready-to-use evaluation templates, and peer-reviewed evidence to support advocacy within their departments.

This evaluation carries limitations. The sample of eighteen computing educators exclusively from Irish universities is relatively small and geographically narrow; findings should therefore be interpreted as indicative rather than generalisable across broader institutional or cultural contexts.

6. Conclusion and Future Work

TechMate provides computing educators with a consolidated, research-driven starting point for gender equality actions, structured to reduce the effort of identifying and implementing relevant initiatives. Educators consistently identified initiatives they could act on within their existing roles, with many expressing unprompted intent to implement specific actions immediately. The toolkit's value lies not only in consolidating over 400 sources, but in translating that evidence into a form educators recognise as directly usable. Future work will prioritise a longitudinal study of implementation uptake, expansion of case studies beyond Irish institutions to address the current evaluation's geographic limitations, and a straightforward community contribution mechanism enabling practitioners to share implementation experience.

Ethics Declaration: Ethical approval was obtained at TU Dublin for the evaluation of the toolkit (TechMate Evaluation study).

AI Declaration: Generative AI tools assisted with formatting of text in this paper. All research, analysis, findings, and intellectual content are the original work of the named authors.

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Work in Progress Papers

Professional Women in Japanese Television Commercials: A Data-Driven Study

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Abstract: This research examines how representations of professional women in Japanese television commercials have changed over time, from 1985 to 2005. The study adopts a data-driven approach in which information about commercials is recorded and stored in a structured database. Digital humanities and statistical methods are used to identify hidden biases and obtain insights that may not be immediately noticeable through simple viewing and qualitative analysis of the commercials. The aim of this research is to identify the factors linking gender and employment and to examine how these factors shape the representation of female professionals. The analysis focuses on commercials that received the All Japan Radio & Television Commercial Confederation Award (ACC Awards). The ACC awarded commercials are chosen for their impact and availability. The commercials are first viewed and then systematically described using a structured data format. The dataset records what characters do, where they act, and how they are represented in each commercial. The resulting data are stored in a database from which samples can be extracted, based on which several statistical models are constructed. By examining the variables of these models, the relative importance of different factors can be evaluated. The analysis shows that during the 1980s foreign women had a higher probability of being represented as professionals. In this period, the variable "ethnicity" had greater weight than factors such as age. By constructing similar models for different periods, it becomes possible to observe how these patterns evolved over time. For example, during the 1990s ethnicity lost much of its influence as Japanese women increasingly appeared as professionals. However, these portrayals were still often associated with young age and were frequent when not in presence of a man. By identifying the biases underlying these representations and tracing their evolution over time, the study will provide new insights into how professional women have been portrayed in Japanese television advertising.

Keywords: Japanese television advertising, Media stereotypes, Professional women, Gender representation, Structured data analysis, ACC Awards

1. Introduction

When people watch commercials, they are not only being persuaded to buy a product, their worldview is influenced as well. Young people learn from media how to behave according to gender-based expectations (Tuchman 2000). If women are portrayed mostly in domestic environments or service occupations, while men appear primarily in professional settings, these representations may reinforce existing perceptions of gender roles.

Pongsapitaksanti (2008, 2017) conducted comparative studies of Japanese and Thai television commercials using advertisements that received the ACC or TACT awards (Pongsapitaksanti 2008, 2017). These studies analyzed gender roles mainly through variables of gender and setting, such as the home and workplace as determining factors in whether individuals were depicted as housewives or working individuals. However, this approach does not consider the combined influence of other factors such as age, ethnicity, or authority. Sakamoto et al. (2003) found that the increase over time was primarily in the portrayal of women as intellectuals rather than in their depiction as being employed, while Arima (2003) showed that men were most often portrayed as professionals and women more frequently in stereotypical roles (Arima 2003, Sakamoto et al. 2003). In contrast, the present research focuses specifically on the portrayal of working women and examines the factors shaping the representation of female professionals over time. By systematically analyzing multiple attributes recorded in a database of commercials, this study aims to reveal patterns in the depiction of professional women that have not been addressed in previous research.

