Cape Peninsula University of Technology

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Proceedings of the 25th European Conference on Research Methodology for Business and Management Studies

Hosted by Cape Peninsula University of Technology, Cape Town, South Africa

6-7 August 2026



Shawren Singh

and Ejindu Iwelu Morah

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Proceedings of the

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ECRM 2026

6-7 August 2026

Hosted By

Cape Peninsula University of Technology

Cape Town, South Africa

Edited by

Shawren Singh and

Ejindu Iwelu Morah

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ECRM Editorial

These proceedings represent the work of contributors to the 25th European Conference on Research Methodology (ECRM 2026), hosted by Cape Peninsula University of Technology, Cape Town, South Africa on 6-7 August 2026. The Conference Chair is Shawren Singh, from Cape Peninsula University of Technology, Cape Town, South Africa, and the Programme Chair is Ejindu Iwelu Morah, from York St John University, London, UK.

ECRM is a well-established event on the academic research calendar and now in its 25th year and remains an opportunity for participants to share ideas and meet. The aims and scope of this conference is to bring together researchers from a range of disciplines and sectors to share expertise and novel approaches in business and management research methods. ECRM is interested in contributions on the subject of research methods used in business and management research. The papers tend to either focus directly on creating and implementing innovative methodologies or research papers which highlight an interesting use of methodologies in their study.

The opening keynote presentation is given by Hussein Suleman, University of Cape Town, South Africa, with the title *The Meandering Evolution of Scholarly Communication.* On the second day, Renitha Rampersad, Cape Peninsula University of Technology, South Africa, UWE Bristol, UK will give a talk on the subject *Caffeine, Sleepless Nights and a Ghoul.*

With an initial submission of 90 abstracts, after the double blind, peer review process there are 27 Academic research papers, 2 PhD research paper, and 1 work-in-progress paper published in these Conference Proceedings. These papers represent research from Bulgaria, Canada, China, Germany, Ireland, Latvia, Malaysia, Mexico, Pakistan, Portugal, South Africa, Uganda, UK and the USA.

We hope you enjoy the conference.

Shawren Singh,
Cape Peninsula University of Technology
Cape Town
South Africa
August 2026

About the 25th European Conference on Research Methodology in Business and Management, 2026

The European Conference on Research Methodology in Business and Management (ECRM) is a long-standing academic conference, held annually for 25 years, dedicated to advancing the understanding and application of research methodologies in the fields of business and management. The conference provides a forum for scholars, researchers, and practitioners to share insights, explore new approaches, and discuss the challenges and innovations in research methods. ECRM is known for its rigorous peer-reviewed proceedings, ensuring that the research presented meets high academic standards. By covering a wide range of methodological issues and innovations, the conference plays a crucial role in shaping the future of research in business and management, promoting the development of robust and impactful research practices.

The Proceedings of the 25th ECRM, 2026 includes academic research papers, a PhD research paper and a Masters research paper as well as a work-in-progress paper, which have been presented and discussed at the conference. The proceedings are of an academic level appropriate to a research audience including graduates, post-graduates, doctoral and post-doctoral researchers. All papers have been double-blind peer reviewed by members of the Review Committee.

Aims and Scope

ECRM enhances the quality and rigor of research in business and management by focusing on the methodologies used in these fields. The conference encourages the development and dissemination of innovative research methods, promotes best practices, and fosters a deeper understanding of the theoretical and practical implications of research methodologies. It serves as a key platform for the exchange of ideas among academics, doctoral students, and practitioners who are engaged in the study of business and management. The scope of the conference is broad, encompassing both qualitative and quantitative research methods, as well as mixed methods approaches. ECRM emphasises the importance of methodological rigor, the ethical considerations in research, and the application of appropriate techniques to address complex business and management problems.

Topics Covered

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

Qualitative Research Methods

- Case Study Research
- Ethnography and Grounded Theory
- Narrative and Discourse Analysis

Quantitative Research Methods

- Statistical Techniques and Data Analysis
- Survey Design and Implementation
- Experimental and Quasi-Experimental Designs

Mixed Methods Research

- Integration of Qualitative and Quantitative Methods
- Triangulation Techniques

Innovative and Emerging Research Methods

- Digital and Online Research Methods
- Machine Learning and AI in Research
- Visual Methods

Philosophical and Theoretical Foundations

- Epistemology and Ontology in Research
- Theory Development and Conceptual Frameworks

Ethics in Research

- Research Ethics and Integrity
- Ethical Challenges in Digital Research

Practical Applications of Research Methods

- Action Research and Participatory Methods
- Consulting and Business Research
- Research in Emerging Economies

Full details about the conference can be seen from the conference website:
https://www.academic-conferences.org/conferences/ecrm/

Biographies of Chairs and Keynote Speakers

Conference and Programme Chairs



Ejindu Iwelu MacDonald Morah is a Senior Lecturer and Programme Director MBA Healthcare Management at York St John University, London. He holds a PhD in Marketing from Anglia Ruskin University, Cambridge. An award-winning educator, he has taught at University of Westminster, presented at global conferences, serves on editorial boards of journals, and examines doctoral theses Internationally across universities. He is also a review, editorial board and international advisory scientific board member for several international journals.



Shawren Singh PhD, is an associate professor and Head of Department of the Graduate Centre for Management at the Cape Peninsula University of Technology. He has spent more than 25 years teaching and researching in the Information Systems space. He was awarded a Fulbright Scholar-in-Residence grant in 2024. In 2014 he obtained his PhD, based on research into eGovernment in South Africa, from the University of the Witwatersrand. His current research has focused on digital scholarship and e-Government, and his research has been internationally recognised. He is currently supervising several post-graduate candidates, and he was the Chair of Information Systems in the School of Computing at the University of South Africa

<u>Keynote Speakers</u>



Professor Renitha Rampersad has a DPhil from the University of Zululand, in South Africa. She is the Assistant Dean of Research and Innovation in the Faculty of Business and Management Sciences at the Cape Peninsula University of Technology. Her research on transformation in business, digitalisation, work integrated learning and women mentorship has contributed to co-edited books and authored chapters in journals. She is involved in national and international funded research projects. She leads a multidisciplinary project on transformation of the socio-economic environment which aligns with digitalisation and infrastructural challenges with BRICS countries.



Hussein Suleman is the Dean of Science at the University of Cape Town in South Africa. His research is situated within the Digital Libraries Laboratory in the Department of Computer Science, with a focus on digital libraries, ICT4D, African language Information Retrieval, cultural heritage preservation, Internet technology and educational technology. He has in the past worked extensively on architecture, scalability and interoperability issues related to digital library systems. He has worked closely with international and national partnerships for metadata archiving, including: the Open Archives Initiative; Networked Digital Library of Theses and Dissertations; and the NRF-CHELSA South African National ETD Project. His recent research has a growing emphasis on the relationship between low resource environments and digital library architectures. This has evolved into a focus on societal development and its alignment with digital libraries and

information retrieval. He is currently collaborating with various colleagues in digital humanities groups to develop a proof-of-concept and experimental low-resource software toolkit for digital repositories; this reconceptualision of the architecture of digital repositories will arguably lower the bar for adoption and reduce the risk of data loss for archivists in low-resource environments.

ECRM Review Committee

ECRM 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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Technology, Poland;Prof Derrouz Hatim, University of Ibn Tofail, Morocco;Dr Saadia Irfan, National University of Sciences and Technology, Pakistan.

Living Labs as Research Methodology: From Innovation Buzzword to Epistemic Tool

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Abstract: Living Labs have proliferated across EU-funded research programmes as vehicles for co-designing solutions to complex urban challenges, yet their methodological implications remain poorly understood. The literature primarily theorises Living Labs as platforms for co-creation and innovation delivery rather than as a research approach, leaving unexamined what they distinctively enable researchers to know. This paper investigates the epistemic capabilities the Living Lab approach makes available and how these differ from established field research methods. Drawing on four years of embedded experience within FOOD TRAILS, a Horizon 2020 project establishing urban food policy Living Labs across eleven European city-regions, a comparative framework is developed positioning Living Labs alongside case study research, ethnography, and participatory action research across six dimensions. The analysis identifies four epistemic capabilities that no single comparator method offers with comparable structural depth: extended engagement across complete policy implementation cycles; simultaneous access to diverse stakeholder perspectives through the quadruple helix architecture; real-time observation of dissemination and acceptance dynamics; and tracking emergent patterns through active intervention. The paper also documents a systematic theory-practice gap in which funded programme conditions constrain the realisation of these capabilities. These findings offer both a comparative methodological framework and practical guidance for scholars increasingly required to adopt a Living Lab approach.

Keywords: Living Labs; Research Methods; Epistemic Capabilities; Theory-practice Gap.

1. Introduction

Over the past two decades, Living Labs (LLs) have become a prominent feature of European research and innovation policy. Defined as user-centred, open innovation ecosystems that integrate research and innovation processes in real-life contexts through multi-stakeholder collaboration (Hossain et al, 2019; Leminen et al, 2012), Living Labs have proliferated across EU-funded programmes as vehicles for co-designing solutions to complex urban challenges (EnoLL, n.d.; McLoughlin et al, 2018). Their appeal lies in the distinctive promise that embedding research within real-world settings and actively involving users generates knowledge that established field studies cannot readily produce. Yet despite this proliferation, the scholarly status of Living Labs as a research methodology remains underdeveloped. The methodology literature lacks systematic understanding of what the Living Lab format makes epistemically available, how it differs from established field research methods, and under what conditions it adds distinctive value.

This gap matters with increasing urgency. As Living Labs become a standard requirement in European research funding Programmes, scholars are being invited to adopt a methodological approach whose epistemological implications remain poorly understood. Theoretically, a methodology that cannot be positioned within existing scholarly approaches cannot be rigorously evaluated. Practically, researchers need clarity on what they are being asked to do methodologically and what it means for the knowledge they can generate.

The scholarly literature on Living Labs has grown considerably since the concept gained traction in the mid-2000s (McLoughlin et al, 2018). Foundational work has established core definitional elements, including experimentation in real environments, co-creation, and user centrality (Dubé and Paré, 2003), as well as theoretical grounding in open innovation (Chesbrough, 2003; Chesbrough and Appleyard, 2007) and co-creation (Mulder and Stappers, 2009). Research has mapped actor roles and governance challenges (Nyström et al, 2014). However, bibliometric analysis confirms that Living Lab research remains fragmented, heavily concentrated in Europe, and predominantly practice-oriented, with persistent theoretical and methodological gaps (McLoughlin et al, 2018). Crucially, when researchers study Living Labs empirically, they most commonly reach for case study methodology - a pattern that confirms the perceived affinity between the two approaches whilst simultaneously underscoring the failure to theorise what Living Labs themselves enable as a methodology.

Living Labs share structural characteristics with established field research methods (Myers, 2019), including case study research (Yin, 2009), ethnography (Geertz, 1973; Hammersley and Atkinson, 2007), and participatory action research (PAR) (Baskerville and Myers, 2004; Ollila & Yström, 2020), yet systematic comparison remains absent. This paper addresses that gap by asking: What distinctive epistemic capabilities does the Living Lab

approach make available to researchers, and how do these differ from what established field research methods can offer?

To address this question, this paper draws on embedded experience within FOOD TRAILS, a Horizon 2020 project funded by the European Commission, which used Living Labs as its core research approach across eleven European city-regions. The author was a key member of the project team and led the Work Package responsible for the design and operation of the Living Labs. The analytical approach is methodological reflection grounded in practice (Schön, 1983; Myers, 2019): rather than treating these Living Labs as cases to be analysed through another methodology, the author's embedded experience is treated as the empirical basis for comparative analysis. Following theoretical saturation principles (Glaser and Strauss, 2017; Moore et al, 2026), four Living Labs are examined, selected for analytical richness and complementarity across the epistemic capabilities identified. A systematic comparative framework is developed to examine context origin, researcher role, stakeholder access, temporal engagement, and intervention capacity and position Living Labs against case study research, ethnography, and PAR.

The analysis yields two contributions. First, four specific epistemic capabilities that Living Labs make available are identified - extended engagement across complete implementation cycles; simultaneous access to diverse stakeholder perspectives; observation of real-time dissemination and acceptance dynamics; and tracking emergent patterns through active intervention - highlighting that no established field research method offers this combination with comparable structural depth. These capabilities are shown to operate within systematic constraints in funded research contexts, producing a theory-practice gap that is itself analytically significant. Second, the conditions under which distinctive access is enabled or constrained are examined, offering methodological guidance for scholars considering or required to adopt a Living Lab approach. Together, these contributions respond to McLoughlin et al's (2018) call to consolidate the intellectual core of Living Lab research by providing the comparative methodological framework the field has lacked.

2. Literature Review and Theoretical Framework

2.1 Living Labs: Definitions and Structural Characteristics

Living Labs emerged in the early 2000s, originating in MIT's research on technology development before gaining traction through the European Network of Living Labs (EnoLL). EnoLL defines Living Labs as "user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real life communities and settings," reflecting three pillars: experimentation in real environments, co-creation, and user centrality (Dubé and Paré, 2003).

Living Labs have been theorised primarily through innovation frameworks - open innovation (Chesbrough, 2003; Chesbrough and Appleyard, 2007), user innovation (Von Hippel, 2007), and co-creation (Mulder and Stappers, 2009) - rather than research methodology. This theoretical grounding has left unexamined what Living Labs enable researchers to know, and why.

One structural characteristic distinguishes Living Labs from all established field research methods: the collapse of the distinction between research context and research methodology. In case study research, ethnography, or PAR, the researcher brings a methodology to an existing context; the two remain analytically separable. In a Living Lab, this separation does not hold. The constructed multi-stakeholder setting and the approach to studying it are co-constitutive: the Living Lab is simultaneously the phenomenon being shaped and the instrument through which knowledge is generated. This context-method duality means that the quality of knowledge produced cannot be assessed independently of the quality of the Living Lab itself. Despite its significance, this duality has been noted only in passing (Dubé and Paré, 2003) and has not previously grounded systematic comparative methodological analysis.

Leminen, Westerlund, and Nyström (2012) propose a typology of four Living Lab configurations, signalling that not all Living Labs offer the same structural position or embedded access. Nyström et al (2014) identify four role patterns - ambidexterity, reciprocity, temporality, and multiplicity - describing environments of constant role fluidity. This fluidity has direct implications for researcher agency: the embedded researcher cannot assume a stable, controllable position but must continuously negotiate their role as the network evolves.

2.2 Choice of Comparator Methods and Evaluation Criteria

To examine what Living Labs distinctively enable, this study positions them against methods sharing meaningful structural similarities: field research methods involving extended or embedded researcher engagement. Living Labs are compared with case study research, ethnography, and participatory action research. These three methods represent a spectrum of researcher roles and intervention levels. Case study research occupies the observational end, ethnography the immersive middle ground, and PAR the action-oriented end. Living Labs, as prescribed in the literature, sit at or beyond the PAR end in terms of intended intervention, though as the analysis demonstrates, they frequently do not reach this position in practice. These methods are also the most widely used approaches in management and organisational research involving real-world settings (Myers, 2019), offering direct guidance for scholars in this field.

Case study research (Benbasat et al, 1987; Eisenhardt and Graebner, 2007; Yin, 2009) addresses "how" and "why" questions about contemporary phenomena in context, drawing on multiple data sources within bounded, naturally occurring settings. The researcher acts as external observer and analyst, present to understand rather than intervene. Data collection is typically sequential and aggregated, limiting capacity to capture real-time dynamics and emergent patterns within active processes.

Ethnography (Geertz, 1973; Hammersley and Atkinson, 2007) involves extended immersion in naturally occurring social contexts, producing thick description of cultural life. The researcher maintains minimal intervention to avoid distorting observed phenomena. Temporal engagement is ethnography's distinctive strength, but its single-context focus and commitment to non-intervention impose limitations in multi-actor innovation settings where dynamics evolve across simultaneous parallel processes.

Participatory action research (Baskerville and Myers, 2004) shares with Living Labs commitments to real-world engagement, multi-stakeholder participation, and action-oriented knowledge production. However, PAR is typically community-driven, with research agendas emerging from collectively identified needs rather than externally designed programmes. This structural difference from funded Living Labs - where objectives, timelines, and stakeholder compositions are established in advance - creates significant tension. For researchers embedded in funded Living Labs, available agency is often more limited than PAR's framework implies (Ballon and Schuurman 2015; Dobre and Faldi, 2025; Steen and Van Bueren, 2017).

These methods have been compared and contrasted in the literature along dimensions that prove analytically productive for positioning Living Labs. Foundational methodological accounts emphasise how research contexts originate - whether naturally occurring or purpose-built (Dubé and Paré, 2003; Yin, 2009) - how researchers relate to those contexts as external observers, immersed participants, or active facilitators (Geertz, 1973; Kemmis, 2008; Nyström et al, 2014), what temporal structures shape engagement (Hammersley and Atkinson, 2007; Baskerville and Myers, 2004; Yin, 2009), and to what degree intervention is authorised or constrained (Ballon and Schuurman 2015; Steen and Van Bueren 2017; Yin, 2009). These dimensions, derived from the definitional characteristics of each approach, structure the systematic comparison developed in Table 1.

Table 1: Comparative framework of field research methodologies

Dimension	Living Labs	Case Study	Ethnography	PAR
Context origin	Purpose-built/ designated (Feurstein et al, 2008; Leminen et al, 2012)	Naturally occurring (Yin, 2009)	Naturally occurring (Hammersley & Atkinson, 2007; Hammersley, 2006)	Naturally occurring (Baskerville and Myers, 2004)
Researcher role	Embedded facilitator/ co-creator (Nyström et al, 2014)	External observer/ analyst (Yin, 2009)	Immersed participant-observer (Hammersley & Atkinson, 2007)	Action-oriented facilitator (Kemmis, 2008)
Primary aim	Innovation + knowledge generation (Leminen et al, 2012; Molinari, 2011)	Knowledge/ understanding (Stake, 1995)	Cultural understanding (Geertz, 1973; Hammersley, 2006)	Action + social change (Baskerville and Myers, 2004)
Stakeholder structure	Multi-actor by design (quadruple helix) (Leminen et al, 2012)	Depends on case (Yin, 2009)	Usually, single group or community (Hammersley & Atkinson, 2007)	Community-driven (Kemmis, 2008)
Temporal engagement	Extended across implementation cycles (Nyström et al, 2014)	Variable/snapshot (Yin, 2009)	Extended immersion (Hammersley & Atkinson, 2007)	Extended action cycles (Baskerville and Myers, 2004)

Dimension	Living Labs	Case Study	Ethnography	PAR
Intervention capacity	High (co-creation) - diverges in practice (Ballon & Schuurman, 2015; Steen & Van Bueren, 2017)	Low (observation) (Yin, 2009)	Minimal (participation without directing) (Geertz, 1973)	High (community-driven action) (Kemmis, 2008)

The comparative framework reveals two analytically significant patterns. First, no single comparator captures all characteristics Living Labs combine: case study offers analytical rigour through external observation; ethnography provides deep immersion within single contexts; PAR enables facilitated action but is community-driven rather than programme-structured. The combination of embedded positioning, simultaneous multi-actor access, extended engagement across implementation cycles, and active intervention is, at the framework level, distinctive. Second, Living Labs share most characteristics with PAR but diverge on intervention capacity - the dimension that funded programme contexts constrain most severely. This divergence between prescription and practice is a structural feature of Living Labs as actually practised, raising fundamental questions about conditions under which distinctive epistemic advantages are realised.

3. Research Methodology

3.1 Methodological Framing

This paper employs methodological reflection, a practice-grounded approach in which researchers systematically draw upon embedded experience to develop analytical frameworks (Schön, 1983; Myers, 2019). This approach has an established tradition in interpretive, qualitative (Myers, 2019), and management research (Van Maanen, 2011). It requires the systematic application of independently derived analytical frameworks to empirical experience, with explicit attention to generalisation conditions.

This framing was deliberately chosen over a formal case study design. Employing a case study methodology to assert the distinctive value of Living Labs would introduce circularity, subordinating Living Lab experience to the framework it seeks to interrogate. Consequently, the unit of analysis is the Living Lab as a methodological process, rather than the city-regions in which it operates, and embedded experience serves as the evidential basis for examining that process.

3.2 Empirical Base

The empirical base is FOOD TRAILS, a four-year Horizon 2020 initiative (2021 - 2025) coordinated by the City of Milan, establishing Living Labs in eleven European city-regions: Bergamo, Birmingham, Bordeaux, Copenhagen, Funchal, Grenoble, Groningen, Milan, Thessaloniki, Tirana, and Warsaw. Each Living Lab comprised at least thirty representatives from local authorities, civil society, private sector, and research bodies, following the quadruple helix model.

For this analysis, four Living Labs were selected following theoretical saturation principles (Glaser and Strauss, 2017; Moore et al, 2026): Milan, Warsaw, Bordeaux, and Birmingham. Selection criteria were analytical richness (dense empirical material including interviews with Living Lab managers, food policy documentation, and communication materials) and complementarity (spanning the full spectrum of food policy maturity, from Milan's decade-long institutionalised governance to Warsaw's nascent policy development, with each anchoring a different epistemic capability most distinctly). This selective approach follows purpose-based sampling logic (Myers, 2019). The unit of analysis is not the city-regions themselves, but rather the Living Lab as a methodological process. Milan, Warsaw, Bordeaux, and Birmingham function as empirical instances through which specific epistemic capabilities are made visible, rather than as bounded cases in the Yin (2009) sense.

3.3 Analytical Procedure and Limitations

Analysis proceeded in two stages. First, the comparative framework was developed from existing methodological literature, independently of empirical experience. Second, embedded experience was systematically reflected upon in relation to each framework dimension, drawing on semi-structured interviews with Living Lab managers, twenty-three structured policy mapping documents capturing objectives, actors, and activities across Living Labs, structured meeting records, comparative observations across cities, and analytical notes. Together, these sources provide structured, independently documented evidence of the Living Lab

process, reducing reliance on retrospective interpretation and grounding analytical claims in contemporaneous records.

The researcher's embedded position simultaneously provides empirical authority and introduces potential analytical bias. This is addressed by deriving the comparative framework from independent literature before applying it to personal experience, and by foregrounding divergences and constraints rather than constructing an advocacy account. The Living Labs examined operated within a single EU-funded programme structure with shared objectives, governance requirements, and reporting frameworks. Therefore, the analytical claims apply most directly to Living Labs within similar funded research programme contexts.

4. Results: Distinctive Epistemic Capabilities and Systemic Constraints

The following analysis draws on embedded experience across FOOD TRAILS Living Labs. Four epistemic capabilities identified through comparative analysis are presented, followed by the theory-practice gap as a fifth empirical finding.

4.1 Extended Engagement Across Complete Policy Implementation Cycles

The structured, multi-year embedding of researchers within innovation processes enables access to knowledge that point-in-time field methods cannot readily capture. This temporal depth proved analytically productive because cities entered the programme at different stages of food policy development, creating natural comparative architecture from mature institutionalisation to policy genesis.

Milan represents deeply institutionalised food policy being actively deepened. The city's food policy architecture dates to the 2015 International Expo; by FOOD TRAILS' start, Milan had nearly a decade of accumulated governance infrastructure. What the Living Lab enabled was not infrastructure creation but critical interrogation and extension. Sustained engagement with Milano Ristorazione revealed that the last systematic measurement of food waste in school canteens dated to 2012 - a diagnostic gap invisible without sustained institutional access. As The city Food Policy Officer reflected: "*We didn't follow the food policy like a Bible. Instead, we started from what was already happening in the city, listening to the needs and requests of local organisations.*" This iterative attentiveness across full project duration is what extended temporal engagement makes possible.

Warsaw presents the complementary case as the city lacked a defined food policy and constructed one from the ground up. The process required navigating pre-existing fragmentation - two parallel food-related processes ran in separate municipal silos with limited coordination. The Living Lab Manager explained the challenge: "*This transversal approach, holistic approach, is needed within the city. We are working on it with a bottom-up approach, but it's not the top-down approach, and it makes things harder.*" The university advisor, who supported the design of the food policy, noted the methodological significance. He highlighted that the Warsaw Food Lab represented "*for the first time a thematic living lab within the city, a method that the Economic Development Department wants to spread within the municipality.*" Extended engagement made it possible to observe not only policy design but organisational conditions under which adoption remained contested.

What distinguishes this access from what established field methods can offer is not simply duration but structural positioning across the complete cycle. Case study research typically captures phenomena at single points in time; even longitudinal case studies reconstruct change through retrospective accounts rather than real-time observation. Ethnography provides extended engagement but within naturally occurring contexts where the researcher does not influence temporal pacing. PAR offers extended action cycles but driven by community rather than programme timelines. The Living Lab's structured, multi-year presence from design through implementation to outcomes differs qualitatively from all three, precisely because the researcher is embedded inside the process rather than observing or reconstructing it from outside.

4.2 Simultaneous Access to Diverse Stakeholder Perspectives

The Living Lab's quadruple helix architecture structures participation from municipal government, researchers, civil society, and private sector, functioning as a built-in multi-actor data environment difficult to replicate through conventional field research. *Bordeaux Métropole* illustrates this most compellingly. Its Food Policy Council brought together nearly 100 stakeholders per meeting across 28 municipalities - policymakers, food producers, processors, retailers, NGOs, and social service organisations. The city Vice Mayor described the epistemic consequence: "*The ambitious food policy that we have today is thanks to the Food Policy Council. If we hadn't involved the stakeholders, we might have made different decisions.*" Simultaneous presence revealed

structural interdependencies no single stakeholder group would surface independently. The social grocery store manager and co-president of the Council, articulated this: "*Sometimes people might think that a subject is not relevant to them... but what we do for farmers will have an impact on food aid and so on. In a way, we are all interconnected.*"

What Living Labs reveal is not simply that more stakeholders were present, but that their simultaneous co-location within a designed process made relational dynamics observable in ways that established methods cannot structurally replicate. Case study research constructs multi-stakeholder perspectives sequentially through interviews and documents, capturing what actors say about their relationships rather than those relationships as they unfold in real time. Ethnography typically focuses on single communities or groups, and its commitment to naturally occurring contexts means it cannot systematically bring together actors from across the full institutional landscape. PAR facilitates multi-stakeholder engagement but does not guarantee systematic coverage: participation is defined by community membership rather than by designed structural position, meaning that actors from government, the private sector, or research may be absent if they do not identify with the community in question. The Living Lab's deliberate quadruple helix architecture ensures the systematic presence of actors who would not otherwise share space, and it is precisely this engineered co-presence that makes the interdependencies between them - the frictions, solidarities, and mutual discoveries - available as research data.

4.3 Observation of Real-Time Dissemination and Acceptance Dynamics

Conventional field methods are generally better equipped to study innovation origins than subsequent fate. The Living Lab's extended, embedded format provides structurally different vantage points: researchers remain inside the process as innovations move from design into attempted implementation, gaining direct observational access to mechanisms through which ideas spread, are resisted, adapted, or abandoned.

Birmingham provides vivid illustration. The High Rise Harvest pilot - converting a multi-storey car park rooftop into urban farm and community garden - generated real-time institutional resistance that became precisely the data conventional study could not produce. The Programme Development Manager described navigating planning permissions triggering structural engineering surveys, energy generation questions, drainage challenges, and repeated legal scrutiny: "*There's loads and loads and loads of comments we had from the planning process, and that went through the whole Birmingham City Council system.*" A petition submitted by local jewellers opposing the conversion was framed analytically: "*This is exactly what we were expecting. It really is a part of the culture change that is happening as we speak*." The ability to frame institutional resistance as real-time evidence of cultural conditions, rather than project obstacle, is characteristic of embedded researcher positioning.

What the Living Lab makes visible is a category of knowledge that conventional field methods are structurally positioned to miss: the moment when an innovation meets institutional and cultural reality, observed as it unfolds rather than reconstructed after the fact. Case study research captures implementation dynamics retrospectively through interviews and documents, and in doing so loses precisely the candour, contingency, and real-time framing that make those dynamics analytically revealing. Ethnography can observe real-time dynamics but within naturally occurring contexts where the researcher does not participate in shaping the innovation being received - the ethnographer watches what happens, but is not inside the process that is happening. PAR involves real-time action but typically within communities where acceptance is negotiated among participants rather than encountered as external institutional resistance from planning systems, legal frameworks, or organised opposition. The Living Lab's embedded positioning places the researcher at the exact point where these forces converge, making the reception moment - when an innovation meets the institutional and cultural conditions it must overcome - available as primary data rather than retrospective account.

4.4 Tracking Emergent Patterns Through Active Intervention

Knowledge generated through participation in, rather than observation of, innovation process emerged across Living Labs in patterns no single-city study could surface. In *Milan*, convening functions produced structurally unanticipated outcomes: "*Convening actors working on the same issues and creating spaces for exchange eventually led to innovations like the food aid hubs. We started with four hubs, and now we have eight, all linked and equipped with tools to monitor their impact, something that nobody would have imagined just five years ago*" (Food Policy Officer). In *Warsaw*, the Living Lab connected the team with food law experts and food banks to identify a case for changing national food donation regulations - an outcome extending beyond city to national

legislative level. In *Birmingham*, the composting pilot unexpectedly drew a local school into growing microgreens after a chef challenged children's definition of salad, while High Rise Harvest feasibility work generated research on urban growing technologies now informing city-wide rooftop greening strategy.

What the examples from Milan, Warsaw, and Birmingham share is a common structural feature: the emergent findings did not exist as possibilities at the point of project design, and they became visible only because the researcher was actively inside the process that generated them. Case study research can document emergent outcomes, but it encounters them as findings to be explained rather than as methodological products of the researcher's own facilitation. Ethnography explicitly avoids the kind of intervention that would generate emergent patterns, seeking instead to observe what would occur in the researcher's absence - emergence, in ethnographic terms, is something to be witnessed rather than catalysed. PAR generates emergent outcomes through intervention, but these are community-defined and arise from the community's own agenda rather than from the interaction between programme structure and researcher facilitation. The Living Lab occupies a distinctive position in this landscape: the researcher actively facilitates within a structured programme architecture while remaining alert to what that facilitation unexpectedly produces, making emergence itself an epistemic product rather than a by-product or a surprise.

4.5 The Theory-Practice Gap: Constraints on Epistemic Access

The four capabilities described above represent what Living Labs can distinctively enable. The empirical record reveals consistent constraints limiting their realisation in funded research programme contexts, a fifth empirical finding that is analytically significant in its own right.

The most pervasive constraint concerns intervention capacity. In Warsaw, the embedded position revealed two parallel municipal food processes running in separate departmental silos that the project design had not anticipated and that the researcher's role definition did not authorise bridging directly. As the LL Manager acknowledged, the tradition of working in silos created structural resistance that a more agentive facilitation role could not easily overcome: "*This transversal approach, holistic approach, is needed within the city. We are working on it with a bottom-up approach, but it's not the top-down approach, and it makes things harder.*" In Birmingham, institutional planning procedures, legal review cycles, and organised local opposition constrained the High Rise Harvest pilot in ways independent of researcher facilitation capacity. In Bordeaux, the difficulty of engaging concession-managed canteens outside the Métropole's direct procurement authority illustrated how institutional boundaries limit the embedded researcher's capacity to shape the conditions they are simultaneously studying.

A second constraint concerns the temporal mismatch between programme timelines and the pace of institutional change. Several of the most analytically significant dynamics observed, including Warsaw's legislative reform pathway, Birmingham's planning permission process, and Bordeaux's governance formalisation, were either incomplete at the time of analysis or extended beyond the project's reporting horizon. The programme's deliverable structure created pressure to document outcomes at fixed points, whereas institutional change, stakeholder trust-building, and emergent collaboration operate on longer and less predictable cycles.

The third constraint, co-option risk, is the most analytically significant and the least visible. The researcher's dual role as project deliverable author and analytical observer creates structural pressure to frame observations in ways that serve programme reporting rather than the research agenda. In Birmingham, the Food Systems Officer described the composting pilot's decision to document reductions in antisocial behaviour alongside food waste data, on the grounds that the former would prove more persuasive to future funders. This candid real-time observation illustrates the risk precisely: the embedded researcher may find themselves facilitating strategic evidence framing rather than subjecting it to analytical scrutiny. These three constraints are structural features of Living Labs embedded within EU-funded research, not incidental difficulties of a specific programme.

Table 2 organises the four capabilities alongside the empirical instances where each was most clearly observable. The city-regions appear here not as units of analysis but as the settings in which specific aspects of the Living Lab process became most visible. Each cell documents where a particular capability emerged most distinctly across the project.

Table 2: Epistemic capabilities and illustrative empirical instances.

Capability	Milan	Warsaw	Bordeaux	Birmingham
1. Extended engagement	Revealed food waste data gap dating to 2012	Observed full arc from zero policy to first Food Strategy	Observed Food Policy Council evolution from advisory to executive	Traced arc from Food Conversation (2019) to Strategy launch (2022)
2. Simultan. stakeholder access	Cross-hub data transparency gap spanning multiple actors	Accessed 57 food banks, two city departments, legal experts simultaneously	100+ stakeholders per meeting across 28 municipalities; structural interdependencies	Connected public health, urban planning, place development with no prior collaboration
3. Real-time dynamics	Biodigester startup credibility at stake surfaced mid-process	Tender law bureaucratic friction causing cascade delays	Data collection framed as tool to prove value to vice mayor	Jewellers' petition documented as real-time cultural resistance
4. Emergent patterns through intervention	Food hub network grew from 4 to 8 unanticipated	Pathway to national legislative reform on food donation	Food Policy Council transformed from advisory to executive through co-creation	Local school drawn into growing microgreens; urban growing research informing city strategy

5. Discussion and Conclusion

5.1 Theoretical Contributions

This paper explores the distinctive epistemic capabilities of Living Labs and how they differ from established field research methods. The study identifies four capabilities and a systematic theory-practice gap, making two connected contributions to the research methods literature.

The first contribution is a comparative framework that positions Living Labs as a distinct field research methodology, rather than as a variant of action research or an organisational arrangement for innovation. Prior literature has often treated Living Labs as platforms for co-creation and innovation delivery, leaving their epistemic function undertheorised. For instance, Nyström et al (2014) and Leminen et al (2012) described structural features without systematically deriving the methodological implications for knowledge generation. By comparing Living Labs against case study research, ethnography, and Participatory Action Research (PAR) across six dimensions, this paper establishes that Living Labs occupy a distinctive methodological position that none of the comparators can adequately capture.

Living Labs differ from all three comparators in one fundamental respect: the research context and research methodology are co-constitutive. The Living Lab is not merely a setting for research but simultaneously the instrument through which knowledge is generated. This context-method duality has not previously underpinned systematic comparative analysis (Dubé and Paré, 2003). Connecting this duality to practical questions of what researchers can produce directly responds to McLoughlin et al's (2018) call to consolidate the intellectual core of Living Lab research.

The empirical findings presented in Table 2 underscore the framework dimensions established in Table 1, with three dimensions proving particularly revealing. Firstly, regarding intervention capacity, the entrenched municipal silos in Warsaw and planning resistance in Birmingham demonstrate that the gap between prescribed and actual researcher agency is structural rather than incidental. This systematically narrows the space between Living Labs and PAR, as identified by the framework. Secondly, concerning stakeholder structure, Bordeaux's Food Policy Council illustrates that the quadruple helix architecture not only broadens participation but also makes observable structural interdependencies that no single stakeholder group would independently uncover. Finally, in terms of temporal engagement, both Warsaw's legislative reform pathway and Birmingham's planning process extended beyond programme reporting horizons. This reveals a mismatch between institutional change cycles and programme timelines, a dynamic only incompletely captured by the theoretical framework.

The second contribution concerns the theory-practice gap. Our empirical analysis reveals that this gap is not a methodological failure or the result of poor implementation, but rather a structural feature of Living Labs embedded within large-scale funded research programmes. Programme-determined objectives, governance hierarchies, constrained timelines, and fragmented institutional authority systematically reduce researcher intervention capacity below what the Living Lab literature prescribes. This extends an emerging body of empirical work on researcher constraints in Living Labs, including Dobre and Faldi (2025), whose findings from

Brussels-based Living Labs are consistent with our own but confined to single-context observations. The present study suggests these constraints are structural rather than context-specific. Consistent with Schön's (1983) reflective practitioner, this constraint is analytically productive: the gap between what the methodology prescribes and what funded programmes permit is itself a source of important knowledge about the institutional conditions under which innovation can and cannot occur.

5.2 Engagement with Comparator Methodologies

The comparative framework developed in the study invites three methodological objections that are worth addressing directly, since each points to a nuance in the comparator traditions that sharpens rather than undermines the paper's claims. Yin (2009) describes embedded case studies in which researchers examine multiple sub-units within a single case, a design that might appear to approximate the Living Lab's multi-actor positioning. The difference is fundamental but structural. In embedded case studies, the researcher analytically distinguishes sub-units within a pre-existing context, and the research design remains separable from the setting. In a Living Lab, the researcher actively constitutes the multi-actor setting through facilitation, and the intervention is not an analytical choice but a methodological condition: the constructed setting and the approach to studying it are inseparable. Marcus (2009) develops multi-sited ethnography as an approach that traces phenomena across dispersed locations, which might seem to address the multi-actor limitation identified in conventional ethnography. However, multi-sited ethnography maintains the ethnographic commitment to non-intervention, as the researcher follows connections rather than forging them. The Living Lab's distinctiveness lies not in spanning multiple locations but in deliberately engineering the co-presence of actors who would not otherwise share space, a structural condition that the Bordeaux findings illustrate most directly.

PAR encompasses internal debate about the balance between researcher direction and community ownership (Kemmis, 2008), and Living Labs occupy an ambiguous position within this spectrum. They are formally programme-structured rather than community-driven, yet they require community participation for legitimacy. It is precisely this ambiguity that generates the intervention capacity constraints documented in Section 4.5. Living Labs are neither academic-led enough for full researcher control nor community-driven enough for full participant ownership, and it is this structural tension, more than any individual programme decision, that accounts for the theory-practice gap this paper documents.

5.3 Practical Contributions

This paper has practical implications for policy researchers, public sector managers, and research programme designers. The four epistemic capabilities represent genuine advantages over established field methods for studying innovation implementation, multi-stakeholder governance, and policy change. When research programmes need to understand not only whether interventions worked, but why they encountered specific acceptance dynamics, how otherwise disconnected stakeholders collaborated, and what institutional conditions enabled or blocked change, Living Labs provide access that case study research, ethnography, and PAR cannot fully replicate. The Bordeaux case illustrates this directly. The Vice Mayor's reflection that the food policy would have been different without structured multi-stakeholder engagement is precisely the kind of counterfactual insight that only sustained embedded positioning makes available.

At the same time, Living Labs are resource-intensive, temporally demanding, and politically complex. Programme designers should address three practical issues explicitly at the design stage. First, timeline mismatches: programme reporting periods rarely align with the pace of institutional change, and sufficient flexibility should be built in to follow processes wherever they lead. Second, intervention boundaries: researcher authority to bridge institutional silos or facilitate across governance levels should be clarified in advance rather than negotiated under pressure. Third, co-option risk: structural separation between project reporting and analytical observation functions, for instance through independent evaluation mandates, reduces the pressure on researchers to frame findings in ways that serve delivery rather than knowledge.

For researchers embedded in funded Living Labs, the framework suggests three practical orientations. Unexpected findings, institutional resistance, and process failures should be treated as primary data rather than obstacles. The theory-practice gap should be documented systematically, since it is itself a source of knowledge about institutional conditions. And a comparative orientation should be maintained throughout: asking continuously what would be visible or invisible through case study, ethnography, or PAR lenses helps the embedded researcher retain analytical distance from the process they are simultaneously facilitating.

5.4 Limitations and Future Research

Several limitations warrant acknowledgement. The empirical base is confined to a single EU-funded research programme focused on urban food policy, and whether the four capabilities manifest with equal clarity in corporate, healthcare, or technology innovation Living Labs remains an open question. The methodological framing of reflection grounded in practice enables candid, process-level analysis that formal case study designs often suppress, but the analytical claims rest on the embedded researcher's interpretive judgement rather than independently verifiable data. Two directions for future research follow from these limitations. First, applying the comparative framework developed here to Living Lab contexts studied by researchers external to the process would enable more systematic triangulation of the capabilities claimed. Second, and perhaps more importantly, an equally significant agenda concerns the conditions under which Living Labs fail, where the theory-practice gap becomes so wide that the distinctive epistemic advantages are extinguished entirely and Living Labs become expensive, under-analysed delivery mechanisms rather than genuine research environments.

Ethics Declaration

Ethical clearance was not required for the research presented in this study.

AI Declaration

AI was not used for the creation of the present paper, EditGPT was used for text proofreading.

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Implementation Science as a Research Methodology: A Scoping Review of the Consolidated Framework for Implementation Research (CFIR)

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Abstract: The use of implementation science has long been used for studying the effectiveness of medical/health related initiatives, yet it has not yet been widely used for broad studies of the impacts of business reforms or educational initiatives (Walters, W. & Barber, W. 2025). Policy reforms are constantly changing, however analysis of these reforms has not been consistently measured to assess implementation success. The purpose of this scoping literature review is to examine the breadth of existing literature related to Implementation Science, and further the instrument used to measure program impact, the Consolidated Framework for Implementation Research (CFIR), and to explore how these commonalities and research strategies used in health care settings might be applied to other sectors. The CFIR is a comprehensive taxonomy of operationally defined constructs that may impact the implementation success of complex programs. The CFIR defines five domains (intervention characteristics, outer setting, inner setting, characteristics of individuals and process), each with constructs and some sub-constructs which can affect implementation success. To date, the CFIR has been applied to a wide variety of quantitative, qualitative and mixed healthcare-related studies for a variety of purposes across five domains. In summary, the authors contend that the CFIR can be modified as a new research methodology for measuring program impact across a broad range of sectors.

Keywords: Implementation Science, Research Methodology, Education, Business

1. Introduction - Implementation Science: Bridging Research and Practice

Implementation science is an interdisciplinary field dedicated to understanding and promoting the systematic uptake of research findings and evidence-based practices into routine practice. Despite significant advances in research across healthcare, education, and social services, a persistent gap exists between what is known to be effective and what is actually implemented. This “research-to-practice gap” undermines the potential impact of scientific discoveries and contributes to inefficiencies and inequities in service delivery (Eccles & Mittman, 2006; Bauer & Kirchner, 2020). Implementation science seeks to address this challenge by examining the processes, strategies, and contextual factors that influence the adoption, implementation, and sustainability of innovations in real-world settings. One of the central problems that implementation science addresses is the delay in translating research into practice. In healthcare, it has been estimated that it can take up to 17 years for only a fraction of research evidence to be integrated into clinical care (Balas & Boren, 2000). Similar delays are observed in education, where evidence-based instructional strategies are inconsistently applied in classrooms. These gaps can lead to suboptimal outcomes, wasted resources, and missed opportunities for improvement.

1.1 Methodology of Scoping Review

This paper reviewed literature from 2010-2026, using inclusion criteria from peer reviewed journals only, in the areas of health care, medicine, education and business. Exclusion criteria were those that were single program reviews, short opinion editorials and those not in years stated. Two researchers (both professors in Canadian universities) independently searched using Omni, Google Scholar, ProQuest and ERIC using key words Implementation Science, Consolidated Framework for Implementation Research, Education, Medicine, and Business. A total of 48 articles were found, these were reviewed blindly by each researcher. Following this, the researchers met to discern themes that were common to the areas of health care, business and education and those areas where the CFIR had been implemented. These were coded and the five domains of the CFIR were examined to suggest how it might be useful in measuring the effectiveness of program interventions, broadening from simplistic measures to include human factors such as organizational culture and processes.

1.2 Recent Research in Implementation Science: Efficacy versus Effectiveness

Recent research has emphasized that this gap is not solely a matter of time but also of system complexity. Factors such as organizational readiness, policy alignment, and stakeholder engagement significantly influence whether evidence is adopted (Shelton & Chambers, 2022). Implementation science provides a structured approach to identifying and addressing these barriers, thereby accelerating the translation of knowledge into action (Fixsen et al., 2005). A critical distinction in implementation science is between efficacy and effectiveness. Efficacy refers to the performance of an intervention under ideal, controlled conditions, whereas effectiveness pertains to its performance in real-world settings. Implementation science is primarily concerned with effectiveness, where variability in context, resources, and human behavior can significantly impact outcomes (Damschroder et al., 2009). Recent work highlights the importance of designing interventions with implementation in mind from the outset. The updated Medical Research Council framework emphasizes integrating considerations of context, adaptability, and scalability early in the research process (Skivington et al., 2021). This shift reflects a growing recognition that interventions must be both evidence-based and implementation-ready. The use of theoretical frameworks is a defining feature of implementation science. These frameworks provide a systematic way to analyze the factors that influence implementation outcomes and guide the design of interventions.

1.3 The Consolidated Framework for Implementation Research: Measuring Intervention Effectiveness

One of the most widely used frameworks in Implementation Science is the Consolidated Framework for Implementation Research (CFIR), which includes five domains influencing implementation (Damschroder et al., 2009). Recent updates to CFIR have refined its constructs and improved usability based on user feedback, making it more accessible and applicable across diverse contexts (Damschroder et al., 2022; Reardon et al., 2025). These updates emphasize clarity, adaptability, and practical application. Another prominent framework is RE-AIM, which evaluates interventions across Reach, Effectiveness, Adoption, Implementation, and Maintenance (Glasgow et al., 1999). Contemporary applications of RE-AIM highlight its value in planning and evaluating implementation efforts, particularly when combined with other frameworks such as CFIR (King et al., 2020; Reisinger et al., 2025). Additional frameworks, including the Implementation Research Logic Model (IRLM), provide structured approaches to planning and evaluating implementation efforts by linking determinants, strategies, and outcomes (Smith et al., 2020). These frameworks collectively enhance the rigor and transparency of implementation research.

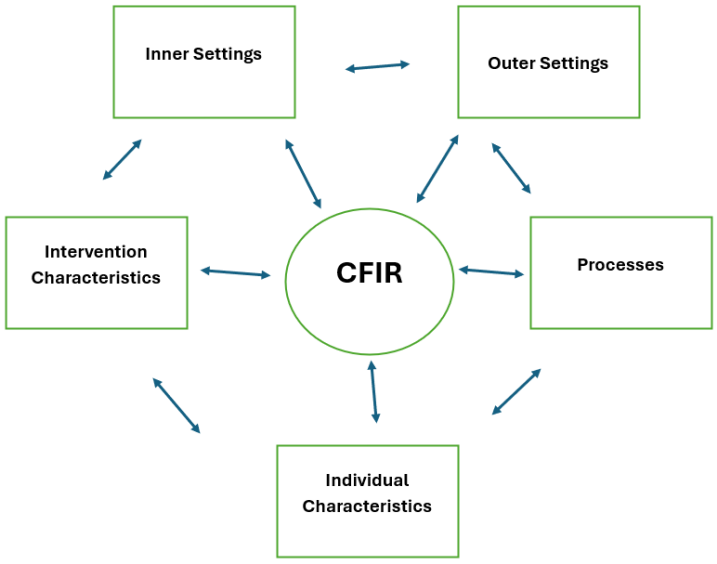


Figure 1: Integrated Elements of the CFIR

1.4 Barriers and Facilitators to Implementation

Implementation is influenced by a wide range of barriers and facilitators operating at multiple levels. At the individual level, practitioners may lack knowledge, skills, or confidence. Resistance to change and established routines can further hinder adoption. At the organizational level, leadership, culture, and resources play a critical

role. Organizations that support innovation and continuous learning are more likely to successfully implement new practices (Aarons et al., 2011). Recent systematic reviews using CFIR have reinforced the importance of leadership engagement and organizational readiness as key determinants of success (Schmitt et al., 2025). At the system level, policies, regulations, and broader sociocultural influences shape implementation outcomes. Efforts to align policy with evidence-based practices can significantly enhance implementation success (Shelton & Chambers, 2022). Implementation strategies are the methods used to promote the uptake and integration of evidence-based practices. These strategies must be carefully selected and tailored to address specific barriers and leverage facilitators. Common strategies include training and education, audit and feedback, and the use of champions or opinion leaders (Powell et al., 2015). Recent advancements emphasize the importance of matching strategies to contextual determinants, a process supported by tools such as the ERIC taxonomy (Waltz et al., 2020). Emerging research also highlights the value of co-design approaches, where stakeholders actively participate in developing and refining implementation strategies. This approach enhances relevance and increases the likelihood of successful adoption.

Context is a critical determinant of implementation success, encompassing the environmental, organizational, and cultural factors that influence practice. Implementation efforts must be sensitive to context to ensure feasibility and effectiveness. Recent literature emphasizes that context is dynamic and interacts with interventions over time. Simplified versions of CFIR 2.0 have been developed to help practitioners better assess and respond to contextual factors in real-world settings (Pellet et al., 2025). This reflects a shift toward more practical and user-friendly tools in implementation science.

Stakeholder engagement is essential for ensuring that interventions are relevant, acceptable, and sustainable. Stakeholders, including practitioners, patients, policymakers, and community members, provide valuable insights into local needs and constraints. Engaging stakeholders throughout the implementation process enhances trust, improves intervention design, and supports long-term sustainability (Greenhalgh et al., 2004). Recent work also highlights the role of stakeholder engagement in promoting equity by ensuring that interventions address the needs of diverse populations (Shelton & Chambers, 2022). Evaluation in implementation science extends beyond outcomes to include processes such as fidelity, adaptation, and sustainability. This comprehensive approach provides a deeper understanding of how and why interventions succeed or fail. The Implementation Research Logic Model (IRLM) offers a structured approach to evaluation, linking determinants, strategies, and outcomes (Smith et al., 2020). Mixed-methods approaches are commonly used to capture both quantitative and qualitative aspects of implementation (Proctor et al., 2011).

Sustainability and scale-up are increasingly important considerations. Sustainability refers to the continued use of an intervention over time, while scale-up involves expanding its reach. Achieving sustainability requires ongoing support, integration into routine practice, and alignment with organizational priorities (Scheirer & Dearing, 2011). Recent research highlights the importance of designing interventions with scalability in mind, ensuring that they can be adapted to diverse contexts without compromising effectiveness (Skivington et al., 2021). Implementation science has broad applications across sectors. In healthcare, it supports the adoption of clinical guidelines and improves patient outcomes. In education, it promotes the use of evidence-based teaching practices. In public health and social services, it informs the design and delivery of interventions addressing complex societal challenges. The growing emphasis on equity in implementation science underscores the importance of ensuring that interventions benefit all populations, particularly those who are underserved (Shelton & Chambers, 2022).

2. Implementation Science in Education

Implementation science has gained increasing attention in the field of education as researchers and practitioners seek to bridge the gap between evidence-based instructional practices and their consistent use in classrooms. Similar to healthcare, education faces persistent challenges in translating research into practice, with many empirically supported teaching strategies failing to be widely adopted or sustained (Fixsen et al., 2005; Owens et al., 2014). Implementation science provides a structured framework for understanding how to effectively integrate these practices into complex educational systems. One of the primary challenges in education is the variability of classroom and school contexts. Factors such as teacher beliefs, student diversity, school culture, and resource availability all influence whether an intervention is successfully implemented. Research has shown that both individual and organizational characteristics significantly affect implementation outcomes. For instance, teacher readiness, leadership support, and school climate are critical determinants of whether new practices are adopted and maintained (Domitrovich et al., 2015). These findings align with broader implementation science literature emphasizing the importance of multilevel influences on practice change. A key

issue in educational implementation is the concept of scale. Traditional approaches often define success in terms of the number of schools or teachers adopting a program. However, meaningful change requires depth of implementation, not just breadth. Coburn (2003) argues that sustainable educational reform must involve deep changes in teachers' beliefs, instructional practices, and organizational norms. This perspective highlights the importance of focusing not only on dissemination but also on the quality and sustainability of implementation.

2.1 The CFIR in Education Contexts

Frameworks such as the Consolidated Framework for Implementation Research (CFIR) and RE-AIM are increasingly applied in educational contexts to guide implementation efforts. These frameworks help educators and administrators identify barriers and facilitators at multiple levels, including individual teacher readiness, school leadership, and district-level policies (Damschroder et al., 2022; King et al., 2020). Additionally, implementation research in education has emphasized the need to clearly define core components of interventions while allowing flexibility for adaptation (Century & Cassata, 2016). This balance between structure and adaptability is essential for effective implementation in diverse educational settings. Implementation strategies in education often include professional development, instructional coaching, and collaborative learning communities. However, research consistently shows that one-time professional development is insufficient to produce sustained changes in teaching practice. Instead, ongoing coaching, feedback, and opportunities for collaboration are necessary to support teachers as they integrate new approaches into their instruction (Forman & Barakat, 2011; Powell et al., 2015). These strategies help build both individual capacity and organizational support for change. Stakeholder engagement is particularly important in educational settings. Teachers, students, administrators, and families all play a role in the implementation process. Engaging these stakeholders enhances the relevance and acceptability of interventions and increases the likelihood of long-term sustainability (Greenhalgh et al., 2004). In school-based mental health and behavioral interventions, for example, collaboration among educators, mental health professionals, and families has been shown to improve implementation outcomes (Owens et al., 2014).

Another key consideration in education is the balance between fidelity and adaptation. While maintaining the core components of an evidence-based practice is essential for achieving desired outcomes, teachers often need to adapt interventions to fit their specific classroom contexts. Implementation science provides tools for understanding which adaptations are appropriate and how they affect outcomes (Proctor et al., 2011). Century and Cassata (2016) emphasize that adaptation is not inherently negative but can enhance effectiveness when done thoughtfully and systematically. The growing emphasis on equity in education further underscores the relevance of implementation science. Evidence-based practices must not only be implemented effectively but also equitably, ensuring that all students benefit regardless of their background. Implementation science frameworks can help identify disparities in access and outcomes, guiding efforts to create more inclusive and culturally responsive practices (Shelton & Chambers, 2022). This is particularly important in diverse educational systems where students' needs vary widely. In recent years, digital technologies have also become increasingly important in educational implementation. Online platforms, learning management systems, and data analytics tools can support the dissemination and monitoring of evidence-based practices. However, technology alone is not sufficient; successful implementation still depends on teacher engagement, training, and organizational support.

3. Implementation Science in Business

Implementation science has increasingly been applied in the business sector to improve organizational performance, promote innovation adoption, and enhance the effectiveness of management practices. Just as in healthcare and education, businesses often struggle to translate research findings, best practices, and technological innovations into consistent operational outcomes. Implementation science provides a systematic approach to understanding and addressing the factors that influence the adoption, integration, and sustainability of new practices within organizations (Bauer & Kirchner, 2020). One of the primary challenges in business is the complexity of organizational systems. Factors such as corporate culture, leadership engagement, employee readiness, and resource availability all influence whether new strategies are successfully implemented. Studies have shown that organizations with a supportive culture and strong leadership are more likely to implement evidence-based management practices effectively (Damschroder et al., 2022; Reardon et al., 2025). Conversely, hierarchical rigidity, resistance to change, or insufficient communication can significantly hinder adoption.

3.1 The CFIR in Business Settings

Frameworks from implementation science, such as the Consolidated Framework for Implementation Research (CFIR) and the RE-AIM framework, have been adapted to organizational settings to analyze implementation determinants and evaluate outcomes. For instance, CFIR's domains, including intervention characteristics, inner organizational context, and implementation processes—can be applied to assess how corporate strategies or technological innovations are adopted in business environments (King et al., 2020). RE-AIM has also been used to evaluate the reach, adoption, and sustainability of organizational initiatives, such as workplace wellness programs or digital transformation efforts (Skivington et al., 2021).

Implementation strategies in business commonly involve training and professional development, process redesign, change champions, and continuous feedback loops. Just as in education and healthcare, one-off training is often insufficient. Effective implementation requires ongoing coaching, iterative problem-solving, and monitoring of outcomes to ensure that interventions are adapted appropriately to the organizational context (Powell et al., 2015; Waltz et al., 2020). Stakeholder engagement is critical in business implementation efforts. Employees, managers, and clients can all influence whether a new initiative is successfully integrated. Engaging these stakeholders early in the process can improve buy-in, reduce resistance, and enhance long-term sustainability. For example, involving employees in co-designing workflow changes or digital tools increases the likelihood that innovations are used consistently and effectively (Greenhalgh et al., 2004; Shelton & Chambers, 2022). Implementation science also emphasizes the importance of measuring outcomes and evaluating fidelity and adaptation in business settings. By assessing both the process and results of implementation efforts, organizations can identify areas for improvement and make data-driven decisions. This approach is particularly valuable in large-scale corporate initiatives, such as rolling out enterprise software systems, adopting new customer relationship management strategies, or integrating sustainability practices across multiple departments (Damschroder et al., 2009; Smith et al., 2020).

Finally, the growing focus on sustainability and scalability in business mirrors trends in healthcare and education. Successful organizational interventions are those that can be maintained over time and adapted across departments or subsidiaries without losing effectiveness. Implementation science frameworks provide tools to plan for scalability, monitor outcomes, and adjust strategies to fit diverse organizational contexts (Schmitt et al., 2025; Reisinger et al., 2025). It is clear that implementation science offers a structured approach for businesses to translate evidence-based strategies and innovations into operational practice. By considering organizational context, employing systematic implementation strategies, engaging stakeholders, and evaluating both process and outcomes, businesses can enhance adoption, effectiveness, and sustainability of new practices. As industries continue to evolve in an increasingly complex global environment, the principles of implementation science will play a key role in promoting organizational learning and continuous improvement. In summary, implementation science offers valuable insights and tools for improving educational practice. By addressing the complex interplay of individual, organizational, and systemic factors, it helps ensure that evidence-based interventions are not only adopted but also sustained and effective. As education systems continue to evolve, the application of implementation science will be essential for enhancing teaching quality, improving student outcomes, and promoting equity.

4. Conclusion

Implementation science plays a crucial role in bridging the gap between research and practice. By focusing on the factors that influence the adoption, implementation, and sustainability of evidence-based practices, it ensures that scientific knowledge leads to meaningful improvements in outcomes. Through the use of theoretical frameworks, tailored strategies, and stakeholder engagement, implementation science provides a comprehensive approach to addressing complex challenges in real-world settings. As the field continues to evolve, its emphasis on context, sustainability, and equity will be essential for maximizing the impact of research across sectors. Despite its contributions, implementation science faces several challenges. These include the complexity of real-world settings, difficulties in measurement, and the need for interdisciplinary collaboration. One ongoing challenge is balancing fidelity and adaptation. While maintaining core components is important, flexibility is necessary to accommodate context. Advances in frameworks and methodologies continue to address this challenge. Future directions include leveraging digital technologies, integrating implementation science into policy development, and further advancing equity-focused approaches. The continued evolution of frameworks such as CFIR and RE-AIM will play a key role in shaping the field (Damschroder et al., 2022; Reardon et al., 2025).

Ethics Declaration

No ethics approval was required for this literature review.

AI Declaration

AI was used with traditional search tools (Omni, Ebso, ERIC, Proquest)as a companion research tool for searching and references and as a support writing tool.

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Fostering Scholarly Collaboration: A Longitudinal Ethnographic Study of Departmental Co-Authoring Initiatives

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Abstract: In response to increasing institutional pressure for enhanced research productivity and measurable performance outputs, this study presents a longitudinal ethnographic case study of a strategic initiative implemented to formalise and strengthen scholarly collaboration within an academic department. The initiative involved the intentional formation of research clusters comprising academics with shared research interests who progressed through three structured phases of collaborative writing. Drawing on a relational-cultural conceptualisation of scholarly collaboration, the study examines collaboration as an evolving organisational practice rather than solely as an output metric. A longitudinal ethnographic research design was adopted over a twelve-month period, during which empirical data were generated through participant observation, reflective journals and departmental documents that captured the evolving relational and organisational dynamics of collaborative writing. Although the initiative provided identical structural conditions across three research groups, outcomes diverged significantly, only one group achieved publication during the study period. Doctoral stage and workload intensity emerged as moderating factors influencing collaborative momentum and output realisation. This study also identified gains in research confidence, the redistribution of scholarly agency and mentorship formalisation even within groups that did not publish. The findings contribute theoretically by distinguishing between collaboration as a relational process and publication as a measurable artefact,, and methodologically by demonstrating the value of longitudinal ethnography for analysing evolving organisational practices in higher education. The findings suggest that structured co-authoring initiatives can foster collaborative cultures, but their impact remains conditional upon career-stage capacity and relational dynamics within departments.

Keywords: Scholarly Collaboration, Co-Authoring Initiatives, Academic Writing Culture, Longitudinal Ethnography, Research Capacity Development, Organisational Practice, Higher Education Research, Mentorship in Academia

1. Introduction

Universities are increasingly implementing structured initiatives to improve research productivity, strengthen collaboration and build academic capacity (Frantz, Leach, Pharaoh, Basset, Smith and Travill, 2025: 1217). In performance-driven higher education environments, publication outputs and citation metrics are used as indicators of research success (Frantz, Leach, Pharaoh, Basset, Smith and Travill, 2025: 1218). As a result, co-authoring initiatives are evaluated in terms of measurable outputs such as journal impact and publication counts. However, less attention has been given to how such initiatives reshape the practices of collaboration within academic departments. Kahn (2025) states that existing research on academic collaboration relies on bibliometric analysis or cross-sectional survey data and treats co-authorship as a proxy for collaboration. Such approaches offer valuable quantitative insight but provide limited understanding of how collaborative practices emerge, evolve, and stabilize over time within organizational contexts. Collaboration is not only an output; it is a relational and cultural practice that is embedded within institutional expectations, departmental norms, and interpersonal dynamics (Iddrisu, 2025: 2). There is a need for longitudinal, process-sensitive inquiry into how structured co-authoring initiatives influence scholarly collaboration as an organizational practice. It is important to understand how such initiatives interact with relational dynamics, intellectual alignment, mentorship structures, and career-stage conditions within departments. This study addresses this gap by investigating the implementation of a departmental co-authoring initiative within an academic department.

This study is guided by the following research question:

How did a departmental co-authoring initiative impact scholarly collaboration within an academic department over time?

To address this question, the study explores:

- What were the pre-existing collaborative practices and relational dynamics within the department?
- Through what organizational, cultural, and relational mechanisms did the initiative influence participation in co-authoring?
- How did patterns of scholarly collaboration evolve throughout the implementation of the initiative?

Drawing on longitudinal ethnographic design, this study conceptualizes scholarly collaboration as a relational-cultural organizational practice shaped by institutional context, relational dynamics, departmental culture, and

intellectual alignment as illustrated in Figure 1. By examining collaboration as an evolving process as opposed to solely as a measurable output, the study contributes both empirically and methodologically to the study of academic collaboration and organisational change.

2. Theoretical Framework and Literature Review

2.1 Collaboration Versus Co-Authorship

Collaboration in academic contexts is usually operationalised through co-authorship. Bibliometric studies usually treat shared authorship as an indicator of collaborative engagement by using publication data to map research networks and patterns of productivity (Kahn, 2025: 130). While co-authoring provides a measurable artefact of collaboration, it represents only one dimension of broader relational processes (Katz and Martin, 1997: 14). Differentiating between collaboration and co-authorship is analytically important. Co-authored publications are observable artefacts; however, they do not capture the negotiated, evolving and socially embedded processes through which collaborative practices develop within departments (Frantz, Leach, *et al,* 2025: 1218). Understanding scholarly collaboration therefore requires attention to relational dynamics, cultural norms as well as institutional expectations that can shape how academics engage in joint intellectual work. In this study, scholarly collaboration is conceptualised as an umbrella construct that encompasses the relational and intellectual practices through which academics jointly produce and disseminate knowledge. This includes co-authoring, mentorship writing, writing groups, research partnerships, ongoing intellectual dialogue and feedback exchanges. Co-authorship thus constitutes a formal output whereas collaboration refers to the underlying practices and dynamics that makes such outputs possible (Iddrisu, 2025: 2).

2.2 Scholarly Collaboration as a Relational-Cultural Organisational Practice

This study adopts a relational-cultural perspective which positions scholarly collaboration as an organisational practice that is embedded within departmental life. Collaboration is therefore shaped by trust, mentorship structures, hierarchy, collegial norms and informal networks (Al-Taneiji and Al Tenaijy, 2025: 2). Senior-emerging lecturer dynamics influence access to authorship opportunities, intellectual leadership and decision-making authority. Departmental culture also shapes expectations regarding individual versus collective research production. Viewing collaboration through a relational-cultural lens shifts the analytical focus from output counts to interactional processes (Bozeman and Corley, 2004: 606). It foregrounds questions about how collaborative norms are negotiated, how scholarly agency is distributed across career stages and how mentorship is enacted within departments. Collaboration therefore is not simply a technical arrangement but rather a socially constructed practice that evolves through repeated interaction (Aitchison and Lee, 2006: 269).

2.3 Institutional Context and Performance Pressures

Academic collaboration does not occur in isolation. Universities operate within performance-driven environments that are characterised by publication targets, funding pressures and promotion criteria (Frantz, Leach, *et al,* 2025: 1217). Institutional expectations incentivise co-authorship and research productivity which shapes departmental priorities (Wagner and Leydesdorff, 2005: 1610). In this research study, institutional performance structures are conceptualised as contextual drivers as opposed to primary explanatory mechanisms. While they create pressure for publication, translating institutional expectations into collaborative practices occurs through departmental culture and relational dynamics. Structured co-authoring initiatives can be a response to institutional performance pressures to formalise collaboration and enhance productivity (Brew, Boud and Namgung, 2011: 534).

2.4 Conceptual Model

Building on these perspectives, scholarly collaboration is conceptualised as a dynamic organisational practice which is shaped by multiple interacting layers:

- Institutional context: performance metrics, policy expectations, and promotion criteria.
- Departmental culture: norms and expectations of collaboration.
- Relational dynamics: trust, mentorship, hierarchy, and collegiality.
- Scholarly collaboration practices: co-writing, joint projects and authorship negotiations
- Collaborative outputs: co-authored publications and sustained partnerships

The primary analytical lens of this study is relational-cultural with institutional context serving as a secondary contextual driver. This framework allows for the analysis of how a structured co-authoring initiative interacts with multiple organisational layers and how collaboration can evolve over time. The conceptual relationships discussed above are illustrated in Figure 1.

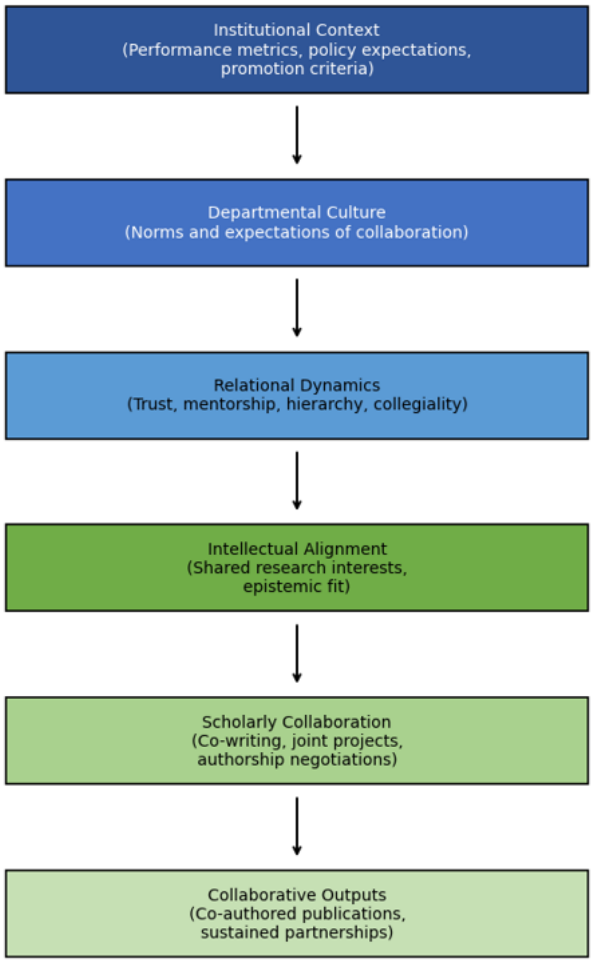


Figure 1: Conceptual Model of Scholarly Collaboration as Organisational Practice (Source: Author's Own).

3. Research Design and Methodology

3.1 Research Design

This research study adopted a longitudinal ethnographic case study design that examined how a departmental co-authoring initiative influenced scholarly collaboration within an academic department (Lechler, Canzaniello, Wetzstein and Hartmann, 2020: 425). The initiative formed part of the Department on Information and Knowledge Management's research strategy and was formally approved as a structured co-authoring intervention. A longitudinal ethnographic approach was selected to record the relational, cultural, and organisational dynamics of collaboration as they were implemented over numerous phases of the initiative (Tulokas, Haapasalo and Tampio,2024 :2). The longitudinal design allowed sustained engagement with the department over time, enabling the tracking of shifts on collaborative practices. The case study is confined to one department within a South African university and specifically focuses on the implementation and evolution of the structured co-authoring initiative.

3.2 Research Context and Structure of the Initiative

The initiative was designed to foster collaborative writing within structured research groups. Three research groups were created, each comprising one senior lecturer and two emerging lecturers. Each group was organized around a shared research interest. The researcher was embedded within one research group while maintaining

observational access to the broader initiative, allowing exposure to multiple collaborative micro-contexts within the same interventions. The initiative comprised three phases. Phase one: Conceptualization and Research Question development: the groups engaged in structured sessions that were focused on identifying research topics, refining the research questions, assessing database searches, and developing sub-questions. This phase placed emphasis on collaborative scoping and thematic alignment. Phase two: Systematic Literature Review and Bibliometric Analysis: the groups identified databases and created search strings with inclusion and exclusion criteria. PRISMA flow diagrams were constructed, and systematic reviews were finalized. This phase required collaborative decision-making as well as technical coordination. Phase Three: Data Analysis and Research Output Planning: the groups participated in analysis planning, tool selection and role clarification for article production. Authorship orders as well as research outputs were negotiated during this phase as well. This phase created a structured environment in which collaborative dynamics would be analysed. The structural configuration and phased design of the initiative is illustrated in Figure 2.

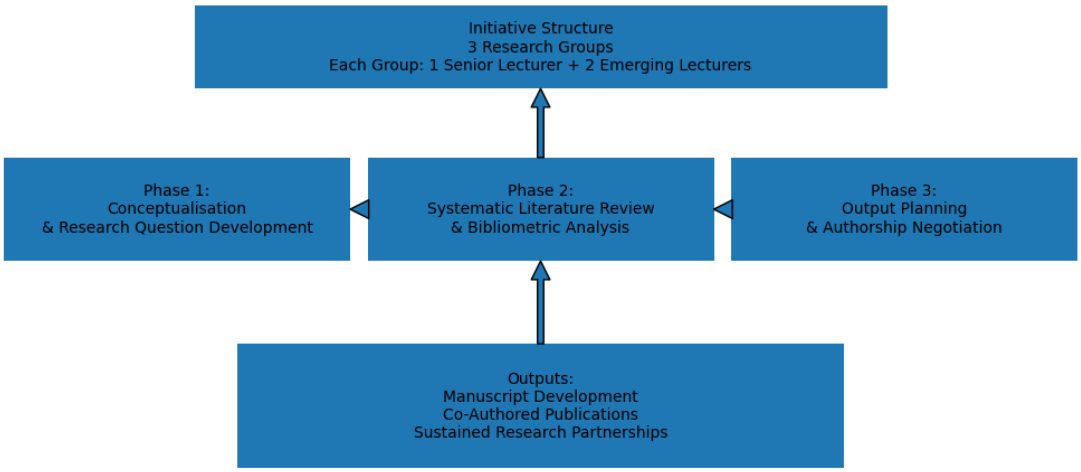


Figure 2: Structure and Phased Design of the Co-Authoring Initiative (Source: Author's Own).

3.3 Data Generation

Data was generated through ethnographic engagement across all three phases of the initiative. Data was collected through numerous sources such as participant observation of structured group sessions across the three phases, field notes that documented interactions, authorship negotiations, mentoring practices and decision-making processes, internal documents such as phase reports, search strategies, PRISMA diagrams and planning documents, a formal memorandum that outlined the initiative's purpose and funding structure and informal reflective discussions among the participants. The observations focused on relational dynamics, intellectual alignment and research scope negotiations, authorship and accountability, participation patterns across the different phases and shifts in confidence and ownership among the emerging lecturers (Tulokas, Haapasalo and Tampio,2024 :2). Data was collected throughout the full cycle of the initiative's implementation, and this enabled comparison between early-stage collaboration (phase one), process consolidation (phase two), and output-oriented coordination (phase three).

3.4 Researcher Positionality and Reflexivity

This study was conducted from an embedded ethnographic position within the departmental co-authoring initiative. The researcher participated in the initiative while simultaneously maintaining systematic field documentation and analytical distance. This dual role as participant and observer required ongoing reflexive engagement throughout the research process (De Smet, Eksi and Truijens, 2025: 4). During the implementation of the initiative, the researcher held the position of Deputy Head of Department for Research and Postgraduate Programmes. The co-authoring initiative formed part of the department's formal research development strategy, and participation was mandatory for identified academic staff. This positional authority introduced an inherent power dimension that required explicit methodological consideration, particularly in relation to participation dynamics, collaborative behaviour and authorship negotiations (Bans-Akutey and Tiimu, 2021).

Reflexive memos were maintained throughout the twelve-month period to critically examine the potential influence of leadership authority on group interaction, interpretive framing and participation patterns. Particular

attention was given to distinguishing between compliance driven participation and authentic collaborative engagement. While participation in the initiative was mandatory, intellectual contributions, authorship positioning and manuscript development processes remained negotiated within each group. The research consciously avoided evaluative framing of group performance and separated administrative leadership responsibilities from ethnographic observation. Rather than treating embedded leadership as a limitation, this study conceptualises positional authority as an analytically relevant feature of the organisational context under investigation. The intersection of institutional mandates, departmental culture and relational dynamics formed part of the phenomenon being studied. Maintaining transparency regarding this dual role enhances the credibility, reflexivity and ethical integrity of the research.

3.5 Data Analysis

Data analysis followed an iterative, abductive strategy that integrated inductive coding with the research study's conceptual framework of scholarly collaboration as a relational-cultural organisational practice. The analytical process was conducted in three stages. Stage 1: Open Coding: Initial coding identified themes related to trust and hierarchy, intellectual alignment, mentorship dynamics, participation shift, accountability mechanisms, and institutional performance pressures (Mcleod, 2024: 1). Stage 2: Temporal Mapping: The data was categorized in a chronological order across phases one, two and three to identify patterns of change. The way collaborative norms evolved across conceptualization, the execution of the systematic reviews and production planning were the focus (Kringelum and Frederiksen, 20:2510). Stage 3: Mechanism Identification: Mechanisms through which the initiative influenced the collaboration was analysed. This included formalized mentoring roles, structured accountability, shared technical learning, authorship positioning, and collective ownership of outputs (Nikulina, Volker and Bosch-Rekveldt, 2022: 798). Such an approach allowed understanding how the initiative interacted with relational, cultural, and institutional dimensions of scholarly collaboration.

3.6 Rigour and Trustworthiness

The rigour of this research study was enhanced through the prolonged engagement across the different phases of the initiative, which allowed sustained observation of the evolving collaborative dynamics. Credibility was strengthened through the triangulation of participant observation, cross-group comparative insight, documentary evidence, the systematic maintenance of reflexive memos and an audit trail that documented the analytical decisions and phased processes (Johnson, Adkins and Chauvin, 2020: 143). The structured design of the initiative also provided clear temporal markers that supported systematic analysis of change over time (Coombs, Campbell and Caringi, 2020:5). Given the embedded nature of the research, reflexive awareness of the researcher's dual role as participant and observer was continuously maintained to mitigate bias and enhance transparency (Braun and Clarke, 2020: 343). Ethical clearance for the study was obtained from the University of Johannesburg's Research Ethics Committee prior to the commencement of data collection (Ethical clearance codes: 2024SCiiS025, 2024SCiiS026,3). Together these measures enhanced the credibility, transparency, and ethical integrity of the study (Cutcliffe, and McKenna, 2004: 130).

4. Findings and Discussion

4.1 From Informal Collaboration to Structured Scholarly Engagement

Prior to introducing the departmental co-authoring initiative, scholarly collaboration within the department was largely informal and dependent on existing relationships as opposed to structured mechanisms. Collaboration existed but was unevenly distributed, relying primarily on individual initiative and pre-existing intellectual alignment. Mentorship relationships were largely discretionary, and opportunities for emerging lecturers to engage in structured co-authoring were not systematically embedded into departmental practices. The introduction of this initiative marked a crucial shift from discretionary collaboration to formalized scholarly engagement.

The structured grouping of one senior lecturer and two emerging lecturers around a shared research interest created an explicit relational architecture for collaboration. Scheduled meetings phased milestones and defined outputs introduced temporal markers and accountability that reconfigured collaboration as an organized departmental practice as opposed to an informal activity. It is important to note that no overt resistance or authorship tensions emerged during implementation, which suggests that there was alignment between the initiative's objectives and departmental culture. The initiative formalized and legitimized collaborative writing

as a collective departmental responsibility rather than disrupt existing norms. This shift reflects a movement from collaboration as individual choice to collaboration as structured organizational practice.

4.2 Identical Structure, Divergent Outcomes: the Role of Doctoral Stage

The initiative was structurally identical across the three research groups; however, the performance of trajectories diverged significantly. Despite the uniform phased structure shown in Figure 2, the groups experienced different outcome trajectories. Group three progressed through all phases and achieved publication. Group 1 showed strong internal co-ordination but did not publish during the study period, and group two did not complete the manuscript. These differentiated outcomes are significant as they occurred despite the uniform structural conditions. The differentiated trajectories and the moderating role of doctoral stage are illustrated in Figure 3.

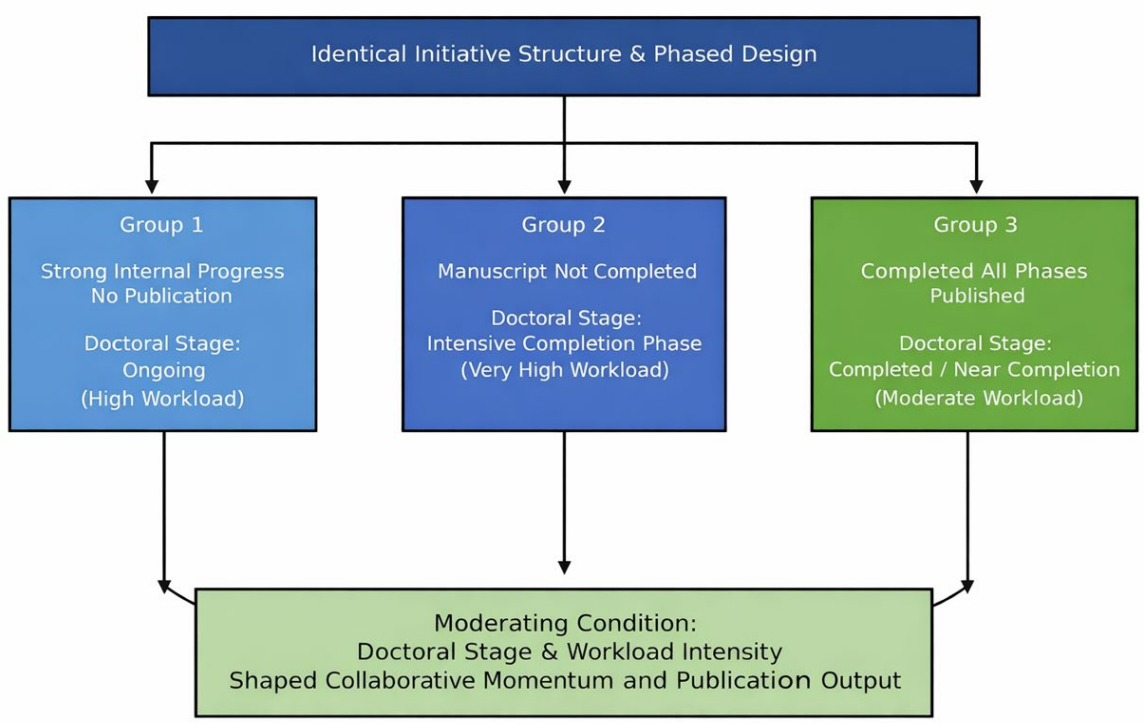


Figure 3: Differentiated Group Trajectories and Moderating Role of Doctoral Stage (Source: Author's Own).

The primary distinguishing factor across the groups was the doctoral stage of emerging lecturers. In groups one and two, emerging lecturers were still completing their PhDs, with one member in Group 2 experiencing intense thesis completion demands. In contrast, group three included one emerging lecturer who had completed their PhD and another who was nearing completion. This variation in doctoral stage appeared to function as a structuring mechanism, that shaped collaborative momentum. Where doctoral completion was nearly finalized, greater sustained engagement in manuscript development was achieved. Emerging lecturers in group three demonstrated stronger continuity across the phases and were able to invest cognitive as well as temporal resources consistently in article development. By contrast, in groups one and two, competing doctoral commitments constrained momentum even though relational dynamics and group cohesion were positive. These findings suggest that structural intervention alone is not sufficient to guarantee equivalent publication outcomes. Instead, scholarly collaboration is mediated by career-stage capacity, workload intensity as well as available intellectual bandwidth. The initiative provided conditions for collaboration; however, the realization of publication outputs was contingent upon the broader academic commitments of participants.

4.3 Collaboration Beyond Publications: Process as Impact

The absence of publication in group one and two does not mean failure. Group one demonstrated strong internal engagement and progressed through conceptualization, systematic review processes, and manuscript drafting. However, the demands of doctoral completion constrained finalization and submission. This distinction highlights the importance of differentiating between collaborative process effectiveness and measurable output. Across all three groups, emerging lecturers showed increased confidence in research design, database

searching, systematic review procedures, and manuscript structuring. Early phases were characterized by mentor-led coordination, especially during the research question refining and methodological scoping. As the integrative progressed, participation became distributed. Emerging lecturers assumed more responsibility for the intellectual contributions and technical processes which reflected a gradual redistribution of scholarly agencies. Even in the groups that did not publish, participants reported that familiarity with systematic review processes and a clearer understanding of authorship expectations increased. The initiative therefore created capacity building effects independent of immediate publication outcomes. Thus, impact occurred at the level of relational and cultural transformation as opposed to output metrics. It is important to note that, following the conclusion of the initiative, more than ten additional publications were produced across departmental staff members outside of the formal structure of the program. This observation is based on departmental publication records collected after the initiative, while causality cannot be claimed, the pattern suggests a sustained shift in research engagement.

4.4 Redistribution of Scholarly Agency and Mentorship Formalization

A significant outcome of the initiative was institutionalized by mentorship within collaborative writing. By formally assigning one senior lecturer to each group, mentorship shifted from of discretionary support towards structured responsibility. This formalization decreased reliance on informal networks and created more equitable access to collaborative opportunities for emerging lecturers. Over time, the relational dynamics within groups transformed. Initial dependence on senior guidance gradually changed into confident participation especially in group three where doctoral completion facilitated stronger intellectual ownership. Even in groups one and two, emerging lecturers increasingly engaged in decision-making and contributed significantly to analytical discussions. This evolution indicates that the initiative did not only increase co-authoring activity; it altered relational foundations of scholarly collaboration within the department. Mentorship became embedded within collaborative practice, and scholarly participation became more pronounced across career stages.

4.5 Integrative Discussion: Structured Intervention and Conditional Impact

Collectively, the findings indicate that the departmental co-authoring initiative successfully reconfigured scholarly collaboration from an informal practice into a structured, relationally supported organizational process. The absence of resistance suggests cultural readiness, and the structured design created enabling conditions for accountability, shared intellectual engagement, and mentorship. However, differentiated group outcomes show that while institutionalized structure assists with collaboration, the realization of publication outputs remains contingent upon career stage conditions and workload distribution. Doctoral stage functioned as a moderating factor influencing collaborative momentum and output completion as depicted in Figure 3. The initiative therefore impacted scholarly collaboration in two significant ways:

- By increasing publication output in at least one group and
- By strengthening collaborative capacity, relational equity, and confidence across the department.

These findings reinforce the importance of distinguishing between collaboration as a measurable output and collaboration as an evolving organizational practice. While publication is visible, the more substantive impact of the initiative is the reshaping of the relational and cultural dynamics through which scholarly work is collectively undertaken.

5. Conclusion

This study set out to analyse how a departmental co-authoring initiative impacted scholarly collaboration within an academic department over time. By adopting a longitudinal ethnographic design, the research was able to move beyond output-based evaluations of collaboration and examine how collaborative practices evolve within their relational, cultural, and institutional context. The findings show that the initiative reshaped scholarly collaboration in two crucial ways. First, it formalized mentorship and structural accountability, which transformed collaboration from an informative practice into a more organized and relationally supported departmental process. Second, it contributed to the redistribution of scholarly agencies, especially among emerging lecturers, by strengthening research confidence, participation in authorship negotiations, and technical competence. While only one group achieved publication during the study period, subsequent increases in departmental publications suggest broader cultural shifts in collaborative engagement.

More importantly, this study demonstrates that structural design alone does not guarantee equivalent publication outcomes. Doctoral stage and workload intensity were moderating conditions influencing collaborative momentum. Scholarly contribution is shaped by institutional mandates, organizational structure as well as career stage capacity and intellectual bandwidth. Theoretically, this study contributes by conceptualizing scholarly contribution as a relational-cultural organizational practice rather than just a co-authorship output. By distinguishing between collaboration as process and publication as artefact, it expands the understanding of how academic writing cultures are constructed within departments. Methodologically, the study shows the value of longitudinal ethnography for analysing evolving organizational practices in higher education, especially where institutional mandates and relational dynamics intersect. Overall, the findings suggest that structured co-authoring initiatives can enable collaborative cultures, but their impact remains contingent upon the interaction between institutional design, career stage conditions and relational dynamics within academic departments.

Ethics Declaration

Ethical clearance for this study was obtained from the University of Johannesburg Research Ethics Committee prior to the commencement of the research (Ethical clearance codes: 2024SCiiS025; 2024SCiiS026). The study formed part of an approved departmental research initiative. All data was generated through participant observation, departmental documents and reflective field notes within the institutional context. Care was taken to ensure that no identifiable personal information of participants was disclosed and that the research complied with institutional ethical guidelines.

AI Declaration

Conceptual development, research design, data collection, analysis, and interpretation was conducted solely by the author. The author accepts full responsibility for the content and scholarly integrity of the work. AI tools were not used.

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Validation of Psychometric Properties of an Instrument Measuring Employee Job Performance: The Case of Individual Work Performance Questionnaire

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Abstract: Job performance (JP) remains a topical construct in both the academic and practical literature because it offers employees several benefits and the organisation, success and competitive advantage in the turbulent business environments. Thus, using a rigorous instrument to assess JP is considered vital to generate credible results to inform strategic human resources policy decisions. Currently, among the plethora of existing instruments, the Individual Work Performance Questionnaire (IWPQ) appears to be the most widely used instrument. Despite the extensive interest in the IWPQ, not much is known about its psychometric properties in the Ghanaian work context. This study provides evidence of the psychometric properties (reliability and validity) of the IWPQ instrument from the Ghanaian work environment, emphasising the usefulness of this instrument in a developing African country work context. A quantitative online cross-sectional approach was employed. The IWPQ instrument was returned by 347 out of 430 participants who were conveniently recruited from a Ghanaian financial work environment. Data were explored using descriptive statistics, EFA and CFA techniques. The EFA findings demonstrated a three-factor structure for the IWPQ instrument: task performance, contextual performance and counterproductive work behaviours, respectively. Moreover, the CFA findings affirmed the internal consistency, convergent validity, discriminant validity and fitness of the three-factor JP model, thereby supporting the construct validity of the IWPQ instrument. The findings show that the IWPQ instrument is reliable and valid within the sample, implying that practitioners and academics can use it to examine and understand employees' JP related behaviours in the understudied institution.

Keywords: Confirmatory Factor Analysis, Exploratory Factor Analysis, Ghanaian Financial Employees, Job Performance, Psychometric Properties, Reliability, Validity

1. Introduction

The individual job performance (JP) variable relates to the observable and measurable behaviours and actions of individual employees at work pertinent to achieving organisational goals (Campbell et al, 1993; Dwiliesanti & Yudiarso, 2022). JP is a topical concept that has received extensive support in the academic and practical literature due to its relevance to both the individual and employing organisations. Evidence attests that higher performing employees are not only recognised and rewarded with incentives – bonuses and/or promotions – offered career progression opportunities, but they also experience a feeling of satisfaction, mastery, pride and enhanced motivation compared to low-performing employees who may be thought to often experience feelings of personal failure, dissatisfaction and demotivation (Kristiani et al, 2021; Kumari et al, 2021; van der Vaart, 2021). On the other hand, the literature demonstrates that high-performing employees are also a requisite for organisational success. This is because higher-performing employees do not only work to promote immediate organisational objectives, but they equally work to ensure the organisation remains competitive in turbulent business environments (Pandey, 2019; van der Vaart, 2021).

In Ghana, both the financial institutions and their employees are under constant pressure to deliver due to the erstwhile financial crisis that occurred between 2017 and 2019 and the subsequent measures instituted by the central bank, which necessitated the need for these institutions to remain competitive in such a volatile financial environment (Boateng, 2025). Thus, measuring employee's JP is vital for financial institutions to not only understand employees' behaviours that are relevant to organisational effectiveness, but also to understand the antecedents and consequences of employee performance to inform strategic human resources policy decisions (Kulachai et al, 2023; Ramos-Villagrasa et al, 2019). In this regard, previous studies have emphasised that organisations do not make performance improvement decisions in isolation but they depend on research outputs to inform such initiatives (Koopmans et al, 2016; van der Vaart, 2021). This implies that sound and credible research outputs are necessary to aid organisational decisions (Ramos-Villagrasa et al, 2019; van der Vaart, 2021). Given this, it seems apt to emphasise that any instrument used to determine employees' performance in the workplace must be deemed to be comprehensive, reliable, valid and adaptable to different cultural and work contexts (Danderman et al, 2020; Koopmans, 2015; Koopmans et al, 2016).

While a plethora of instruments are available in the market for evaluating employees' JP ranging from supervisor rating instruments to self-report instruments, the Individual Work Performance Questionnaire (IWPQ, Koopmans et al, 2013a), appear to be the most widely used and validated instrument in the literature (Kenig, 2022; Kulachai et al, 2023). The IWPQ is a multidimensional, short but generic 18-item self-report instrument that can be administered to employees working in different jobs with ease. It was developed primarily for research studies to measure employees' behaviours at work that are considered relevant to the success of the employing organisation. Consequently, the instrument integrates all the pertinent factors of JP in a single instrument – it provides a comprehensive way to measure the diverse actions that constitute JP in different work environments with no antithetical items (Danderman et al, 2020; Koopmans, 2015).