While some gender stereotypes in commercials can be observed through manual viewing, other biases may remain hidden. This paper demonstrates how both visible and hidden biases in commercials can be identified automatically and measured quantitatively. Once identified, the causes of these biases can be examined in relation to the historical situation in which the commercials were produced.

2. Methodology

2.1 Data Structure

A structured dataset is created using commercials that have received the All Japan Radio & Television Commercial Confederation Award (ACC Awards) between years 1985 and 2005. Each commercial is viewed,

and its contents are recorded in a database. The data record is stored as JSON in a MongoDB database, while a web application is used to create and edit records to minimize data entry errors.

Each commercial is described through attributes of the people appearing in the commercial: the action they perform, characteristics of the accompanying people, the setting, or the overall mood of the scene. From the structured data, tabular data is created using MongoDB queries. Each sample contains variables such as gender, age group, ethnicity, setting, and occupation of the person. This tabular data is then used as training data to build the statistical models using *chebboost* and *scikit-learn* in Python.

2.2 Tree Based Models

One of the statistical models, a decision tree, partitions the dataset by repeatedly splitting it on variables such as gender, age, ethnicity, and other attributes to lower the entropy. Decision trees are easy to interpret because they show how specific combinations of attributes lead to particular outcomes. Since a tree model partitions the dataset, it only shows local effects within a branch, for example the effect of age on Japanese females. By calculating the feature importance of the tree, the global effects of the variables can be shown as well.

2.3 Probit Regression

In addition to tree-based models, a probit regression model is used to estimate the probability that a person in a commercial is depicted as having a job. The marginal effects of the model indicate how changes in individual variables influence the probability of being depicted as having a job. Variables with larger absolute marginal effects have a stronger influence on the outcome, while negative values indicate a negative relationship. Regression models only provide a global view of how variables influence the outcome across the entire dataset.

2.4 Temporal Analysis

Once sufficient data has been collected for individual years, the importance of variables obtained from statistical models can be examined over time. For regression models, this involves plotting the marginal effects of variables across different periods. For tree-based models, feature importance scores can be used. By comparing these measures across years or decades, factors influencing the depiction of professional women can be discovered. This temporal analysis will reveal how certain attributes, such as ethnicity, age, or gender interactions, gain or lose importance in shaping representations of working women in Japanese television commercials.

3. Preliminary Results

The decision tree model (Figure 1) shows that men will be shown in a professional position regardless of other variables. For women, young women and older foreign women are shown as practicing a professional occupation, while older local women will not be depicted as having a job.

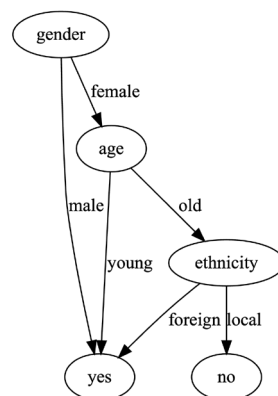


Figure 1: A decision tree built from samples

Using the tree model, it is also possible to split the data into periods with different outcomes. When year is added to the tree model, a cut-off point is automatically created in 1998 where the branches become slightly different. When creating two separate models, the model starting from 1999 no longer gives a positive importance to being foreign (Table 1). The factor of being female becomes less negative but being young increases in importance.

Table 1: The feature importance of the decision tree

Attribute	Feature importance	Up-to 1998	From 1999
female	-0.0206	-0.0207	-0.0176
young	0.6778	0.3311	0.6846
foreign	0.3381	0.3369	-0.3428
outside	0.0047	0.3527	0.6758

The probit regression model shows that being female decreases the probability of being depicted as a professional, while being young, foreign, or being outside increases the probability (Table 2).

Table 2: The marginal effects of the probit regression model

Attribute	Marginal effect	Standard error
female	-0.1577	0.022
young	0.2480	0.021
foreign	0.2683	0.056
outside	0.1492	0.034

Both models show that in general, being a woman is a disadvantage. On the other hand, being young, foreign, or being outside is an advantage. The tree model gives more importance to factor young while the probit regression model finds both young and foreign of equal importance.

4. Discussion and Conclusion

The data confirms previous findings of men of all ages being portrayed as working but mostly of only young women portrayed as employed (Arima 2003, Sakamoto et al. 2003). For some of the biases we can find historical reasons of why these exist. Men typically worked throughout their lives, while women were more likely to withdraw from employment once married and therefore tended to be portrayed as having an occupation only when young and unmarried. One reason for women's withdrawal from occupation were policies favoring women's stay-at-home lifestyle in the form of large pensions for the non-working wives of employees of large companies (1985) and the tax deduction for those with dependent spouses (1986) (Ochiai 2011).

Foreign women are an important exception to this pattern. The analysis shows that during the 1980s and early 1990s, foreign women had a significantly higher probability of being represented as professionals, with the variable *ethnicity* exerting a stronger influence than factors such as age. This suggests that female professionalism in Japanese television commercials was at the time closely associated with Western identity rather than with Japanese women themselves. Western lifestyles and images were already idealized in Japan in the 1970s, prior to the bubble economy of the 1980s, however, in the case of female professionalism in advertising, this association persisted into the 1980s and early 1990s. As a result, when professional women were depicted, they were often portrayed by foreign actresses. While Arima (2003) and Sakamoto et al. (2003) pointed out the limited representation of Japanese women as professionals, this analysis demonstrates that this absence was not only a matter of gender but also strongly linked to ethnicity.

Further insights emerge from the analysis of gender interactions. A decision tree model using the variables *female* and *malePresent* shows that the presence of a man significantly reduces the possibility of a woman being depicted as a professional. This suggests that women's professional identity is less likely to be constructed in relational contexts involving men, pointing to hidden gender bias in advertisements.

These findings show that television commercials both reflect and reinforce broader social and cultural structures. By combining structured data analysis with statistical methods, this study can discover hidden gender biases and provide a better understanding of how professional identities of women are constructed in Japanese media over time.

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Conditional Female Agency in Chinese Media: Intersecting Gender, Class, and Consumerism

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Abstract: Post-socialist China provides a paradoxical context for women, where economic independence is promoted even as traditional gender norms endure, shaped by class stratification and consumerist values. Drawing on intersectional feminist theories (Crenshaw, McRobbie, Banet-Weiser), this paper analyses the 2017 TV series *The First Half of My Life* by tracing protagonist Luo Zijun's transformation from dependent housewife to "independent" professional through character dialogue, visual semiotics of costume and setting, and cultural context. The analysis shows how the series frames female empowerment through neoliberal ideals of consumption, professional self-reinvention, and class-based mobility, while Zijun's apparent success remains profoundly conditional. Her ascent depends on class privilege and elite social capital, which undercuts the narrative of self-made agency. Juxtaposing Zijun with her professional friend and working-class sister further reveals how patriarchal expectations cut across class, while meaningful upward mobility remains tied to elite networks. Overall, the study argues that the series simultaneously critiques patriarchy and endorses commodified, consumer-driven notions of empowerment, challenging simplistic empowerment narratives and demonstrating how female agency in contemporary Chinese media is shaped by class-based conditions.

Keywords: Intersectional feminism, Female empowerment, Chinese media, Gender, Class, Consumerism

1. Introduction

The 2017 television adaptation *The First Half of My Life* (《我的前半生》), based on Yi Shu's novel, became one of the most widely discussed Chinese dramas of the year, generating high ratings and sustained debate on platforms such as Weibo and Douban. The series achieved strong cultural resonance at a time when debates about gender equality and female independence were intensifying in urban China. The protagonist Luo Zijun(罗子君), a full-time wife pushed into the workforce after her divorce, became a symbol for many viewers of the precarious conditions faced by many middle-class women navigating conflicting expectations of tradition, professionalism, and self-realisation.