Despite an extensive interest in the IWPQ, less is known about its psychometric properties in the Ghanaian work context. Additionally, most of the studies evaluating the psychometric properties of this instrument were done elsewhere with different socio-cultural and economic environments (Danderman et al, 2020; Dwiliesanti & Yudiarso, 2022; Kenig, 2022; Koopmans et al, 2016; Kulachai et al, 2023; Ramos-Villagrasa et al, 2019). This corroborates with the literature emphasising the need for context relevant validated IWPQ instrument (Koopmans et al, 2011; Koopmans, 2015; van der Vaart, 2021). A plausible reason is that culture shapes individuals' experiences which in turn could influence how they respond to self-report instruments like the IWPQ. Put succinctly, the meaning assigned to items in the IWPQ may differ in different work and cultural context, thereby limiting generalisability of the results to other contexts (Koopmans et al, 2011; Koopmans, 2015). Thus, considering that unique socio-cultural, organisational and work environments could affect the reliability and validity of an instrument, evaluating the IWPQ in the Ghanaian context —a developing African country, is essential to determine its practical usefulness in this environment. This preliminary study evaluates the reliability and validity of the IWPQ in a Ghanaian financial work environment. The study also contributes to the ongoing evaluation of the IWPQ instrument.

2. Literature Review

2.1 An Overview of the Individual Work Performance Questionnaire

The development of the IWPQ arose from Koopmans et al.'s (2011, 2013a) observation that there was no single scale in the literature – at the time that combined and measured all the factors of JP, thus, to these theorists, the existing instruments had failed to integrate the full spectrum of individual employees' behaviours in the work environment. Furthermore, the theorists also observed that some of the items in the existing scales were antithetical – they overlapped with items in other scales measuring different JP subfactors (Koopmans et al, 2011; 2013ab). Therefore, there was a need to develop a single but comprehensive instrument that captures the full range of employees' behaviours at work with no antithetical items (Koopmans et al, 2011; 2013ab).

Koopmans et al (2013a) developed the IWPQ to measure the utility and applicability of their earlier four-factor model conceptualisation representing contextual performance (CP), adaptive performance (AP), task performance (TP), and counterproductive work behaviour (CWB) (Koopmans et al, 2011). CP relates to individual employees' behaviours that support the social, psychological and organisational context in which the employee executes the core task roles. AP is ascribed to the individual employee's willingness or ability to adjust to the changes occurring in the work environment or job roles. TP is ascribed to the individual employee's proficiency in the execution of the core task roles. CWB, on the other hand, relates to individual employees' behaviours that are detrimental to the effectiveness of the employing organisation (Koopmans et al, 2011, 2013ab).

Anchored on this conceptualisation, Koopmans et al (2013a) drew a pool of items from the previous literature and through interviews with experts. This resulted in the identification of a 47-item instrument evaluating the four dimensions of JP namely, CP, AP, TP, and CWB. The theorists piloted the first version (IPWQ 0.1) of the instrument using 54 research experts which resulted in the modification and rephrasing of items to ensure their readability and clarity as well as prolonging the recall period from four weeks to three months (Koopmans, 2015).

Following the successful pilot test, the modified 47-item IWPQ version 0.1 was field-tested using a sample of 1181 employees across several occupational sectors in the Netherlands. The findings from the Rasch analysis demonstrated that only three (TP, CP, and CWB) out of the four factors yielded the best fit for the model (Koopmans et al, 2013a). The theorists noted through the Rasch analysis that items in the AP scale loaded onto the CP scale therefore they eventually merged AP with the CP subfactor. This process resulted in the birth of a 14-item IWPQ version 0.2 (Koopmans et al, 2014).

The theorists further reviewed and adjusted version 0.2 of the newly developed instrument by including additional items they considered appropriate resulting in the rebirth of a 27-item IWPQ version 0.3 with specific items measuring each of the three factors: TP (7 items), CP (12 items) and CWB (8 items) (Koopmans et al, 2014). This version of the instrument was further tested using a sample of 1 424 employees spread across several organisations and occupational fields in the Netherlands (Koopmans et al, 2014). The findings from the Rasch analysis resulted in the elimination of all the misfitted items from the instrument to generate the final, generic, and short 18-item IWPQ instrument version 1.0 with five items, eight items, and five items measuring the subfactors TP, CP, and CWB respectively. The items in the three factors are measured on a 5-point Likert scale.

Because the original IWPQ instrument was developed in the Dutch language, there was a need to verify its usefulness in other cultures or languages. Following this necessity, Koopmans et al (2016) translated the revised 18 Dutch items into English Language and subsequently tested their cross-cultural adaptability using a sample of 40 employees functioning in a medical centre in the United States. The findings demonstrated that the 18-item English version of the IWPQ instrument was culturally adaptable with good internal consistency and adequate convergent and discriminant validity.

2.2 Evidence of Reliability and Validity of the IWPQ

The reported internal steadiness–reliability estimate for the IWPQ subscales is judged to be acceptable ranging from 0.78 (TP); 0.79 (CWB) and 0.85 (CP) (Koopmans, 2015), 0.77 (CWB), 0.83 (TP) and 0.87 (CP) (Ramos-Villagrasa et al, 2019), 0.68 (CWB), 0.89 (TP) and 0.91 (CP) (van der Vaart, 2021), 0.73 (TP), 0.84 (CP) to 0.86 (CWB) (Kenig, 2022), 0.82 (CWB), 0.85 (CP), and 0.86 (TP) (Dwiliesanti & Yudiarso, 2022) and lastly, 0.92 (TP) to 0.99 (CP and (CWB) (Kulachai et al, 2023).

Regarding the validity of the IWPQ instrument, evidence from different contexts suggest that the instrument possesses sufficient convergent validity, discriminant validity, cross-cultural validity, and nomological validity suggesting a good construct validity of the instrument (Kenig, 2022; Koopmans, 2015; Koopmans et al, 2016; Ramos-Villagrasa et al, 2019; van der Vaart, 2021). A Thai study by Kulachai et al (2023) equally demonstrates a good convergent reliability of the IWPQ instrument, however, the authors noted that their model did not fit well with the data. These studies demonstrate that the revised 18-item instrument can reliably be used as a generic measure of employees' JP across all types of jobs in all organisations.

Given the existing paucity of empirical validation of the IWPQ instrument in the Ghanaian context, the present study seeks to support the current validation of the instrument by providing further psychometric information (reliability and validity) using sampled employees working in a financial institution. Evaluating the psychometric properties of the IWPQ instrument in Ghana allows the researchers to determine the relevance of the items in the instrument within the local work context, thereby supporting the utility of the IWPQ instrument in a different cultural context.

3. Aims

The aims of this study were formulated as:

a) to examine the factor structure of the IWPQ using EFA within sampled employees working in a Ghanaian financial work context.
b) to assess the validity (convergent and discriminant) of the IWPQ within the sampled employees operating in a Ghanaian financial work context.

4. Methodology

4.1 Research Approach

A quantitative cross-sectional research tradition was employed in this study to sufficiently accomplish the stated aims. This design perspective allowed the researchers to use a single questionnaire to gather the needed data at a specified period. Consequently, this design was deemed suitable to investigate the IWPQ factor structure.

4.2 Participants

The participants consisted of 430 employees conveniently drawn from a population of 670 employees working in a financial work environment with approximately 80% response rate. The participants were mostly under 40

years (66%) and mainly females (53%) with more than 15 years' experience (52%) working in lower ranked position (63%) and holding a bachelor's degree (53%).

4.3 Instrument

A biographical information sheet was used to collect participants' information concerning age, gender, wok experience, qualification and job level.

4.3.1 Job Performance

The self-report 18-item IWPQ instrument developed and validated by Koopmans et al (2014) was adapted to assess employees' performance. The instrument measures TP, CP and CWB components of the JP construct with statements: "I managed my time well" and "I took on extra responsibilities" on a 5-point rating scale (1—strongly disagree, 5—strongly agree). Cronbach's α values in this study ranged between 0.897 and 0.943.

4.4 Data Analysis

Data were explored through both SPSS 23 and AMOS 22 software. Participants demographics and the measuring instrument were initially evaluated descriptively. Thereafter, an EFA technique was performed to examine the factor structure of the IWPQ instrument. Lastly, a CFA technique was carried using the maximum likelihood procedures to determine the fit indices, internal reliability, convergent validity and discriminant validity of the IWPQ instrument for the sampled employees in the Ghanaian financial work environment.

5. Results

The results of this study are hereby presented in terms of the descriptive analysis and factor structure (dimensionality) of the items in the IWPQ instrument. Followed by the reliability (internal consistency), validity (convergent and discriminant validities), and fit indices of the IWPQ measurement model.

5.1 Descriptive Statistics

Table 1 reveal the mean figures for the three- factor structure IWPQ instrument ranged from 1.614 to 3.863 with standard deviation values falling between 0.770 and 1.057, suggesting the participants held a positive view regarding their performance in the financial work environment.

Table 1: Descriptive results

Construct	Factors	Number of Items	Reliability	Mean Score	Standard Deviation	Position in Rank Order
Job Performance	TP	5	0.920	3.862	0.811	1
	CP	6	0.943	3.181	1.057	2
	CWB	3	0.897	1.614	0.770	3

5.2 Instrument Dimensionality

The IWPQ instrument was examined to determined its factor structure within the sample using an EFA analysis. Consequently, a principal component analysis and Varimax rotation with Kaiser normalisation was performed. Loadings ≥ 0.50 were considered sufficient for the least factor loadings. Similarly, the instrument's communality was calculated to ascertain an adequate level of explanation. All communalities were higher than 0.50.

Moreover, KMO and Bartlett's Test of Sphericity were performed to ascertain whether the data were adequate for factor analysis. Table 2 shows a KMO value of 0.928 with significant Bartlett's tests (P = 0.000), indicating the sampled data were appropriate for further exploration.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.928
Bartlett's Test of Sphericity	Approx. Chi-Square	4924.387
	df	153
	Sig.	.000

Source: Research results

The EFA analysis reveals that all the items loaded sufficiently onto their respective factors consistent with the original theoretical model (Koopmans, 2015). Resulting in a three-factor solution with 18-items and item loadings ranging between 0.589 and 0.801. Factor 1, Task Performance (TP) has five items, Factor 2, Contextual Performance (CP) has eight items whereas Factor 3, Counterproductive work Behaviour (CWB) has five items. The three factors explained 48.9% of the total variance in the data. Table 3 illustrates the rotated factor loadings.

Table 3: EFA Results – rotated component matrix

Items	Component		
	1	2	3
Task Performance			
TP1	.768		
TP2	.778		
TP3	.773		
TP4	.801		
TP5	.786		
Contextual Performance			
CP1		.648	
CP2		.732	
CP3		.637	
CP4		.616	
CP5		.784	
CP6		.741	
CP7		.758	
CP8		.742	
Counterproductive Work Behaviour			
CWB1			.589
CWB2			.621
CWB3			.699
CWB4			.755
CWB5			.758

NOTE: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converged in 18 iterations.

5.3 Confirmatory Factor Analysis

A CFA analysis was performed through the maximum likelihood procedure to determine the three-factor measurement model's fitness, reliability and validity. Table 4 outlines the initial CFA results.

Table 4: Initial measurement model

Scale Item	Code	Standardised Loading	*t*-Value	R-Square
TP				
	TP1	0.782	-	0.611
	TP2	0.838	17.122	0.702
	TP3	0.863	17.788	0.745
	TP4	0.863	17.786	0.745
	TP5	0.828	16.88	0.686
CP				

Scale Item	Code	Standardised Loading	*t*-Value	R-Square
	CP1	0.822	-	0.676
	CP2	0.869	20.094	0.756
	CP3	0.634	12.905	0.402
	CP4	0.602	12.103	0.362
	CP5	0.886	20.743	0.786
	CP6	0.886	20.713	0.784
	CP7	0.865	19.929	0.748
	CP8	0.803	17.79	0.645
CWB				
	CWB1	0.712	-	0.507
	CWB2	0.462	8.218	0.213
	CWB3	0.864	15.279	0.747
	CWB4	0.849	15.022	0.720
	CWB5	0.875	15.456	0.766

Sample Size (N) = 347. Model Fit Indices: CMIN/DF=4.002; CFI=0.919; GFI=0.861; NFI= 0.895; RMR=0.052; RMSEA=0.093; P-Close=0.000

The initial results (Table 4) showed some unfit indices requiring further adjustment to improve the model's fitness (Kline, 2023). Consequently, the measurement model was revised to enhance its fitness, integrity and validity based on the cross loadings, measurement errors, sizes of factor loadings, and association between the measurement errors (Hu & Bentler, 1999; Schreiber et al, 2006). Thus, two items from the CWB (CWB1, CWB2) and CP (CP3, CP4) subscales were subsequently deleted from the model. Finally, 14-items measuring TP (five items), CP (six items) and CWB (three items) fitted well to the data with sufficient validity and reliability for the model. Figure 1 depicts the final measurement model

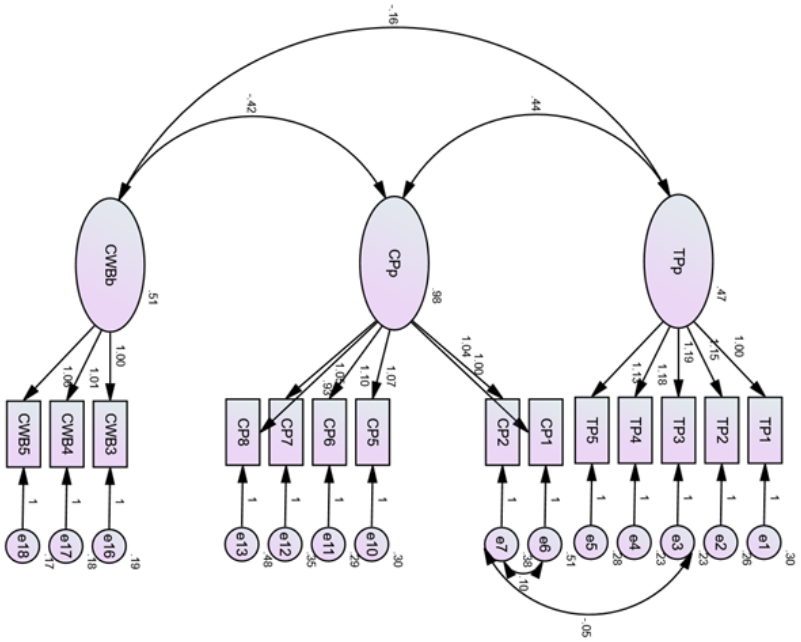


Figure 1: Final measurement model for JP

Moreover, Table 5 demonstrates acceptable fit indices: chi-square/degree of freedom (CMIN/DF=2.016), comparative fit index (CFI=0.979), goodness of fit index (GFI=0.936), normed fit index (NFI= 0.959), root mean square residual (RMR=0.042), root mean square error of approximation (RMSEA=0.054), and probability of close (P-Close=0.257). This suggests that the three-factor model explored through CFA technique sufficiently fitted the sampled data because the obtained fit indices were within the recommended threshold (Hu & Bentler 1999; Schreiber et al. 2006).

5.4 Internal Consistency

The Composite reliability (CR) and Cronbach's alpha (Cα) values were used as estimates for the measurement model's internal reliability. Table 5 demonstrates that the CR values for the three-factor model were between 0.898 and 0.943 whereas the Cα values were between 0.897 and 0.943. In terms of the literature, the obtained values are higher than the 0.70 threshold (Hair et al, 2014; Nunnally & Bernstein, 1994), suggesting that the IWPQ measurement possesses an excellent internal steadiness.

Table 5: CFA results for final measurement model

Scale Item	Code	Standardised Loading	*t*-Value	R-Square	Composite Reliability	AVE	Cronbach's Alpha
TP					0.920	0.698	0.920
	TP1	0.782	-	0.611			
	TP2	0.838	17.124	0.702			
	TP3	0.863	17.783	0.745			
	TP4	0.863	17.789	0.745			
	TP5	0.829	16.886	0.687			
CP					0.943	0.735	0.943
	CP1	0.830	-	0.683			
	CP2	0.871	20.319	0.758			
	CP5	0.887	20.963	0.787			
	CP6	0.893	21.078	0.792			
	CP7	0.864	20.123	0.749			
	CP8	0.795	17.827	0.641			
CWB					0.898	0.745	0.897
	CWB3	0.863	-	0.742			
	CWB4	0.853	15.117	0.718			
	CWB5	0.872	15.555	0.764			

Sample Size (N) = 347. Model Fit Indices: CMIN/DF=2.016; CFI=0.979; GFI=0.936; NFI= 0.959; RMR=0.042; RMSEA=0.054; P-Close=0.257

5.5 Convergent Validity

The convergent validity of the items in the IWPQ measurement model was evaluated employing the average variance extracted (AVE) and factor loadings. Results in Table 5 indicates that the AVE values were between 0.698 and 0.745 whereas the factor loadings were also between 0.782 and0.896. These values were higher than the required 0.50 threshold for AVE and least loadings (Fornell & Larcker, 1981; Hair et al, 2014), suggesting adequate convergence of the measurement model.

5.6 Discriminant Validity

The discriminant validity of the IWPQ measurement model was explored by employing the Fornell and Larcker criterion (1981). This method requires that a latent variable has a sufficient discriminant effect against others when the square root of the AVE is greater than the linkage between the latent variable and other variables in the model (Fornell & Larcker, 1981). Accordingly, Table 6 demonstrates that the discriminant validity of the IWPQ measurement model was sufficiently achieved.

Table 6: Discriminant validity results

Construct		Job Performance		
	Item	TP	CP	CWB
Job Performance	TP	0.835		
	CP	0.450	0.857	
	CWB	-0.338	-0.398	0.863
Composite Reliability		0.920	0.943	0.898
Average Variance Extracted		0.698	0.735	0.745
Cronbach's Alpha		0.920	0.943	0.897

Notes: *N = 347. Since the square root of the Average Variances Extracted (values on the diagonal) are greater than the corresponding inter-construct correlations (values off the diagonal), discriminant validity is achieved* (Fornell & Larcker, 1981).

6. Discussion

The study aimed to assess the psychometric properties of the IWPQ instrument within sampled employees working in a Ghanaian financial institution by determining both its factor structure and validity. The initial EFA evaluation of the participants responses to the items in the instrument within the Ghanaian financial work context produced a three-factor solution for the JP model, viz: TP, CP and CWB. Consistent with this position, previous analysis demonstrates that the JP construct is a multidimensional construct with three-factor structure consisting of TP, CP and CWB components (Danderman et al, 2020; Koopmans et al, 2014, 2016).

Moreover, the internal consistency estimates for the three-factor IWPQ model were calculated using the Cα and CR. This was done to ensure that the instrument is reliable within the sample and suitable for use in the local financial work environment. The findings showed that Cα values ranged from 0.897 to 0.943 whereas the CR values ranged from 0.898 to 0.943. In respect of the threshold of 0.70 for Cα and CR (Hair et al, 2014; Nunnally & Bernstein, 1994), the findings demonstrated an excellent internal consistency in capturing respondents perceived JP in the Ghanaian financial work environment. This finding converges with the reported reliability values in the erstwhile literature which ranged between 0.68 and 0.99 (Dwiliesanti & Yudiarso, 2022; Kenig, 2022; Kulachai et al, 2023; van der Vaart, 2021).

Furthermore, researchers determined the fitness and construct validity (convergent and discriminant) of the three-factor IWPQ solution within the sample. The findings revealed acceptable fit indices for the model, implying that the three-factor solution fitted perfectly to the sampled data. The findings also indicated that the measured instrument had sufficient convergent validity. This was evident in the obtained AVE values and factor loadings, which were all deemed higher than the suggested threshold in the extant literature (Hair et al, 2014; Fornell & Larcker, 1981). Similarly, adequate discriminant validity of the latent variables in the IWPQ instrument was achieved. This was evident in the square roots of the AVE (values on the diagonal) which were all considered to be larger than those recorded in the correspondent inter-construct relations (values off the diagonal) (Fornell & Larcker, 1981). This shows that the three factors in the model are related but remain distinct components of the JP construct. Moreover, the findings shows that the three-factor solution is valid and reliable within the sampled employees. Correspondingly, prior literature has reported sufficient fitness, convergent and discriminant validity of the IWPQ instrument in diverse work context (Kenig, 2022; Koopmans et al, 2016; Ramos-Villagrasa et al, 2019; van der Vaart, 2021).

Although 14 items out of the original 18 items were confirmed in this study, the findings generally indicated that the JP framework along with the IWPQ instrument introduced by Koopmans et al (2011, 2013a) was reliable and valid within the sampled data. Thus, based on the preliminary findings, it seems sufficient to say that the three-factor JP model have adequate utility for employees in the sampled Ghanaian financial work context.

7. Conclusion

The researchers found evidence supporting a three-factor solution with 14 items within the sampled employees working in a Ghanaian financial work environment. The findings confirmed the three-factor JP model had a perfect fit to the data with evidence of sufficient construct reliability and validity. Consequently, the study

concludes that practitioners and academics can use the short but generic self-report IWPQ instrument to examine and understand employees' JP related behaviours within the understudied financial institution.

8. Limitation and Recommendation for Future Research

This preliminary study contributes to the JP literature in two ways. First, the findings show that the JP construct can be measured comprehensively with three related but distinct factors thereby supporting the multidimensional conceptualisation and measurement of the construct using the IWPQ (Koopmans et al, 211, 2013a). Second, the findings reveal that the multifactor IPWQ instrument is applicable within the sample, a different cultural context. Further highlighting the robustness of the IWPQ in comprehensively capturing employees JP in the understudied financial work context. This agrees with the literature that suggests that the IPWQ can be used to evaluate employees' JP in specific jobs or different kinds of jobs in all organisations (Koopmans, 2015; Koopmans et al, 2016).

Nonetheless, the study was confined to sampled employees in a Ghanaian financial institution. Consequently, the findings should be interpreted with some restraint. Moreover, four items representing the CP and CWB subscales did not fit the data. This could be due to cultural context, wording, or response bias. That is, the IWPQ was developed in the Netherlands which is different from the Ghana's socio-cultural, economic and organisational context. Consequently, the participants may have attached different meaning to those items other than originally intended. This corresponds with Koopmans' (2015) suggestion that the meaning assigned to items in the IWPQ may differ in different work and socio-cultural settings. Future studies could address these shortfalls by including larger samples from different organisations across Ghana along with rephrasing the items to fit the socio-cultural contexts. This could provide insight on JP behaviours of employees in different Ghanaian organisations thereby improving the external validity and relevance of IWPQ in the multicultural Ghanaian work environments.

Ethics Declaration

Ethical clearance for this study was given by the participating institution (Ref: 1190) and the research was voluntary, anonymous, confidential, with participants' informed consent.

AI Declaration

We declare that no AI tool was used in this study.

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Analytical Pluralism in Phenomenological Research: Exploring Coach Psychological Flexibility During COVID-19

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Abstract: This phenomenological study explored the lived experiences of coaches who integrated Acceptance and Commitment Therapy (ACT) principles into their professional practice and personal lives during the COVID-19 pandemic. The research examined how this integration influenced psychological flexibility, self-development, self-practice, and well-being amid the pandemic's uncertainty and disruption. To account for the conceptual and experiential complexity of the inquiry, an analytically pluralistic approach was adopted to enable multiple interpretive lenses. A layered design combined reflexive thematic analysis (RTA) for breadth and interpretative phenomenological analysis (IPA) for depth, aligning the epistemological stance of critical realism with the functional contextualist assumptions underpinning ACT. Twelve experienced ACT-informed coaches from diverse global contexts were purposively recruited via professional networks and social media. Each participant, with at least 100 hours of coaching experience, engaged in a 60–90-minute semi-structured online interview that incorporated reflective prompts to elicit rich narrative accounts in a supportive environment. Data were initially inductively coded using NVivo, following the phases of RTA with a semantic focus. Subsequently, three data-rich transcripts were analysed using IPA, involving descriptive, linguistic, and conceptual noting, leading to the development of personal and group experiential themes. The integration of RTA and IPA findings provided nuanced responses to the research questions, enriching interpretation by distinguishing between explicit and hermeneutic, and between pragmatic and existential dimensions. Although methodologically demanding, this dual-analytic approach deepened understanding of how ACT principles, integrated into coaching and personal life, supported psychological flexibility and well-being during a global crisis.

Keywords: Acceptance and Commitment Therapy (ACT), Psychological Flexibility, Phenomenology, Analytical Plurality, Analytical Triangulation

1. Introduction and Background

The Covid-19 pandemic profoundly changed the daily lives of large numbers of people around the world in ways that would have been unimaginable at the start of 2020. Restrictions imposed to contain the virus, including lockdowns and quarantine measures, shifted the context in which people lived worldwide. Daily routines were disrupted, social isolation increased, economic uncertainty grew, interpersonal relationships changed and free movement was limited. These conditions usually serve as protective factors for mental health, yet their disruption left populations widely vulnerable to psychological distress (Ettman et al., 2020; Shepherd et al., 2022). During prolonged times of stress, many individuals understandably tend to manage distress through avoidance, distancing, or engaging in a range of safety behaviours that limit their ability to participate in valued activities (Panayiotou et al., 2021). For many, the prolonged uncertainty also led to worry and rumination, worsening the psychological toll (Shepherd et al., 2022). Since the onset of the Covid-19 pandemic, global reports have revealed a substantial increase in psychological distress across the general population (Ettman et al., 2020; McCracken et al., 2021; Shepherd et al., 2022), with growing evidence that these effects have persisted well beyond the acute phase of the crisis (Yu & McCracken, 2025) Importantly, the distress related to Covid-19 was widespread across the population and did not affect only those working with or suffering from the virus. It reflected the pervasive nature of the disruption itself (Pakenham & Stafford-brown, 2020; Shepherd et al., 2022).

2. The Research Problem

Coaches played an important role during the pandemic, providing clients with support and a safe space to reflect at a time of extraordinary disruption (Irving, 2021; Terblanche, 2021). Many organisations made coaching available to leaders and key workers, and the work often extended into crisis management as the pandemic met the criteria of a disaster as defined by the International Federation of Red Cross (Terblanche, 2021). Writing after the 2008 recession, Whitmore (2011) observed that there is much to learn about coaching in uncertain times, given the ever-present possibility of large-scale disruptive events. The pandemic circumstances offered an opportunity to explore how coaches and the resources they draw on hold up under extreme conditions.

Coaching during the pandemic was especially demanding as coaches and clients faced the same pressures around job security, work–life balance and personal wellbeing (Irving, 2021). The nature of coaching requires

high levels of awareness and emotional resourcefulness, as the work takes place in complex and adaptive systems that are dynamic, interdependent, and constantly evolving (Irving, 2021; Passmore, 2014). Yet many coaches work independently in competitive markets with limited access to support; they frequently navigate tensions between clients' developmental goals and organisational priorities. Clients often seek coaching around difficult or threatening issues; the pandemic intensified this, with coaches more likely to feel personally affected or inadequate. Despite these challenges, the literature provides limited guidance on how coaches might manage such experiences (Graßmann et al., 2019).

As members of the helping professions, coaches must maintain their wellbeing and practise effective self-care to remain resilient and effective. Wellbeing may diminish gradually, and coaches can find themselves in a downward spiral before changes are fully noticed (McEwen & Rowson, 2022b). While burnout is well recognised in therapeutic and counselling roles, it is seldom discussed in relation to coaches themselves (Bachkirova, 2016) and coaches' own wellbeing, self-practice, and self-care are seldom formally addressed in training or supervision.

3. The Purpose of the Study

ACT was widely adopted during the pandemic to support wellbeing and psychological flexibility, including within coaching. A central tenet of ACT is that practitioners apply its principles to their own lives, not only to model the approach but to develop their own psychological flexibility (Luoma & Vilardaga, 2013; Tirch, 2019). Research on ACT self-practice has, however, been conducted largely with clinical psychologists and trainees, whose practice is typically embedded in supervised, structured settings. Conversely, coaching practice is often independent, without the embedded support, and how coaches engage in ACT self-practice has rarely been examined, particularly under conditions of crisis. Furthermore, coaches who do not develop their own psychological flexibility risk modelling and reinforcing the very processes of inflexibility they seek to address in their clients (Luoma et al., 2007). How coaches experienced and practised ACT under these conditions therefore mattered for their well-being and for their practice yet remained largely unexplored. The study addressed this gap through three research questions: firstly, how did coaches experience psychological flexibility during the COVID-19 crisis? Secondly, how did ACT-informed self-practice influence their wellbeing and professional functioning? And, thirdly, how did they make sense of their lived experiences collectively and individually?

4. Literature Sensitisation

Phenomenological studies emphasise the exploration of lived experiences and are open to emergent, authentic meaning rather than fitting into pre-existing theoretical frameworks (Smith et al., 2022). In keeping with this approach, literature is used to sensitise the inquiry rather than determine analytic outcomes, allowing participants' accounts to remain central to the research process.

Psychological flexibility refers to the capacity to remain present and act in accordance with values despite distressing thoughts and emotions (Hayes et al., 2011). This made ACT particularly relevant in the pandemic context, where uncertainty required adaptive, values-based responding (Prudenzi et al., 2023). Psychological flexibility is the central mechanism of change targeted through Acceptance and Commitment Therapy (ACT), and it was identified as a protective factor for psychological health during the pandemic (Dawson & Golijani-Moghaddam, 2020; Prudenzi et al., 2023). ACT-based interventions and coaching approaches were widely adopted during this period to promote wellbeing and enhance psychological flexibility (Berger et al., 2021; Daftary et al., 2021; Gillard et al., 2021; Kronberg et al., 2021). Consistent with the approach in ACT that practitioners applying its principles to themselves, studies with clinical psychology trainees found that ACT training positively influenced self-efficacy, self-care, and psychological flexibility (Pakenham, 2017), and guidelines for self-care in clinical psychology training include support for ACT as an approach for managing stress (Pakenham & Stafford-brown, 2020). Despite increasing interest in ACT-based coaching (Hill & Oliver, 2018; Skews, 2018), this type of guidance is virtually absent from coaching literature. While existing studies highlight the benefits of ACT-based interventions, there is limited research on how practitioners embody the principles in crisis conditions, which this study sought to discover.

5. Methodology Selection

The exploratory nature of this study, conducted during the pandemic, made it well-suited to a qualitative approach. Qualitative research involves a deep understanding of the topic in its context (the circumstances and environment) and requires the ability to describe, explain, and communicate the perspectives of research participants (Bloomberg & Volpe, 2018). Qualitative methods further enable in-depth exploration of

individuals' experiences, thoughts, feelings, and sense-making, all of which are less amenable to quantitative methods, which are better suited to cause-and-effect studies (Bloomberg & Volpe, 2018; Willig, 2013).

Methodology selection should align with the research questions, the data type, and the analysis (Tomaszewski et al., 2020). While alternative approaches such as case research, ethnography, grounded theory or narrative analysis each serves a distinct purpose, viz. to explore phenomena through detailed cases, explore cultural patterns, build theory from scratch, and construct life narratives respectively (Creswell & Poth, 2018), phenomenology was selected because it provides a sound methodological framework for investigating the subjective dimensions of the lived experience of coaching under conditions of uncertainty and disruption (Englander & Morley, 2023). It also aligns with the study's purpose to understand how coaches experienced, made sense of, and utilised psychological flexibility during the COVID-19 crisis. Phenomenology is well-positioned to learn from others' experiences (Neubauer et al., 2019); it is an overarching term that has a central aim to explore the embodied, experiential meanings of the world as it is directly experienced (Finlay, 2013).

The epistemological position of critical realism, which underpins this study, states that there are essential truths in the world, but individuals perceive and experience these differently depending on their history, social processes, beliefs and expectations (Smith, 2017). There is alignment between critical realism and functional contextualism, the latter being the philosophy that underpins ACT. The underlying assumption of contextualism is that human actions or events are active, dynamic and developmental moments of an ever-changing reality (Jaeger & Rosnow, 1988; Pettigrew, 2018). Functional contextualism in ACT holds that context is fundamental to understanding the function and purpose of individuals' behaviours.

Because qualitative data can be complex, an approach allowing the data to be viewed through multiple lenses was chosen. This analytical pluralism (Clarke et al., 2015) aims to develop a multidimensional understanding of the interacting elements within a data set. To explore both breadth and depth, RTA (Braun & Clarke, 2024) and IPA (Smith et al., 2022) were chosen.

RTA requires full awareness of philosophical sensibility, theoretical assumptions and analysis (Braun & Clarke, 2024; Terry & Hayfield, 2021). An inductive, critical realist position was adopted because it shares an epistemology with IPA; as a result, findings from the two analyses complemented one another (Spiers & Riley, 2019).

Phenomenologically, the study adopted a Heideggerian stance, recognising that understanding is inherently interpretive rather than descriptive (Bachkirova et al., 2020; Giorgi, 2007). Accordingly, reflexive engagement rather than strict bracketing informed the analytic process. The idiographic focus of IPA is its most distinguishing feature: a commitment to a full analysis at the individual level, completing each case in turn and examining convergences and divergences between cases (Smith et al., 2022) was undertaken.

6. Triangulation in Qualitative Research

The choice of analytical pluralism (Clarke et al., 2015) was threefold: to explore the scaffolding technique using complementary processes; to enrich findings on psychological flexibility; and to address both the collective (shared) and the idiographic (individual) dimensions of experience. RTA enabled identification of patterned meanings across participants, while IPA facilitated in-depth exploration of individual sense-making, providing complementary analytic lenses (Tomaszewski et al., 2020).

Triangulation in qualitative research is primarily aimed at enhancing credibility, depth, and richness of findings by integrating multiple perspectives or methods (Noble & Heale, 2019). Rather than seeking convergence for validation, contemporary scholarship emphasises triangulation as a way to embrace complexity and nuance in lived experiences, acknowledging contradictions and layered meanings rather than forcing uniformity (Frost & Nolas, 2011). This design aligns with methodological triangulation, which involves using multiple analytic methods on the same dataset to deepen interpretive insights (Frost & Bailey-Rodriguez, 2020; Rajasinghe et al., 2024).

7. The Sample and Data Collection

The study focused specifically on the experience of coaches who had adopted an ACT-based approach during the pandemic; eligibility to participate was determined by inclusion criteria to ensure appropriate, information-rich cases (Bloomberg & Volpe, 2018). The sample prioritised coaches who used ACT, had more than 100 coaching hours of experience, and were actively coaching during the pandemic between 2020 and 2021.

Twelve participants were purposively recruited through professional networks, social media, and snowball sampling; the final sample comprised three men and nine women from the UK, USA, Canada, Australia, Spain, and Austria. The sample size is in line with other phenomenological studies, where data saturation is not essential, but meaningful patterns could be recognised (Terry & Hayfield, 2021). Three particularly content-rich transcripts from more experienced coaches (>5 years' experience) were selected for IPA analysis after the RTA was completed. The homogeneity of this small sample was consistent with the IPA approach, allowing analysis at greater depth (Hefferon & Gil-Rodriguez, 2011).

Data collection was primarily through 60-90-minute, semi-structured interviews, which elicited rich, varied experiences from participants (Bloomberg & Volpe, 2018). The interviews began with general questions, followed by coaching-style reflections, summaries, and prompts to enter the social and psychological worlds of the respondents, who were encouraged to tell their story in detail (Smith & Shinebourne, 2012).

8. Two-Phased Data Analysis

Figure 1 illustrates the sequential analysis processes; RTA first, utilising all the transcripts to generate codes and themes per Braun and Clarke (2024). Subsequently, the three most detailed transcripts were selected for IPA analysis, and finally, the two analyses were integrated for reporting purposes.

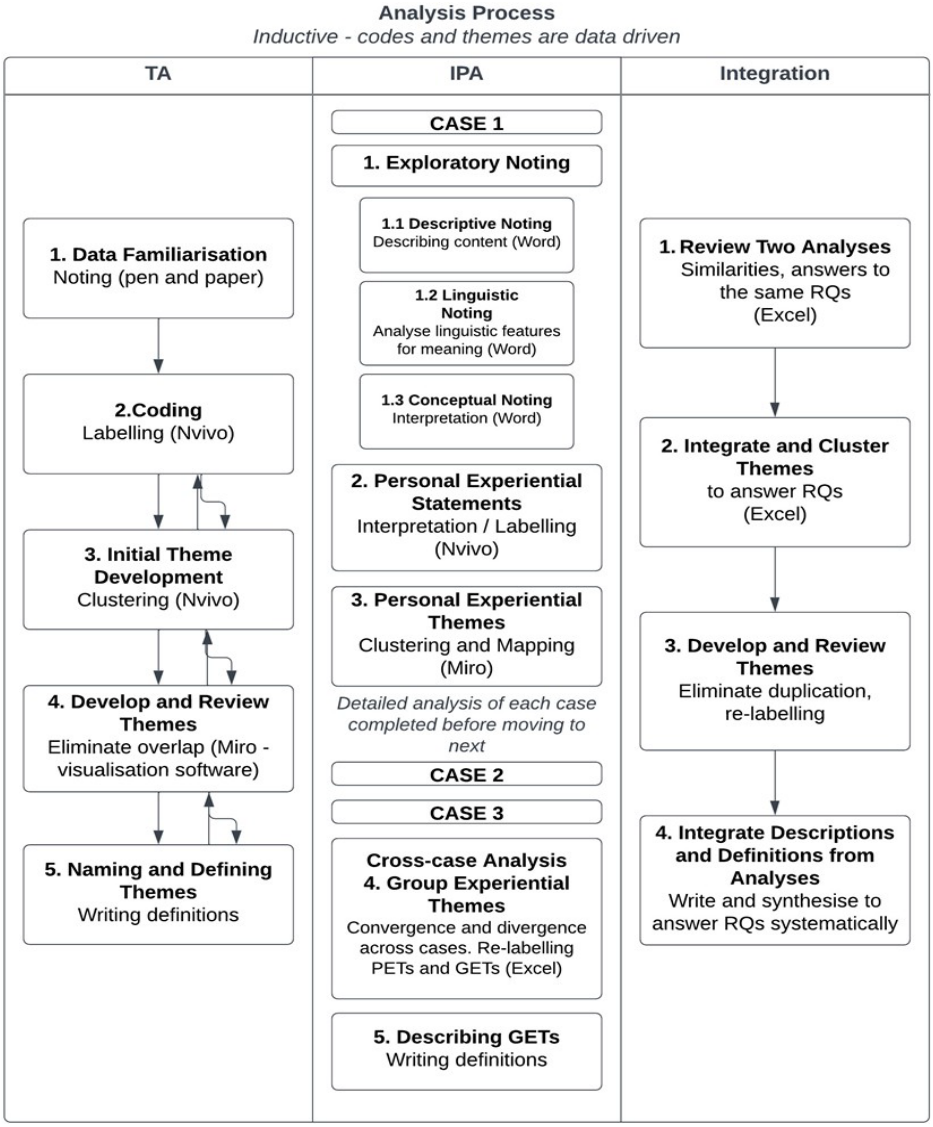


Figure 1: The dual analysis process

8.1 Reflexive Thematic Analysis

RTA (Braun & Clarke, 2024) was used to explore the experiences of all the participant coaches to identify and analyse patterns and themes across the data, in relation to the research questions.

The inductive thematic analysis was guided by the six phases of RTA (Terry & Hayfield, 2021). Rigorous data familiarisation (phase 1) was followed by initial coding (phase 2) in NVivo software. Two levels of coding were used: semantic codes, which remain at the surface level, and latent codes, which capture meaning beneath the data through interpretation (Terry & Hayfield, 2021). As RTA provided breadth to the study, semantic coding dominated the analysis. This was followed by initial theme development (phase 3), which involved identifying meaningful patterns in the data and developing conceptual ideas through code clustering. Then, the themes were developed and reviewed (phase 4) to eliminate conceptual overlap. Miro visualisation software was used as a visual aid to identify meaningful patterns and relationships (Terry et al., 2017). Phase 5 involved naming the themes and creating definitions and descriptions, moving beyond a summative position to interpretation.

8.2 Interpretive Phenomenological Analysis

The IPA phase (Smith et al., 2022) focused on existential, idiographic elements to explore coaches' deeper meaning-making of their experiences. It was also deployed to focus on sections of research questions where individual meaning-making enhanced the understanding of the topics. These meaning-making elements included emotional reactions to the pandemic, the nature of self-practice, what PF means to coaches and individual explorations of the influence of ACT on the coaching practice.

The IPA process started with exploratory noting to allow deep engagement with the data, linguistic noting to examine specific uses of language and the nonverbal components of the experience, and conceptual noting to move toward the interpretive and interrogative components of IPA (Smith & Nizza, 2022). This noting was followed by the formulation of Personal Experiential Statements (PETs) to capture each participant's experience and its meaning. These statements were transferred to NVivo to ensure accurate individual records. Upon completion of all cases, a cross-case analysis was conducted to identify the Group Experiential Themes (GETs). This required identifying commonalities and links at the conceptual level, paying careful attention to the convergence and divergence between cases (Smith et al., 2022). The final phase required describing GETs to explain common experiences for the subgroup of respondents. An iterative process was followed, with constant refinement.

8.3 Integrating the Analyses

Having followed an abductive process thus far, the approach shifted to a deductive one, specifically to answer the research questions (Figure 1) in an integrated way. Here, the findings were integrated and the themes were clustered before consolidation to eliminate duplication. Data from both analyses were included for breadth (RTA) and depth (IPA) in answering each research question. Finally, descriptions and definitions from the analyses were synthesised to produce the written report.

In qualitative research, studies with larger samples usually yield broader findings, whereas smaller-sample studies tend to yield deeper findings (Spiers and Riley, 2019). This trend is evident in this analysis, with the RTA revealing broader themes applicable to most coaches, as reflected in the theme titles. The IPA led to more personal exploration, illustrating differences in experience among coaches. This is typical of IPA studies, which are committed to an idiographic focus (Smith and Nizza, 2022).

In addition to the breadth-versus-depth focus, the dual analysis added explicit-versus-hermeneutic insights. Spiers and Riley (2019) explain utilising RTA for explicit semantic analysis, rather than the hermeneutic IPA lens, which employs multiple layers of interpretation at an individual level. Finally, the dual analysis allowed both pragmatic and existential responses to the research questions.

9. Findings From Each Phase

9.1 Findings From the Reflexive Thematic Analysis

Although the findings per se are not the focus of this article, they are outlined briefly to demonstrate the value of the dual analysis in extracting both breadth and depth from the data. It might appear that the RTA themes are closely linked to the research questions, suggesting a deductive coding approach. However, this was not

the case because ACT usage was a selection criterion for respondents, so it was embedded in the research from the outset. The open-ended, reflective interviews allowed respondents to respond without ACT being imposed; it was necessary to be open to ACT-related language because this made the study methodologically consistent with its critical realism stance and its phenomenological meaning-making.

The analysis exposed divergence, tension, lapses in self-practice, and inconsistency, with some coaches describing avoidance, over-commitment, and self-criticism despite their fluency in ACT language, principles, and practices. The questions were designed to explore how ACT constructs were interpreted, embodied, resisted, or enacted in practice, while preserving phenomenological integrity throughout the interpretive process (Irving, 2021). The variations expressed by the coaches were fundamental to their lived experiences as they wrestled with the restrictions imposed by the pandemic context. Table 1 provides a code-to-theme illustration of the RTA analysis. The themes align with the study's research questions.

Table 1: RTA analysis codes and themes

Theme	Sub-Theme	Code
Pandemic context	General pandemic context	Contextual shift
		Mental wellbeing decline
	Coaching themes during the pandemic	Mental wellbeing
		Lifestyle and work impact
		Reassess values and purpose
	Pandemic impact on coaches	Personal growth
		Lifestyle impact
	Coaches have human problems	Aversive mental experiences
		Mental wellbeing challenges
		Relationship challenges
Changes in the coach due to ACT	Ways of being	A new way of life
		Clarity on values
	Ways of doing	New habits
		Self-practice neglect
		Practice what you preach
ACT effect on coaching practice	Difference in coaching	Authenticity
		More process, less outcome
		Intentionality, more choice
	Translating ACT	

9.2 Findings From the IPA

The IPA findings were extracted more inductively than the RTA codes, which were abductive and interacted continuously with the data (transcripts). The focus was on individual meaning-making from data-rich transcripts, and coding was, frankly, data-driven. Analysis involved identifying individual experiential themes, grouping them, and elevating the strongest themes to a more abstract level by converting them into group experiential themes. These group themes and the original IPA themes are presented in Table 2.

Table 2: IPA findings; themes and group experiential themes

Group Experiential Theme	Theme
Survivor's guilt and the response	Survivor guilt
	Varying acceptance levels of the resultant exemptions
	Different ways of responding to the guilt
Doing the work on yourself	Drawing on ACT skills
	The value of self-practice
	Self-practice leads to transformation
Living flexibly	Values-aligned living
	Self-compassion and kindness
	Enhanced wellbeing
ACT enriches coaching	Coaching as co-creation
	Willingness to be in the messiness
	Values-centred coaching
	Being alongside the client
	The self as an instrument

9.3 Integrated Findings

The integrated findings were presented in relation to each research question in turn, ie the effects of the pandemic context on coaches and their practices, how the coaches responded personally to implementing ACT in their own lives, and how their coaching practices shifted through using the ACT framework under pandemic conditions. The first-level themes and sub-themes from the RTA were allocated to the appropriate research question and discussed within the context of the literature; the related group experiential theme was then incorporated into the discussion, giving greater depth to the broader RTA theme.

For example, for Research Question 2, "How did self-practice influence the psychological flexibility and wellbeing of ACT-trained coaches during the pandemic?", the RTA theme of "Changes in the coach because of ACT" was the main contributing theme to the response, and the two Group Experiential Themes, "Doing the work on yourself" and "Living flexibly" were incorporated for greater depth and richness in the response to the research question. The relationships are illustrated in Figure 2.

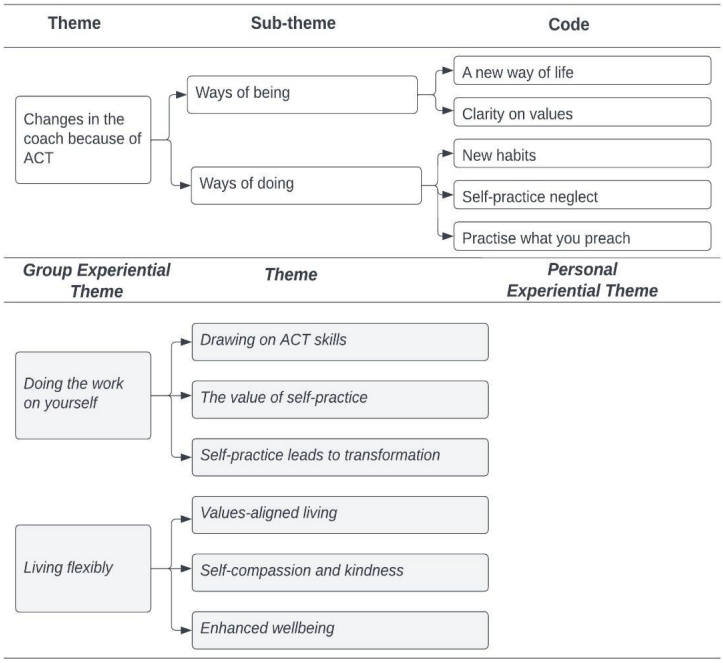


Figure 2: Integrated findings in response to Research Question 2

10. Limitations of the Study

The relatively small sample size is consistent with phenomenological research, which prioritises depth of understanding over breadth of coverage (Englander & Morley, 2023). Phenomenological inquiry seeks to generate rich, detailed accounts of lived experience, requiring intensive engagement with each participant's narrative (Smith et al., 2022). This applies particularly to IPA, where the idiographic commitment necessitates detailed individual analysis. The aim in qualitative research is not statistical generalisation but analytical transferability of findings to similar contexts (Lincoln & Guba, 1985). Findings should therefore be understood as contextually situated insights into the experiences of ACT-informed coaches during the COVID-19 pandemic and open to further, more generalisable investigation.

11. Conclusion

The integration of RTA and IPA reflects a methodological triangulation strategy aimed at enhancing credibility and interpretive richness. Rather than seeking mere convergence, triangulation was employed to embrace complexity, allowing for both thematic breadth and idiographic depth. This approach aligns with contemporary calls for methodological pluralism in coaching research, particularly when investigating complex phenomena such as ACT-based interventions during global crises.

Both analytic methods share phenomenological underpinnings but differ in scope: RTA captures patterns of meaning across participants, while IPA interrogates individual existential sense-making. Sequencing these methods ensured coherence with the study's phenomenological orientation and leveraged complementary strengths to provide a layered understanding of experience. The study contributes methodologically by demonstrating how analytical pluralism can generate both breadth and depth within a phenomenological design.

Ethics Declaration

Ethics clearance was obtained from Henley Business School, University of Reading for the Master's dissertation on which this paper was based

AI Declaration

The paper is based on the first author's Master's dissertation with grammatical corrections from Grammarly and structural suggestions from Copilot

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Using Custom AI Tool to Support Novice Researchers' Philosophy and Paradigm Decision-Making

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Abstract: This study aimed to gain understanding of acceptance of the Research Philosophy Predictive (RPP) application by post graduate educators using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The RPP is a novel Artificial Intelligence (AI) based model developed using machine learning (ML) and natural language processing (NLP). The RPP was developed with the purpose of assisting post graduate students with determining a research philosophy most aligned with their personal worldviews, beliefs and assumptions about the natures of reality and knowledge. It was pertinent to understand the adoption of the RPP from a teaching perspective. The UTAUT model, widely used for evaluating technology acceptance, was used as a theoretical framework in the current study through qualitative inquiry. Data was collected by means of semi-structured interviews from South Africa's National Research Foundation (NRF) rated educators from three universities in Gauteng province of South Africa. The UTAUT determinants of technology acceptance in the study are effort expectancy, performance expectancy, facilitating conditions, social Influence and behavioural intention to use. Findings of the study revealed that positive feedback from educators in various research fields.

Keywords: Research Philosophy; Machine Learning; Natural Language Processing; Artificial Intelligence; Higher Education

1. Introduction

The rapid advancement of online and artificial intelligence (AI) technologies has transformed sectors such as healthcare, marketing, commerce, and education (Raffaghelli et al., 2022). Higher education has experienced significant adoption of these tools (Kizilcec et al., 2024; Zelelew et al., 2023), with chatbots streamlining administrative processes and reducing workloads (Chukwuere & Handoko, 2024). Generative AI tools like ChatGPT have also gained attention among research students (Kizilcec et al., 2024). The COVID 19 pandemic accelerated the use of digital technologies and learning management systems (LMS), enabling tools such as Early Warning Systems (EWS) to identify student challenges (Raffaghelli et al., 2022).

Beyond teaching support, AI can operationalise complex theoretical concepts relevant to knowledge creation (Nemorin et al., 2023). Research philosophy, a foundational yet challenging concept for many students (Sun & Zuo, 2024; Brown & Dueñas, 2019; Matthews, 2022), is one such area. Mkansi and Mkalipi (2023) developed the Research Philosophy Predictive (RPP) model, a machine learning tool that analyses textual input to recommend aligned research philosophies. This study examines acceptance of the RPP model and its teaching implications using the Unified Theory of Acceptance and Use of Technology (UTAUT).

2. Literature Review

AI technologies such as chatbots, large language models (LLMs), and LMS platforms have increased interest in AI-enabled higher education (Chiara et al., 2022), particularly during the COVID-19 pandemic (Saygıner, 2024; Al-Rahmi et al., 2021). Institutions adopted virtual platforms to sustain teaching and monitor student engagement (Bayaga & Du Plessis, 2023). Machine learning has also been used to predict academic risks (Kuleto et al., 2021). While these technologies offer potential benefits, scholars emphasise that AI should primarily enhance teaching and learning (Kuleto et al., 2021; Zelelew et al., 2023).

Most AI applications focus on undergraduate teaching, with limited attention to postgraduate research. Existing tools often address administrative tasks or issues such as plagiarism, leaving gaps in research-specific support. Novice researchers frequently struggle with selecting appropriate philosophical stances (Sun & Zuo, 2024; Brown & Dueñas, 2019). Foundational texts offer guidance (Denzin & Lincoln, 2017; Saunders et al., 2016) but remain text-heavy, impractical and inaccessible for many students (Matthews, 2022). The RPP model addresses this gap by analysing users' views to generate ranked philosophical alignments (Mkansi & Mkalipi, 2023). While AI's transformative potential in education is widely discussed (Nemorin et al., 2023), the RPP model's impact and user acceptance remain unexplored.

Introducing new technologies may affect user experience and engagement (Raffaghelli et al., 2022). Scholars advocate collaborative approaches to avoid poorly implemented AI solutions (Nemorin et al., 2023). The UTAUT model offers a suitable framework for examining technology acceptance.

3. Theoretical Framework

This study engaged a modified UTAUT model to investigate acceptance of the RPP tool. UTAUT, developed by Venkatesh et al. (2003), is widely applied in qualitative and quantitative research and integrates several established theories. It provides a validated method for assessing emerging technologies (Bayaga & Du Plessis, 2023) and offers insights into factors influencing user acceptance (Xue et al., 2024). Key UTAUT constructs include ease of use, required effort, and intention to use (Nymberg et al., 2024). These were essential for understanding teachers' experiences with the RPP model and identifying areas for refinement (Xue et al., 2024; Abbad, 2021). Effort expectancy refers to perceived ease of use and influences behavioural intention (Nymberg et al., 2024). Performance expectancy concerns the extent to which users believe the system improves task performance (Bayaga & Du Plessis, 2023; Bramo et al., 2023). Behavioural intention reflects users' attitudes toward technology and predicts actual use (VanDerSchaaf et al., 2021).

4. Methods and Materials

The study followed phenomenology as a research approach, commonly used in qualitative research as both a methodology and research philosophy, and rooted in intepretivism (Johnson et al., 2020). The intepretivist stance assisted the study in minimising the limitations of UTAUT, often cited as the inability to capture personal user experiences, emotional reactions and enjoyment (Bayaga & du Plessis, 2023; Abbad, 2021). This study employed a qualitative research strategy using semi-structured interviews based on a modified UTAUT model and guided by questions relevant to the measured constructs, with allowance for follow up and confirmation seeking questions (Johnson et al., 2020) to guard against bias and ensure credibility. Additionally, the study achieved triangulation by leveraging multiple sources of knowledge provided by interviews in line with the finding of Merriam and Tisdell (2016).

4.1 Population and Sampling

Purposive sampling was used to invite highly acclaimed researchers from South African universities with National Research Foundation (NRF, 2026) ratings; (A) leading international researchers, (B) internationally acclaimed researchers and (C) established researchers spanning different fields of studies as well as lecturers of social sciences. NRF A and B participation was done to appreciate the criticality of philosophy across research domains and social sciences lecturers provided expert knowledge in philosophy pedagogy as well as confirmation and clarification of philosophical jargon and terminology.

4.2 Data Collection

Data was collected through interviews of the rated NRF researchers who responded in agreement to participate, conducted by two panel members from the study. Participants were assured of anonymity and informed the findings will be used for academic publications. Table 1 shows demographics of participants.

Table 1: Demographics of participants

University faculty/college	Field of study	Title	NRF rating	Participant designated code	University code
Human Sciences	Transnational Studies, History - Namibia, History - South Africa - 20th century	Professor	B	#P1	U1
Human Sciences	Neuroanthropology, Consciousness studies, Critical neuroscience, Historical anthropology, Jesus Christ - History, Shamanism	Professor	B	#P2	U1
Zoology and Entomology	Animal physiology, Behavioural ecology	Professor	A	#P3	U2
Geology	Precambrian geology, Carbon capture and storage, Sedimentology, Biogeology, Applied remote sensing	Professor	B	#P4	U2
Human Sciences	Human resource management	Professor	A	#P5	U2
Applied Mathematics	Information security and mathematical modelling	Professor	C	#P6	U2
Human Sciences	Philosophy of medicine, Philosophy of epidemiology, Philosophy of science, Epistemology, Metaphysics, Philosophy of law	Professor	B	#P7	U3
Applied Information Systems	Information systems, information systems security, and business analysis	Professor	C	#P8	U3
Human Sciences	Consumer intelligence and information systems, marketing strategies and buyer behaviour	Professor	C	#P9	U3
Human Sciences	Aspects of religion and African traditional religiosity	Professor	A	#P10	U3

As shown in Table 1, all the respondents were NRF rated university professors, suggesting a high degree of research and teaching experience. Additionally, 4 (four) of the participants were internationally renowned researchers, and 1 (one) was a top international researcher. This calibre of participants gave the study the highest degree of credibility due to their extensive research knowledge and experience. With 3 (three) participants from the human sciences, 1 (one) from zoology and entomology, and 1 (one) from geology, the results also indicated that the participants were drawn from a variety of university faculties or colleges.

4.3 Data Analysis

The study followed a thematic analysis of data, where the UTAUT constructs being investigated, that is effort expectancy, performance expectancy and behavioural intention served as themes.

Recordings obtained from interviews were transcribed using software soon after the interview, confirmed by each panel researcher and compared between panel researchers. Comparisons between each interview and the previous interviews were done for similarities and differences. Key quotes from participants' narratives obtained during interviews provided patterns which were manually coded and recoded under a relevant theme. The coding and recoding of data was performed after each interview.

5. Results

The aim of the study was to explore factors affecting the acceptance and adoption of the Research Philosophy Predictive solution among NRF rated researchers. To achieve this, the study evaluated effort expectancy, performance expectancy and behavioural intention as key themes based on a modified UTAUT model. A summary of key themes and their sub-themes are shown in Table 2.

Table 2: Summary of key themes and sub-themes

Key Themes			
Effort expectancy	*Views on the structure of the questionnaire* Questionnaire well designed, repetition validates to see consistency. Consistency is a prelude to validity of this index. Language can be made clearer	*Ease of taking the questionnaire* The navigation is well done, and the saving feature is good, then I would not have to start again if I stopped. The questionnaire is well designed.	*Thoughts on the structure of the report* Evaluation gives back 100% of personal understanding; terminology may be difficult to understand for natural sciences.
Performance expectancy	*Thoughts on the usefulness of the system* The system provides students with useful knowledge about research philosophies.	*Ideas on improvement of the questionnaire* Some of the questions pertaining to reality and world views should be made clearer.	*Ideas on improvement of the report* Reduce technical explanations about how the report was generated (decision trees and NLP)
Behavioural intention	*It would be a good idea to use the system for teaching about philosophy* The system will increase interest in philosophy, especially for natural sciences students.	*Working with the system would be a fun way of learning about philosophy* Online system makes it reachable by many; especially in the pandemic times; It is also a fun way of learning.	*Useful knowledge can be gained by using the system* Use of machine learning is interesting, modern and a good way of learning.

5.1 Theme 1: Effort Expectancy

Narratives of participants from professors provided a starting point for effort expectancy. To obtain a deeper meaning from participants, specific attention was paid to i) views on the structure of the questionnaire, ii) ease of taking the questionnaire and iii) value of the report as sub-themes.

5.1.1 Views on the Structure of the Questionnaire

Participants revealed that the structure of the questionnaire was well thought and fit for purpose. It was argued that the repetitive questions add a dimension to the system that sought to confirm consistency in answering questions to ensure validity. As a participant stated that "Consistency is a prelude to validity of this index." In addition, opinions were that the inclusion of open-ended questions contributed an extra facet of consistency, where users could express views in their own words. Aside from the questionnaire's design, views were expressed regarding its content related to the actual question and answer options. These views further expressed the complicated nature of the philosophical as stated by a participant that, "The questions are quite complicated; these are quite philosophical type of questions."

Participants recommended using more conventional or everyday language and clarifying some of the questions. Furthermore, it was mentioned that, from the standpoint of natural science, reality and worldview ought to be maintained apart and not included in the same question. As suggested by a participant, "Some questions are contradictory; reality and worldview are separate for natural sciences; create separate questions."

These views do not indicate an issue with the overall structure of the questionnaire but were rather suggestions for its improvement in terms of content and language.

5.1.2 Ease of Taking the Questionnaire

The largest contributing variables to effort required while gaining greater value from the system were the questionnaire's simplicity of use and the report's understandability. Majority of participants thought the framework of the questionnaire was well-designed. As alluded by one participant, *"The navigation is well done, and the saving feature is good, then I would not have to start again if I stopped. The questionnaire is well designed."*

It was further claimed that repeating questions would guarantee consistency and, hence, the reliability of the answers. Additionally, it was asserted that the questionnaire's length is manageable.

The recurring theme across universities was that improving user experiences and reducing the amount of work needed may be achieved by streamlining and clarifying question-and-answer alternatives. While suggestions for making the language used in the questionnaire clearer were again brought forward, it was also emphasised that it may be difficult to achieve this entirely. Assertions were that in dealing with the knowledge realm, a certain level of philosophical understanding is required.

5.1.3 Value of the Report

Regarding the report's value, participants emphasised that it was very engaging and yielded anticipated results that are consistent with an individual's worldviews. The outcome's provision as an index was praised since it provided more information than merely the prevailing ideology in the peripheral, which the researcher might investigate. The report's extensive and comprehensive material was said to be crucial in giving students the tools they needed to support their philosophical position throughout research.

Some participants accentuated that some scientific or technical elements in the report may make it more difficult to identify important information it provided, which would be detrimental to the endeavour. However, a strong view emerged in support of the scientific explanations, mainly from the natural science participants. Further suggestions were that the report could be customised for the respective fields of research. In line with the adaptive software development methodology, these recommendations provided a feedback loop of great importance for the continual improvement of the system.

5.2 Theme 2: Performance Expectancy

The departure points for performance expectancy are the factors that stemmed from participants narratives. Cross-analysis of results from the three universities focused on i) thoughts on the usefulness of the report, ii) ideas on improvement of the report, and iii) thoughts on improvement of the questionnaire.

In terms of performance expectancy, it was evident that the contributing factors were the quality of the questionnaire and the quality of information garnered from the report. These two contributing factors would influence a user's experience, and consequently, the willingness to use the system.

5.2.1 Thoughts on the Usefulness of the Report

Regarding the quality of the questionnaire, participants held slightly differing views. Some participants viewed the language used in the questionnaire as possibly complex for some students, while majority of participants expressed not having any issues or difficulties with the questionnaire. On a positive note, valuable suggestions for questionnaire simplification were provided for the specified issues. The implications from these views were that all participants valued the report as useful, only that certain aspects may need adjustments. Participants regarded the quality of the information from the report as a starting point to bridge the lamented lack of prescribed philosophy material. Participants further asserted the information in the report to be valuable and stated that it would greatly encourage an interest in philosophy among natural science research students.

Across all universities, it was unanimously affirmed that the information in the report was interesting, beneficial, and added value to the awareness related to philosophy for research students.

5.2.2 Ideas on Improvement of the Report

Ideas on improvement of the report followed its usefulness from sub theme 2.1. Across all universities, it was affirmed that the information in the report was interesting, beneficial, and added value to the awareness related to philosophy for research students. It was also emphasised across universities that omitting the scientific or mathematical explanations of decision trees and the breakdown of NLP would improve performance expectancy, since the report would be easier to understand.

5.2.3 Thoughts on Improvement of the Questionnaire

Participants' suggestions for enhancing the system questionnaire aligned with their opinions of the previous effort expectancy questions namely, to enhance the wording or phrasing of some questions and their content. Participants again stressed that some of the questions could be simplified and made clearer to improve the questionnaire:

> *"Some of the questions will need to be rephrased, for example. Truth, reality and worldview are not the same. The middle questions are a repetition and will discourage students."* (Human Sciences Professor).

Furthermore, reality and worldview should be separated, *"Reality and worldview are not the same thing; truth and worldview are also not the same thing."*

A suggestion was also brought forward to update instructions for taking the questionnaire and state that there are no right or wrong answers since this is about the individual's worldview on knowledge and how to obtain that knowledge, "*Please say to people there are no right and wrong answers."*

5.3 Theme 3: Behavioural intention

In terms of the behavioural intention towards using technology, the point of departure was the factors derived from participants narratives. An in-depth analysis of behavioural intention was obtained with specific focus to i) it would be a good idea to use the system for teaching about philosophy, ii) working with the system would be a fun way of learning about philosophy; and iii) useful knowledge can be gained by using the system.

5.3.1 It Would be a Good Idea to use the System for Teaching About Philosophy

As it pertains to the factor, using the system to teach philosophy would be a good idea; it was asserted that the concept is sound and would be applicable to various academic disciplines and institutions. Affirmations from participants at the three universities corroborate this conclusion, with particular examples from some participants, who thought the initiative was excellent and lovely and offered useful philosophical information. One participant stating that *"This is very good; it's very good. Yeah, well it's a nice project."*

Participants stated that the approach would be most helpful for PHD students and would boost interest in philosophy among students studying natural sciences. According to these participants, the system may be utilised to evaluate the philosophical knowledge and proficiency of potential graduate students. The emerging theme was that participants were unanimous in their views that the system would be a good idea to teach about research philosophy. Of great interest was the view on the role it can play in in bridging curriculum.

5.3.2 Working With the System Would be a fun way of Learning About Philosophy

With regards to the factor, useful knowledge can be gained by using the system, a common view was that it offers intriguing, useful, and advantageous knowledge that can enhance the curriculum. Participants mentioned that incorporating machine learning made the exercise feel more contemporary and, as a result, more engaging. Participants further viewed the exercise as not only captivating and advantageous but also enjoyable. It received acclaim for its capability to not only promote awareness in terms of philosophy but also to serve as a discussion forum for both students and educators. In all cases participants' attitude towards using the system was good with some offers of considerations for improvement.

5.3.3 Useful Knowledge can be Gained by Using the System

Finally, in terms of useful knowledge can be gained by using the system participants across universities were of the view that that the solution provides an enjoyable method for learning about philosophy, with potential enhancements to increase its enjoyment. The simplicity of use and the value of knowledge gained were identified as factors contributing to the system's effectiveness in making philosophy enjoyable to learn. The report's inclusion of decision trees and explanations of natural language processing was perceived as excessive from a social science perspective. Conversely, from a natural science standpoint, it was regarded as intriguing. In addition to the use of the system being both fun and interesting, it was praised for being online. It was asserted that being online makes it reachable by many during the pandemic. Similarly, the assertions participants provided confirmation of an eye-opening and value-adding system that provides an enjoyable and fun experience. Emphasis was also placed on the system being user friendly while providing beneficial knowledge.

6. Discussion

This section discusses the findings on the usability, relevance and importance of the system in broadening research philosophy in teaching and learning. To that end, the section presents the study's findings based on the UTAUT model as a measure of technology acceptance, from the perspectives of the rated NRF researchers.

6.1 Effort Expectancy

The study established that NRF-rated researchers across universities and fields of research were all in agreement that the system serves an important role in teaching about philosophy in research. The researchers also praised the system for being offered online, especially in the period of Covid-19 and its social restrictions and implications for teaching. These assertions were seen as contributions to online learning. According to the findings, NRF-rated researchers from the three universities concurred that the system plays a significant role in teaching philosophy in research contributing to recommendations to studies by Sun and Zuo (2024) and Brown and Dueñas (2019). The system's availability online was also commended by the researchers, particularly in light of the COVID-19 pandemic and its effects on education and social constraints. These claims were viewed as advances in online research education.

However, additional findings showed that certain aspects of the system, including the exercise to ascertain one's philosophy and the exercise's result, needed to be improved. These were supportive and helpful critiques that supported the system's continual improvement. An earlier study by Nemorin et al. (2022) mentioned the increase in AI technology quality, effectiveness, as well as usefulness and hence acceptance through the practices of user involvement and collaboration.

6.2 Performance Expectancy

The findings of the study highlight the system's role in enhancing philosophical understanding within research, particularly among NRF-rated natural science researchers who found machine learning and NLP both useful and engaging. This aligns with previous such as Matthews (2022), and Brown & Dueñas (2019), research suggesting that enjoying the learning process increases the perceived utility of knowledge, an important factor for natural science students who typically struggle with philosophical concepts.

Furthermore, social science researchers expressed enthusiasm for the system as a tool for curriculum enhancement and facilitating discussions on research philosophy, thus contributing significantly to the teaching of the subject. From a pedagogical standpoint, the system encourages students to reflect on their ontological, epistemological, and axiological beliefs, providing a structured framework for their research projects. This approach supports earlier research advocating for the establishment of research philosophy and worldviews at

the project's inception, clarifying research direction and informing knowledge generation assumptions (Sun & Zuo, 2024; Brown & Dueñas, 2019). Overall, the precision and relevance of the information regarding personal worldviews and beliefs were deemed crucial by NRF researchers, underscoring their importance in research.

6.3 Behavioural Intention

The solution was praised by the NRF-rated researchers as a great endeavour that would spark more interest in philosophy, according to findings. It was suggested that the system could be used to evaluate the philosophical knowledge and proficiency of potential research students. This was similar to recommendations by Matthews (2022) and Brown and Dueñas (2019) that there should be a course to bridge the lack of philosophy knowledge between the graduate and post-graduate level.

Further findings revealed that the system could be used to enrich the curriculum because it gives students engaging, practical, and advantageous information. Regarding the philosophy index report's scientific justification of mathematics and machine learning, the results were conflicting. The use of machine learning, according to the natural science researchers, made the exercise more contemporary and, as a result, more engaging, pleasurable, and entertaining. However, some social science researchers suggested that the scientific explanation be taken out of the philosophy index report because they believed it might be a barrier for students. Accordingly, depending on the area of study, the scientific explanation ought to be a system function that is optional. This finding aligns with the importance of personalising technology for better acceptance and adoption as noted in Bayaga and Du Plessis (2023) and Nemorin et al. (2022).

7. Limitations of the Research

Limitations to the study are mainly methodological and method-based in nature. The UTAUT model as a framework used in the study has critiques related to its simplicity and inability to garner user engagement and enjoyment (Bayaga & Du Plessis, 2023). The current study made attempts to ask questions related to enjoyment and engagement to minimise the limitation. Additionally, UTAUT does not take into consideration study and participants locations. The current study was conducted in the Gauteng Province of South Africa, a similar study elsewhere may yield different findings (Xue at al., 2024).

Furthermore, limitations brought on using interviews where another method such as focus group would have provided in-depth conversations and perspectives. Finally, a study by Nemorin et al. (2022) noted that behavioural intention may not translate to actual and continual use and recommended periodic assessment of use.

8. Conclusion

Leaps in AI technology has enable advancement and pedagogical progression in higher education. The meeting of AI technology and education should not be accidental collisions but rather planned convergences for the betterment of educators and students (VanDerSchaaf et al., 2021). The current study investigated the acceptance of the Research Philosophy Predictive application by for its role and relevance in teaching research philosophy. The UTAUT model coupled with a qualitative research strategy was employed to attain in-depth understanding of the RPP acceptance from expert NRF researchers and educators' perspective. Findings from the study have theoretical implications for future research and practical implications for stakeholders in research education.

The study contributes to theory and literature in the provision of solid evidence to support the useful results of implementing AI in education, which is lacking according to Nemorin et al. (2022). Use the UTAUT common constructs on the basis of qualitative research revealed, deeper details on performance expectancy, effort expectancy and behavioural intention in an educational setting. A study by VanDerSchaaf et al. (2021) found the use of UTAUT with qualitative narrative to contribute greatly towards technology acceptance in higher education.

On performance expectancy, the usefulness of research philosophy knowledge gained from the system was found to be crucial in providing a framework and guidance to research adding a dimension of knowledge expectancy. Compatibility and online accessibility were revealed as having a great impact on the ease of use and hence effort expectancy. The RPP's engaging, practical, and advantageous properties were found to contribute greatly to behavioural intention from users. Findings from Nemorin et al. (2022), that engagement and enjoyment positively influence behavioural intention. The practical implications are immense for educators guiding postgraduate research students at the onset of their scientific inquiry journey. The use of the RPP for

prospective researchers' assessment on their research philosophy knowledge was found to be a gateway to bridge to knowledge creation.

Data Availability Statement

The data is not publicly available due to confidentiality issues but can be available upon reasonable request from the corresponding author.

Ethics Statement

The study was approved by UNISA College of Economic and Management Sciences Research Ethics Review Committee (2016_CRERC_009(FA)). A consent request to use collected data for research and publication was sent with invitations to participate and confirmed before participation.

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Conflict of Interest Disclosure

All the authors have no conflicting interest to declare.

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Reconceptualising Research Methodology Teaching in the Age of AI to Rethink How Researchers Are Formed

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Abstract: The rapid integration of artificial intelligence into academic research practices has begun to unsettle long-standing assumptions about how research methodologies are taught in education. While existing scholarships largely frame AI as a technical tool to be regulated or mastered, far less attention has been given to its implications for the teaching of research methodology itself. This conceptual paper argues that AI necessitates a fundamental shift in methodological education, from transmission of procedural research skills to the cultivation of methodological judgement. Drawing on methodological theory and contemporary debates on AI-mediated knowledge production, this paper reconceptualises AI, not merely as a support mechanism for research activities, but as a methodological actor that reshapes decisions relating to research design and theoretical development. It is contended that traditional pedagogical approaches, which emphasise method selection and procedural compliance, are increasingly inadequate in AI-augmented research environments. Rather than treating AI as a pedagogical concern, this paper situates it within the core of methodological education and argues for a recalibration of what it means to teach research methods not only in business and management studies but beyond. It advances the notion of methodological judgment as a central pedagogical aim in AI–mediated research environments. This is done through emphasis on the importance of epistemic awareness and critical engagement with AI-assisted research processes. It is the aspiration of this paper to offer a conceptual lens through which research methodology curricula may be reoriented towards cultivating researchers capable of exercising informed methodological discretion in increasingly AI-augmented contexts.

Keywords: Research Methodology Education, Artificial Intelligence, Methodological Judgment, AI-Mediated Research, Research Methods Pedagogy

1. Introduction

Research methodology is no longer defined by the methods we use, but by the judgments we make in using them. The contemporary higher education landscape is currently navigating a period of profound instability which is characterised by the emergence of artificial intelligence (AI) as a disruptive force that is reshaping research practice at a pace that far outstrips the evolution of research methodology curricula (Al-Mughairi & Bhaskar, 2025). Historically, technological shifts in education ranging from the introduction of the personal computer to the rise of the internet have been treated as sustaining technologies that complement existing paradigms (Brooks, 2014). However, generative AI represents a qualitative break from these predecessors (Al-Mughairi & Bhaskar, 2025). It is not merely a tool for optimisation, but rather, it is also a catalyst for an epistemological discontinuity that eliminates traditional authorship and renders standardised assessment paradigms as irrelevant (Simbolon et al., 2025). A significant conceptual gap exists in current academic discourse. This is that AI is frequently treated as a technological tool that is akin to a more sophisticated calculator or search engine rather than a methodological disruptor that alters the epistemic foundations of inquiry (Galmarini & Lucius, 2020). When AI is relegated to the status of a "support tool", the deeper shifts in how knowledge is constructed and interpreted are often ignored (Vermeulen, 2019). As AI systems begin to participate in the development and dissemination of knowledge, they function as active co-creators within the scholarly process, which necessitates a shift from transmission models of pedagogy to models of symbiotic intelligence (Prather et al., 2025 and Morello & Chick, 2025). The necessity of revisiting methodology teaching stems from the risk of producing researchers who are over reliant on automated processes or who lack the critical engagement required to interrogate AI-mediated knowledge. Surveys indicate that while over 75% of researchers across disciplines now regularly interact with AI systems, fewer than 30% report feeling adequately prepared for effective collaboration (Morello & Chick, 2025). This preparedness gap highlights a failure in current pedagogical models to address the onto-epistemic shift occurring in the academy, where knowledge is increasingly understood as distributed across individuals and AI systems rather than concentrated in human cognition alone (Morello & Chick, 2025). This current pedagogical vacuum reflects growing concerns about the loss of the human dimension and the potential erosion of critical thinking skills (Chawaremera, 2025). If methodology teaching remains focused on the "how to" of specific techniques, it risks obsolescence as those techniques become increasingly automated. A reoriented curriculum must therefore focus on the formation of researchers who can exercise informed methodological discretion in increasingly AI-augmented contexts. This requires moving

beyond teaching methods and more towards educating methodological thinkers who can navigate the ethical and epistemic complexities of human and AI partnerships. The disruptive impact of AI is not limited to the technical execution of research. It actually extends to the very identity of the researcher. The phenomenon of the disruption being disrupted illustrates how even early innovators are now compelled to adapt to changes that fundamentally transform traditional working models (Gede et al., 2025). In the context of doctoral training and professional researcher development, this necessitates the acquisition of new competencies that go beyond digital literacy to encompass epistemic awareness, which entails a deep understanding of the nature, source, and justification of knowledge in an AI-mediated environment. This paper contributes to the emerging literature on AI and research methodology by reconceptualising AI as a methodological actor and advancing methodological judgment as the central pedagogical aim of research methodology education in AI-mediated environments.

2. Research Methodology

This paper adopts a conceptual research design that is grounded in critical analysis of existing scholarship on research methodology, AI and Higher Education pedagogy. It does not present empirical findings, but instead, it advances a theoretically informed argument regarding the orientation of methodology teaching in AI-mediated contexts. The approach is interpretive and analytical as it draws on interdisciplinary literature to develop the notion of methodological judgments as a central pedagogical aim.

3. Research Methodology as Pedagogy: Dominant Assumptions and Their Limits

To argue for methodological judgements, one must first examine how research methodology is currently taught. For decades, advanced research training in higher education has relied on the apprenticeship model (Felce, 2019). Doctoral students learn under supervision and methods are often acquired through immersion (Felce, 2019). Knowledge is also often tacit, while competence is assumed to develop naturally through practice (Nind et al., 2018). The emphasis falls on doing research rather than on explicitly teaching how methodological decisions are made (McCarthy et al., 2017). As research capacity became a strategic priority for higher education institutions, this model was supplemented by formal coursework and structured modules in research methods were introduced (McCarthy et al., 2017). The underlying assumption shifted to that, if students complete method courses, they will then become methodologically competent, and as a result, methodology is framed as a set of transferable skills (Nind et al., 2018). Less attention is given to the philosophical and epistemic foundations of inquiry and reflexivity is often secondary and judgement is assumed rather than cultivated (Mortari, 2015).

3.1 The Limits of Proceduralism

A central limitation of contemporary methodology pedagogy is its increasing tendency toward proceduralism (Nind et al., 2018). In many institutions, formal procedures have come to stand in for intellectual legitimacy (Lamaro et al., 2025). Research design is often reduced to templates and standardised stages of execution (Nind et al., 2018). This orientation is not accidental. Higher Education Institutions operate within metric-driven environments (Lamaro et al., 2025). Accreditation bodies also require measurable outputs. Often, one will find that funding agencies also demand structured reporting and global ranking systems privilege quantifiable indicators of research productivity and impact (Lamaro et al., 2025). In response to these pressures, methodology teaching often emphasises compliance and standardisation. Unfortunately, what is less emphasised is then the interpretive and evaluative dimension of research decision making. It goes without saying, that under this set up, the result is a culture of performativity and methodological competence becomes synonymous with procedural correctness. However, students are seldom encouraged to interrogate the epistemic assumptions that underlie those formats and inquiry becomes something to execute rather than something to reason through (Lamaro et al., 2025). Often, students are described as lacking skills or technical aptitude, and the response is typically remedial training in methods rather than deeper engagements with the methodological reasoning (Rana, Verhoeven and Sharma, 2025). This intricate relationship between ontology, epistemology and method is obscured by curricula that present research as a linear, step by step process (Lamaro et al., 2025). These limitations become particularly visible in AI-augmented environments. If methodology is taught primarily as procedural skills, then AI's capacity to automate many research procedures exposes the fragility of that model. Dehaerne et al. (2022) argue that tasks such as coding, summarisation, pattern recognition and even draft generation can now be executed efficiently by machine systems. When research training focuses narrowly on the mechanical execution of such tasks, it risks producing researchers

whose distinctive intellectual contribution is easily displaced. The problem is not automation itself, but rather, the problem lies in equating methodological competence with technical performance.

3.2 Metric Driven Environments and Researcher Formation

Proceduralism is further reinforced by the bureaucratisation of research governance. Ethics review systems, quality assurance processes and institutional compliance frameworks play an important protective role (Lamaro et al., 2025). However, they also shape how research is learned and practiced. Lamaro et al. (2025) submit that increasingly, students are trained to anticipate procedural scrutiny, and they learn to avoid administrative error, and internalise the logic of documentation and approval. While procedural awareness is necessary, it can overshadow substantive ethical reasoning. In this context, ethical reflection risks being reduced to procedural compliance rather than substantive moral deliberation. Students may become adept at navigating institutional processes without developing independent methodological judgment. As a result, inquiry is framed as the selection of approved methods rather than context-sensitive evaluation, which reorients the researcher's role toward compliance rather than interpretation. These dynamics are intensified in metric-driven environments. In parts of the Global South, standardised indicators often fail to reflect local epistemic realities which shift research agendas toward what is measurable rather than meaningful (Buchanan, Byers and Mansveld, 2018). This constrains innovation and narrows methodological imagination, while the intellectual labour of engaging with uncertainty remains insufficiently theorised in pedagogy.

3.3 Fragmentation and the Instrumentalisation of Method

Another significant limitation of current methodological pedagogy lies in curricular fragmentation. Research methods are frequently divided into qualitative and quantitative streams (Firdaus et al., 2021). Students are then socialised into methodological "camps" and they are encouraged to identify with techniques or paradigms. Mixed-method approaches are then introduced as a technical combination of tools, rather than as an integrative epistemic stance that requires careful philosophical and theoretical alignment (Firdaus et al., 2021). This fragmentation cultivates an uncritical attachment to preferred methods, irrespective of whether they are genuinely suited to the research question at hand. Method becomes identity while technique becomes loyalty in some sense. In such environments, students may begin with a tool and search for a problem it can solve instead of beginning with a problem and determining what methodological approach is most appropriate. Alongside this tendency is an increasing conflation of technical proficiency with methodological sophistication. Competence in software, statistical packages, analytical platforms or more recently AI systems, is often treated as evidence of methodological maturity. While technical literacy is important, it does not in itself constitute methodological depth. A researcher may operate complex tools without fully understanding the epistemic assumptions embedded within them. When technical execution is mistaken for intellectual judgement, the tool subtly begins to shape the contours of the inquiry. If pedagogy remains anchored in these divisions, it fails to prepare researchers for environments in which human reasoning and machine-generated outputs intersect and co-evolve. Researchers must be equipped to navigate hybrid forms of evidence and critically evaluate how AI systems restructure analytical processes. This paper submits that a fragmented curriculum limits preparation for this task.

4. AI as a Methodological Actor

AI has been established to be competent to search and screen literature, code and classify text, find patterns in large datasets, and even come up with tentative interpretations (Sandoval and Redondo, 2016). According to Kitchin (2019) this shift argues that algorithms are shaped by society, embedded in systems, and they shape reality in return. Traditional methodological literature treats AI as an instrument for statistical software or qualitative coding and can perform various actions and interpret data patterns. However, epistemic judgement is still the responsibility of the human researcher and AI is therefore positioned as an "efficiency-enhancing extension" of existing methodological practices. Emerging literature challenges this reductionist framing by conceptualising AI as a methodological actor rather than a neutral tool. Large language models (LLMs) are classified as a deep learning system built upon machine learning architectures. They use statistical representations learned from large training datasets that generate outputs based on identified patterns while AI offers efficiency gains but can make mistakes (Nguyen & Welch, 2026). This is strengthened by Messeri and Crockett (2024) who argue that AI can create "illusions of understanding" and students may overestimate its power. Syriani, David, and Kumar (2024) proved that AI has its uses such as screening articles and that ChatGPT

can achieve an 82% accuracy and outperforms some traditional classifiers, which improves efficiency in methodological practices.

In quantitative research AI is used to generate variables and predict model outcomes, however Yang et al. (2018) cautioned that these variables can contain errors and if ignored can lead to bias and that AI-generated variables should not be treated as raw data. AI has its advantages and in supervised machine learning, but the researcher has control over the model choice and the exploratory data analysis which influence the outcome, allowing for some partnership between researcher and AI (Miric, Jia & Huang, 2022). In the workplace, automation and annotation tasks are increasingly incorporating AI, according to Gilardi, Alizadeh, and Kubli (2023) ChatGPT can outperform crowd workers and reduce business costs. Therefore, researchers can use AI tools to pick up any coding errors but be mindful of ethics and what policy says and this is where methodological actor becomes salient, it also changes the epistemic path. Methodological competence in AI-mediated environments requires active human governance and critical oversight because it is an emerging area to develop students' epistemic awareness.

5. Methodological Judgement as a Pedagogical Aim

In response to the limitations of proceduralism and the disruptive influence of AI, this paper argues for methodological judgment to be placed at the centre of researcher formation. Methodological judgment is not merely the ability to select the "correct" method from a pre-defined list. It is a sophisticated form of practical wisdom, or phronesis, that allows a researcher to make defensible decisions in complex environments (Houze, 2025). It typically involves the integration of epistemic awareness and sustained scientific reasoning. The concept of methodological judgment draws upon ancient intellectual virtues of nous (understanding), phronesis (practical wisdom) and praxis (virtuous action). In the context of research, phronesis can be argued to represent the ability to apply general methodological principles to specific, contextualised problems in a way that is ethically grounded and scientifically rigorous. This is distinct from techne, or technical skill, which is easily automated or performed by probabilistically plausible AI systems (Houze, 2025). Methodological judgment requires the researcher to act as an interpretive filter who takes responsibility for the reflective and evaluative aspects of the research process (Gorard, 2006), even when using AI support. It involves moving beyond the "brute facts" to an appraisal of how value judgements and theoretical commitments shape the construction of evidence (Gorard, 2006). This paper submits that methodological judgment, in the age of AI, is the capacity to recognise the boundaries of AI-generated evidence and to ensure its structural coupling with external reality.

5.1 Epistemic Awareness and Critical Engagement

A central component of methodological judgment is epistemic awareness. This is the researcher's understanding of the nature, source and justification of knowledge. This paper submits that students' epistemic beliefs significantly shape how they interact with AI tools and those with naïve beliefs may passively accept AI outputs as authoritative while the critical evaluators interrogate the logic and evidence provided by the system. Pedagogically, this paper further submits that it means methodology curricula must move away from standardisation and more toward co-creation. This will require strategies such as argumentative based learning and metacognitive scaffolding to cultivate critical digital literacy. This paper also submits that researchers must be formed to see themselves as agents who steer AI behaviours while maintaining ownership of the resulting ideas (and not as operators of automated processes). This ownership is closely tied to scientific accountability which submits that researchers must be able to defend, validate and ethically stand behind their work and this is a burden that AI certainly cannot shoulder.

5.2 Cultivating Discretion in AI- Mediated Environments

The cultivation of methodological discretion is particularly vital in the construction of research projects where ad hoc premises and assumptions often go unexamined. In an AI-augmented environment, the researcher's role must shift toward epistemic mediation to bridge the gap between automated data processing and meaningful scientific discovery. This involves navigating the "trade-offs" between LLM creative assistance and human effort which ensures that the researcher's sense of ownership is preserved. To counteract this, educators must implement strategies that promote active engagement and cognitive integrity. This requires a shift from teaching methods to educating methodological thinkers who can articulate why a particular approach is robust and under what conditions its results might be an artifact of heuristic simplification. The formation of such thinkers depends on a pedagogical culture that encourages an exchange of ideas within a climate of systematic

debate. This paper submits that this culture must move beyond the failed arms race of LLM detection and more towards a system for cultivating intellectual virtues that are essential for genuine scholarship.

6. Implications for Teaching Research Methodology in Business and Management

The methodological actor perspective is important to incorporate in business and management because students are learning research methods as well as forming habits of epistemic reliance and need to learn what counts as valid research but how to use AI during the process. Many will complain about sensible AI usage and that generative AI may counter negative learning effects (Valcea, Hamdani & Wang, 2024). Universities and industry remain uncertain in terms of how to control AI, but it is evident that AI adoption is growing. Changalima, Amani, and Ismail (2024) researched the social influence and intentions to use ChatGPT among business students, and these students treat and use AI tools as reliable and especially if endorsed by peers. This paper argues that AI adoption must be interrogated in the curriculum because if students collectively perceive AI as "good enough" they form a reliance before critical thinking and engagement can be implemented. Management students in India have positive attitudes towards AI and certain factors indicate that generative AI is not optional but a useful and accessible innovation to support them with studies (Abdalla et al., 2024). AI is then treated more as a social norm because it is perceived as useful and easy for business students to use but moral considerations may constrain adoption. Students and lecturers' decisions vary whether to adopt and how to use AI because of integrity concerns, however in teaching research we need to build an epistemic reliance and to be critical thinkers to still allow a voice to be heard and must be truthful. Bhuiyan et al. (2025) states that transparency shows a positive relationship with adoption and all students' perceptions may reinforce epistemic reliance but still follow a methodical practice. These studies and this paper suggest that business and management students will not merely use AI tools but be able to critically engage and learn how to coordinate research and teaching students how to interrogate AI-mediated outputs, question their assumptions, and justify methodological discretion under uncertainty.

7. Towards a Reoriented Research Methodology Curriculum

The transition toward methodological judgments as a pedagogical aim requires a fundamental reorientation of the research methodology curriculum. Rather than treating AI as a pedagogical concern that needs to be managed through academic integrity policies, this paper argues for its situating at the very core of methodological education. The traditional focus on methodology courses has been on what to teach and how to teach. A reoriented curriculum must instead focus on how learning to do research occurs by attending to the social, emotional, active and reflective nature of the methodological struggle. This inherently involves a shift from transmission models of knowledge to models of transformation where the central aim is the formation of researchers who can exercise informed methodological discretion. A forward-looking conceptual framework for methodology curricula should offer principles of reorienting this educational experience. Firstly, this paper submits that curricula must emphasise judgement over procedure. Researchers should be trained not only to follow methods but to understand the underdetermination of solutions and to use "meta-heuristics" to evaluate if a method is suited for a specific problem. This specifically involves the search for accurate and appropriate evidence. Secondly, this paper submits that the curricula must prioritise reflexivity over automation. As AI automates the mechanical aspects of research, the researcher's role in interpretation and synthesis becomes even more critical. Reflexivity involves a conscious awareness and how one's epistemic beliefs and cultural context shape interactions with AI. It requires metacognitive scaffolding to ensure that learners do not succumb to cognitive disengagement. It goes without saying that in all this, critical engagement must replace uncritical tool adoption.