This paper adopts an intersectional feminist framework to examine how *The First Half of My Life* depicts women's agency in post-socialist China. Following Crenshaw's (1989) insight that gender, class, and other social positions intersect to shape lived experiences, the analysis situates Zijun's personal trajectory within broader shifts in state policy, workplace structures, and emerging consumer culture.

Under socialist and early reform-era policies encouraged women to participate in paid work and promoted formal gender equality, yet research shows that women were still expected to carry the primary burden of domestic labour (Evans, 2008). Market reforms intensified these contradictions. Scholars argue that post-socialist culture encourages women to express femininity, social status and desirability through consumption (Rofel, 2007; Friedman, 2005), while the rise of the middle-class "full-time wife" links a woman's value to marriage and lifestyle rather than independent income (Fincher, 2014). These combined pressures of family duty, market-shaped femininity and class aspiration form the background to Zijun's move from dependence to only limited autonomy. The series is therefore read as a cultural text that shows how her agency is structured and constrained by classed and gendered expectations, and what this reveals about the meaning of "empowerment" for urban Chinese women.

2. Classed Femininity, Consumerism and the Limits of Empowerment

The series presents women's lives in post-socialist urban China as shaped by the intersection of gender and class. Zijun's early life shows how a comfortable middle-class position can still limit women's agency. In the first episode, her clothes, shoes and accessories clearly mark her as a woman from an upper-middle-class background: she wears expensive heels and carries luxury bags, and her make-up and styling are always carefully done. She spends much of her time on beauty routines, shopping and meeting friends. This lifestyle gives her symbolic status but weak practical power. She appears elegant and successful, but because she depends on her husband's income and has left paid work, she has little control over her future.

Zijun's behaviour recalls Skeggs' (1997) argument that femininity is not only a set of personal traits, but a classed project of "becoming respectable", in which women use ways of behaving, dressing and living to gain

moral and social value according to middle-class norms. In front of her friends, she adopts a proud and superior manner, looks down on the simple food they have, and claims that she has eaten “much better” things. Before her divorce, she spends much of her time in luxury stores and beauty salons. She believes that maintaining her appearance will secure both her marriage and social status, which is an example of what Gill (2007) calls “aesthetic labour”. She even draws attention to the cost and delicacy of her luxury shoes, saying that “these shoes cost more than 6,000 yuan; they’re lambskin soles and will be ruined if they touch water”, to signal the amount of aesthetic labour and investment required to maintain her appearance. She also posts polished family photos with her husband and child on social media to gain “likes” and curate a supposedly enviable life. Through these acts, Zijun performs a respectable, caring, beautiful wife-mother role that displays her family’s middle-class status.

Zijun’s close friend Tang Jing is also a woman from the upper-middle class, yet she lives out this class position in a very different way. While Zijun embodies the “full-time wife” ideal in China’s new middle class, Jing is a senior corporate professional who builds her status through work rather than marriage. She is competent, independent and well paid, but her success depends on long hours, constant self-discipline and emotional strain. She has to work harder than her male colleagues to keep her position and manage the pressures of leadership. The contrast between the two women shows that class privilege does not remove gender inequality; instead, it determines how that inequality is experienced. Both women benefit from upper-middle-class resources, but their agency remains conditional: Zijun’s respectability is built on economic dependence and leaves her highly vulnerable when her marriage ends, while Jing’s autonomy is secured at the cost of overwork and persistent pressure.