It is essential to note that while many of the examples in this paper are drawn from business and management studies, the move toward methodological judgment has broad applicability across all research disciplines. This requires institutional adaptation and sound ethical frameworks to ensure that the authoritative status of knowledge is not surrendered to ungrounded algorithmic outputs. This paper submits that, this way, higher education can ensure that the most ancient wisdom, which is human judgment, remains the most reliable guide for navigating our future with technology.

8. Conclusion

The integration of AI into the research landscape marks a paradigm shift that is comparable to the digital revolution. It fundamentally challenges traditional assumptions about knowledge creation and intellectual discovery. This paper's analysis has contended that the current technological disruption has forced reconsideration of how research methodology is taught, which moves away from procedural compliance and more towards the cultivation of methodological judgment as a central pedagogical aim. The limitations of dominant pedagogical assumptions, whether anchored in the apprenticeship model or the modular competency model, have been exposed by AI's capacity to automate procedural skills. The prevailing proceduralism in Higher Education risks producing researchers who are over reliant on automated processes and lack the epistemic awareness that is necessary to critically interrogate AI-mediated evidence. In contrast, the cultivation of phronesis and methodological judgment offers a path toward researcher formation that is resilient to technological disruption. Reconceptualising AI as a methodological actor and active co-creator allows for a model of symbiotic intelligence whereby human intellect and machine intelligence engage in a reciprocal evolution. This therefore requires a curriculum that is reoriented around the formation of researchers who can exercise informed methodological discretion and maintain scientific accountability for co-constructed knowledge. The value of methodological judgement lies in its ability to bridge the gap between AI's analytical power and the human need for meaningful and ethically grounded findings. For the future of doctrinal training and researcher development, this shift signifies that methodology education can no longer be a pedagogical concern that needs to be managed through regulation. It must be situated at the core of the scholarly enterprise that is focused on developing the intellectual virtues and methodological thinkers necessary to lead in an increasingly AI-augmented academy. The fact remains that the stakes are nothing less than the epistemic integrity of the research process and the continued relevance of the human researcher in an age of intelligent machines. Therefore, if AI can execute methods, then the future of research does not depend on better technique, but on better judgment, and it is precisely this that methodology education must now learn to teach.

Ethics Declaration

The authors declare that ethical clearance was not required for this conceptual paper, as it relies solely on the analysis of existing, publicly available academic literature and does not involve primary data collection from human or animal subjects. However, formal waiver of ethical clearance was received from the institution to which the authors are affiliated.

AI Declaration

Zotero was used for the purposes of managing sources and generating the in-text references and reference list. In addition, one co-author used Grammarly to edit their drafted sections in the manuscript for language refinement and for some coherence. No generative AI tools were used in the substantive drafting or development of the academic content.

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Exploring the Practice-Research Nexus in Entrepreneurship Skills Development: A Critical Realist Study

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Abstract: "Human society has not developed in accordance with a prearranged plan, but empirically, in the course of a long, complicated and contradictory struggle" (Trotsky, 1986, pp.24) This paper engages the power of transcendentalism by applying the social realist explanatory program as anchored on the critical realist philosophy. At the core of the claims is the main argument that what can easily become the mainstreamed ways of thinking-making-doing about the social world tend to stem from the de-ontologised positions and their self-referential explanations, which always derive from the default positions and the faulty consciousness about the idea of "being". Methodology, the study thus questioned what could be the dialectical relationship of entrepreneurship skills development as the field of practice and of research. As such, this reflective practice project was anchored on the transcendental argument/question, "What is it that must have allowed for the management and leadership of entrepreneurship skills development projects to be managed in the way that were in the four cases of faculties and the coordinating unit at a selected university of technology in South Africa?". By such a question, the paper argues for the matters of "space" and thus business and management functions, "beyond" the physical in terms of what can be argued as the de-ontologised positions and their self-referential explanations, which always derive from the default positions and the faulty consciousness about the idea of "being". The "becoming", as the new realms of possibilities, which must be anchored on deep change, which is stratified, causally efficacious, and emergent. The findings therefore is a proposed conceptual framework that draws on transcendentalism about the business and management practices, per the cited cases, but also the practical implications about engagement and transformation of higher education as most institutions are starting their first year of the institutional strategic plans towards vision 2030. As such, value addition about the paper is its scholarly contribution about the United Nations Sustainable Development Goals, especially Goal 4 on Quality Enhancement and Goal 17 on International Partnerships. In that way, the value of scholarship about entrepreneurship skills development is potentially in terms of the theory-methodology-practical program chain.

Keywords: Transcendentalism, Critical Realism, Social Realism, Entrepreneurship, RREEEIS Modelling

1. Introduction

1.1 The Challenge of Entrepreneurship Skills Development in Higher Education

Universities of technology/applied sciences in South Africa occupy a unique position at the intersection of higher education, industry, and socio-economic development. Tasked with producing graduates who are both employable and capable of generating employment, these institutions have invested heavily in entrepreneurship skills development programs over the past decade. Yet the evidence suggests a persistent disjuncture between program design and outcomes. Graduates continue to report low self-efficacy in venture creation, industry partners cite a mismatch between graduate competencies and market needs, and internal evaluations reveal fragmented coordination between faculties and central entrepreneurship units.

This disjuncture is not unique to South Africa. Globally, higher education institutions struggle to move beyond "event-based" delivery of entrepreneurship education that treats skills development as a technical add-on rather than an integrated field of practice and research. As institutions enter the first year of implementing strategic plans aligned with Vision 2030, the need for a more coherent and theoretically grounded approach has become urgent.

1.2 Contribution and Structure

Following this preview about the topic, the paper develops a conceptual framework that repositions entrepreneurship skills development as a field constituted through the dialectical interplay between practice and research, anchored in transcendental and realist philosophy.

a. Section 2 outlines a brief literature review in three parts upon which a philosophical grounding emerges as a frame of reference for the subsequent sections.
b. Section 3 describes the case study context and dialectical relations observed.
c. Section 4 proposes the conceptual framework.
d. Section 5 discusses practical implications and concludes.

2. Entrepreneurship Education That Draws From a Critical Realist Perspective

As I argue elsewhere (for example, in Dwayi, 2023), any social phenomenon, like entrepreneurship skills development, need to be a subject of a critical realist critique from the three ontological positions,

a. The structural system of roles, functions and responsibilities is not always the proxy for the actual results. This is so, because,
b. The cultural system (norms, values and standards) thereof is always contested in power relations and in materialist interests, and
c. The deciding factor in both dimensions is always the human system, as the choices and none choices about each system, as the exercise of agency.

Entrepreneurship skills development practices, therefore, as the evidenced by research advancements, surface the inadequacies which call for deep understanding and advanced explanations especially in in contexts of historical and structural disadvantage. Thinking of theory-methodology-practical program chain therefore allows for advanced explanations when in consideration of the current practices as the basis for what must be the research frontiers, and hence the need for a conceptual framework. As a preview, this paper thus drew from the critical realist perspective in the following three ways,

a. That, in the ecosystem-based systems, entrepreneurship education policies and strategies, while necessary, remain inadequate when the current practices remain not socially embedded within higher education system beyond the seemingly privileged ways of thinking-making-doing.
b. That, entrepreneurship education at the dimension of values, norms and standards call for the adoption surface the limitations of the higher education system as a structure and thus calls for experiential learning as the enhanced value system, and the limitations of HET as a structure
c. That, progressive choices and socially reconstructive and emancipatory projects about the latter two points therefore call for entrepreneurial competences as the embodied knowledge.

Thus, the knowledge gap in ESD derive from what seems to be preoccupation with current practices which results in more of surface than deep change. This paper therefore argues that to understand why entrepreneurship skills development projects unfold as they do, we must ask a transcendental question,

What must have been the case for the management and leadership of entrepreneurship skills development projects to be managed in the way that they were across four faculties and the coordinating unit at a selected South African university of technology?

This question shifts attention from what was done to the underlying conditions, structures, and mechanisms that enabled or constrained action.

2.1 Philosophical Grounding: Transcendentalism and Critical Realism

Transcendental questions seek to identify the necessary conditions that make social practices possible (Bhaskar, 1998). Applied to entrepreneurship skills development, this approach shifts focus from "what managers did" to "what had to exist for their actions to make sense." The transcendental question would seek to unravel the silences and superficialities about the ESD practices, the stagnation state, in the following way, for example,

"What is it that must have allowed for the management and leadership of entrepreneurship skills development projects to be managed in the way that were in the four cases of faculties and the coordinating unit at a selected university of technology in South Africa?"

A core problem lies in how the management and leadership of entrepreneurship projects are understood. Dominant accounts operate at the empirical level, relying on de-ontologised positions that treat organizational actions as self-referential and self-explanatory, what Bhaskar (2008) terms the "epistemic fallacy." This obscures the deeper structures, mechanisms, and conditions that make actions possible. Towards the transcendental argument, an ESD researcher and practitioner would focus on the social realist account for what might be the state of conditions about ESD beyond what seems to be surface and superficial change. Thus, in consideration of what would have to be the Theory-Methodology-Program Chain, answering the question would entail thinking of the first part of the chain, Critical Realism: Stratified Ontology and Causal Mechanisms.

2.2 Critical Realism: Stratified Ontology and Causal Mechanisms

Critical realism distinguishes the Real, the Actual, and the Empirical, and insists that causal mechanisms operate independently of our knowledge of them (Bhaskar, 2008; Fleetwood & Ackroyd, 2004). It allows analysis of how structures such as departmental hierarchies and epistemic norms exert causal influence on practice.

Table 1: the reality domains, A layered reality (Bhaskar, 1978:13)

	Real	Domain of the Actual	Domain of the Empirical
Mechanisms	X		
Events and Processes	X	X	
Observations and Experiences	X	X	X

Philosophically, reality on the realm of realist domain is either transitive or intransitive. The transitive objects, nature determine whether they can be actualised and further observed and experienced. The intransitive objects need not be actualised and experienced as they remain dormant at the domain of the real. From ESD practices, Diagram 1, all the three forms of articulation (horizontal, vertical and diagonal), and drawing from critical realism, thus surface the two faces of change. The first, of events and processes, and of the observations and experiences (surface change). A recognition of yet another domain of reality, of the mechanisms (deep change) and how such mechanisms tend to generate the surface change, or the inability of surface thinking to identify the generative mechanisms in the deep structure. In this way, critical realism becomes quite instructive about the understanding and explanation about the ESD practices as the theory-practice nexus, policy-implementation nexus, research and development nexus. But how does this play out in the theory in the last two elements of methodology-program chain?

2.3 Social Realism and the Morphogenetic Approach

From diagram 1, implied, deep ontology, stratification about ESD practices. This section, how of deep ontology, stratification, causal efficacy and emergence and thus new ways of ESD.

Archer's (1995, 2003) social realism models social change through the interplay of structural conditioning, social interaction, and structural elaboration. This framework treats practice and research as dialectically related moments in a process of "becoming."

Table 2: The domains and social reality of Entrepreneurship Skills Development as adapted from Dwayi, 2022).

Domains of reality from a critical realist stance, (Roy Bhaskar, 1998; 2008)	A map of Entrepreneurship Skills Development from a social realist stance (Margaret Archer, 1996; 2007)
Empirical Level: Powers are perceived and experienced	Entrepreneurship Skills Development is experienced and observed in particular ways which constitute the idea of university education as the public and common good and how such goods are experienced and observed.
Actual Level: powers, though actualized (and thus experienced and observed at level above), may not be felt	Entrepreneurship Skills Development takes place as events, processes and the emergent patterns and trends thereof

Real Level: generative powers are possessed, may not be actualized (as events and processes, and further as experienced and observed)	Structural Arrangements: Entrepreneurship Skills Development roles, duties and responsibilities as regulated by the establishment of University Councils	Cultural Registers: Entrepreneurship Skills Development ideas, beliefs, values, and norms, namely, discourses of social justice and equity, or of economic rationality and neoliberal thinking, and/or the variations of each	Human Systems: Enactment of both the structural arrangement and per the cultural registers: Actors goals, intentions; choices and projects/decision making; interests; desires about Entrepreneurship Skills Development
	STRUCTURAL EMERGENT POWERS/PROPERTIES (SEPs): powers & tendencies to determine causal powers	CULTURAL EMERGENT POWERS/PROPERTIES (CEPs): discourses (as representations of attitudes and values which permeate everyday life)	AGENCY/PERSONAL EMERGENT POWERS/PROPERTIES (PEPs): (reflexivity & autonomy of council members as individuals, actors and corporate)

Diagram 2 suggests that ESD, as both a field of study and of practice, can be understood and explained as open and complex social system. Such systems take the three main elements of structure, culture, and agency. Drawing on the critical realist philosophy, as the under labourer, and the social realism theory, as the explanatory program, allows both for the understanding and the ESD explanations as the interplay of systems at a particular point in time and space. The people inherit the conditions which aren't of their own making. As such, the present is always constituted from historical and social relations. For the future to possible change for the better, that takes place through reflexivity and human action. Therefore, so surmise social realist-oriented scholars, problem solving should entail the ability to engage the present in reflexive-dialectical processes which can allow for transformative agency to emerge.

2.4 Implications for the Study

Therefore, on the basis of the latter three descriptive points about the need for a philosophical grounding the ideal conceptual framework is anchored on the following three methodological imperatives,

a. Explanation through mechanisms (Diagram 1). While ESD values, norms and standards existed in the domain of the real, such values couldn't be adequately be actualised and thus be observed and experienced,
b. Treating structure, culture, and agency as analytically distinct but related (Diagram 2). In this way, thinking of ESD practices as the interplays of roles, with values, and with how such values can be enacted allows for deepening the conversations and expanding the dialogues so required of the open and complex social systems, and
c. Acknowledging the ontological significance of "becoming" in any case study that seeks to be anchored on transcendentalism (the account for the objects which might be real but remain dormant in the domain of the real and thus remain intransitive).

3. Case Study Context and Dialectical Relations in Practice

3.1 The Institutional Setting

In one case of a close study in a university of technology/applied sciences in South Africa, the study examines a South African university of technology where four faculties run discrete entrepreneurship initiatives coordinated by a central Unit for Entrepreneurship and Innovation. Internal evaluations revealed fragmentation, with faculties operating in isolation and the Coordinating Unit lacking direct authority over faculty decisions. The Annual Report (CUT, 2026) by the institutional technology transfer unit shed more light on the status of entrepreneurship education (Diagram 1), as indicated in the following extract,

"CUT significantly strengthened CUT's intellectual property (IP) pipeline. A total of 14 NIPMO-actionable intellectual property (IP) disclosures were recorded, exceeding the annual target of 10. These disclosures spanned diverse domains including medical devices, environmental analytics, agri-biotechnology, energy systems, digital platforms, and design-driven innovations. While predominantly early-stage in nature, the portfolio reflects improved disclosure quality, clearer protection pathways, and stronger alignment with real-world needs"

However, the same report moaned about some forms of resistance, whereby the faculty complained about the laborious nature of ESD practices as required for the institutional strategic plan 2026-2026.

3.2 Dialectical Relations Between Practice and Research

Analysis using Archer's (1995) morphogenetic approach identified structural conditioning through funding models and epistemic norms, social interaction through reflexive deliberations among staff, and partial structural elaboration where hybrid practices emerged in some faculties but not others. While both the Centre Enterprise and Entrepreneurial Studies (CEES) and Technology Transfer Unit (TTU) seemed to be responsible for semi- and central coordination, respectively, that approach remained peripheral to other issues per the analysis about how SDGs still indicated some enduring inconsistencies and glaring lacks. The two SDGs alluded to (about Land and Water) indicate the potential for ESD for creative economies, from the periphery to the center of academic identities (beliefs, norms and standards).

3.3 Toward a Conceptualization of "Becoming"

In a critical realist oriented study/practice, moments of transformation are characterized by stratified interventions, causal efficacy, and emergence, suggesting that explicit engagement of the practice-research dialectic can enable generative change. In the social world of critical realism as a philosophy (Diagram 2) and the social realism as an explanatory program (Diagram 3), such would be a long and sometimes a contradictory process in open and complex social system. For example, the Annual Report by the Technology Transfer Unit (CUT, 2026) recommended that there is a need for this Office to work closely with the Product Development Technology Station, especially in the Disability Portfolio, by upscaling the efforts for inclusive innovation. Such a commitment means developing of social order, whereby leadership, management and governance systems challenge their ideological positions about the academic project (Section 5 discusses this point as practical implications about the Framework).

3.4 Methodology

Research Design: A qualitative, single-case study design informed by critical realism and the morphogenetic approach of social realism was adopted. Critical realism allows explanation through causal mechanisms in stratified, open, and emergent social reality (Bhaskar, 2008; Archer, 1995) (ref point ABC above).

Data Collection: Data were collected between 2022 and 2025 through documentary analysis of strategic plans and reports, 24 semi-structured interviews with faculty deans, program managers, academics, and coordinating unit staff, and observational data from cross-faculty meetings and workshops. Ethical approval and informed consent were obtained, and data were anonymized.

Data Analysis: Analysis followed a retroductive logic. Data were coded descriptively, decomposed into structure, culture, and agency using Archer's (1995) framework, and retroductively analysed to hypothesize underlying mechanisms. NVivo 14 was used for coding and memo writing. Triangulation and member checking enhanced validity.

Positionality and Reflexivity: The researcher maintained an external, non-managerial position and used reflexive journaling to monitor theoretical influence on interpretation.

Limitations: The single-case design limits statistical generalizability but supports theoretical generalization. Reliance on self-reported data was mitigated through triangulation.

4. A Conceptual Framework for the Dialectical Relations of Entrepreneurship Skills Development

Emergent from the sections on philosophical grounding: transcendentalism and critical realism, and also per diagrams 1 & 1, a conceptual framework would therefore reflect the constituent elements which are anchored on the critical realist perspective, not only as a practice but also as potential research frontiers. Such a framework needs to reflect not only what is practised as the ESD ecosystem at the dimensions of structural system, and further of cultural system (experiential learning) and of human system (entrepreneurial competences) but also what remains inadequately accounted for as research frontiers.

Figure 1: RREEEIS Modelling, adapted from Dwayi, 2023, Reimagining Corporate Social Responsibility in the idea of university).

Drawing on RREEEIS modelling (Diagram 3) allows for thinking about ESD practices as the field of both study and of research in multi-dimensional ways:

a. Horizontal articulation (top side) reflects what could be ESD practices, and thus, research frontiers, as the point of significance where the ESD field can be understood as the enabling system for higher education transformation. Such significance, while necessary, seems to be constrained at the point of the character, for example, the academic project (teaching and learning, research and innovation, and community engagement), and thus frustrating the efforts which should allow for new trajectories about human resource development. At the centre of these constraints are power dynamics whose complexity call for understanding and explanation in contemporary perspectives. The flip side to the latter, still at horizontal articulation (bottom side) is that very narratives that conceptualise an entrepreneurial university may have to be problematised by critiquing the mainstreamed forms of interpretation, and thus calling for contemporary analysis that must lead to new literacies the field both as a terrain of study/research and of practice.
b. Vertical articulation (left side), both the significance and the narratives (horizontal articulation) call for deepening the ESD practices in two ways. Firstly as the forms of data sets about ESD practices, further to how such data is constituted as information, understood as knowledge and further can be acted upon as practical wisdom where ESD is the enabling mechanism for human resource development. Critical about the latter will thus be the role of actors (academic leadership, management systems and governance structures) in engaging data as management information systems for effective decision making (right side).
c. However, both the horizontal and vertical articulation points, while necessary, don't go far enough to explain the complexity of open and social systems about ESD practices, hence the need to refocus on the diagonal articulation (how this dimensions finally allows for ESD as the research frontiers).

Engaging ESD practices in the diagonal domain allows for a progressive step in unlocking what could be the stagnation points; in what should ideally be the institutional value chain, where value inhibitions can be translated into enhancers. Value enhancement therefore requires the identification of the points of leveraging and upscaling in flexible and dynamic ways, further to both the breadth and depth about the subject. Hence, the need for a conceptual framework that draws on transcendentalism/critical humanistic perspectives, Sections 2 and 3 of this article) about the business and management practices. Such a framework would have to be quite explicit about the practical implications of the transformation project in higher education in South Africa, in

particular, since most institutions are embarking on their first year of the institutional strategic plans towards Vision 2030.

4.1 RREEEIS Modelling Allows for Understanding the Core Components

The narrative element in the RREEEIS model (bottom side in Diagram 3) indicated challenging cases of stagnation and the need for moments of leveraging and upscaling. Institutional narratives relied on surface explanations such as "leadership commitment" or "lack of resources," obscuring deeper mechanisms like misaligned incentives and epistemic hierarchies. Therefore, for such contexts, a dynamic and viable framework would comprise of the following four interdependent domains:

a. Ontological Conditions: As indicated in Diagram 3, the top side about horizontal articulation would call for a conceptual shift (new ways of thinking-making-doing) about ESD as areas of practice and of research if the transformative outcomes remain the idea. These shifts could be from static "being" to the (re)generative mechanisms about "becoming," incorporating indigenous knowledge and creative economies, for example. Such shifts should not only entail the breadth about ESD practices, but the deepening of ESD practices as scholarship by engaging the nexus of theory and practice in more structured and systemic ways.
b. Structural-Cultural Conditions: The systemic and structural ways would refer not only about the ESD practices at the point of academic leadership (research about ESD practices), but the requisite management systems (policies and strategies) and governance structures (monitoring and oversight functions at institutional levels. The latter would entail a kind of research that critiques the incentives, epistemic hierarchies, and reflexive spaces that enable or constrain practice.
c. Agential Processes: The deepening of academic leadership about ESD practices could entail such aspects as the identity and significance dimensions about Agency and further in terms of professionalism about the fields, for example, an analysis of reflexive agency as exercised by managers, academics, students, etc.
d. Dialectical Interface (emergence per Diagram 1, and as diagonal articulation): This is the dimension which would finally make RREEEIS Modelling to come alive but in dynamic ways typical of open and complex social systems. The ongoing, the implicit assumptions of structure, culture and agency in the ESD field as the areas of study/research and of practice. This would entails what the ESD practices are, can be and cannot be, and how to potentially resolve the disjuncture and discrepancies as the dialectical relationship about entrepreneurship with science, technology and innovation. That approach then presents the opportunities for the integration of practice and research through retroduction, reflexive feedback, and co-production in more pronounced and explicit ways.

4.2 Propositions: RR-EEE-I-S Modelling

Therefore, RR-EEE-I-S modelling as the platform/conceptual framework for ESD practices and research allows for internal coherence in four ways,

a. According to the Relevance and Responsiveness dimensions, effectiveness increases when practices shift from a static "being" to a generative "becoming." Both the practice and research domains (diagrams 1 and 2) allow for the two questions: Relevance to What (knowledge) and Responsiveness to Whom (beneficiaries)? The answer to the two questions then allow for the kinds of ESD practices which can accommodate both not only historical disadvantage but the new realms of possibilities as research frontiers. RR-
b. Thinking of the Excellence dimension as the practice-research imperative then allows for the ESD interventions beyond both the Effective (doing the right things) and Efficient (doing them in the right ways) dimensions, only when aligned with structural-cultural conditions (read point 4.1. above) RR-EEE-
c. Further to what can be claimed as the outputs-process-outcomes dimensions, impact as a theory of change/transformation requires reflexive agency at multiple levels of data-information-knowledge-practical wisdom (the left side) and further as management information systems for effective decision making (MISDM) (right side). RR-EEE-I-
d. As emergent from the first three major steps, sustained improvement therefore depends on an active practice-research interface. RR-EEE-I-S.

4.3 Operationalization

As a major conceptual shift form the shortcomings of surface ontology and its default position and faulty consciousness about ESD practices, the framework, therefore, can be applied in three dynamic ways,

a. Diagnostic mapping (horizontal articulation),
b. Mechanism-oriented design (vertical articulation), and
c. Evaluative retroduction (diagonal articulation).

In that way, aligning with critical realist evaluation methods (Pawson & Tilley, 1997) becomes the better way to test out the framework in practice.

5. The Practical Implications and Conclusion

The paper demonstrates that the gap between aspirations and outcome/reality in entrepreneurship skills development stems from de-ontologised positions and their usual self-referential explanations. As it were, ESD need to be critiqued at three points. Firstly, as a structural system, which is not always the proxy for the actual results. Secondly, at the emerging point about the latter as a cultural system (the domain of values, norms and standards, which will always be contested in power relations and materialist interests). Thirdly, and most importantly, at the dimension of human system, as the progressive choices and the socially reconstructive and emancipatory projects, or the absence of, about the first two dimensions. The practical alternative would thus entail deep ontology with its requisite multi causal, efficacious and emergent properties of structure, culture and agency. Through the lens of critical realism, this paper suggests RREEEIS modelling as the alternative framework for understanding entrepreneurship education as a generative, reflexive, and ethically grounded practice that contributes to Vision 2030 and the Sustainable Developmental Goals 4 on quality enhancement and 17 international partnerships. Such a critical realist perspective approach about entrepreneurship practice and research seeks to ensure the value of scholarship in the theory-methodology-practical program chain.

Therefore, thinking in critical realist ways in both the study/research about, and the practice of, entrepreneurship potentially provides an answer to a transcendental question (Section 1). A research project thereof would be about a social realist account about the deep change, which needs to be explained more about the domain of the real (stratification, multi causation, efficacy and emergency) through the interplays of structure, culture and agency (diagram 2. Against the backdrop of the transformation imperatives which can be reflected as a structural system (Strategic Plan 2030, Section 3), and the need for the integrated quality management systems, as a cultural system (the ESD narratives/practices, Section 3), human agency would therefore emerge as the interaction with the latter two social elements in more systematic and structured ways. The human agency would therefore take the practice architecture in the following three dynamic ways, albeit not in a linear order,

a. Academic Leadership, as the 1st layer of responsibility, the integrated approach about ESD implementation as part of the academic project.
b. Management Systems, as the 2nd layer of accountability, the Heads of Departments and Deans responsibility, while anchored on the ESD as practice-research, by ensuring that the implementation models per department and faculty are responsive to the institutional policies and strategies. In that way, decision making processes and events, as anchored on data-driven, evidence-based and impact-oriented management information system (vertical articulation on the right side of Diagram 3), are not only efficient and effective, but anchored on notions of excellence in ways that are context-specific and actor-driven.
c. Governance Structure, as the 2nd layer of fiduciary functions, in relation to the terms of reference by the Technology Transfer Unit and the ESD practices which must be regulated per institutional policies and strategies. It is at this point of power dynamics that a powerful conceptual framework (Diagram 3) then emerges about ESD practices as the practical wisdom about the idea of university education as impactful and sustainable.

5.1 Implications for Institutional Practice

Institutions should redesign their governance structures in order to create cross-faculty reflexive forums, align incentives with generative mechanisms, integrate indigenous knowledge as core practice, and build reflexive agency through professional development.

5.2 Implications for Policy and the SDGs

The framework supports SDG 4 by grounding quality in reflexive capacity and SDG 17 by clarifying the conditions for effective partnerships. It offers an alternative to isomorphic mimicry in higher education transformation.

5.3 Limitations and Future Research

This was a close up study focusing on a single university type in South Africa, a University of Technology/Applied Sciences. As briefly alluded to in Section 3 on institutional setting, studies that seem to refer on the institutional challenges where the researcher is writing from insider perspective will always pose the risk of ethical and methodological challenges. Such challenges, normally entail how to negotiate access, manage competing data sources, and interrogate one's own positionality.

The framework itself is yet to be subjected to some iterative cycles in more context-specific and actor-driven ways. Such ways are already made significant by means of systematic reviews and meta-analysis studies to which RREEIS modelling could add value. For example, when the left side about the leadership, management and governance roles can be deepened in the form of the data-information-knowledge-practical wisdom dimensions, adopting digital technologies as part of the right side of management information systems for effective decision making would allow for more expanded research terrains and subsequent developmental practices, especially in the context of reimagining the global south epistemologies. For example, the study of the indigenous knowledge systems for creative economies remains an unchartered terrain against the advent of digital technologies for an academic project which might have to be based on an elaborative logic and for a more socially embedded university of technology/applied sciences. by the left side, a critique of the ESD cases in DIKPW dimensions as scholarship advancement. Further research is also needed to test the framework across institutional types and to develop instruments for diagnosing the four domains. As discussed in this paper by drawing from a critical realist perspective, longitudinal studies using the morphogenetic approach are recommended.

Ethics Declaration

The project followed the Ethical Clearance procedures including the institutional performance system which articulates about the author's annual performance plans where research output is a key performance indicator.

AI Declaration

I can confirm that AI tools were used to generate the broad outline of the paper to understand the main aspects about the topic before the write up could be broadened from relevant literatures for advancement of scholarship.

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A Doctoral Colloquium: Examination of a Doctoral Theses: From a Theatre of Control to a Space of Collective Learning and of Knowledge-Making

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Abstract: *"Human society has not developed in accordance with a prearranged plan, but empirically, in the course of a long, complicated and contradictory struggle" (Trotsky, 1986, pp.24)*. This paper reports on the reflective engagements about the topic, *From a Theatre of Control to a Space of Collective Learning and of Knowledge-Making,* with a co-researcher in the collaborative international research space. The engagement emerged from the following question, *"Why do some peer reviewers expect a manuscript to bend to their will, as though the author's intellectual labour is merely a vessel for their own unfulfilled agenda?"* At ECRM 2024, I tried to address this matter as the need to continuously engage the tight boundary objects and gatekeeping strategies in the pursuit of the intellectual project. At ECRM 2026, I proposed a rejoinder, specifically about why a Meta-theory matters in a Doctorate Study? A Doctorate Qualification, while significant, its success measure is to reflect the claims that portray new knowledge as transcendence into new trajectories of knowledge. However, the nature of a Doctorate examination may make the character of the process susceptible to the inherent power dynamics about knowledge. The claims in this paper follow a personal experience of a theses rejection twice. I understood those rejections as navigating the Doctoral Journey, as being in conversation about the examination in a process which is open and complex. While at ECRM 2024, the focus was on the three thinking tools (Judgemental Rationality, Epistemic Relativism, and the Ontological Collapse of the Natural Necessity), at ECRM 2026, the discussion revolved around the value of the meta—theory chapter. Therefore, the findings of these reflections entail what must be the value of casting a deep eye into the system of examination as the reflexive generative methodology, that is, by reflecting in more critical ways about the history and social relations about a Doctorate Study. Such a system need to understand the complexity of power relations and its inherent politics of knowledge/knowledge wars. The ability to manage the power dynamics in the latter context refers to the growth and maturity about the field, both as the nexus of theory and of practice. In the case under review, the processes entailed questioning the ideological positions of both the candidate and of the examiners, where the examination process could be described as a discursive space. By role playing the paper refers specifically to the examination process as the exercise of agency where the implicit assumptions about the examination process is a social system, and in ways that the potential disjuncture between the elements, can make for the examiner not to be able to understand fully the life world of the candidate, at least from a philosophical position.

Keywords: Transcendentalism, Critical Realism, Social Realism, Doctorate-ness, Reflexive Generative Methodology, Supervision

1. Introduction

1.1 The Doctoral Examination as a Contested Social Space

The doctoral examination is conventionally framed as a neutral process of quality assurance: a mechanism for verifying that a thesis makes an original contribution to knowledge and meets disciplinary standards. Yet for many candidates, the examination experience reveals itself as something more complex and contested. It functions as a social system where epistemic judgments, institutional power, and personal identity intersect. In this system, peer reviewers and examiners do not always engage the thesis as an autonomous intellectual project. Instead, expectations can arise that the manuscript should conform to the reviewer's own theoretical commitments, methodological preferences, or unfulfilled research agenda.

This paper emerges from sustained engagement with a co-researcher in a collaborative international research space and from my own experience of having a thesis rejected twice (Dwayi, 2023; Dwayi, 2024). These rejections were not merely administrative outcomes. They were moments of rupture that exposed the underlying power dynamics, boundary-work, and gatekeeping strategies that shape what counts as legitimate doctoral knowledge. The experience reframed the examination process as a "theatre of control," where the candidate's life-world and philosophical position risk being rendered invisible or illegible to the examiner.

1.2 The Problem: Power, Gatekeeping, and the Absence of Meta-Theoretical Reflexivity

A persistent challenge in doctoral education is the tension between the claim to originality and the reality of examination as a site of epistemic and political contestation. At ECRM 2024, I addressed this tension by examining three thinking tools—judgemental rationality, epistemic relativism, and the ontological collapse of natural necessity—as resources for navigating tight boundary objects in academic gatekeeping (Gendron &

Rodrigue, 2021, for example). The analysis suggested that without explicit meta-theoretical reflexivity, candidates are ill-equipped to articulate and defend the philosophical coherence of their work against examiner expectations that may be tacit, incommensurable, or ideologically driven (Kuhn, 1970).

At ECRM 2026, this discussion is extended through a focused inquiry into the value of the meta-theory chapter in doctoral studies. The central contention is that the absence of a robust meta-theoretical account leaves the thesis vulnerable to misrecognition. When the history, social relations, and philosophical commitments underpinning the research are not made explicit, the examination process defaults to an exercise of power rather than a dialogue about knowledge-making. The result is a disjuncture between the candidate's intellectual trajectory and the examiner's interpretive frame—a disjuncture that undermines the possibility of the thesis functioning as a discursive space for collective learning.

1.3 Purpose, Argument, and Contribution

The purpose of this paper is to argue for the meta-theory chapter as a reflexive, generative methodology for doctoral examination. It proposes that making explicit the meta-theoretical architecture of a thesis—its ontological, epistemological, and axiological commitments—allows the examination to shift from a theatre of control to a space of collective learning and knowledge-making.

The argument unfolds in three moves. First, it examines how power dynamics and the politics of knowledge manifest in doctoral examination, drawing on personal experience and critical realist accounts of judgemental rationality (Dwayi, 2024). Second, it demonstrates how a meta-theory chapter makes visible the social and philosophical relations that constitute a doctoral study, enabling examiners to engage the candidate's life-world rather than impose external criteria (Dwayi, 2023). Third, as the main argument, it positions a doctorate examination/practice as a contribution to the growth and maturity of the field at the nexus of theory and practice, where ideological positions can be negotiated rather than policed.

The contribution is both practical and theoretical. Practically, it offers doctoral candidates and supervisors a strategy for managing the politics of examination without capitulating to epistemic violence. Theoretically, it advances the case for meta-theory as integral to doctoral-ness, understood as the capacity to enact transcendence into new trajectories of knowledge while remaining accountable to the history and social relations of the field (Boughey & McKenna, 2021).

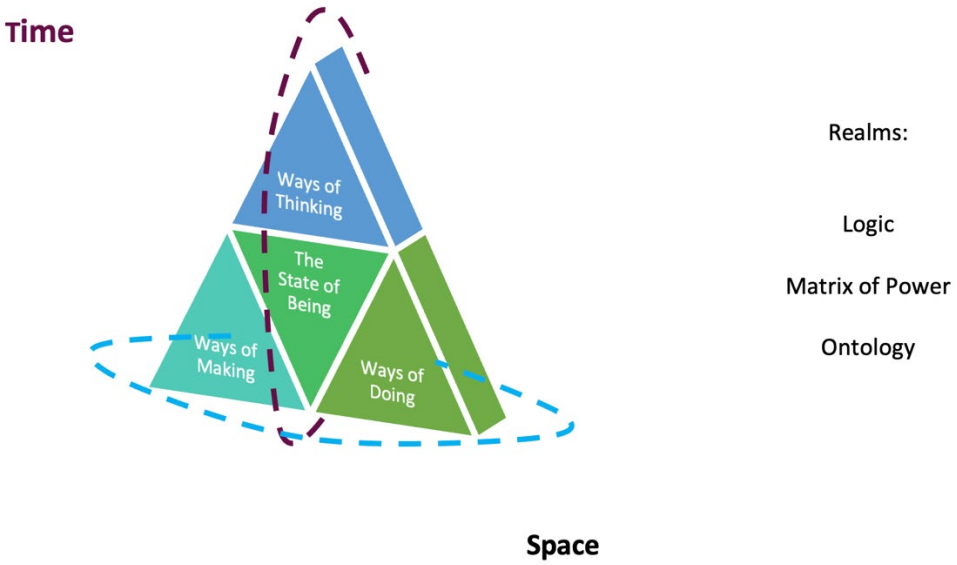
1.4 Structure of the Paper

- Section 2 revisits the three thinking tools introduced at ECRM 2024 and explains their relevance to understanding examination as a social system.
- Section 3 develops the argument for the meta-theory chapter, situating it within critical realism, social realism, and transcendentalism.
- Section 4 examines the examination process through a role-playing lens to surface the implicit assumptions that produce misrecognition between candidate and examiner.
- Section 5 concludes by outlining how a reflexive, generative approach to examination can transform doctoral assessment into a practice of collective learning.

In the next Section, the paper focusses on the three thinking tools and how they apply to the examination process

2. Three Thinking Tools for Navigating the Doctoral Examination as a Social System

The doctoral examination does not occur in a philosophical vacuum. It is a site where competing claims about reality, knowledge, and value are adjudicated (Clegg, 2005). Without explicit tools for navigating these claims, candidates and examiners default to positional conflict rather than reasoned engagement. At ECRM 2024, I introduced three resources drawn from critical realism and social realism—judgemental rationality, epistemic relativism, and the ontological collapse of natural necessity—as a way to map this terrain (Dwayi, 2024). Together, they provide a meta-theoretical grammar for understanding why examinations break down and how they might be reconstituted as spaces of collective learning (Dwayi, 2023).



Transformative Agency as the Criticality-Reflexivity-Praxis Chain

Figure 1: Dimensions & Realms about the Doctoral Examination where the theatre of control has to shift to dialogue through transformative Agency, adapted from Dwayi, 2021)

Diagram 1 portrays not only the time and space factors about doctoral examination as a social phenomenon but also the dimensions and realms thereof which need to be understood and explained within the criticality-reflexivity-praxis chain where the roles of examiners and the candidate constitute the transformative agency (Dwayi, 2021). The views expressed in the conversations with the colleague in the collaborative international research project (Section 1: Introduction) took place in 2026, despite the publication on similar issues in 2024 (Dwayi, 2024). The latter could be reflecting what can be argued as the aetiology about the old regimes of power and of truth. Despite the existing body of knowledge about how a doctoral examination can be weaponised to serve apparent power relations in the politics of knowledge (Clegg, 2005), such knowledge does not go far enough until it can be adequately engaged at the point of human agency.

Doctorate examination can easily become a procedural and a checklist approach which reproduces the theatre of control, whether inadvertently and/or unwittingly. A theatre of control therefore arises at the point of realms about the doctoral examination, which, with the criticality-reflexivity-praxis chain, allow for the engagement of the main concerns, claims and issues as the reflexive generative methodology. That ought to be the methodology whereby the discourses that inform particular choices on the part of the examiners, versus the candidate, can make for the exercise of agency. Only the transformative outcomes should matter here. That is, the nature of outcomes that promote the idea of university education as the public good (praxis). Such outcomes become a new possibility only when the experts in field of study can also be experts in the sociology of learning and of knowledge making (as spaces for collective learning and of knowledge making).

1.5.1 Judgemental Rationality: Defending Claims Without Claiming Certainty

Judgemental rationality is Bhaskar's (2008) response to the false choice between epistemic absolutism and radical relativism. It holds that while all knowledge is fallible and socially produced, it is still possible to make rational judgements about which theories, explanations, and methods are better at accounting for the real world (Archer, 1995; Bhaskar, 1975). In the examination context, this means a candidate can argue that their thesis offers a more adequate account of the phenomenon under study, even while acknowledging the contingency of that account (Dwayi, 2023).

The practical problem arises when examiners conflate critique with dismissal. A reviewer may demand that a manuscript "bend to their will" not because the thesis is incoherent, but because it violates their preferred paradigm. Judgemental rationality equips the candidate to respond by shifting the debate from authority to argument: What is the evidence? What mechanisms are proposed? How well do they explain the phenomena compared to alternatives?

For the examination to function as a space of learning, both parties must accept that rationality is fallible and dialogical. The thesis becomes a claim open to rational contestation, not a vessel for the examiner's unfulfilled

agenda. Without this stance, the examination collapses into a power play where the candidate's labour is subordinated to the examiner's theoretical preferences.

2.1 Epistemic Relativism: Acknowledging the Situatedness of Knowledge

Epistemic relativism recognizes that beliefs are formed under specific historical, cultural, and institutional conditions. It does not entail "anything goes," but rather that knowledge claims must be understood in relation to the context of their production (Archer, 1995). In doctoral work, this is particularly salient when the research draws on indigenous knowledge systems, creative economies, or non-Western epistemologies, for example, that sit uneasily within dominant disciplinary norms (Eurocentrism).

The disjuncture in examination often occurs here. An examiner operating from an unacknowledged positivist or Eurocentric frame may interpret the candidate's methodological choices as "lacking rigour" simply because they do not conform to familiar conventions. The candidate's life-world—their ontological commitments, community relations, and research purpose—remains illegible.

Epistemic relativism does not require the examiner to abandon their own position. It requires them to bracket it sufficiently to understand the internal logic of the thesis on its own terms. As I argue elsewhere, for example in Dwayi, 2024, when this bracketing fails, the examination reproduces gatekeeping as epistemic closure. When it succeeds, the examination becomes a site for negotiating incommensurability rather than enforcing conformity.

2.2 The Ontological Collapse of Natural Necessity: Resisting the Reification of Method

The "ontological collapse of natural necessity" refers to the tendency to treat methodological conventions as if they were natural, necessary, or universally valid (Bhaskar, 1998). In practice, this appears as the assumption that only quantitative methods can be rigorous, that theory must follow a particular structure, or that a thesis must mirror the reviewer's own published work.

This refers to the tendency to treat methodological conventions as natural and necessary (Bhaskar, 1998). In examination, it appears as the assumption that only certain methods are rigorous. The meta-theory chapter interrupts this collapse by making ontological and epistemological commitments explicit, allowing methodological choices to be justified in relation to the object of study.

In doctoral examination, this collapse manifests as procedural gatekeeping masquerading as quality control. The candidate's transcendence into new trajectories of knowledge is foreclosed because the examination process mistakes disciplinary habit for epistemic necessity. The meta-theory chapter directly interrupts this collapse by making the ontological and epistemological commitments explicit, thereby showing that methodological choices are reasoned responses to the nature of the phenomenon, not arbitrary deviations.

By restoring the distinction between the real and our knowledge of it, the ontological collapse of natural necessity opens space for methodological pluralism. It allows the examination to assess whether the chosen methods are appropriate to the stratified reality under study, rather than whether they match the examiner's methodological biography.

2.3 From Tools to Examination Practice

Taken together, these three tools reframe the examination process. Judgemental rationality enables a debate about the adequacy of explanations. Epistemic relativism enables recognition of the situatedness of both candidate and examiner knowledge. The ontological collapse of natural necessity enables methodological justification that is responsive to the object of study rather than to disciplinary orthodoxy.

When these tools are absent, the examination defaults to a theatre of control: a performance where the candidate must anticipate and appease the examiner's implicit expectations. When they are present, the examination becomes a reflexive, generative methodology—a structured conversation about the history, social relations, and philosophical commitments that constitute the doctoral project.

Section 3 builds on this foundation to argue that the meta-theory chapter is the institutional mechanism through which these tools can be operationalized in the doctoral thesis. Therefore the next Section, continues on the meta-theory chapter and how it functions as a reflexive, generative methodology.

3. The Meta-Theory Chapter as a Reflexive, Generative Methodology

If the three thinking tools provide the philosophical grammar for engaging examination, the meta-theory chapter provides the institutional mechanism for enacting it. This section argues that the meta-theory chapter is not an optional add-on or a literature review in disguise. It is a reflexive, generative methodology that makes explicit the ontological, epistemological, and axiological architecture of the thesis, thereby transforming the examination from a theatre of control into a space of collective learning and knowledge-making.

3.1 The Purpose of Meta-Theory Chapter

The meta-theory chapter addresses the question: What must be true about reality, knowledge, and value for the claims made in this thesis to hold? It does three things simultaneously,

a. It makes the implicit explicit: Doctoral research always rests on assumptions about the nature of the world, the status of knowledge, and the purpose of inquiry. In most theses these remain tacit, buried in methodology sections or inferred from citation choices. The meta-theory chapter brings them to the surface and subjects them to scrutiny.
b. It traces the history and social relations of the project: Drawing on social realism, this section maps how structural conditioning, social interaction, and structural elaboration have shaped the research design, the selection of literature, and the candidate's positionality. It shows the thesis as a product of a specific social system, not as knowledge produced in a vacuum.
c. It creates a discursive space for judgemental rationality: By stating the meta-theoretical commitments clearly, the chapter enables examiners to engage the thesis on its own terms. Disagreement can then focus on the adequacy of the reasoning and evidence, rather than on unstated paradigm clashes.

In this sense, the meta-theory chapter operationalizes transcendentalism within the thesis itself. It asks and answers the transcendental question that underpins the research: what conditions must obtain for this study to be possible and coherent?

3.2 Structure of the Meta-Theory Chapter

While there is no single template, an effective meta-theory chapter typically includes four elements (Archer, 1995; Bhaskar, 1975):

a. Ontological Position: An account of the nature of the reality being studied. For example, a critical realist stance would posit a stratified, open, and emergent social world where mechanisms operate independently of our knowledge of them. This distinguishes the study from approaches that collapse reality into discourse or observable events.
b. Epistemological Stance: An account of what counts as knowledge and how it can be known. This includes engagement with epistemic relativism—acknowledging that knowledge is situated and fallible—while retaining judgemental rationality to evaluate competing claims.
c. Axiological Commitments: An explicit statement of the values and purposes driving the research. Doctoral work is never value-neutral. Stating the ethical and political commitments avoids accusations of hidden agendas and allows examiners to assess coherence between purpose and method.
d. Methodological Implications: A derived account of why the chosen methods, data, and analytical strategies are appropriate to the ontology and epistemology. This is where the ontological collapse of natural necessity is avoided. Methods are justified as responses to the nature of the object, not as disciplinary habit.

Together, these elements form a meta-theoretical contract between candidate and examiner. The meta-theory chapter rebalances this relationship.

3.3 Why It Matters for Power Dynamics and Knowledge Wars

Doctoral examination is a site where the politics of knowledge are enacted. Examiners hold institutional power to confer or withhold the degree, and that power is often exercised through appeals to "standards" that are rarely made explicit. Candidates, particularly those working at the margins of disciplines or drawing on non-Western epistemologies, experience this as gatekeeping.

The meta-theory chapter rebalances this relationship. It does not remove power from the examiner, but it changes the basis on which power is exercised. Instead of judging the thesis against an implicit norm, the examiner is invited to judge it against the internal coherence and external plausibility of the meta-theoretical framework presented. This shifts the encounter from "Does this look like my kind of research?" to "Does this hold together on its own terms, and does it advance understanding of the object?"

This shift is crucial for the growth and maturity of the field. Fields advance not by policing boundaries but by negotiating them. When the meta-theory is visible, the thesis becomes a discursive space where ideological positions can be articulated, contested, and potentially transformed. Knowledge wars become conversations about mechanisms, not contests of authority.

3.4 From Defence to Dialogue: Examination as Collective Learning

When a thesis includes a robust meta-theory chapter, the viva or examination report changes in character. The examiner is no longer positioned as a gatekeeper defending disciplinary purity. They become a critical interlocutor in a shared inquiry into the object of study. The candidate is no longer defending a manuscript; they are defending and elaborating a way of knowing.

This is what is meant by moving from a theatre of control to a space of collective learning. Control is exercised through hidden rules and retroactive demands for conformity. Collective learning occurs when the rules are made explicit, when the life-world of the candidate is made legible, and when the examination is treated as a continuation of the research process rather than its termination.

Unlike what could have been, as discussed in Dwayi, 2024, the meta-theory chapter does not guarantee a pass. What it does guarantee is that rejection, if it occurs, is based on reasons that can be engaged, learned from, and responded to. That is the minimum condition for a doctoral examination to function as an intellectual project rather than an exercise of power.

3.5 Limitations and Misuse

A meta-theory chapter can be misused if it becomes a perfunctory exercise in name-dropping philosophers or a defensive pre-emption of critique. Its value depends on its integration with the substantive chapters. It must inform the research design, analysis, and interpretation, not sit alongside them as a separate piece. When done well, it is not a shield against critique but an invitation to deeper critique. To support this main argument, section 4 then uses a role-playing analysis to show how the absence and presence of a meta-theory chapter change the dynamics between candidate and examiner in practice.

4. Role-Playing the Examination: How the Meta-Theory Chapter Changes the Dynamics

To make the argument concrete, this section uses a role-playing analysis of the doctoral examination as a social system. The aim is not to simulate a specific viva, but to surface the implicit assumptions and interactional patterns that produce misrecognition between candidate and examiner. I contrast two scenarios: examination without a substantive meta-theory chapter, and examination with one. The comparison shows how the presence of an explicit meta-theoretical architecture alters the distribution of power, the focus of critique, and the possibility of collective learning.

4.1 Scenario 1: The Theatre of Control – Examination Without a Meta-Theory Chapter

In this scenario, the thesis presents methods, findings, and discussion but leaves its meta-theoretical commitments implicit. The candidate assumes that coherence will be evident from the substantive chapters alone.

a. Examiner's position: The examiner reads the thesis through their own disciplinary habitus. Without a stated ontology and epistemology, they interpret deviations from their preferred methods or literature as deficits. Phrases such as "lacking rigour," "unclear contribution," or "methodologically inconsistent" appear in the report, often without engagement with the internal logic of the work.
b. Candidate's position: The candidate experiences the feedback as arbitrary or contradictory. Because the meta-theoretical rules were never stated, they cannot defend the thesis on its own terms. The viva becomes defensive, with the candidate attempting to guess what the examiner wants and to retrofit justification after the fact.

c. Systemic outcome: The examination functions as a theatre of control. Power is exercised through the examiner's ability to impose unstated criteria retroactively. The disjuncture between the candidate's life-world and the examiner's interpretive frame remains unaddressed. The thesis is rejected or subject to major revisions that do not advance the intellectual project, but merely force compliance. Knowledge-making is suspended; gatekeeping prevails.

This scenario illustrates the problem identified in the opening question: why do some peer reviewers expect a manuscript to bend to their will? The absence of a meta-theory chapter makes the thesis vulnerable to being treated as a vessel for the examiner's unfulfilled agenda, because there is no alternative framework against which to judge it.

4.2 Scenario 2: The Space of Collective Learning – Examination With a Meta-Theory Chapter

In this scenario, the thesis includes a meta-theory chapter (Dwayi, 2023) that articulates its ontological, epistemological, axiological, and methodological commitments. It explains why the study is conducted in this way and what it assumes about the nature of the object.

a. Examiner's position: The examiner now has access to the rules of the game before evaluating the moves. Critique shifts from "this is not how I would do it" to "given these commitments, does the argument hold, and does it account for the phenomenon better than alternatives?" Disagreement remains possible, but it is grounded in judgemental rationality rather than paradigm imposition.
b. Candidate's position:* The candidate can respond to critique by referring back to the meta-theoretical framework. They can acknowledge limitations without abandoning the core logic of the study. The viva becomes a dialogue about mechanisms, evidence, and coherence, not a test of conformity.
c. Systemic outcome:* The examination becomes a space of collective learning. The candidate's life-world and philosophical position are made legible. The examiner's role shifts from gatekeeper to critical interlocutor. Even when the outcome is revision or rejection, the reasons are explicit, contestable, and generative. The field advances because the boundaries of legitimate inquiry are negotiated rather than policed.

4.3 What Changes in Practice

The role-playing analysis highlights three concrete shifts that occur when the meta-theory chapter is present:

a. From implicit to explicit criteria: Examination criteria move from tacit and variable to articulated and contestable. This reduces the arbitrariness of feedback and makes appeals or resubmissions more tractable.
b. From authority to argument: The locus of authority shifts from the examiner's status to the quality of the argument. Judgemental rationality replaces positional authority as the basis for evaluation.
c. From closure to opening: Epistemic closure is replaced by epistemic opening.
d. The examination becomes a site where incommensurable positions can be mapped, compared, and potentially integrated, rather than a site where one position is enforced.

These shifts do not eliminate power dynamics. Examination is always a power-laden practice. What changes is the mode of power: from arbitrary control to accountable judgement. That shift is what makes transcendence into new trajectories of knowledge possible.

4.4 Implications for Supervisors and Institutions

If the meta-theory chapter has this effect, then doctoral programmes have a responsibility to support its development. Supervisors, especially at post graduate studies and for senior degrees (Masters and Doctorate qualifications) need to be trained to facilitate meta-theoretical reflexivity, not just methodological technique. Examination guidelines should require candidates to articulate their meta-theoretical commitments, and examiner training should include guidance on how to engage those commitments fairly.

Institutions that retain a procedural, checklist approach to examination will continue to reproduce the theatre of control, regardless of individual goodwill. As discussed in the previous sections, Doctoral Examination, a great phase in accreditation of knowledge acquisition, even for its radical challenge to exclusivist conceptions of knowledge, can be dragged down in the politics of Knowledge - by logical extension empowers previously

resistant forces to justify further social exclusion and marginalisation. On the other hand, institutions that institutionalise meta-theoretical reflexivity create the conditions for doctoral-ness as a practice of collective learning. The examination of such doctoral projects are intentionally understood more as a co-creation project about knowledge. In the next section, I synthesize these arguments and outline what a reflexive, generative examination system would look like in practice.

5. Conclusion: From Control to Collective Learning

5.1 Synthesis of the Argument

This paper has argued that the doctoral examination, as currently practiced, often functions as a theatre of control in which candidates are expected to conform to examiners' implicit theoretical and methodological preferences. Drawing on a personal experience of two thesis rejections (Dwayi, 2024) and on ongoing engagement in collaborative international research (Dwayi et al 2025), I have shown how this dynamic produces misrecognition, stalls knowledge-making, and undermines the claim that a doctorate constitutes an original contribution to knowledge.

The rejoinder proposed here is methodological and institutional: the inclusion of a robust meta-theory chapter as a reflexive, generative methodology. By making explicit the ontological, epistemological, axiological, and methodological commitments that underpin the research, the meta-theory chapter enables judgemental rationality to operate. It allows examiners to engage the thesis on its own terms, reduces the arbitrary exercise of power, and transforms the examination into a discursive space for collective learning.

The argument has been developed through three moves.

a. First, I outlined three thinking tools—judgemental rationality, epistemic relativism, and the ontological collapse of natural necessity—that provide the philosophical resources for navigating contested examination encounters.
b. Second, I demonstrated how a meta-theory chapter operationalizes these tools within the thesis itself, making the history and social relations of the project visible and contestable.
c. Third, I used a role-playing analysis to show how the presence or absence of such a chapter fundamentally alters the dynamics between candidate and examiner, shifting the encounter from control to dialogue.

5.2 Practical Implications

For doctoral candidates, the implication is to treat meta-theoretical reflexivity as integral to the research process, not as an afterthought. Articulating one's meta-theoretical commitments early helps to align research design, analysis, and interpretation, and prepares the candidate to engage critique productively.

For supervisors and examination convenors, the implication is to support this practice through supervision, training, and policy. Examination guidelines should require candidates to state their meta-theoretical position, and examiner briefings should include guidance on how to assess theses against their internal coherence rather than against an implicit norm.

For institutions, the implication is to recognize that quality assurance in doctoral education cannot be reduced to procedural checklists. A reflexive, generative approach to examination is necessary if universities are to fulfil their role in producing new trajectories of knowledge rather than reproducing existing ones.

5.3 Contribution to Knowledge and Practice

The contribution of this paper is twofold. Theoretically, it extends the application of critical realism and social realism to doctoral education by showing how meta-theoretical reflexivity addresses the politics of knowledge in examination. Practically, it offers a concrete strategy for candidates and institutions to manage the power dynamics inherent in the doctorate without surrendering the claim to originality.

In framing doctoral-ness as the capacity to enact transcendence into new knowledge while remaining accountable to the history and social relations of the field, the paper repositions the thesis as a discursive space. Within that space, ideological positions can be articulated, contested, and transformed, and the examination becomes a continuation of the research process rather than its termination.

5.4 Limitations and Future Research

This paper is grounded in personal experience and philosophical argument rather than in systematic empirical study of examination practices across institutions. Future research could test the argument through comparative studies of examination outcomes where meta-theory chapters are present and absent, and through interview studies with examiners and candidates about their experiences of reflexivity in the viva. Further work is also needed on how to train supervisors and examiners to engage meta-theoretical accounts without defaulting to their own paradigmatic preferences.

5.5 Final Reflection

A doctorate is significant not because it confers a title, but because it claims to move knowledge into new trajectories. That claim can only be sustained if the examination process is capable of recognizing and engaging the conditions under which the knowledge was produced. The meta-theory chapter does not eliminate conflict or guarantee success. What it does is make the potential conflict productive and what can be declared as success accountable. In doing so, it moves the doctoral examination from a theatre of control toward a space of collective learning and of knowledge-making.

AI Declaration

I can confirm that AI tools were used to generate the broad outline of the paper to understand the main aspects about the topic before the actual write up took place in order to broaden the main claims, concerns and issues about the topic from relevant literatures for advancement of scholarship.

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Nominal Ranking Methodology: Strategic Information Management Principles for Commercialising Inventions

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Abstract: Strategic Information Management can increase the productivity and efficiency within an organisation, enhance consumer experience and satisfaction through the understanding of consumer needs and furthermore, consumer profiles, this ultimately allows for the creation of innovation that can be commercialised. Strategic Information Management encourages entrepreneurial education, as it focuses on requiring relevant information for product development and business expansion. The study aim was to identify Strategic Information Management principles that can be used to support the commercialisation of new products and innovation. This research used Business Case Study and nominal ranking methodology approaches, where data was collected from the Strategic Information Management Business Case Studies database from the University of Johannesburg Information and Knowledge Management. These case studies were collected from the Information and Knowledge management corporate alumni from their used cases and are not publicly accessible. The sample size for this study was 107 Business Case Studies, and nominal ranking methodology and content analysis were then used to analyse the case studies. Findings revealed various Strategic Information Management principles that can aid the commercialisation of innovation when included within the Higher Education curriculum, principles such as risk mitigation, complexity recognition and management, Business Model Canvas and Total Value Proposition to name a few. Based on the findings these Strategic Information Management principles enable organisations to analyse their internal and external environments, and the value creation processes with the purpose of developing and creating business models for future business sustainability and competitiveness. The study recommends the use of Business Model Canvas, Total Value Proposition and Future Business Environments as the most prominent SIM principles relevant for innovation and commercialisation. The originality of this study is in its use of nominal ranking methodology to identify relevant Strategic Information Management principles for innovation and commercialisation. Furthermore, given the current state of the economy, there is a need to boost businesses through models and systems to continuously produce innovative products and services.

Keywords: Strategy, Strategic Information Management, Commercialisation, Nominal Ranking Methodology, Business Canvas Model

1. Introduction

Strategic Information Management (SIM) is not a new idea or idea, it refers to making appropriate and correct information available to the right people, in the right format, and at the right time (Galliers, 1985; Myburgh, 2002; Ali, Juhari, Basri, Yatin, Hussin, Yatim & Kadir, 2018, Galliers, Leidner & Simeonova, 2020). In the context of this study, SIM refers to good practices that are applied using information and technological tools to execute organisational goals and strategies. This study was mostly interested in SIM's potential to support innovation and commercialisation, specifically for universities to enable the creation of an entrepreneurial environment capable of producing innovative and entrepreneurial students. The primary impetus for this study was the researcher's belief that SIM's potential can be achieved through the development and incorporation of SIM principles in the university curriculum, that can guide students in converting their business ideas and innovation into commercialised products and services. Furthermore, through the utilisation of SIM and its various tools, organisations can compete successfully in a competitive environment (Hussin et al., 2015:679). Other than helping organisations to remain competitive, SIM has been proven to support entities in developing and creating improved products that add value to the market and are quality products (Galliers & Stein, 2018b). SIM enables organisations to respond quicker to market-based trends and to be swift in analysing the competitors' next moves (Fleisher & Bensoussan, 2007; Adom, Nyarko & Som, 2016). SIM can be measured through its products and services that impact on an organisation's performance (Hussin et al., 2015:680). From the literature review, SIM is perceived as a significant component that students should be taught at Higher Education Institutions (HEIs).

2. Literature Review

Strategy can be defined as the state of knowing and understanding where one is, plan of action to where one wants to go, and the plan on how to get there (Web, 2008; Kühl, 2025). The growing nature of competition and market globalisation, and the increase in product and service innovation of competitors have amplified the need to succeed at strategic management and strategic intelligence (Boikanyo, Lotriet & Buys, 2016; Soltanifar et al.,

2021). Successful organisations use strategies and frameworks to address strategic challenges (Web, 2008:6). Strategic planning is closely linked to SIM, which involves the reflection of the vision, mission, and implementation of objectives and critical assessment of Information Technology that support the management of information (Ali et al., 2018). Strategic planning supports the management of performance and of systems, also measures organisational goals against internal performance, and aligns business operations through the strategic management of information (Ali et al., 2018:358).

Strategic management is concerned with the formulation, implementation, and the evaluation of decisions from a cross-functional level to enable organisations to achieve their missions and objectives. It involves the process of identifying and defining the objectives of an organisation, developing plans, coupled with policies to address the objectives (Ibezim & Augusta, 2013:783). Strategic management is made possible by managing information as a strategic asset of an organisation (Fleisher & Bensoussan, 2007; Saremi, 2025).

2.1 Defining Strategic Information Management

SIM is concerned with the delivery of the correct information to the right people, at the right time, thus allowing them to make the right decisions through the support of Information Technology to gather, analyse and disseminate information to improve an organisation's competitive performance, products, and services (Myburgh, 2002; Fleisher & Bensoussan, 2007; Ali et al., 2018). SIM can only occur if strategic information, strategic sources of information, and strategic information systems are involved in strategic planning (Gregus, 2006; Galliers & Leidner, 2003; Galliers & Stein, 2018a; Galliers & Stein, 2018b). SIM plays a significant role in enabling businesses and organisations to better manage their information by means of identifying, storing, processing, and transferring the information (Ali et al., 2018:359). SIM can be identified as a field within Information Management (IM), and it refers to the strategic management of information resources within an organisation to enhance the decision-making processes (Myburgh, 2002).

Systems thinking, information systems, management information systems, and strategic management of information have been researched and debated by scholars, as illustrated in the comprehensive review of discourse summarised by Galliers and Stein (2018a). Of relevance to this study are the components and principles of SIM that address the process of Commercialisation of Innovation (CoI) through strategic management of information in entrepreneurial education to create a safety net for potential student innovators during their academic journey.

2.2 Strategic Information Management Principles

SIM can assist an institution to manage its valuable information resources to enhance the decision making of innovators. However, before investigating SIM in the process of commercialising innovation in HEIs, it is important to clearly understand what SIM is by looking at some underlying principles. SIM is dedicated not only to the management of IS technology of an organisation, but even more dedicated to the managing of information for strategic intelligence (Boikanyo et al., 2016). To illustrate the application of SIM, examples of principles in both components of SIM have been identified by Myburgh (2004), Fleisher and Bensoussan (2007); Mortensen (2009), Du Toit (2016), Mthembu and Du Plessis (2018), and Galliers and Stein (2018a):

1. **IS Fit for Purpose**: To avoid the pitfalls of IT incongruence, impermanence, and insignificance, there must be a fit (best match) between system features and user needs.
2. **IS Metadata Management**: Quality of metadata determines quality of information for decision making.
3. **IS Protection of Personally Identifiable Information**: Although organisations strive to move away from siloed information by creating linkable information, measures to protect personal information must be operationalised per national regulation, for example, the Protection of Personal Information Act (Act 4 of 2013).
4. **IS Quality Information**: Also known as the "garbage in garbage out" adage in system theory, a system is only as good as its content; the quality of information determines the quality of decision making.
5. **IS Single View of Customer**: System integration determines efficiency of front-end system interface, as experienced by client facing support teams and client as end user.
6. **IS Systems Maturity Mapping**: Information Technology audit to identify information architecture gaps.
7. **SI Bridging boundaries**: Knowledge cafés or fishbowls to facilitate problem solving in a safe environment.
8. **SI Conflict of Interest in Strategic Intelligence Line of Duty**: Professional code of ethics in strategic and competitive analyses.

9. **SI Continuous Improvement**: Calibration of People-Process-Technology alignment to achieve total value proposition.
10. **SI Create Constancy of Purpose**: Identify strategic connections by performing social network analysis with strategic planning objective of replacing short-term goal creation with long-term goal planning.
11. **SI Drive out Fear**: Incorporation of core competencies in organisational processes need to be examined to avoid workforce apprehension.
12. **SI Eliminate Management by Objective**: Avoid strategy mis-execution by focusing on the integration of priorities and not assuming past goals are an accurate representation of current strategic direction.
13. **SI Environmental Scanning**: Examine and assess the different elements and components that can influence the performance of an organisation both internally and externally. This is through gathering information using SWOT analysis and other analysis techniques, for example, PESTLE and STEEP.
14. **SI Strategic Competitive Analysis**: The strategic gathering, reviews and analysis of information about direct and indirect competitors to understand their strategies, strengths and weaknesses compared to your strategy, for example, FAROUT.
15. **SI Total Quality Management**: The continuous efforts to create a culture that encourages employees to improve the delivery and production of products and services that customers deem valuable.
16. **SI Value Proposition**: To promise and deliver value from the products and services to the clients in the event they buy the product or use the service produced.

From the list above, the first group of six SIM principles relate to IS (technology and process), followed by ten SIM principles relating to SI (people, process, and technology). SIM is the combination of two components, IS and SI, that enable an organisation to develop and implement its business strategies or an information-based product as part of the strategy execution (Hussin, Othman & Jamaludin, 2015:679; Boikanyo et al., 2016; Galliers & Stein, 2018a). For example, maturity of a country's Income Revenue Service information architecture will affect the quality of service offered to citizens with dire consequences on public management and governance (technology and process). Another example, staff core competencies must be incorporated in organisational processes and through a process of negotiation included in the organisation's online performance management system prior to annual performance reviews to avoid workforce apprehension (people, process, and technology). The list of SIM principles is not comprehensive, but it serves as an illustration of the nature of SIM and its application in strategic management.

3. Methodology

This research utilised nominal ranking methodology with the aid of qualitative data research approach (Saunders, Lewis & Thornhill 2016:136-137). The methods were content analysis and Business Case Study (BCS) analysis. The data collection sources for this research were: Strategic Information Management Business Case Studies (SIM BCSs) and the IKM principles that can best support commercialisation. This paper briefly describes the data collection and data analysis techniques that were used. The researcher obtained access to the UJ Information and Knowledge Management database of Business Case Studies and conducted content analysis of the 107 SIM BCSs. The methodology consisted of four steps, with the Nominal Ranking Technique (NRT) at step 3, as represented in Figure 1. Content analysis was used to analyse the SIM BCSs and derive the most significant themes for identifying relevant SIM principles. The procedure began by defining the core facts and information from the amount of data gathered and expressed in a method to enhance meaning and insight.

Furthermore, permission was obtained from the UJ College of Business and Economics Research Ethics Committee (CBEREC) to conduct research in accordance with the UJ Code of Academic Research Ethics (2007). For example, the researcher had access to anonymised SIM BCSs and confidential information was removed from the IKM SIM BCS database by the database administrator prior to granting the researcher access to BCSs for content analysis. Given the research scope and delineation, the limitation of study must be noted: Commercialisation is a broad concept; this study focused on principles of relevance to IKM.

4. Results and Discussion

This study utilised 107 BCSs for content analysis and the objective was to identify SIM principles that would best support the innovation and commercialisation dynamics of entrepreneurial universities. The researcher received 107 BCSs from the UJ Information and Knowledge Management database that was stored by the researcher on a USB drive and the database was named *UJ IKM Department SIM BCSs Database*.

4.1 Content Analysis: SIM Business Case Studies

Content analysis was deemed to be the appropriate data analysis technique to analyse the rich text contained in the 107 BCSs. Figure 1 depicts the steps that were followed to analyse the data and the final identified SIM principles for innovation and commercialisation.

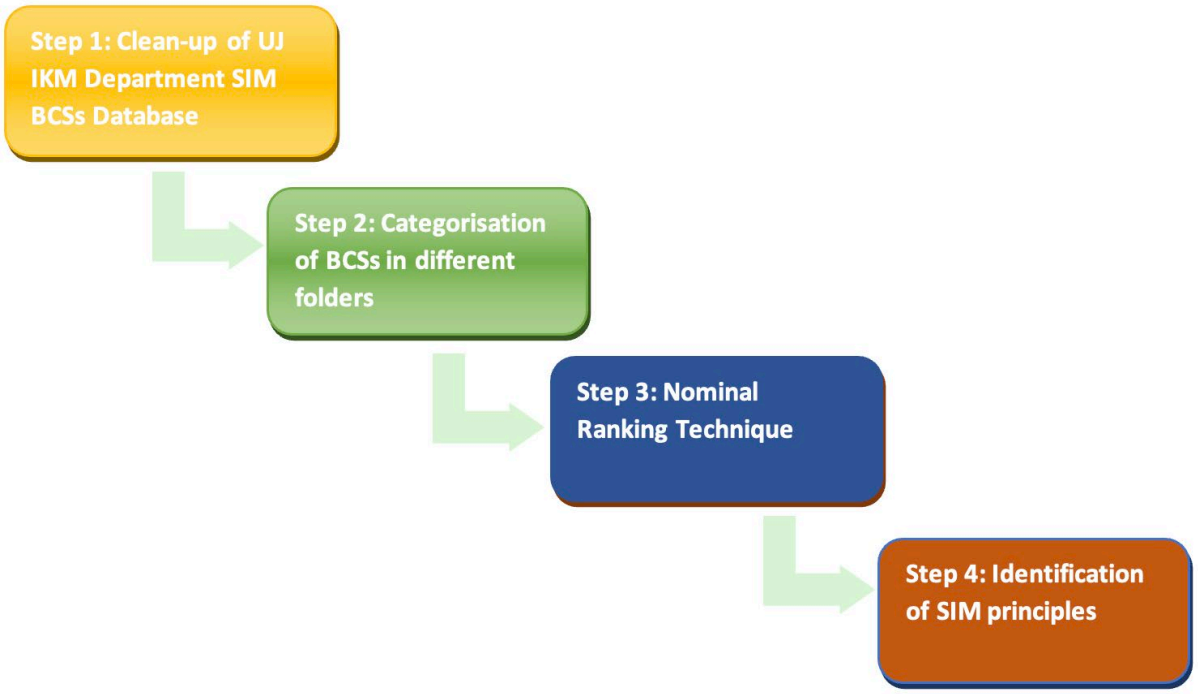


Figure 1: Content analysis steps for data collection and analysis (Own source)

Figure 1 illustrates the content analysis of a process followed to identify the 21 BCSs on SIM principles of relevance to the CoI within entrepreneurial universities. The SIM principles must be incorporated in university curriculum to enable students to commercialise their business ideas.

4.1.1 Step 1: Clean-up of University of Johannesburg Information and Knowledge Management Department Strategic Information Management Business Case Studies Database (107-16=91-46=21)

The first step entailed a clean-up that had to be completed, where out of the 107 BCSs a manual clean-up had to be conducted to assess the number of BCSs that had duplicates – of the 107 BCSs, 16 were duplicates and were colour coded in Yellow. A further clean-up was conducted to identify BCSs that did not focus on SIM principles and of the 91 remaining BCSs, 45 BSCs, colour coded in Green, were not focused on SIM principles and only 46 BCSs remained. This did not mean all the 46 BCSs clearly outlined SIM principles, which meant further analysis was required by means of careful dissection of the content for the identification of SIM principles. Table 1 illustrates the BCS clean-up process, subtracting 107-16=91-46=21. From the 46 BCSs a further analysis was conducted to assess the BCSs clearly outlined SIM principles. Four of the 46 BCSs colour coded in Red did not have SIM principles clearly outlined and only 42 BCSs colour coded in Blue had SIM principles. From the 42 BCSs only 21 BCSs, colour coded in Orange, had SIM principles that were relevant to the CoI.

Table 1: UJ IKM Department SIM BCSs Database Example

UJ IKM Department SIM BCSs Database

Number	File Name	Category
1	BCS_1	
2	BCS_2	
3	BCS_3	
4	BCS_4	
5	BCS_5	

First step of the content analysis of 107 BCSs:

- **Yellow:** Duplicates
- **Green:** Not focused on SIM
- **Red:** Not focused on SIM principles
- **Blue:** SIM principles in general
- **Orange:** SIM principles with relevance to the CoI

The clean-up of the *UJ IKM Department SIM BCSs Database* was followed by the categorisation step.

4.1.2 Step 2: Categorisation of Business Case Studies in Different Folders

The second step was categorisation; the BCSs were placed in their respective folders, from the BCSs that had duplicates, BCSs that did not focus on SIM principles, the BCSs that focused on SIM principles, BCSs that did not clearly outline SIM principles and the final folder with only 42 BSCs with SIM principles clearly outlined and further analysis had to be conducted to extrapolate SIM principles from within the 42 BCSs. From the 42 BCSs only 21 BCSs were relevant to the CoI. Categorisation differed from clean-up where the clean-up was aimed at organising and the correction of omission, whereas step 2 was aimed at organising, placing in folders, and the application of the correct file naming convention in preparation of the nominal ranking technique (NRT), in step 3.

4.1.3 Step 3: Nominal Ranking Technique

NRT was then used in this step to identify BCSs that met the four criteria for the element of SIM principles, which enabled the researcher to identify the BCSs that qualified as BCSs with CoI relevant SIM principles. Table 2 specifies the SIM criteria, and the ranking of 1 to 4 that was applied in the NRT for content analysis.

Table 2: Element of SIM principles

SIM Principles		
Criteria	Information is a key asset to the organisation	**1**
	Information is integrated in the overall strategy of the organisation	**2**
	Information is managed strategically in the organisation	**3**
	Information is crucial to the success of the organisation	**4**

Table 2 presents the **SIM principles** element in the NRT applied in this study and which includes the following SIM principles, namely: Information is a key asset to the organisation (Rank weight 1); Information is integrated in the overall strategy of the organisation (Rank weight 2); Information is managed strategically in the organisation (Rank weight 3); and, Information is crucial to the success of the organisation (Rank weight 4). The 42 BCSs qualified according to the SIM criteria and 42 SIM principles were extrapolated from the BCSs. From the 42 BCSs only 21 BCSs were relevant to the CoI.

4.1.4 Step 4: Identification of SIM Principles

In this step, content analysis was conducted on the 42 BCSs that contained SIM principles, and a further analysis was completed identifying only those 21 BCS containing SIM principles relevant to the CoI, as reported in detail in the below section.

4.2 Summary of Content Analysis

This section summarises the findings of the content analysis. The previous section reported on the NRT findings with the application of the CoI filter. This section presents the distilled findings. The SIM principles relevant to the CoI for entrepreneurial universities, include **Best learning experience**: This SIM principle gives encouragement to learn from experience. Efficient and effective achievement of outcomes depend on the capabilities of an institution's personnel. Therefore, room to learn from experience is required. **Business outputs alignment**: In the public sector the primary benefit of business process management is the increased

effectiveness and efficiency achieved from restructuring the organisation along cross-functional processes. Business outputs should be aligned with resources. **Complexity recognition and management**: The management of resources in the public sector can be a cumbersome exercise. The element of complex management of resources should be under serious scrutiny. **Adoption**: It would be more effective and efficient if the organisation can encourage the active participation of the entire staff in all projects. Information management systems become successful if they are used by all staff.

Visible and tangible benefits: Information management projects must be designed to deliver tangible and visible benefits for the organisation. The deliverance of tangible benefits for the organisation involves that fundamental business needs be satisfied. Information management of projects should target realistic and tangible organisational needs. **Prioritisation based on business needs**: The planning of information management projects requires thoughtful planning and time. Business primary needs should be able to determine the starting point of information management of the project. It is important that the planning process should start by driving projects based on their ability to address the primary business needs. In the public sector, the organisational strategy should drive the information management process to target the most urgent business needs. **Risk mitigation**: The public sector is characterised by an inherent complexity within different departments. The risks involved should be clearly outlined at the beginning of the planning of the information management strategy. Thereafter an approach to tackle each risk must be identified and decided upon on whether to mitigate or avoid the risk involved. A clear management approach should be used to plan all aspects of the project, including activities conducted and budget allocated.

Total Value Proposition: To have enough customer value proposition, there must be a focus on key elements and steps to be successful. These key elements are developing a customer value proposition that starts with an analysis of customers' needs, competitors' offerings, and the organisation's strength to be outstanding within the market. TVP is a subset of the TQM model, managed in incremental steps within innovation spectrum while co-creating new radical innovation value with customers. Total value management, when embedded in SIM and the entire value chain, constitutes the TVP of an institution, which includes knowledge management, innovation information, and analytics ensuring continuous business improvement. **Competitive advantage**: An informed learning curriculum cultivates information fluent and resilient students with the necessary skills to make decisions based on authoritative and quality information, thus improving their competitive advantage as individuals as well as their future employers. This means that an informed learning curriculum should contribute to creating a value proposition to all stakeholders. The curriculum must hone students' decision-making efficiency through leveraging authoritative and quality information. The curriculum must be designed towards a holistic learning experience through utilising information and creating knowledge.

Business model canvas: The BMC is a tool that is useful for analysing organisational value creating processes with the intention of developing a business model and creating future ones. The SIM principle, BMC, can help build in artefacts of the model with the intention of creating a practically implementable business model. **Envision, enable, and enact**: Institutions must envision and align their current client objectives with 4IR ideas. Management needs to be proactive in installing the right behaviour and involve visionary individuals. Institutions must ensure that all long-term ideas are solid within the business strategies. Road mapping is important to see the finer details and how possibly a project might turn out. Identification of internal and external factors is important to keep the momentum and to learn from what the institution can improve on. The institution must incorporate processes and goals of transforming strategies into concrete plans that will be implemented. During the enact stage preparation of transformation is initiated and proposed improvements enacted. **Actively participate in the phases of the commercialisation cycle**: Institutions must gather contextual intelligence to augment their business management and consulting experience. Individuals may need to master methodologies, for example, Six Sigma methodology. Individuals must participate in the phases of the commercialisation cycle, from conceptualisation to operationalisation of business ideas, which entails personal mastery, mental models, shared vision, team learning, and systems thinking.

The above summarised content analysis of BCSs of SIM principles generate the discussion and identification of those SIM principles of specific relevance to the CoI within entrepreneurial universities in the next section.

4.3 Strategic Information Management Principles Relevant to the CoI Within Entrepreneurial Universities

This study introduced various SIM principles that are applicable for innovation and commercialisation and the significance to the HEI; this is ensuring that a graduate has access to fundamental knowledge and information

systems that assist businesses in developing business strategies and ensuring that those strategies are well implemented or executed. These principles are closely linked to the process innovation and commercialisation, this is due to the fact for a business idea or innovation to be implemented, certain business principles need to be adhered to, to ensure that the business idea or innovation can be actualised into a viable business product with capital value. These SIM principles are significant in the CoI as they recognise information as a key asset to the organisation, hence these principles are important and should be incorporated within Higher Education curriculum. Organisations built on SIM principles regard information as being integrated within the organisation's strategy, to ensure that information is managed strategically for business sustainability, and to achieve competitive advantage through competitive intelligence and business intelligence tools and techniques, as described by the SIM BCSs. Therefore, these principles should be incorporated within entrepreneurial institution's curriculum to produce graduates who are not only employable but also entrepreneurial and able to develop their own businesses that are competitive and sustainable.

The three most relevant SIM principles for the commercialising of innovation within entrepreneurial universities include:

- **Business Model Canvas**, which is a tool that is useful for analysing organisational value creating processes with the intention of developing business models and creating future ones.
- **Total Value Proposition** is a subset of the new TQM model, managed in incremental steps within the innovation spectrum while co-creating new radical innovations' value with customers.
- **Future business competitive environment**, this principle focuses on strategic planning and implementation on how to analyse the competitive environment and is linked to project management.

5. Conclusion

It is significant to note that SIM principles, such as the Business Model Canvas and Total Value Proposition have the potential to contribute to converting ideas and innovation into commercial products and services. The insights from the BCSs analysis, findings provided significant data on both negative and positive factors that should be taken into consideration when developing business, and this is crucial to note in the curriculum for any entrepreneurial institution. Based on the findings of this study, it is recommended that BMC and TVP should be the main SIM principles used for the development of business ideas to ensure effective commercialisation of products and services, these principles should be incorporated within Higher Education curriculum in order not to only produce graduates that are employable but also entrepreneurial and able to create business; this will help aid the high employment rate. TVP allows a business idea to be truly tested to ensure that it is beneficial to the customers and the customers will be satisfied with the products and services developed. BMC ensures that whatever products and services are provided by a business deliver value to the customer. In conclusion it significant to note that the other identified principles are mostly related to the sustainability of a business once it has been commercialised but should be incorporated within Higher Education curriculum to ensure these graduates are not only able to create businesses but are able to sustain them.

Ethics Declaration

This research required ethical clearance and was obtained through the University of Johannesburg College of Business and Economics Research Ethics Committee (UJCBEREC).

AI Declaration

I want to declare that no AI tools were used for this research.

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Strategic Intelligence in Complex Environments for Complexity to Accuracy in Strategic Decision-Making

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Abstract: There is a growing need to use strategic intelligence (SI) to navigate from an environment that is volatile, uncertain, complex, and ambiguous, to an environment with strategic vision, understanding, clarity, and accuracy. The ability to clarify complex environments, enables organisations to reach accurate decision-making quicker and avoid elements of surprise. Artificial Intelligence (AI) can be part of the problem and the solution to decision-making fatigue. For example, AI agents can liberate time-poor analysts to focus on tasks where human value-add lies in human sense of reality, applying their expertise and tacit knowledge. The research objective is to identify SI clusters relevant to strategic decision-making in complex business environments. The research question is: what relevance does SI have in complex environments for accuracy in strategic decision-making? The PRISMA method for systematic literature reviews was utilised for this research paper, combined with Vosviewer co-occurrence mapping, which produced five clusters linked to SI to navigate complex environments. This paper describes a systematic review of secondary data to investigate SI in complex environments and presents the findings of SI clusters with its relevance to accurate interpretation of data and information for strategic decision-making. The paper highlights the role of SI coupled with the rapid development of tools such as generative AI (GenAI) and agentic AI used in complex environments for accurate interpretation. This research used Boolean search strings to gain access to relevant articles, 115 articles were retrieved with only ten articles meeting the criteria for analysis after the use of the PRISMA method and the application of eligibility criteria. The recommendation is that in complex environments strategic decision makers must combine their human analytical strengths with the strengths of artificial intelligence (AI) to accelerate the processing of large volumes of data, information, and knowledge. By combining SI and agentic AI, strategic decision makers turn complexity into opportunities for innovation and sustainable growth. In the agentic era, accurate decision-making requires a human in the loop.

Keywords: Strategic Intelligence; Artificial Intelligence; Human Intelligence, Agentic AI, Complex Environments.

1. Introduction and Problem Statement

The most basic definition of Strategic Intelligence (SI) is relevant actionable information in the hands of the right people at the right time to make the right decisions for the future success of an organisation. SI is required for mapping out the future of management science in the age of agentic artificial intelligence (AI). Agentic AI involves the autonomous actions of AI agents backed by a system of AI tools that perform tasks with minimal human intervention. Human Intelligence (HI) is the mental quality of human reasoning, problem-solving, decision-making, and augmented learning through experience to adapt to new situations, understand, process abstract concepts, and engage in complex cognitive acts through appreciative inquiry. HI is required to produce SI. The rationale of the study is the growing need to use SI to navigate from the “as is” volatile, uncertain, complex, and ambiguous (VUCA) environment to an environment with strategic vision, understanding, clarity, and accuracy, referred to as the “to be” VUCA environment. In the “as is” VUCA environment, strategic decision makers are faced by the challenge of insurmountable data and information in vast repositories in structured and unstructured format in complex environments (De Koker, 2025). The focus of this paper is the combination of HI and AI to navigate complex environments. The research objective is to identify SI clusters that have relevance to strategic decision-making in complex business environments.

The problem is that decision makers are suffering from decision-making fatigue and depletion linked to the rapid technological advances, which is not a new problem but a problem that has accelerated exponentially since the rise of AI and the quest for accurate interpretation of large language model outputs (Devanny, Dylan and Grossfeld, 2023; Manyika, Chui, Bughin, Dobbs, Bisson and Marrs, 2013).

2. Research Objectives

This paper covers one segment of a larger study which had three objectives: to conceptualise how GenAI is used in complex environments for strategic decision-making; identify SI principles and tools that apply in complex environments linked to AI ethics; and describe the SI approach to innovation commercialisation in complex

environments. For this paper, the objective is to identify SI clusters relevant to strategic decision-making in complex business environments. The research question is: what relevance does SI have in complex environments for accuracy in strategic decision-making?

3. Research Methodology

The research methodology to answer the research question combined the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) protocol and VOSviewer co-occurrence mapping. VOSviewer is a qualitative data analysis tool for the Visualisation of Similarities (VOS) to produce descriptive analysis and patterns based on the data downloaded from Scopus database. According to Azzam and Beckman (2024: 7), VOSviewer identifies the "number of clusters with similar research themes. The higher the number of clusters, the bigger the group of words that will appear collectively together. Within these clusters, researchers can determine the significant research themes."

Data collection was guided by category sheets with subject of category (SOC) keyword parameters and Boolean search identifiers: (GenAI in SI), (PTE in SI), (IC in SI), described in Table 1.

Table 1: Systematic review category sheets (own source developed for this study)

Boolean Search (GenAI in SI)	
Topic:	The use of GenAI in complex environments for strategic decision-making in strategic intelligence (SI).
Definition of underlying variable:	SI is a systematic and continuous process of producing needed intelligence of strategic value in an actionable form to facilitate long-term decision-making. Waghmare (2019), explains that SI in its most basic definition is about having relevant information in the hands of right people at the right time to make the right decisions for the future success of an organisation.
Subject of category:	• Strategic intelligence • Artificial intelligence • Generative AI (GenAI) • Large language model (LLM) • Decision-making • Complexity • The Cynefin framework • Human intelligence
Research question:	How is GenAI used in complex environments for strategic decision-making in SI?
Search string:	TITLE-ABS-KEY-AUTH ("strategic intelligence" AND ("artificial intelligence" OR AI OR "generative AI" OR "large language model*" OR LLM OR "human intelligence" OR "decision-making" OR complex* OR Cynefin OR "sense making"))
Sources:	SCOPUS: Access to registers, records, and reports is granted through the university institutional user licenses and articles published in these databases are from trusted sources. Grey literature will not be included.
Eligibility criteria:	• Full text articles • Final publication • English
Boolean Search (PTE in SI)	
Topic:	SI principles and tools in complex environments
Definition of underlying variable:	SI is defined as evidence-based meta-analyses dealing with information volume and complexity. SI is the accurate interpretation of data, information, and knowledge from a number of analyses of the same subject. SI is the convergence of intelligence reports from information management (IM), knowledge management (KM), business intelligence (BI), competitive intelligence (CI), open-source intelligence (OSINT), social media intelligence (SOCINT), and other ethically sourced intelligence. SI is strategically significant actionable information from the internal and external environments. Actionable information is immediately available, bottom-line, up-front first and fast consumable information to support strategic decision-making, implement, and execute business strategy in complex environments (Xu and Kaye, 2010). SI is crucial in volatile, uncertain, complex, and ambiguous environments, defined as the VUCA phenomenon (Azzam and Beckmann, 2024).
Subject of category:	• Strategic information management principles • Complexity

	• Design thinking • Knowledge systems • Systems thinking • Intelligent systems • Artificial intelligence (AI) • AI ethics
Research question:	What SI principles and tools apply in complex environments linked to AI ethics?
Search string:	TITLE-ABS-KEY-AUTH("strategic intelligence" AND (principle* OR tool* OR "design thinking" OR "knowledge system*" OR "intelligent system*" OR "artificial intelligence" OR AI OR "AI ethics")
Sources:	SCOPUS: Access to registers, records, and reports is granted through the university institutional user licenses and articles published in these databases are from trusted sources. Grey literature will not be included.
Eligibility criteria:	• Articles full text • Final publication • English language
Boolean Search, (IC in SI)	
Topic:	SI approach to commercialisation of innovation
Definition of underlying variable:	According to Popa, Preda and Boldea (2010), innovation is the capability to determine new ways of doing things, new perspectives and to combine existing concepts, to create new products. On the other hand, Arnaut, 2019, Rooke, 2017, and Bansi, 2016, define innovation as the creation of improved processes and procedures to add value to an organisation. Commercialisation can be defined as the process of presenting a product or service to the market to gain profit (Alsani, Eftekhari, Hamidi and Nabavi, 2015: 132). Commercialisation can be referred to as the activities and procedures that are needed to introduce new innovative ideas into the market (Datta, Reed and Jessup, 2013: 149). SI is the process of collecting, analysing, and applying strategic insights to business decisions. It uses internal and external data to formulate, inform, execute, and evaluate strategic decisions and their implementation. SI is the process of gathering data, analysing it, and disseminating relevant data for strategic decision-making.
Subject of category:	• Strategic information management principles • Complexity • Innovation • Commercialisation • Entrepreneurial institutions • Entrepreneurial education
Research question:	How do SI approaches apply in complex environments of commercialisable innovation?
Search string:	("strategic intelligence" AND (innovat* OR commerc* OR "commercialisation dynamics" OR "commercialization dynamics" OR "information entrepreneurship" OR "entrepreneurial education" OR "entrepreneurial institution*"))
Sources:	SCOPUS: Access to registers, records, and reports is granted through the university institutional user licenses and articles published in these databases are from trusted sources. Grey literature will not be included.
Eligibility criteria:	• Articles full text • Final publication • English language

Data analysis was divided in two steps; firstly, apply the PRISMA protocol for meta-analyses for systematic review. Secondly, VOSviewer co-occurrence mapping and data visualisation of text into clusters. The steps of the analysis were: 1) Choose type of data – create a map based on text data, 2) Choose data source – read data from bibliographic database files, 3) Choose type of analysis and counting method – type of analysis, co-occurrence; 4) Choose fields from which terms will be extracted – title, abstract, keywords, 5) Choose counting method – full counting with default threshold of minimum four occurrences of a term, selecting 60% of the most relevant terms. With these parameters set, Figure 1 illustrates the VOSviewer network visualisation settings for this study.