The series also links women’s agency to consumerism and bodily self-management through Tang Jing’s image. As a professional woman, Jing adopts a clearly “professional” style: her clothing is simpler and more tailored than Luo Zijun’s, her behaviour is more controlled, and her appearance is carefully managed. She looks confident and powerful, and the series presents her as a model of modern, independent womanhood. However, this professional image also depends on access to fashion, services and social networks that are only available to women with a certain level of class privilege. In this way, the series suggests that empowerment is achieved not only through work but also through performing the “right” look and lifestyle. This reinforces a model of conditional agency that is shaped by gender norms and by unequal access to class-based resources.

Zijun’s sister, Luo Ziqun, serves as a counterpoint that illuminates the class-conditioned limits of female agency. She marries “down” into a family with limited economic resources and lives under constant financial pressure. Their mother repeatedly criticises her choice, especially in comparison with Zijun’s earlier marriage into comfort, highlighting how class status shapes women’s perceived success. Ziqun’s low income, childcare responsibilities and lack of alternatives mean she cannot easily leave her husband, even when the marriage is unhappy. Her situation shows how women with fewer class resources have even less room to manoeuvre: their agency is constrained not only by gendered expectations of being a “good” wife and mother, but also by the structural limits imposed by poverty and dependence (Crenshaw, 1989).

The series also shows Ziqun performing intense emotional labour for her family, managing conflicts, supporting her husband and caring for her child, which are forms of “hidden work” that remain unpaid and largely unrecognised (Hochschild, 2019). Unlike Zijun, she has little access to consumer goods or a polished middle-class lifestyle through which to claim a sense of empowerment. Viewed alongside her sister, Ziqun makes visible another face of conditional agency: while Luo’s class privilege allows a temporary, consumption-driven sense of security that later collapses, Ziqun experiences structural constraints from the outset. Together, their stories illustrate how Chinese media imagines female agency as always shaped and limited by the intersecting forces of gender, class and, crucially, unequal access to consumerist forms of “empowerment”.

When Zijun’s marriage ends, the middle-class femininity she has performed as a full-time wife is exposed as fragile; without independent income or recent work experience, the security once provided by her husband’s salary quickly turns into economic risk. Her difficulty re-entering the labour market shows how gendered expectations that wives should withdraw from paid work can leave women unable to support themselves, even in an urban context that promotes images of modern equality. Luo’s move into a corporate office marks the start of a partial recovery of agency but also reveals what Acker (1990) calls “gendered organisations”: workplaces that appear meritocratic yet are structured around masculine norms of uninterrupted careers, long hours and constant availability. In several scenes, senior posts are held mainly by men, and Zijun is questioned about her years spent “just” as a housewife and pressured to work overtime despite her family responsibilities. These interactions link her personal struggle to broader patterns in Chinese corporate culture, where women

returning from marriage or motherhood must adapt to rules built around male life courses rather than reshaping those rules.

3. Conclusion

This paper has argued that *The First Half of My Life* offers a striking example of conditional female agency in post-socialist Chinese media, where women's choices are structured by the intersecting forces of gender, class and consumer culture. By tracing Luo Zijun's movement from full-time wife to professional worker alongside the contrasting trajectories of Tang Jing and Luo Ziqun, the analysis shows how middle-class femininity is both enabled and tightly constrained by class privilege, gendered family norms and the gendered organisation of corporate work. For feminist media studies and Chinese cultural studies, this case study demonstrates the value of an intersectional framework for reading popular drama not simply as "empowering" or "patriarchal", but as a contradictory site where neoliberal ideals of self-reinvention and consumerist "choice" coexist with enduring structural inequalities. Although the series appears to celebrate female independence, its narratives of success rely on access to elite networks, respectable appearance and forms of marketable bodily discipline, while leaving intact the social arrangements that render most women's autonomy precarious. By foregrounding these tensions, the conclusion returns to the core argument: that the women in *The First Half of My Life* do not exercise full or unfettered agency, but rather a conditional agency: one that emerges within, and is continually constrained by, the intersecting structures of gender, class and consumerist norms in contemporary Chinese media culture.

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