Figure 1: The Vosviewer network visualisation settings (own source developed for this study)

The university's code of practice and ethics policy guided the process of identifying SI clusters. The approach was abductive, drawing on the theoretical overview of SI and decision-making

4. Theoretical Overview

Strategic intelligence is an established concept for describing and investigating characteristics such as strategic thinking, future-oriented analyses, technology-based organisation, strategic decision-making, and accurate interpretation (Watkins, 2024; Pellissier and Kruger, 2011; Cagnin, Keenan, Johnston, Scapolo and Barre, 2008). Recent studies report various tasks AI can perform for SI analysts, such as information management (IM), knowledge management (KM), business intelligence (BI), competitive intelligence (CI), open-source intelligence (OSINT), social media intelligence (SOCINT), and territorial intelligence, (Azzam and Beckmann, 2024; Devanny *et al*., 2023; Fournie, 2023; Dou, Clerc and Juillet, 2020). For example, Devanny *et al*., (2023: 20), describe the "prudent approach is for intelligence assessment organisations to use AI to empower human analysts by creating more time and space for them to employ their indispensable tacit knowledge and 'sense of reality'". Business leaders describe one of SI's functions as conducting research through a combination of human intelligence, sense-making, and technology to produce catalytic strategic thinking, (Watkins, 2024; Pellissier and Kruger, 2011; Johnston, 2003), for example:

- Human intelligence: applying the mental quality humans have, attributing to the ability to learn from experiences, adapt to new situations, understand, and handle abstract concepts, and engage in complex cognitive acts. It can also be defined as a general mental ability for reasoning, problem-solving, decision-making, and learning, (Sternberg, 2023; Klug, 2022).
- Sense-making: applying the Cynefin framework, that was developed to help business leaders understand their challenges and to make decisions in context. The Cynefin framework distinguishes different domains such as the clear, chaotic, complicated, and complex subsystems in which we operate, to help business leaders cultivate an awareness of what is really complex and what is not and respond accordingly so that energy is not wasted in strategic analysis, (The Cynefin Company and The Cynefin Centre, 2024).
- GenAI: applying AI to produce various types of content, including text, imagery, audio, and synthetic data, for example, ChatGPT, Gemini, Perplexity, (TechTarget, 2024).
- Large language models: applying AI algorithms that use deep learning techniques and massively large data sets to understand, summarise, generate, and predict new content (TechTarget, 2024).
- Agentic intelligence: applying AI systems that perform tasks and make decisions without much need for human input. Agentic AI selects sophisticated tools and applies advanced autonomous reasoning to solve complex tasks by initiating, implementing, and executing multiple steps through iterative planning, with little to no human intervention (Visvanathan, 2025; Purdy, 2024).

SI is the accurate interpretation of data, information, and knowledge from a number of analyses of the same subject. SI is actionable information that is immediately available, bottom-line, up-front first and fast consumable information to support strategic decision-making, implement, and execute business strategy in complex environments (Leeb, 2017; Xu and Kaye, 2010). SI is crucial in volatile, uncertain, complex, and ambiguous environments, defined as the VUCA phenomenon (Azzam & Beckmann, 2024).

5. Findings

The findings from the flowchart application of the PRISMA protocol identified 115 records for inclusion from the Scopus database. The screening of records reduced the number of eligible reports to 45 data sources. Five reports were excluded based on the eligibility criteria listed in Table 1. Figure 2 illustrates this study's application of the updated PRISMA guidelines, as outlined by Page *et al*., (2021).

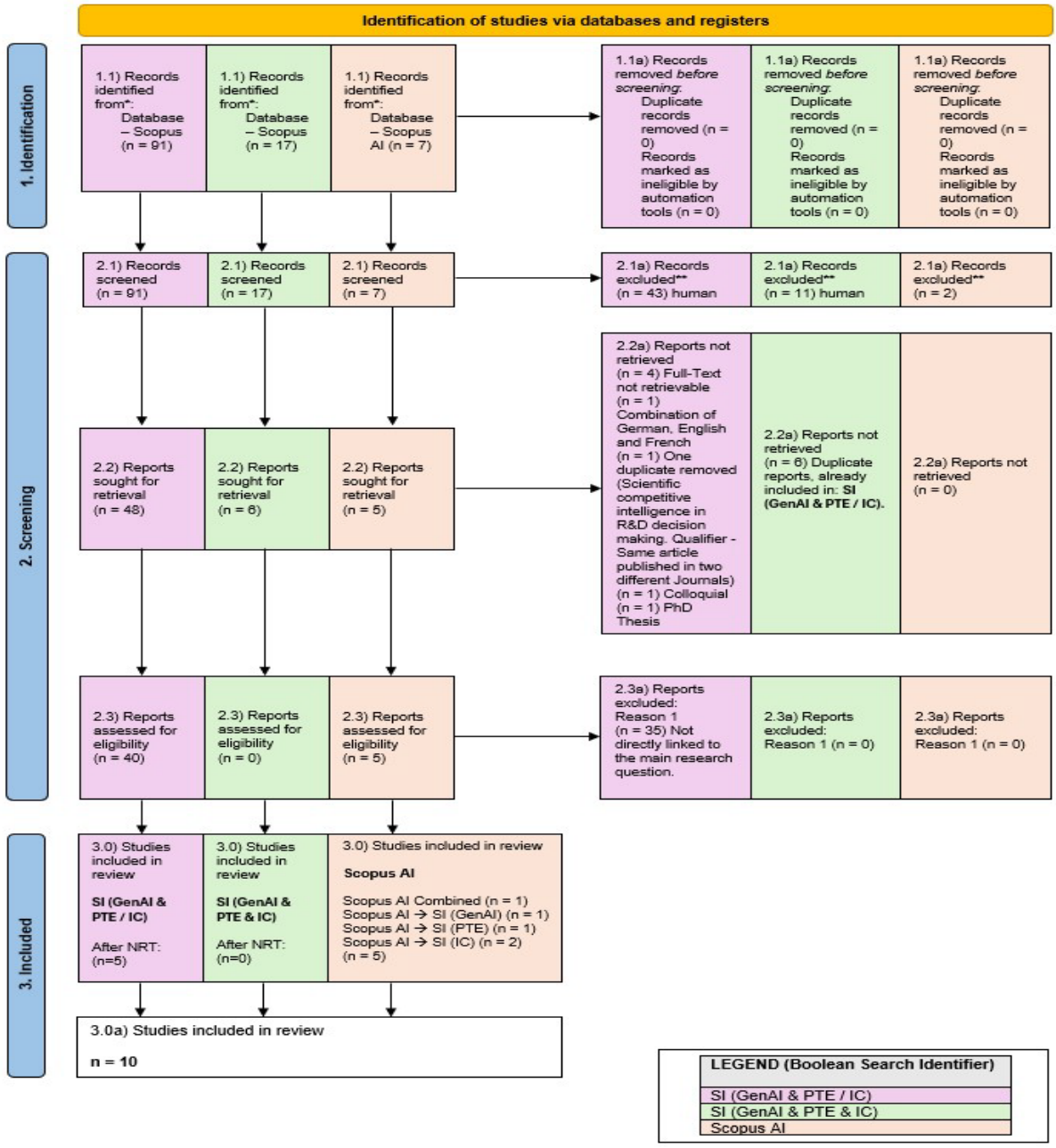


Figure 2: Prisma flowchart (own source developed for this study)

Forty studies were included in the VOSviewer co-occurrence mapping and data visualisation of text into clusters. Five SI clusters were identified: Cluster 1: artificial intelligence; Cluster 2: behavioural research; Cluster 3: decision-making; Cluster 4: business intelligence; and Cluster 5: territorial development, illustrated in Figure 3.

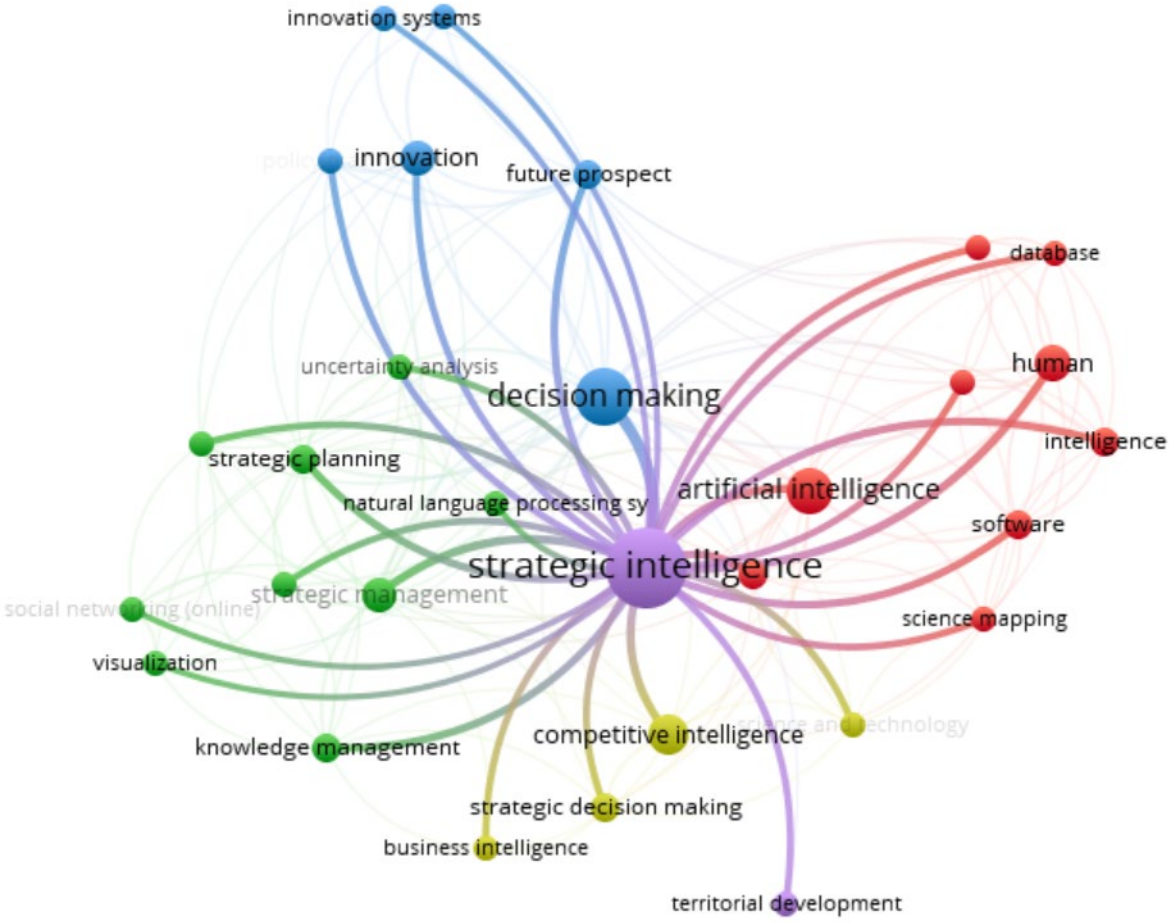


Figure 3: Strategic Intelligence clusters (own source developed for this study)

The five SI clusters are:

- Cluster 1: artificial intelligence linked to clinical decision-making, data mining, database, human, intelligence, network analysis, science mapping, software.
- Cluster 2: behavioural research linked to knowledge management, management science, social networking (online), strategic management, strategic planning, uncertainty analysis, visualisation.
- Cluster 3: decision-making linked to future prospect, innovation, innovation systems, policy making, technological forecasting.
- Cluster 4: business intelligence linked to competitive intelligence, science and technology, strategic decision-making.
- Cluster 5: territorial development.

Each cluster is linked to SI and co-occurs with strategic decision-making at varying weight levels as illustrated in Figure 1, top right corner. Nodes in the network map can be expanded to illustrate the existing connections linked to hidden co-occurrences, for example, Cluster 1: artificial intelligence is linked to strategic management, illustrated in Figure 4.

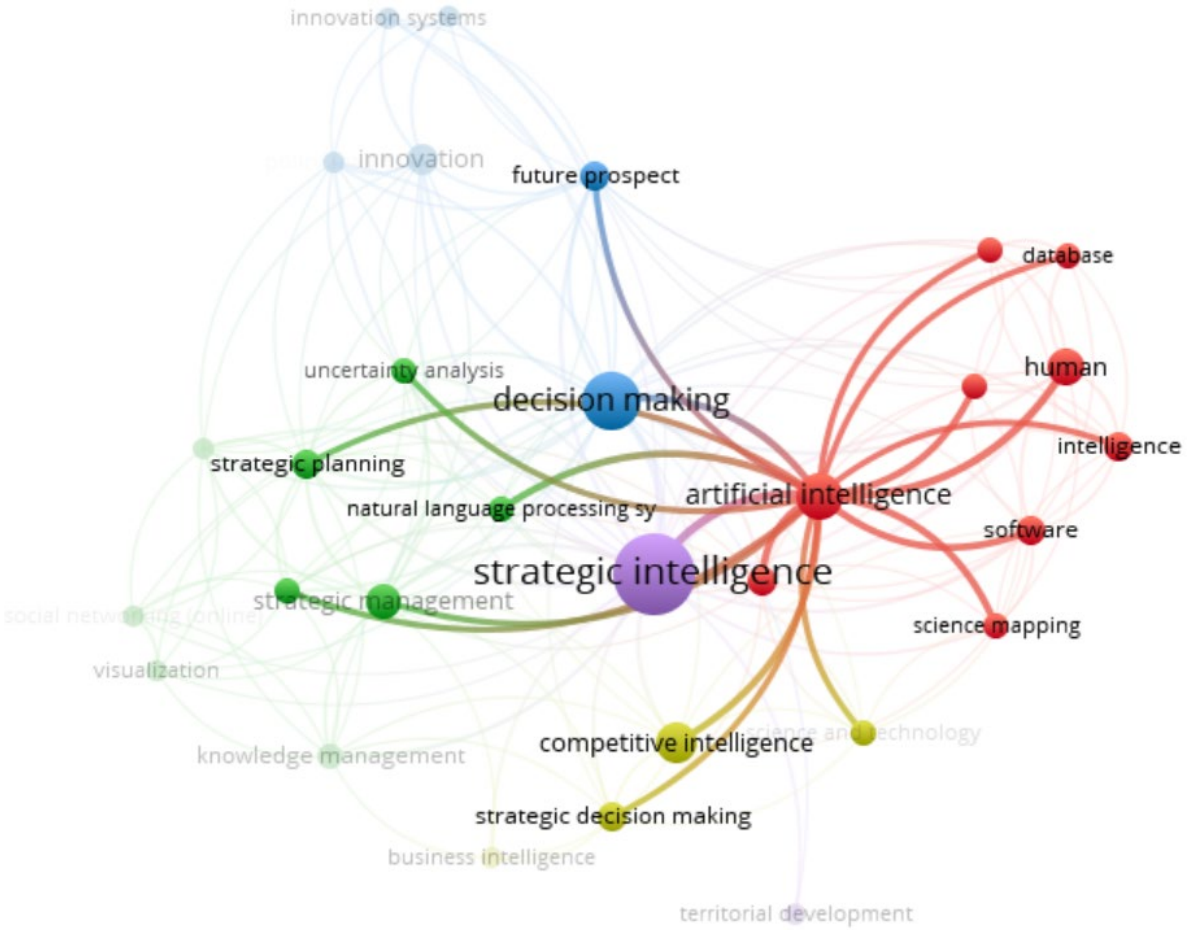


Figure 4: Cluster 1 Artificial Intelligence (own source developed for this study)
A discussion follows on how these concepts intersect and their relevance to strategic decision-making.

6. Discussion and Practical Implications on Strategic Decision-Making

The intersection of SI and Cluster 1: artificial intelligence linked to clinical decision-making, data mining, database, human, intelligence, network analysis, science mapping, and software, has relevance to strategic decision-making by analysing large datasets to provide evidence-based recommendations to strategic decision makers. For example, data mining techniques are applied to large healthcare databases to uncover patterns and insights to inform decisions of healthcare professionals. SI equips proactive medical practitioners to give personalised care to patients. Proactive medical practitioners using Agentic AI can search for relationships in information flows to accurately implement the most impactful treatments. The intersection of SI and Cluster 2: behavioural research linked to knowledge management, management science, social networking (online), strategic management, strategic planning, uncertainty analysis, and visualisation, has relevance to strategic decision-making by equipping managers with tools to mitigate cognitive biases. For example, virtual LLMs allow decision makers to access and utilise relevant company databases and collective insights trained on analytical methods to solve business problems.

The intersection of SI and Cluster 3: decision-making linked to future prospect, innovation, innovation systems, policy making, and technological forecasting has relevance to strategic decision-making by focussing the attention of organisations on anticipating change. SI helps organisations to prepare according to their need to embrace emerging technologies, sustain healthy competition among organisations, and foster innovation. For example, forecasting how agentic AI skills of a company's workforce will contribute to the successful implementation of renewable energy technologies contributes to the company's strategic thrust as the leaders in clean energy adoption. The intersection of SI and Cluster 4: business intelligence linked to competitive intelligence, and science and technology has relevance to strategic decision-making by combining internal

performance data with external market intelligence to make well-informed decisions. For example, an organisation can optimise their product portfolio with the use of agentic AI to simultaneously analyse sales data within the organisation's vertical LLM, comparing it with competitor pricing strategies, and monitoring potential impacts of emerging technologies, thereby enabling strategic decision makers to adjust their pricing models.

Lastly, Cluster 5 sheds light on how SI and territorial development intersect, and the relevance to strategic decision-making. For example, a specific city might use SI to identify key industries for investment, thereby fostering economic growth and job creation. Where territorial intelligence focuses on managing, and extrapolating the complexities of a specific geographic area, SI analysts will analyse political, environmental, social, technological, economic, and regulatory data to alert policymakers to course correct spending in alignment with local needs. By leveraging data on transportation patterns, economic trends, and population growth, strategic decision makers can develop plans that enhance the residents' quality of life. Also, SI can drive innovation in territories where small, medium and micro sized enterprises abound where strategic decision makers can focus the development of agentic AI skills to increase the sustainability of SMMEs.

7. Recommendation and Conclusion

The combination of SI and agentic AI has the potential to create a future where exploration into complexity brings forth opportunities for innovation and sustainable growth. The key to strategic decision making is accurate interpretation of SI. In the era of AI transformation, SI is a core human competency that is foundational to strategic decision-making, developing business solutions, and fostering commercialisation of innovation. To move from the "as is" VUCA environment to the "to be" VUCA environment, GenAI combined with SI principles, tools and ethics, combined with an understanding of the dynamics of innovation and commercialisation, will facilitate the rapid understanding of complexity. By leveraging AI, accurate strategic decision-making is made possible within the parameters of the "to be" VUCA environment. What this means is that the collaboration between Human Intelligence and AI paves the way for accurate interpretation of data and information in complex environments. The combination of SI and agentic AI has the potential to create a future where exploration into complexity brings forth opportunities for innovation and sustainable growth in territories previously underserved by SI analysts.

Ethics Declaration

This research required ethical clearance and was obtained through the University of Johannesburg's College of Business and Economics Research Ethics Committee (UJCBEREC).

AI Declaration

I declare that a portion of the data collected was a brained through Scopus AI search. Other than that, no AI tools were used for this research.

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Challenges of Conducting Case Study Research in the Logistics Sector

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Abstract: Case study research has become an increasingly important methodological approach for examining complex and context-dependent phenomena within logistics and supply chain environments. However, the structural characteristics of logistics systems, including commercial sensitivity, multi-actor governance structures, digital interdependence and disruption-prone operating conditions, create distinctive methodological challenges for qualitative researchers. This paper examines the principal challenges associated with conducting case study research within logistics organisations and explores how these conditions shape research design, data collection and methodological rigor. The paper identifies three interrelated methodological challenges: access and gatekeeping, data fragmentation and multi-level complexity, and sector-specific disruptions affecting the research setting. The analysis demonstrates how commercially sensitive operational environments may restrict organisational access, how fragmented and interdependent logistics systems complicate data triangulation and case boundary definition, and how operational disruptions may affect longitudinal consistency during fieldwork. In response, the paper proposes adaptive and context-sensitive research design strategies to strengthen qualitative case study research within logistics environments. These include phased access negotiation, embedded and multi-level case study designs, multi-stakeholder sampling, reflexive documentation practices and structured triangulation frameworks. The paper further argues that logistics should be understood not merely as an empirical setting, but also as a distinctive methodological context that shapes the feasibility, design and rigor of qualitative case study research. By linking logistics-specific operating conditions to broader methodological debates concerning qualitative rigor and adaptive research design, the study contributes to methodological scholarship within logistics and supply chain research while offering practical guidance for researchers undertaking case study research in complex and operationally intensive environments.

Keywords: Case Study Research; Logistics Sector; Qualitative Research Methodology; Research Rigor; Supply Chain Management; Supply Chain Disruptions

1. Introduction

Understanding how logistics systems operate, adapt and respond to disruption has become an increasingly important challenge for researchers in supply chain management. Contemporary logistics networks are characterised by multi-actor governance structures, digitally mediated coordination and high levels of operational interdependence across geographically dispersed actors. These characteristics make logistics environments inherently complex and difficult to examine using traditional research approaches based primarily on aggregated datasets or simplified modelling assumptions (Dubey et al., 2020; Ivanov, 2023; Wieland, 2021).

Consequently, case study research has become an increasingly valuable methodological approach within logistics and supply chain scholarship because it enables researchers to investigate organisational processes and interdependent operational dynamics within their real-world contexts. However, despite its methodological suitability, conducting case study research in logistics environments presents distinctive challenges associated with commercial sensitivity, fragmented data structures, multi-level organisational relationships and operational disruptions (Barratt et al., 2011; Ivanov and Dolgui, 2020).

Although qualitative case study methods are increasingly used within logistics and supply chain research, limited scholarship has systematically examined how the structural characteristics of logistics systems shape methodological design and research rigor. Logistics environments operate within commercially sensitive, digitally mediated and disruption-prone supply networks that may complicate organisational access, data triangulation, case boundary definition and longitudinal consistency. This paper therefore argues that logistics should be understood not merely as an empirical setting, but also as a distinctive methodological context requiring adaptive and context-sensitive case study research designs.

Accordingly, this paper addresses the following research question: What methodological and practical barriers arise when conducting case study research in logistics organisations, and how can researchers respond to these challenges? In response, the study identifies three interrelated methodological challenges: access and gatekeeping, data fragmentation and multi-level complexity, and sector-specific disruptions affecting the research setting. The paper further proposes adaptive research design strategies, including phased access

negotiation, embedded case designs, multi-level stakeholder sampling and structured triangulation frameworks, to strengthen methodological rigor in logistics case study research.

The remainder of the paper examines logistics as a distinctive methodological context, analyses the principal challenges associated with conducting case study research in logistics organisations, and proposes methodological strategies for strengthening research rigor in complex and disruption-prone logistics environments.

2. Logistics as a Distinct Methodological Context

Logistics organisations operate within multi-actor, digitally mediated and disruption-prone supply networks that create a distinctive methodological environment for case study research. Unlike more stable organisational settings, logistics systems involve interconnected actors such as shippers, third-party logistics providers (3PLs), fourth-party logistics providers (4PLs), infrastructure operators, technology platforms and regulators operating across multiple geographic locations and organisational tiers. As logistics operations increasingly depend on outsourcing, inter-organisational coordination and platform-based ecosystems, organisational processes and decision-making responsibilities are frequently distributed across multiple actors rather than concentrated within a single organisation (Mvubu and Naude, 2024).

At the same time, logistics systems are undergoing rapid digital transformation through the adoption of technologies such as real-time tracking systems, warehouse automation, predictive analytics and artificial intelligence-enabled operational platforms. While these technologies improve supply chain visibility and responsiveness, they also increase organisational dependence on proprietary digital infrastructures and commercially sensitive operational data (Ivanov, 2023; Samuels, 2025). Consequently, researchers may encounter restricted access to operational systems, fragmented data structures and confidentiality constraints when conducting case study research within logistics environments.

The increasing platformisation of logistics operations also creates additional methodological complexity for case study researchers. Digital logistics platforms frequently coordinate interactions between multiple supply chain actors while simultaneously controlling access to operational information, communication flows and performance visibility. As a result, observational access is often mediated through platform governance structures rather than direct organisational interaction. Researchers may therefore encounter difficulties in tracing decision-making processes, verifying operational data across organisational tiers and establishing clear case boundaries where multiple actors interact through shared digital infrastructures. These conditions may further complicate triangulation because operational visibility is frequently unevenly distributed across actors within digitally integrated supply networks.

Logistics environments are also characterised by high levels of operational disruption intensity. Disruptions such as infrastructure failures, port congestion, regulatory changes, geopolitical instability and sudden demand fluctuations frequently require organisations to reconfigure operational processes and supply network relationships (Dolgui and Ivanov, 2021; Ivanov and Dolgui, 2020; Moreno-Baca et al., 2025). Because such disruptions may alter organisational structures, operational routines and stakeholder priorities during fieldwork, they create methodological challenges relating to case boundary definition, participant accessibility and longitudinal consistency.

In addition, logistics operations are geographically dispersed and highly interdependent across supply chain tiers. Activities such as procurement, transportation, warehousing and last-mile distribution often occur across multiple operational sites and organisational boundaries. As a result, researchers may struggle to capture the full operational context through single-site or single-function case designs, increasing the risk of partial or siloed perspectives. Inter-organisational interdependence may also complicate the delimitation of the empirical case itself because operational processes, information flows and decision authority frequently extend beyond the boundaries of a single organisation. Consequently, logistics case studies may require researchers to engage with multiple organisational actors simultaneously in order to capture the broader operational dynamics shaping the phenomenon under investigation.

Taken together, these characteristics demonstrate that logistics represents more than a conventional empirical setting. Rather, the sector constitutes a structurally distinctive methodological context in which commercial sensitivity, multi-level governance structures, digital interdependence and operational disruptions shape the feasibility, design and rigor of case study research.

Table 2.1 summarises the principal structural characteristics of logistics environments and their methodological implications for case study research.

Table 1: Methodological Implications of Logistics Characteristics for Case Study Research

Logistics Characteristic	Description Within Logistics Environments	Methodological Implication for Case Study Research
Commercial sensitivity	Logistics firms operate within highly competitive environments where operational data, customer information and performance metrics are strategically sensitive.	Restricted access to operational data, documents and participants may complicate data collection and construct validity.
Multi-actor governance structures	Logistics systems involve interconnected actors such as shippers, 3PLs, 4PLs, infrastructure providers and regulators.	Single-site case designs may be insufficient, creating the need for embedded and multi-level case study designs.
Digital interdependence	Logistics operations increasingly rely on digital platforms, automation systems and real-time data infrastructures.	Researchers may encounter fragmented or restricted access to proprietary operational systems and digital data.
Operational disruption intensity	Logistics environments are frequently affected by disruptions such as port congestion, transport strikes and infrastructure failures.	Case boundaries and organisational processes may shift during fieldwork, creating risks to internal consistency and longitudinal analysis.
Geographic dispersion	Logistics activities frequently occur across multiple operational sites and geographic regions.	Researchers may struggle to observe the full operational context, increasing reliance on partial or site-specific perspectives.
Inter-organisational coordination	Operational activities and decision-making processes are distributed across multiple organisational tiers within supply networks.	Researchers may require cross-tier stakeholder sampling and structured triangulation to capture interdependent organisational dynamics adequately.

3. Case Study Research

Case study research is adopted in this paper as the primary methodological approach for examining complex organisational phenomena within their real-world contexts. The approach involves the in-depth investigation of a bounded system, such as an organisation, process or network, to understand how particular phenomena unfold within natural settings (Gustafsson, 2024; Ratnasari and Sudradjat, 2023; Simmons, 2017). Case study research is particularly appropriate when the boundaries between a phenomenon and its context are not clearly defined and when researchers seek to capture the complexity of organisational interactions and processes (Flyvbjerg, 2001; Creswell and Poth, 2018). Through the use of multiple sources of evidence, including interviews, observations and organisational documents, case study research enables the development of rich and contextualised analysis (Creswell and Poth, 2018; Taylor and Thomas-Gregory, 2015).

Within logistics and supply chain environments, case study research is especially valuable because many operational processes occur across interconnected organisational actors and evolve under dynamic operational conditions. Logistics systems are characterised by distributed decision-making, interdependent relationships and rapidly changing operational contexts, making them difficult to examine using approaches that isolate variables from their broader organisational setting. Consequently, the contextual sensitivity and flexibility of case study research make it well suited to investigating coordination mechanisms, organisational responses and interdependent operational processes within logistics systems (Yin, 2018).

Case study research also supports the use of triangulation by allowing researchers to combine multiple forms of evidence to strengthen analytical depth and credibility. This is particularly important within logistics environments where operational processes frequently span multiple organisational units and supply chain tiers. By incorporating perspectives from different organisational actors and data sources, researchers may develop a

more comprehensive understanding of complex logistics phenomena and their surrounding contextual conditions.

However, despite these methodological strengths, the structural characteristics of logistics environments may also complicate the design and implementation of case study research. The following section therefore examines the principal methodological challenges associated with conducting case study research within logistics organisations.

4. Challenges in Conducting Case Study Research in Logistics

Building on the structural characteristics outlined in Section 2, this section examines the principal methodological challenges associated with conducting case study research in logistics organisations. These challenges relate primarily to organisational access, fragmented data structures and the instability of research settings within disruption-prone logistics environments. Accordingly, the discussion focuses on three interrelated challenges: access and gatekeeping, data fragmentation and multi-level complexity, and sector-specific disruptions affecting the research setting.

4.1 Access and Gatekeeping

Access is widely recognised as a critical determinant of case study feasibility and research rigor (Yin, 2018). Within logistics environments, however, access negotiation is often complicated by the commercially sensitive nature of operational data and the strategic importance of logistics performance information.

Researchers may encounter restricted access to operational metrics, customer information, routing systems and performance reports because such information is frequently treated as commercially confidential. In multi-organisational logistics environments, particularly those involving third-party logistics providers and outsourced supply chain arrangements, firms may be reluctant to disclose operational processes or permit prolonged researcher observation.

Gatekeeping also occurs across multiple organisational levels. While senior management approval may provide formal organisational access, middle managers and operational personnel frequently control day-to-day operational knowledge and participation in interviews or site observations. Consequently, researchers may encounter selective information sharing, restricted participant access or uneven representation of organisational perspectives. These conditions create risks of partial evidence and elite bias within case narratives.

Access challenges may intensify during periods of operational disruption, when managerial attention shifts toward maintaining service continuity and stabilising supply operations. Under such conditions, research participation may become a secondary organisational priority, resulting in postponed interviews, reduced site access and interruptions to data collection activities.

Accordingly, access within logistics case study research should be understood not as a single procedural step, but as an ongoing relational process requiring trust-building, confidentiality safeguards and adaptive engagement throughout the research project.

4.2 Data Fragmentation and Multi-Level Complexity

A second methodological challenge arises from the fragmented and multi-level structure of logistics systems. Operational activities such as procurement, transportation, warehousing and distribution are frequently dispersed across multiple organisational units, supply chain tiers and geographic locations. As a result, researchers may struggle to obtain a comprehensive view of operational processes and inter-organisational relationships.

Data fragmentation is further reinforced by siloed reporting structures and distributed decision-making authority. Different organisational units often maintain separate operational systems, performance metrics and reporting processes, limiting cross-functional visibility. Consequently, researchers relying on single-site or single-function data may capture only partial representations of broader logistics processes.

In outsourced and interdependent supply chain environments, decision-making responsibilities may also be distributed across multiple actors, including logistics providers, suppliers, infrastructure operators and customers. These actors may hold divergent interpretations of operational events, coordination processes and

performance outcomes. Such conditions complicate data triangulation and increase the risk of inconsistent or incomplete case evidence.

These challenges have important implications for case study rigor (Riege, 2003). Fragmented data structures may weaken construct validity by limiting the completeness of operational representations, while inconsistent stakeholder perspectives may complicate internal validity and the interpretation of causal relationships within logistics systems.

4.3 Sector-Specific Disruptions Affecting the Research Setting

A further challenge concerns the disruption-prone nature of logistics environments. Logistics organisations frequently operate under conditions characterised by infrastructure constraints, regulatory changes, transport disruptions, technological transitions and fluctuating demand conditions. Such disruptions may alter operational processes and organisational priorities during the course of fieldwork.

For case study researchers, these changing conditions can create difficulties in maintaining stable case boundaries and consistent longitudinal analysis. Organisational structures, operational routines and supply chain relationships may shift during data collection, resulting in variations between the conditions observed at different stages of the study. Consequently, researchers may encounter challenges in maintaining internal consistency and interpreting organisational processes across time.

Disruptions may also reduce participant accessibility. During periods of operational instability, logistics personnel often prioritise service continuity and operational recovery over research participation. Interviews may be postponed, observational access restricted and document sharing delayed, leading to interruptions in the continuity of data collection.

In addition, rapid operational adjustments may blur the boundaries of the empirical case itself. Changes in routing arrangements, outsourcing relationships or operational configurations may alter the scope of the organisational processes initially selected for investigation. These shifting boundaries create analytical challenges regarding case definition and coherence.

Taken together, these conditions demonstrate how operational disruptions may affect multiple dimensions of methodological rigor, including consistency, reliability and longitudinal interpretation within logistics case study research.

Table 4.1 summarises the relationship between logistics sector characteristics, the methodological challenges they create and the associated risks to case study rigor.

Table 2: Logistics Sector Characteristics, Methodological Challenges and Risks to Research Rigor

Logistics Sector Characteristic	Methodological Challenge	Risk to Case Study Rigor
Commercial sensitivity and proprietary operational data	Access and gatekeeping	Restricted access to participants, operational documents and sensitive data
Multi-actor and multi-level supply networks	Data fragmentation and siloed organisational perspectives	Weak triangulation and incomplete construct representation
Digitally mediated logistics systems	Restricted access to platform and operational system data	Partial visibility of operational processes and information flows
High operational disruption intensity	Changing case boundaries during fieldwork	Reduced internal consistency and temporal instability
Geographic dispersion of logistics operations	Difficulty observing the full operational context	Over-reliance on single-site or single-function perspectives

Logistics Sector Characteristic	Methodological Challenge	Risk to Case Study Rigor
Inter-organisational coordination across supply networks	Divergent stakeholder perspectives and distributed authority	Conflicting interpretations of operational processes

5. Responses to Methodological Challenges

The methodological challenges identified in the previous section require flexible and context-sensitive research design strategies. Because logistics environments are characterised by commercial sensitivity, fragmented operational structures and disruption-prone conditions, researchers must adopt adaptive approaches that strengthen organisational access, data triangulation and methodological consistency.

5.1 Managing Access and Gatekeeping

Researchers should approach organisational access as an ongoing relational process rather than a single procedural step. A phased access strategy may be particularly effective, where initial engagement begins with exploratory interviews or limited site access before progressing to more sensitive operational data. This approach can help establish trust and organisational credibility over time (Barratt et al., 2011; Yin, 2018).

Executive sponsorship may further strengthen access negotiations by legitimising the research project within the organisation and encouraging participation among operational personnel. In commercially sensitive environments, confidentiality agreements and clear communication regarding data protection procedures are also important for reducing organisational concerns regarding reputational or competitive risks.

Because gatekeeping may occur at multiple organisational levels, researchers should engage participants across managerial and operational functions to minimise selective information sharing and uneven representation of organisational perspectives.

5.2 Addressing Data Fragmentation Through Multi-Level Research Design

To address fragmented and distributed logistics systems, researchers should consider embedded and multi-level case study designs capable of capturing interactions across organisational units and supply chain tiers. Embedded designs allow researchers to examine sub-units such as warehouses, transport divisions or logistics partnerships while preserving the coherence of the broader case.

Multi-level stakeholder sampling may further strengthen the completeness and credibility of case evidence. Collecting data from participants occupying different organisational roles and supply chain positions can reduce the risk of siloed perspectives and improve understanding of interdependent operational processes.

Researchers should also employ structured triangulation strategies by combining interviews, organisational documents, operational reports and observational evidence. Such triangulation strengthens construct validity and reduces reliance on single-source data within fragmented logistics environments (Stake, 1995; Yin, 2018).

5.3 Managing Disruptions During the Research Process

Given the disruption-prone nature of logistics environments, researchers should adopt flexible and adaptive fieldwork strategies. Clearly defining case boundaries at the outset of the study is important, while recognising that organisational structures and operational processes may evolve during data collection.

Maintaining reflexive field notes and detailed research logs can help document contextual changes affecting participant access, operational routines and organisational priorities during fieldwork. Such documentation enhances transparency and supports methodological consistency across different stages of the study.

Where feasible, longitudinal elements such as follow-up interviews or multiple rounds of data collection may assist researchers in capturing how organisations adapt to changing operational conditions over time. Flexible scheduling and contingency planning are also important because operational disruptions may temporarily limit participant availability or site access.

Collectively, these strategies strengthen the credibility, transparency and adaptability of case study research within complex and disruption-prone logistics environments.

6. Discussion: Methodological and Practical Implications

This paper examined the methodological challenges associated with conducting case study research in logistics environments and proposed adaptive research design strategies for responding to these challenges. The analysis demonstrates that logistics systems create distinctive methodological conditions shaped by commercial sensitivity, fragmented operational structures, digitally mediated coordination and disruption-prone operating environments. Consequently, logistics should be understood not merely as an empirical setting, but also as a distinctive methodological context that shapes the feasibility, design and rigor of qualitative case study research.

Figure 6.1 summarises the conceptual framework developed in this paper. The framework illustrates how the structural characteristics of logistics environments generate methodological challenges relating to organisational access, fragmented data structures and unstable research settings, while also demonstrating how adaptive research design strategies may strengthen the credibility and robustness of logistics case study research.

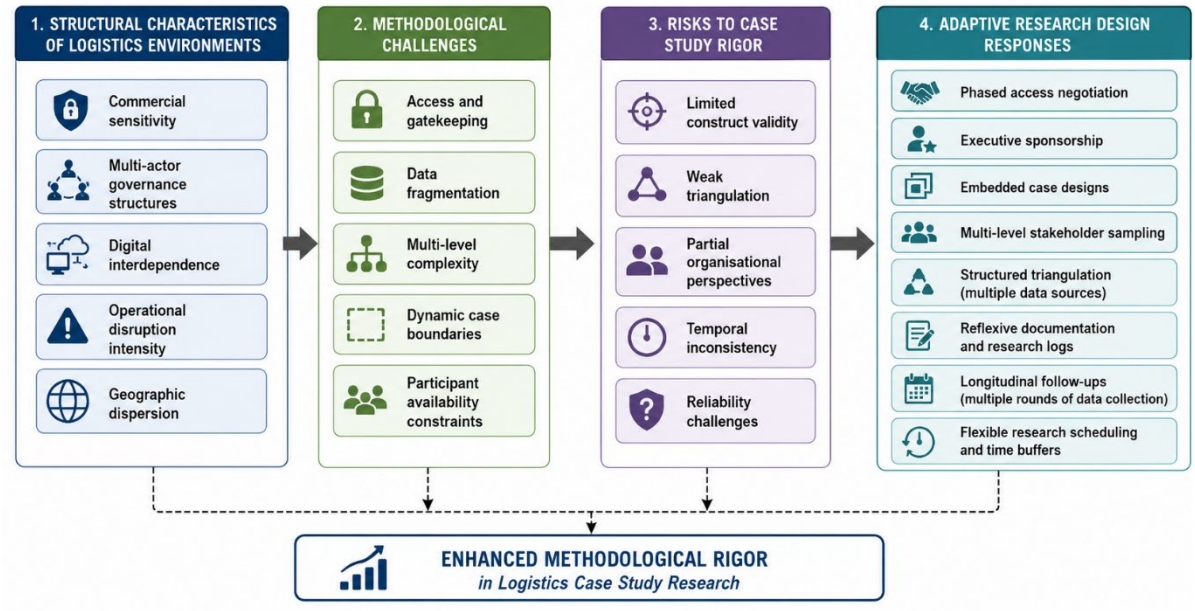


Figure 1: Conceptual Framework for Strengthening Case Study Research in Logistics Environments

In this way, the figure visually summarises the paper's central argument that logistics should be understood not merely as an empirical setting, but as a distinctive methodological context requiring context-sensitive case study research strategies.

The framework reinforces the paper's central argument that methodological rigor in logistics case study research depends not only on the selection of appropriate qualitative methods, but also on the researcher's ability to adapt research design strategies to the structural realities of complex and operationally intensive logistics environments.

The findings of this paper also have broader implications for how qualitative research rigor is understood within operationally intensive and interdependent organisational environments. Traditional approaches to case study rigor frequently emphasise construct validity, triangulation, internal consistency and reliability as relatively stable methodological objectives (Yin, 2018). However, the analysis presented in this study suggests that within logistics environments, these dimensions of rigor may be continuously influenced by shifting operational conditions, fragmented information systems and evolving inter-organisational relationships. Consequently, methodological rigor in logistics case study research should not be understood solely as a procedural outcome achieved through predefined research protocols, but also as an adaptive and context-sensitive process requiring continuous methodological reflexivity throughout the research lifecycle (de Vries, 2020).

This perspective has important implications for qualitative logistics and supply chain research because it positions flexibility, relational access management and dynamic triangulation not as methodological compromises, but as essential components of rigorous research design within complex operational systems. The study therefore contributes to broader methodological discussions concerning how researchers maintain analytical credibility

and contextual coherence in environments characterised by operational instability and distributed organisational authority.

From a methodological perspective, the paper contributes to case study research scholarship by extending discussions of research rigor into logistics-specific environments (Eisenhardt et al., 2016). While established qualitative research frameworks provide guidance regarding construct validity, triangulation and reliability (Yin, 2018), they offer more limited attention to how sector-specific operating conditions influence the practical implementation of case study research. This paper therefore demonstrates how organisational complexity, operational interdependence and disruption intensity may shape the feasibility and execution of qualitative research within logistics systems.

The analysis also highlights the importance of flexible and multi-level research designs in contemporary logistics research. Because logistics operations frequently occur across interdependent organisational networks, traditional single-site or single-function case designs may not adequately capture the complexity of operational relationships and decision-making processes. The study therefore reinforces the value of embedded case designs, multi-level stakeholder sampling and structured triangulation strategies when investigating logistics and supply chain phenomena.

The findings also suggest that future logistics and supply chain research may increasingly require hybrid and adaptive qualitative methodologies capable of responding to digitally integrated and rapidly evolving operational environments. As logistics systems become more dependent on platform-based coordination, artificial intelligence, predictive analytics and real-time data infrastructures, researchers may encounter growing methodological challenges relating to data accessibility, algorithmic visibility and the tracing of inter-organisational decision-making processes. Consequently, future qualitative logistics research may need to integrate traditional case study approaches with digitally enabled forms of data collection, longitudinal monitoring and multi-actor analytical frameworks capable of capturing dynamic operational interactions across complex supply networks.

In this regard, the paper contributes not only to contemporary methodological debates within logistics and supply chain research, but also to broader discussions concerning how qualitative researchers investigate increasingly digitised, interdependent and operationally fluid organisational systems. The study therefore highlights the importance of methodological adaptability as an emerging dimension of research rigor within complex organisational environments.

From a practical perspective, the study provides guidance for researchers undertaking qualitative research within commercially sensitive and operationally intensive environments. Strategies such as phased access negotiation, executive sponsorship, embedded case designs and reflexive documentation practices may assist researchers in strengthening organisational access, improving triangulation and maintaining methodological consistency during periods of operational instability.

These insights may be particularly valuable for doctoral and early-career researchers, who frequently encounter challenges relating to organisational access, fragmented operational systems and changing fieldwork conditions when conducting case study research within logistics and supply chain contexts. Understanding the methodological implications of logistics environments may therefore assist researchers in designing more robust, credible and context-sensitive qualitative research projects.

7. Conclusion

This paper examined the methodological challenges associated with conducting case study research in logistics environments and proposed adaptive research design strategies for addressing these challenges. The analysis demonstrated that logistics systems are characterised by commercial sensitivity, multi-actor governance structures, digital interdependence and high levels of operational disruption intensity, all of which shape the feasibility and rigor of qualitative case study research.

By positioning logistics as a distinctive methodological context rather than merely an empirical setting, the paper contributes to broader methodological debates concerning the design and implementation of case study research within complex organisational environments. The study showed how access and gatekeeping, fragmented data structures and sector-specific disruptions may complicate case study research processes, while also demonstrating how adaptive and context-sensitive research strategies may strengthen methodological rigor.

Despite these contributions, the paper has several limitations. First, the study is conceptual in nature and does not include empirical case evidence demonstrating the practical implementation of the proposed methodological responses. Second, the analysis is based primarily on existing methodological and logistics literature rather than a systematic empirical review of case study projects conducted within the sector. Third, while the findings provide insights relevant to logistics and supply chain research, they may not be fully generalisable to industries characterised by different organisational structures or operational conditions.

Future research could build on this work by examining how researchers apply these methodological strategies within specific logistics contexts, such as digital logistics platforms, third-party logistics providers or sustainability-oriented supply chain initiatives. Additional studies may also explore how emerging technologies, including artificial intelligence, blockchain and advanced analytics, influence both logistics operations and the methodological approaches used to investigate them.

In conclusion, the paper demonstrates the importance of context-sensitive methodological design when conducting case study research in complex and disruption-prone logistics environments. As supply chains continue to evolve in response to digital transformation, sustainability pressures and global disruptions, the need for adaptive and methodologically robust research approaches will become increasingly important for advancing logistics and supply chain scholarship.

Ethics Declaration

This paper is a conceptual methodological analysis based on existing literature and does not involve primary data collection from human participants. Consequently, formal ethical clearance was not required under the institutional research ethics guidelines of the University of the Witwatersrand / Wits Business School.

AI Declaration

Generative AI tools were used only for language editing and clarity improvement during manuscript preparation, and literature searches were conducted using Scopus; the authors reviewed and approved all final content.

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Reframing Pastoral Research Methodology for Theological Education: Practical, Participatory, and Action-Oriented Approaches

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Abstract: Pastoral research methodology is reimagined for academic and ministerial formation contexts within South African theological education and the wider continent. The contention is that a reframed pastoral research methodology is necessary for African theological schools because theological knowledge, pastoral strategies, and ecclesial assumptions are historically contingent, contextually embedded, and frequently disrupted by social, economic, and cultural changes. African theological schools constitute a distinctive research context that requires methodological approaches attentive to ecclesial praxis, participation, and institutional realities. While theological schools, whether located in public universities, or operating as private seminaries and denominational colleges, constitute a significant yet under-researched sector. Meaning, despite their scales of influence, theological research and education often neglect emphasising the research methodology dimension as a site of sustained empirical research. Existing research methodological approaches maintain theological affirmations for pastoral and ecclesial good practice and lack pastoral research praxis transformation. This paper contributes to the "Practical Applications of Research Methods" track of the 25th ECRM by advancing action research and participatory methodologies suited to theological research, education and pastoral practice. It addresses a foundational but often neglected question in theological research and education: why research approach and method are essential to ministerial and theological formation beyond ecclesial "good practice." It therefore situates theological inquiry within broader ecclesial realities in which many cause–effect relationships within ecclesial contexts comprising the interaction between economic pressures, religious participation, and pastoral sustainability, remain insufficiently empirically tested. Using theology of development perspectives, the paper reframes pastoral research methodology for theological research and education to address the "church economy," denominational systems, and institutional dynamics. Methodologically, it integrates classic and contemporary practical theology research frameworks, including Osmer's four tasks, qualitative and participatory designs, and phenomenological approaches and procedures to study lived religion. It highlights work-integrated learning as a legitimate site of data generation and praxis transformation consolidating current research ethical requirements under the South African and international research governance standards. The paper offers an ethically grounded step-by-step pastoral research methodology template tailored to African theological schools, ministerial formation, and ecclesial contexts.

Keywords: African Theology, Ecclesial, Epistemology of Practical Theology, Pastoral Research Methodology; Participatory Action Research in Religion, Theological Education, Theological Schools

1. Introduction: Why Pastoral Research?

Theological schools in Africa in recent times have become a big business that goes unrecognised in research. Theological schools provide theological education as big business. This is a context covering Schools of Theology in public Universities, and in private higher education it comprise the Seminaries and Theological Colleges owned and managed by different Christian traditions and denominations. There is implicit contribution to the Practical Applications of Research Methods with an angle of Action Research and Participatory Methods in the context of African Theological Schools.

Te'eni et al., (2015), cited in Presthus & Munkvold (2016) define "Physical Theology schools and theological education are forms of business where three success components: location, location, location. Similarly, the literature suggests three success components for theological research: contribution, contribution, contribution". Before elaborating on how to conduct excellent research, that is, the research process, we must first address why we should research. Why is it essential to conduct research? Why is it part of your degree program? Would "good practice" in and of theology not be enough? What is the meaning behind all this need for research in theological education? The answer to all these questions lies in the existing body of knowledge and expertise. We would not need further research if we knew everything about the (present and future) world. We may replace the term "the world" with "the economy," "the industry," "the company," "the department," or any other area of interest. Yet, this is not the case. Many cause-effect relationships in theological spaces and contexts are not understood well or even not yet detected at all. And sometimes, the knowledge that seemed to be sure is not anymore. For example, imagine a long-time consensual knowledge of the relationship between inflation and the growth of the GNP and its effect on the Church as an organisation.

Pastoral research links such angles of theological reflection with empirical inquiry so the Church can respond credibly to human needs in concrete contexts. In early work, Rowatt (1982) named "pastoral research" as a synthesis of phenomenological reflection and scientific method. A "right-brain-left-brain" partnership and a

blend of observing *and* doing ministry (Rowatt, 1982). This paper similarly position pastoral research as a systematic, replicable process that applies human-science methods to Church mission and care, especially in South Africa and across Africa.

Within practical theology and theology of development disciplines, scholarship affirms that robust empirical engagement, alongside theological normativity, animates pastoral work in congregations and public spaces. Recent literature emphasise qualitative researcher's role in hearing overlooked voices and deepening congregational or pastoral practice-based reflection. Theology of development and practical theology in Africa have also matured as disciplines. These are foregrounding contextual, justice-oriented, and participatory methodologies that address local realities while contributing to global debates.

2. Methodology

2.1 The Place of Research in Practical Theology

Your notes frame research as systematic inquiry to generate reliable knowledge using transparent procedures; as a science, it follows method to investigate specific pastoral problems. Contemporary handbooks echo this, urging researchers to choose designs that match questions, not methods first. In particular, Hunziker and Blankenagel (2021/2024) differentiate research *types* and design logics (single/multiple case, cross-sectional, longitudinal, experimental, action research, design science), each suited to distinct aims.

A widely used practical-theology scaffold is **Osmer's four tasks**: What is going on? (descriptive-empirical), Why is this going on? (interpretive), What ought to be going on? (normative), and How might we respond? (pragmatic). This framework integrates empirical, social-scientific interpretation and theological discernment for faithful action. Swinton and Mowat's text remains a standard for qualitative work in theology, detailing how interviews, ethnography, action research, and mixed methods can serve theological reflection.

3. Designing Pastoral Research

3.1 From Questions to Designs

Research design choices are commonly guided by three overarching purposes: exploratory, descriptive, and explanatory. Exploratory research aims to clarify concepts, scope emerging issues, and generate preliminary hypotheses, making it particularly suitable for understudied or ambiguous problem areas (Abutabenjeh & Jaradat, 2018). Because exploratory work emphasises flexibility and conceptual development, it often precedes more structured designs and supports sound inference by sharpening research questions (Bellamy, 2011).

Descriptive research, in contrast, focuses on systematically documenting phenomena by capturing who, what, where, when, or how often within a defined context. Its strength lies in the use of predetermined procedures that enhance consistency and replicability. Elsayed (2020) demonstrates this in cross national comparative studies, where structured data collection enables patterned observations across cases. Such designs provide foundational empirical mapping that can later inform causal inquiry.

Explanatory research seeks to test why or how phenomena occur, often through theorised causal pathways. This purpose aligns with methodological traditions emphasising inference and warrant, where researchers build arguments that link theoretical propositions to empirical evidence (Bellamy, 2011). Mixed methods scholars further argue that explanatory approaches can be strengthened by integrating qualitative and quantitative strands, enhancing the robustness of causal claims (Teddlie & Tashakkori, 2012).

Together, these three purposes clarify the relationship between research design, methods, and methodology. As Abutabenjeh and Jaradat (2018) assert, understanding these distinctions is essential for producing rigorous, coherent, and methodologically aligned research in public administration and guide design choices:

- **Exploratory**: to scope issues, clarify concepts, and generate hypotheses. It is best when the problem is broad or under-studied.
- **Descriptive**: to depict who, what, where, when or how often in a defined context using pre-specified methods.
- **Explanatory**: to test why or how phenomena occur. Sometimes modelling causal pathways.

Recent design studies help operationalise these purposes into concrete strategies. For instance, single case for in-depth exploratory understanding; cross-sectional survey for descriptive prevalence; longitudinal or multiple case for explanatory process tracing.

3.2 Core Methodological Families

Core methodological families in qualitative psychology provide foundational structures for understanding how researchers generate, interpret, and apply knowledge. Frost (2021) outlines how approaches such as grounded theory, narrative analysis, and phenomenology evolved from broader social science traditions and now serve as central frameworks for psychological inquiry. Grounded theory, for example, originated in sociology and remains attractive due to its systematic yet flexible procedures for developing theory from data (Frost, 2021).

Across disciplines, methodological families provide different logics of enquiry. Horváth (2007) contrasts conceptual, empirical, and integrative methodological approaches in design research, demonstrating how each generates different forms of knowledge. Similarly, Evans et al. (2017) highlight how methodological approaches are shaped by participant contexts, such as research involving children and young people, underscoring the need to align method with developmental and ethical considerations.

In applied fields, methodological approaches evolve to address practical research challenges. Kirkham et al. (2017) propose a methodological framework for evaluating uptake of core outcome sets, illustrating how methodological design can be adapted to enhance transparency and consistency in clinical research. Lacorte (2014) further argues that methodological approaches in second-language research now combine traditional and contemporary paradigms, reflecting a broader trend toward methodological pluralism.

Overall, the literature demonstrates that core methodological families offer structured yet adaptable frameworks, enabling researchers to select approaches aligned with research aims, epistemological positions, and participant realities.

- **Qualitative**: Illuminates meaning, practices, and contexts. It is central to practical theology and theology of development on attention to lived faith experience and applied faith in action. For instance, the employing of ethnography, interviews, focus groups, and case studies techniques and methods.
- **Quantitative**: Estimates prevalence, associations, and, where appropriate, causal effects. Recent research literature tailor quantitative rigour to theological and development questions. For instance, surveys and experiments research designs on Church and states issues.
- **Mixed methods**: This approaches sequences or integrates the two approaches, quantitative and qualitative, to capitalise on their complementary strengths for ministry problems.

4. Phenomenology in Pastoral Theology Research

Phenomenology has increasingly shaped pastoral theology. Scholars seek methods capable of attending to lived faith experience, spiritual meaning, and the relational dynamics inherent in pastoral contexts. Early work by Farley (1977) identified phenomenology as a valuable interpretive lens for pastoral care. Farley (1977) argues that phenomenology enables deeper engagement with human experience beyond doctrinal or clinical reductionism. Farley's (1977) foundational insight, that phenomenology foregrounds the subjective and existential dimensions of pastoral encounters, sets the stage for subsequent methodological developments in theological research.

Contemporary pastoral theologians have significantly expanded the role of phenomenology. Park (2014) proposes a reflexive and relational pastoral phenomenology grounded in postcolonial concerns. Her approach critiques traditional phenomenological claims to neutrality and argues for a method attentive to power, culture, and the positionality of both researcher and participants. By constructing a more relational orientation, Park (2014) contributes a framework that highlights how pastoral realities are shaped by sociohistorical forces and the mutuality of pastoral engagement.

Scholars further employ hermeneutic phenomenology to explore specific pastoral contexts. Phelan's (2022) study of gendered pastoral care illustrates how phenomenology can reveal the nuanced spiritual and relational experiences of parishioners under differing pastoral leadership styles. His research underscores how gendered dynamics influence care-receiving, theological interpretation, and relational trust. Similarly, Hessel (2015) examines pastoral burnout from a hermeneutic perspective, revealing how pastors' lived experiences of

exhaustion, identity conflict, and spiritual struggle manifest in their narratives. These studies demonstrate the effectiveness of phenomenology for uncovering complex emotional and spiritual dimensions often overlooked by quantitative approaches.

Additional phenomenological inquiries focus on vocational themes within pastoral life. Luder (2014) explores the lived experiences of pastors who left ministry, highlighting tensions between calling, theological education, and ministerial realities. Connors (2019) similarly investigates the phenomenology of calling, showing how pastors construct meaning through reflective interpretation of their spiritual experiences. These works contribute to pastoral theology by clarifying how meaning-making, vocation, and identity formation emerge through lived experience.

Phenomenology in pastoral theology also intersects with theopoetics. Zylla (2014) argues that phenomenological research resonates with theopoetic approaches that emphasise lament, embodiment, and narrative. His work aligns phenomenology with pastoral practices that value vulnerability, imagination, and the articulation of suffering. This expands the methodological toolkit of pastoral theologians by linking phenomenology with expressive and interpretive theological practices.

Pastoral transitions and ministry longevity have likewise been explored through phenomenological methods. Hester (2018) examines stress and sustainability in pastoral ministry, demonstrating how long-term pressures shape emotional resilience and vocational persistence. McLaughlin (2022) analyses spiritual and emotional dynamics in pastoral transitions, identifying how leaders navigate grief, hope, relational dislocation, and communal change. Both studies affirm the strength of phenomenology in illuminating the deeply relational and spiritual processes involved in pastoral leadership.

Overall, literature reveal that phenomenology enriches pastoral theology by offering methods capable of attending to lived faith and pastoral experiences, relationality, power, and meaning-making. Whether addressing burnout, calling, gender, lament, or transition, phenomenological approaches continue to deepen understanding of pastoral realities and support more contextually grounded theological reflection. Thus phenomenology for describing lived faith and pastoral experiences has steps of bracketing, intuiting, analyzing, and describing. These steps are useful in pastoral care, sacramental or liturgical life, mission and spiritual experiences. Recent studies expand phenomenology dialoguing with theology, for example the phenomenology of prayer and theo-phenomenology, underscoring disciplined description and careful theological interface. When to use phenomenology:

- To re-examine “taken-for-granted” pastoral experiences, for example grief rituals, confession, and hospital chaplaincy encounters.
- To surface the essences and horizons of meaning that guide care and mission work.

Data collection in phenomenology: in-depth interviews, guided reflection journals, and carefully facilitated focus groups.

Data analysis in phenomenology: iterative coding to articulate invariant structures of experience.

5. Emerging Approaches in Pastoral Theology Research

5.1 Case Study Research

Pastoral theology research has increasingly employed case study methodology as a means of interpreting social realities and informing ministerial practice. Recent scholarship emphasises that case studies offer an analytical framework enabling pastors and theologians to meaningfully engage with the lived experiences of individuals and communities. Literature underscore how pastoral theological analysis integrates practical ministry concerns with theological reflection.

Studies affirm the value of case study methodology in pastoral theology for both analysis and formation. Zaluchu and Zaluchu (2024) emphasise its capacity to inform the church's social engagement, Schlauch (2012) foregrounds its interpretive richness for theological reflection, and Hancock (2018) demonstrates its pedagogical power in leadership development. Scholars articulate a vision of pastoral theology research that is responsive, contextually engaged, and deeply reflective. A case study is an approach that integrates theory, practice, and spiritual insight through the disciplined use of case studies. It uses single or multiple cases offering rich, contextualised understanding of ministries, programs, or congregations. Its use in practical theology and theology of development is both a *method* and a *methodology* for theory and practice integration.

5.2 Arts-Based Research Methods

The relationship between the arts and pastoral theology has increasingly attracted scholarly attention. This attention is in relation to research methodologies, interdisciplinary dialogue and the interpretation of lived faith experiences. As an emerging field, arts-based research offers creative and reflective approaches that broaden the ways theological knowledge is produced, communicated and embodied. Scholars emphasise that the arts can serve not merely as illustrations of theological ideas but as legitimate modes of inquiry that deepen understanding of faith, human experience and pastoral practice.

A conceptual feature highlighting the role of arts-based research in practical theology is the artistic expression found in theological testimony. Boursier (2021) argues that artistic expression can function as a form of theological testimony. Through creative practices such as mixed media, visual arts and narrative forms, research participants and scholars can communicate complex realities. For instance, artistic theological expression are associated with suffering, spirituality and social injustice testimonies. This arts-based research approach suggests that artistic processes enable theological reflection that is experiential and embodied rather than purely theoretical (Boursier, 2021). Thus, the art forms are a research medium through which theological insights are both generated and shared.

Another feature is the interpretive and attentive nature of pastoral theology. McClure (2008) describes pastoral theology as an "art of paying attention". Emphasis is on theological practices that cultivate attentiveness to human experiences, suffering and flourishing (McClure, 2008). From this interpretive and attentive perspective, theological inquiry involves careful observation and interpretation of lived faith realities. Artistic research design and practices support this attentiveness because they encourage reflection, creativity and openness to multiple forms of meaning-making. Thus, the arts can expand pastoral theological research methods by fostering deeper engagement with people's faith stories and contexts.

The literature also stresses the importance of interdisciplinary dialogue in integrating the arts with pastoral theology. Pienaar (2007) suggests that the interaction between narrative practice and artistic expression requires collaboration across disciplines. Such interdisciplinary engagement enables theological researchers to draw on insights from psychology, sociology, theology and art theory. The perspective enriches the analysis of pastoral experiences. Similarly, Szymczak (2020) highlights interdisciplinarity as a defining characteristic of contemporary pastoral theology research. The scholar argues that socio-theological research benefits from combining diverse methodological approaches (Szymczak, 2020).

Art theory also informs methodological reflection within pastoral theology. Capps (1999) argues that insights from art theory can illuminate the relationship between theology and psychology in pastoral studies. By engaging with artistic concepts such as interpretation, symbolism and creativity, pastoral theologians and researcher can better understand the imaginative dimensions of human experience. In later reflections on theological research writing, Capps (2014) notes that artistic frameworks can help shape scholarly inquiry by encouraging reflexivity and interpretive depth.

Snedden (2023) argues for the use of participatory and visual methods. For example, arts-based inquiry and Photovoice methodology can be used to explore how Christian communities embody mission and vision through symbolic storytelling (Snedden, 2023). Participatory and visual approaches demonstrate how visual and narrative forms can function as research artefacts that capture communal identity and spiritual practice.

Lartey (2002) advocates for embracing diverse cultural and artistic expressions within pastoral theology. The scholar is arguing that contemporary pastoral practice must engage plural forms of spirituality and symbolic meaning (Lartey, 2002). Graham (2017) emphasises that practical theology research continues to expand its methodological horizons in response to changing social and cultural contexts.

Overall, the literature indicates a growing recognition that the arts enrich pastoral and practical theology by offering innovative research methods, fostering attentiveness and interdisciplinary collaboration to human experiences. Arts-based research approaches therefore contribute to a more holistic and contextually responsive understanding of theology in practice. Arts-based research methods use poetry, visual arts, and autoethnography to access embodied and aesthetic dimensions of faith and to generate constructive theologies from lived faith stories.

5.3 Participatory and Youth-led Research

Literature on youth ministry increasingly emphasises the role of young people as active participants in faith communities and broader society. The youth ministry is conceived as a formative space where spiritual development intersects with civic engagement, leadership development, and social responsibility. Collectively, studies conceptualise youth-led ministry as a research framework that nurtures youth theological agency while balancing guidance from established church leadership.

A responsible citizenship and community participation research model is key in youth ministry. Aziz (2025) argues that youth ministry can function as a system of support that equips young people with moral values, leadership skills, and opportunities for civic engagement. Within the citizenship and community participation paradigm of public practical theology research, youth ministry is viewed as a research site through which young people can participate in meaningful community action and develop a sense of social responsibility (Aziz, 2025). Similarly, Damean (2025) conceptualises youth as agents of social innovation within parish contexts. The author suggests that youth-led initiatives can contribute to social and economic transformation. This perspective positions young people not merely as recipients of ministry but as contributors to community development.

Youth agency and leadership in religious and peacebuilding contexts is another core feature in theological research. Zaid (2018) supports this view using participatory action research demonstrating how youth-led peacebuilding programmes in Kenya can foster collaborative learning and community transformation. Jiménez and Robinson (2022) emphasise the importance of recognising youth as partners in leadership rather than passive followers. This work reframes youth participation as a process of empowerment that enables young people to engage in interreligious cooperation and peacebuilding initiatives. These studies underscore the value of participatory approaches that allow young people to shape the programmes and initiatives that affect them (Zaid, 2018; Jiménez and Robinson, 2022).

However, some scholars caution against uncritical promotion of youth-led leadership without adequate guidance. Sangwa (2025) offers a biblical critique of youth-first governance models. Sangwa (2025) argues that youth participation should be balanced with accountable elder leadership. Thus, intergenerational collaboration ensures both innovation and stability within faith communities. This argument reflects broader debates in practical theology about the relationship between youthful creativity and experienced leadership in church governance (Sangwa, 2025).

Youth engagement is associated with digital transformation. Kiruja and Kagema (2025) examine youth participation in online church services in Kenya. Scholars note that digital platforms have expanded opportunities for youth involvement in worship and ministry (Kiruja and Kagema, 2025). Similarly, Mutua et al. (2025) highlight the role of technology in shaping youth religious engagement in the Kenyan Catholic Church. Digital initiatives have increased youth-led participation in faith activities (Mutua et al. 2025). Studies suggest that digital spaces are increasingly important for sustaining youth involvement, particularly in contexts where traditional participation patterns are declining (Kiruja and Kagema, 2025; Mutua et al. 2025).

Scholars emphasise the need for inclusive and contextually relevant youth ministry practices (Beukes, 2021; Droege, 2023). Beukes (2021) highlights the role of youth faith engagement in environmental activism. Droege (2023) discusses inclusivity in youth ministry praxis. Droege (2023) argues that churches must adopt adaptive approaches to address declining participation among young people. Beukes (2021) suggest that practical theology must take seriously the social and ecological concerns that motivate youth involvement.

Overall, the youth ministry is evolving towards a participatory and context-sensitive model that values youth agency, digital engagement, and intergenerational collaboration. Youth-led participatory and context-sensitive research approach positions youth not only as beneficiaries of ministry but also as key contributors to faith-based knowledge social transformation. Youth-led participatory action research (YPAR) adopted in pastoral theology research redistributes power and co-produces knowledge with communities to address injustices. This research approach is growing in African practical theology research projects.

6. Work-Integrated Learning as Research Context

Pastoral Field Placements in parishes, schools, hospices, hospitals, substance-use clinics, community and justice organisations, work as intensive sites of research where theological students are both minister and research (Carroll, 2010). This aligns with current theological field education models in North America and beyond that require learning covenants, supervised mentoring, context analysis, and reflective case work (Carroll, 2010).

South African and global networks, for example Association of Reflective Practice in Theological Education (ARPTE), provide recommended standards and best practices for field education and supervision. Clinical Pastoral Education (CPE) (Clevenger, 2021), often within healthcare chaplaincy, uses action-reflection to build pastoral competence and produces rich qualitative data about spiritual care. Work Integrated Learning (WIL), when applied through various theological field education models, functions as a form of pastoral field placement. These models exemplify a pastoral–theological research context that presents largely untapped opportunities for the development of pastoral research designs.

7. Ethics in Pastoral Research

Ethical considerations are central to theological research, particularly when studies involve vulnerable populations and sensitive social issues. In theological and pastoral contexts, research ethics provide guidance for the recruitment of participants, the collection of data, and the responsible dissemination of findings. Ethical recruitment requires transparency regarding the purpose of the study and the voluntary nature of participation, ensuring that individuals are not coerced or unduly influenced. Informed consent is therefore a foundational element, enabling participants to understand the risks, benefits, and procedures associated with the research before agreeing to participate (Cannella & Lincoln, 2017).

During data collection, researchers must safeguard confidentiality and anonymity, particularly when participants disclose personal or traumatic experiences. For instance, studies examining clergy responses to domestic violence highlight the sensitivity of such research and the need to protect participants from psychological harm or social repercussions (Clato-Day, 2020). Ethical data collection also requires careful handling of interview materials, secure storage of records, and the use of pseudonyms where appropriate. Similarly, research into clergy misconduct demonstrates the importance of ethical safeguards when participants share personal accounts of institutional or pastoral failure (Krueger, 2018).

International ethical standards further guide theological research through seven core principles: value, validity, fair selection, favourable risk–benefit ratio, independent review, informed consent, and respect for participants (Bhutta, 2002). These principles ensure that research is both scientifically credible and morally responsible. Moreover, theological action research emphasises the integration of ethical reflection with practical ministry, highlighting the responsibility of researchers to disseminate findings in ways that respect participants and contribute constructively to faith communities (Rhodes, 2020). Ethical dissemination therefore involves accurate representation of participants' voices while avoiding harm or misinterpretation.

Pastoral research in South Africa and across Africa should be benchmarked against national and international research-ethics standards for studies involving human participants across disciplines. Ethics in pastoral research intersects with the Protection of Personal Information Act (POPIA) regarding data protection and applies within faith-based or congregational contexts where health-related or social data are collected. Clergy and pastoral-care codes, such as those governing chaplains and pastoral counsellors, require strong confidentiality and clear boundaries regarding the limits of pastoral research in both ministry and research settings. Because pastoral research sites are often faith-based organisations and church communities, practical safeguards are essential. These include the use of plain-language consent forms; culturally sensitive recruitment processes; negotiated anonymity for congregations; data minimisation and secure storage; careful handling of sacred stories to prevent exploitation; and transparent dissemination plans that are co-designed with participating communities.

8. Methodological Shifts in African practical theology Post-COVID-19

Post-COVID-19 scholarship in African practical theology highlights a notable methodological reorientation that foregrounds decolonial, contextual, and public theological commitments. Within this trajectory, research approaches increasingly prioritise local agency, intercultural dialogue, and practices that contribute to social healing in African contexts. Rather than relying primarily on imported methodological paradigms, scholars advocate approaches that are responsive to lived faith realities within congregations and communities. For instance, Mthombeni (2023) explores this shift through the use of autoethnography as a methodological lens, demonstrating how reflexive and situated inquiry can illuminate the re-definition of the church during the pandemic. This approach enables researchers to examine how ecclesial identity and practice were reshaped by crisis conditions, while simultaneously foregrounding the researcher's embodied participation in the community being studied.

Emerging reflections further propose the adoption of "moving methodologies" that remain attentive to fluid social realities and ecclesial transformations in post-pandemic contexts (Mthombeni, 2023; Cacho & Lacsa, 2025; Triplett, 2025). Such approaches incorporate participatory youth research, aesthetic forms of observation, and methodological orientations towards anticipation and transformation, while also grappling with the enduring empirical–normative tensions characteristic of practical theological inquiry (Mthombeni, 2023). These methodological developments reflect broader scholarly attempts to interpret the reconfiguration of ecclesial life marked by congregational dispersion, hybrid worship, and forms of virtual connectedness that emerged during the pandemic (Mthombeni, 2023; Cacho & Lacsa, 2025; Triplett, 2025). Consequently, practical theologians are compelled to reconsider how the church may be experienced and enacted under unprecedented conditions, prompting critical reflection on how faith practices and ecclesial belonging can be re-framed within rapidly shifting social and technological environments (Mthombeni, 2023).

8.1 Results

Table 1: Characteristics of Included Studies

Study	Full text retrieved?	Research Question/Focus	Primary Methodology	Data Collection	Analysis Approach
C. Kaunda, 2013	No	Development and transformation of African theological education (1910-2012) to promote just and equitable Christian community	Systematic review	Electronic database searches using keywords and phrases from research question	Review of 10,821 results to select 169 primary sources
Martin, 2000.	No	action research as 'an intentional, collaborative cycle of observing, reflecting, planning, and acting,'	Systematic review	Electronic database searches using keywords and phrases from research question	
Davis, 2007	No	'Nine cycles of planning, action, and reflection' produced a new children's program and an alternative model for adult learning	System review		
Conde-Frazier	No	frames PAR as a means to 'unite scholarship and teaching' for 'social justice'			
Hess 2001		Bring theology, psychology, media studies, and religious education into one conversation			
Brouard 2015		Theological Action Research as a tool for adult theological education and the formation of ministry students			

Study	Full text retrieved?	Research Question/Focus	Primary Methodology	Data Collection	Analysis Approach
Rhodes 2020		Theological Action Research as a tool for adult theological education and the formation of ministry students			
Berg, 2006		TAR is used to explore 'diversity' and 'disruption or deconstruction' in the learning process, while other work emphasizes insider or Freirean approaches and the role of participants as co-researchers.			
Chapman, 2019		TAR is used to explore 'diversity' and 'disruption or deconstruction' in the learning process, while other work emphasizes insider or Freirean approaches and the role of participants as co-researchers.			

8.2 Discussion

The study proposes revising phenomenological methods for pastoral theology education to include researcher reflexivity, addressing conflicts between qualitative research philosophies and theological commitments.

A quick search turned up a small but coherent literature, mostly in Religious Education, Practical Theology, and adult ministry formation. The method is usually treated less as a standalone data-collection technique than as a pedagogy of co-inquiry: Bruce Martin describes action research as 'an intentional, collaborative cycle of observing, reflecting, planning, and acting,' and D. Davis reports that 'Nine cycles of planning, action, and reflection' produced a new childrens program and an alternative model for adult learning (Martin, 2000; Davis, 2007; Hess, 2001).

In contemporary theological education, PAR and TAR are being used to connect theological reflection with lived practice, often in explicitly contextual or justice-oriented ways. Elizabeth Conde-Frazier frames PAR as a means to 'unite scholarship and teaching' for 'social justice'; Mary E. Hess uses it to bring theology, psychology, media studies, and religious education into one conversation; and Brouard and Rhodes both present Theological Action Research as a tool for adult theological education and the formation of ministry students (Hess, 2001; Brouard, 2015; Rhodes, 2020). A 2022 theological education institution study uses TAR to explore 'diversity' and 'disruption or deconstruction' in the learning process, while other work emphasizes insider or Freirean approaches and the role of participants as co-researchers (Chapman, 2019; Berg, 2006). The recurring pattern is iterative, collaborative, and context-situated: people study their own practice, name the theological meaning of that practice, and then change curriculum, ministry, or community life in response. This is an initial search, so a more targeted pass could surface additional denominational, regional, or dissertation-level examples. Drawing from this discussion a pastoral research methodology framework is proposed.

9. A Pastoral Research Methodology Framework

A pastoral research methodology framework draws and developed from the findings and discussion above. It synthesises the planning, action, and reflection (PAR) with Theological Action Research (TAR) making one research methods tool in theological education and the formation of ministry students.

1. **Problem focus and context**
   Specify the pastoral issue, community, and hoped-for change (e.g., bereavement support in township congregations). Map stakeholders and ethics pathways (REC/HREC; POPIA considerations).
2. **Framing questions with Osmer**
   Descriptive: *What is going on?* Interpretive: *Why?* Normative: *What ought to be?* Pragmatic: *How should we respond?*
3. **Choose purpose and design**
   Exploratory vs. descriptive vs. explanatory; match to case, cross-sectional, longitudinal, action research, or mixed-methods design.
4. **Method set**
   Phenomenology (bracketing–describing lived experience), case study (thick description of congregational practice), or participatory cycles with field-education partners.
5. **Data collection and analysis plans**
   Semi-structured interviews, focus groups; story-completion for sensitive themes; congregational observations; surveys where appropriate; thematic analysis, phenomenological reduction; basic statistics for surveys.
6. **Ethics and risk management**
   Consent, confidentiality, secure storage, dissemination agreements, and cultural/faith sensitivities; alignment with NHREC and institutional REC.
7. **Integration and action**
   Close the loop using Osmer's pragmatic task: co-develop interventions, evaluate them, and reflect theologically on practice changes.

10. Conclusion

Pastoral research today is best understood as methodologically plural and ethically rigorous, rooted in lived faith and designed for transformation. The framework supports postgraduate supervision, ministerial formation, evidence-based ministry and African theological scholarship. By anchoring projects in Osmer's interpretive cycle, choosing designs those fit questions, leveraging phenomenology, case and participatory approaches, and honouring both South African and international ethical norms, church leaders and students can generate knowledge that genuinely serves congregations and communities. The framework remains conceptual and requires empirical validation through action research and comparative case studies. The article advances methodological debates by providing a coherent framework for pastoral research in African theological education.

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Evidence of Constructivism and Co-Constructivism in a Qualitative Research Interview: A Doctoral Pedagogy

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Abstract: Within the interpretivist research paradigm, meaning is generated through constructivist processes, interactive dialogue, and the co-construction of knowledge between researcher and participant. However, qualitative interviewing practices in doctoral research often remain methodologically modernist and procedurally unidirectional, privileging the researcher's questions while silencing the interviewee's capacity to interrogate, challenge, or shape the knowledge-making process. When interviewees are not afforded dialogical opportunities to pose questions, interviews risk becoming extractive rather than interpretive encounters. Drawing on sustained doctoral supervision and facilitation experiences across South African public and private higher education institutions, this paper explores the extent to which qualitative interview practices operationalise core interpretivist principles. A qualitative document analysis was conducted on interview schedules, methodology chapters, and analysis chapters from 20 completed Master's and Doctoral theses in Business Administration and Business Management. The analysis focused on identifying explicit and implicit evidence of interactive dialogue and co-construction of knowledge within examinable research artefacts. The findings reveal a persistent misalignment between claimed interpretivist positioning and actual research practice. While all students employed semi-structured interviews and articulated interpretivist or constructivist assumptions, none of the interview schedules explicitly enabled interviewees to pose questions or initiate dialogical exchanges. Furthermore, the methodology and analysis chapters rarely document moments where participants actively shaped meaning, corrected the researcher's interpretations, or influenced the analytic trajectories, despite such moments being central to co-constructed knowledge. Where interpretive corrections by interviewees occurred, these were typically untheorised and under-analysed, resulting in their exclusion from the formal methodological narrative. The paper concludes that many master's and doctoral qualitative interviews remain governed by modernist logics of control and standardisation, even when framed as interpretivist inquiries. This disjunction undermines the epistemological integrity of interpretivist research. The paper argues for a paradigmatic shift toward dialogical interview designs that explicitly legitimise participant questioning, reflexive interruptions, and negotiated meaning-making. Practically, the paper offers conceptual guidance for doctoral researchers on designing, documenting, and analysing interviews in ways that more authentically enact constructivism and co-creation of knowledge, thereby strengthening both methodological rigour and epistemic credibility in interpretivist doctoral research.

Keywords: Constructivism, Co-Constructivism, Doctoral Pedagogy, Interview, Qualitative Research

1. Introduction

A doctoral study grounded in constructivist theory posits that knowledge is actively constructed through experience. The argument is that, during the interview process of qualitative data collection, interactive dialogue functions as the primary pedagogical mechanism through which the participants engage in meaning-making. This type of dialoguing results in the co-construction of knowledge as a measurable outcome of the collaborative research process. Thus, during the interview process of qualitative data collection, the interviewer's questions usually follow a one-way sequence from interviewer to interviewee. There is usually no evidence in the interview schedule of co-constructed knowledge arising from an interactive dialogue between the interviewer and interviewee, or of the interviewee's co-constructed knowledge, given a voice during the interview.

Interview research instruments are a key development and expectation in the doctoral research process. The formulation of these instruments should be driven by the research paradigm chosen by the doctoral researcher. Quantitative research is supported by research instruments derived from the positivist paradigm, which are usually questionnaires. Such questionnaires, unlike interview schedules, are true to the positivist paradigm. For example, the use of Likert Scale items in the instrument. Whereas qualitative research is conducted with interview schedules true to the interpretivist, or phenomenological paradigm chosen by the doctoral researcher. Invariably, constructivist engagement has not been part of both the development of instruments and the actual administration of the interview schedule. A constructivist engagement between the interviewer and interviewee, true to the expectations of an interpretivist paradigm, is expected to occur unless the interviewer engages in an interactive dialogue with the interviewee or conducts an interactive focus group interview based on such a dialogue. The idea is that the researcher enables a co-construction of knowledge between the interviewer and interviewee in which knowledge is co-constructed or co-created. This paper is important

because it prompts the doctoral interviewers and interviewees to be reflective during the interview data collection process. It is important to outline the core concepts in this paper.

Interpretivism is an approach to social science that asserts that understanding the beliefs, motivations, and reasoning of individuals in a social situation is essential to decoding the meaning of the data that can be collected around a phenomenon (Confrey, 1992). Interpretivist approaches to research differ from the positivist paradigm in their emphasis on the interpretation of qualitative data as opposed to quantitative data, and the focus on context. Constructivism is based on the principle that knowledge is a constructed entity (Alanazi, 2016). Constructivists are interested in how individual realities are constructed, and as researchers believe that reality is socially constructed through an interactive dialogue between or among people in which meaning is co-constructed and co-created (Demsa and Luvigsen, 2016). The relevance of interpretivism, constructivism, and co-construction of knowledge to the study is that interview schedules are designed with the intention of obtaining data from interviewees.

The purpose of the paper is to impact the qualitative research character of doctoral research projects in Business Administration and Business Management degrees, to develop and implement interview schedules designed for interpretivism from a constructivist perspective. The key objective of this paper is to explore the structure of interview schedules for evidence of a constructivist engagement between interviewer and interviewee in the co-creation of knowledge through interactive dialogues in doctoral research.

The paper reviews the literature, explores the research interview instruments in relation to the methodology used, and discusses data presentation and analysis. The paper ends with a conclusion and provides key references.

2. Theoretical and Conceptual Review of Literature

A review of literature uses theoretical and conceptual approaches to synthesise existing research on interpretivism, constructivism, and postmodernism. Applicable theories are established, and core concepts are defined to structure the analysis. It provides a critical, systematic foundation that guides research design, identifies gaps, and maps expected relationships between variables.

2.1 The Interpretivist Paradigm

The interpretive paradigm is concerned with understanding the world as it is from the subjective experiences of individuals. Meaning-oriented methodologies related to interpretivism and phenomenology, such as interviewing or participant observation, rely on a subjective relationship between the researcher and subjects, as opposed to measurement in positivist strategies. Interpretivism is more sensitive towards individual meanings and contributions, unlike positivism, which is based on universal laws. Interpretivism as a paradigm assumes that reality is subjective and can differ depending on different individuals, and data is mainly dependent on a specific content, viewpoint, and values (Saunders et al., 2012).

2.2 Constructivism

Ernst von Glasersfeld (1974) developed the notion of constructivism in the context of education and states that all knowledge is constructed rather than perceived through the senses. Learners construct new knowledge on the foundations of their existing knowledge. Radical constructivism also argues that there is no way to directly access an objective reality, and that knowledge can only be understood through the individual's subjective interpretation of their experiences. This theory asserts that individuals create their own understanding of reality, and that their knowledge is always incomplete and subjective, and needs to be developed further.

According to van der Walt (2020), the voice of the researcher, who is an interviewer, and the voice of the interviewee, who is the research participant, provide two different voices in an interview. van der Walt (2020) claims that in an interview, every individual constructs their own worldview from an individual constructivism perspective as opposed to social constructivism. In social constructivism, a social group of one kind or the other reaches an agreement (van der Walt, 2020). There is consensus among scholars that human beings construct their own perceptions of the world (Owen, 2014). Co-construction, or co-creation of knowledge, through social constructivism, is indeed a process emerging from a philosophical research paradigm called interpretivism. However, there is limited specific research optimising the user experience, as in the interviewer experience, in interview dialogues. Understanding how to make these interactions more user-friendly, engaging, and effective

is crucial. Hence, the concern is that the doctoral student researcher needs to invest in a constructivist approach when interviewing the participants, or to make room for it in a structured, semi-structured, or open interview.

The process of the interviewer posing all the questions in an interview reflects, or represents, individual constructivism. Typical of traditional interviewing, the interviewer becomes the sole beneficiary of knowledge from a modernist perspective. In such a process, the interviewee, doctoral research participant, has no real voice since a social construction of knowledge occurs through an interactive dialogue between the interviewer and the interviewee, and not through a one-way intervention directed to the interviewee. An interactive dialogue is rooted in postmodernism as a shift away from traditional interviewing.

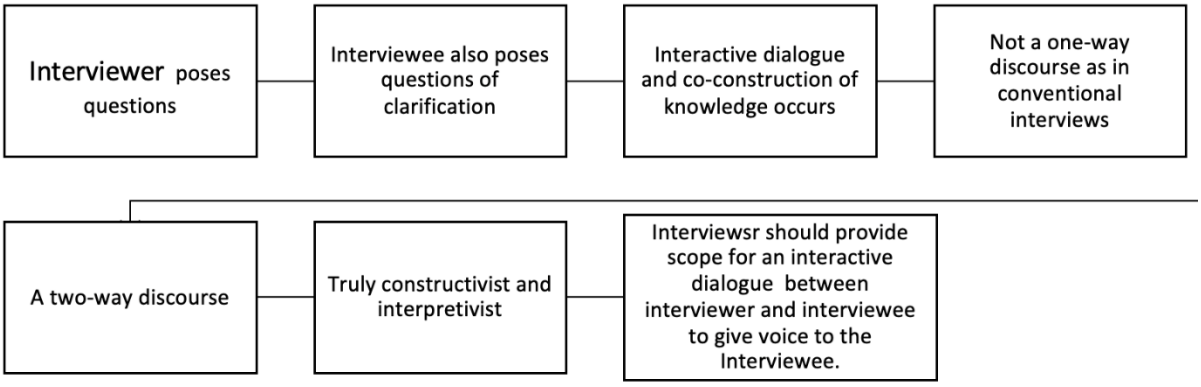


Figure 1: A constructivist interview process flow

2.3 Postmodernism

Interpretivism-constructivism is rooted in postmodernism. A postmodern orientation is polylithic as opposed to being monolithic and inclines the researcher towards listening to all voices concerned as opposed to being monolithic. Postmodernism assumes that social life should be fundamentally conceived as the negotiation of meanings (Barrat, 2009). In the current thesis, the tendency of the interviewer to dominate the discourse in planning interview schedules/guides so that the interviewee is marginalised and is left with no voice in the discourse is the key issue under study. The idea is to break the tendency of modernistic approaches to research and engage in a post-modernistic approach to interviews by giving the interviewee a voice.

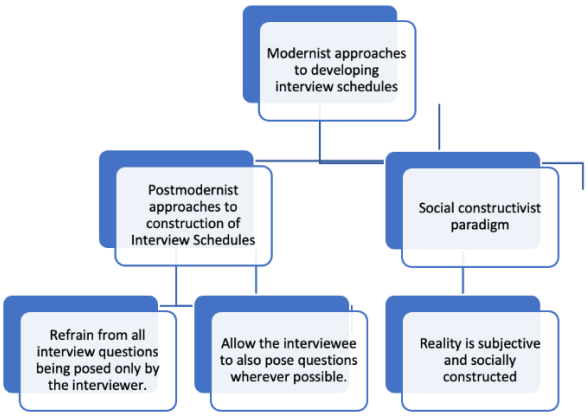


Figure 2: From a modernist to a post-modernist perspective of conducting interviews

3. Research Instruments

Research instruments are a key development and expectation in the research process and should be driven by the research paradigm chosen by the researcher. Quantitative research is supported by research instruments derived from the positivist paradigm, which are usually questionnaires. Such questionnaires, unlike interview schedules, are true to the positivist paradigm, e.g., the use of Likert Scale Items.

A structured interview is a qualitative research method commonly applied in survey research. This approach aims to ensure that each interview is presented with the same questions in the same order. Such interviews usually do not allow for interactive dialogues. Unstructured interviews, also called non-directive interviews, refer to an interview concept without any set format in which questions are not predetermined, so that the lack of structure enables the interviewer to pose questions that come to his or her mind on the spot. A semi-structured interview is a qualitative research method that combines a predetermined set of open questions (questions that prompt discussion) with an opportunity for the interviewer to explore themes or responses further.

Qualitative research is conducted with interview schedules true to the interpretivist or phenomenological paradigm chosen by the researcher. However, as indicated in the theoretical frame presented above, there is a tendency for such schedules to be dominated by the interviewer, leaving the interviewee with little or no opportunity to engage in interactive dialogues with the interviewer. Such interactive dialogues can be developed through the use of informal participatory conversations that are richer than the structured components of the interview (Swain and King, 2022; Rutakumwa et al., 2020).

4. Methodology

Doctoral theses were read in relation to the methodology employed and especially the research philosophy declared. There was a document analysis of the proposed research instruments for qualitative research in the form of semi-structured, structured interview and semi-structured interview schedules. In the process, evidence of interview questions provoking interactive dialogues between interviewer and interviewee was sought. Analysed excerpts of transcripts were also scrutinised for recordings of interactive dialogues that were incidental to responses to interview questions, yet with pertinent evidence of constructivism and co-construction/co-creation of knowledge provoked by interviewee stimulation of an interactive dialogue with the interviewer.

5. Data Presentation and Analysis

There was a document analysis of the proposed research instruments for qualitative research in the form of semi-structured, structured, and open-ended interview schedules. Evidence of interview questions provoking interactive dialogues between the interviewer and interviewee was sought. Analysed excerpts of transcripts were also scrutinised for recordings of interactive dialogues that were incidental to responses to interview questions, yet with pertinent evidence of constructivism and co-construction/co-creation of knowledge provoked by interviewee stimulation of an interactive dialogue with the interviewer. The key objectives of the research were fulfilled, nevertheless.

5.1 Narrative

This narrative is drawn from the doctoral students coded St1D and St2D, and master students coded StM3, StM4, StM5, StM6, StM7, StM8, StM9, StM10, StM11, StM12, StM13, StM14, StM15, StM16, StM17, StM18, StM19, StM20. The analysis of student submissions revealed varying degrees of alignment between claimed interpretivist research positions and the actual operationalisation of constructivist principles within interview practices.

St1D demonstrated the strongest methodological consistency. The study was explicitly located within an interpretivist paradigm, seeking to understand the sustainability of state-subsidised independent schools by engaging with participants' lived experiences and subjective interpretations. Consistent with Thanh and Thanh's (2015) assertion that interpretive researchers access socially constructed realities mediated through language and shared meanings, the student grounded her inquiry in dialogical engagement. Similarly, Wahyuni's (2012) view that reality is co-constructed through interaction underpinned the students' recognition that meaning emerges more authentically when participants are afforded opportunities to articulate and interrogate their experiences.

Drawing on Rosenthal (2016), the student employed in-depth, open-ended interviewing to elicit rich qualitative accounts supported by follow-up probes. Such an approach enabled participants to communicate more freely within an interpretive frame, consistent with Walle (2015), who argues that interactive dialogue facilitates nuanced meaning-making. Evidence of co-constructed knowledge emerged when a participant from the Gauteng Department of Education corrected the interviewer's assumptions regarding departmental perspectives. This moment reflected a genuine interpretivist exchange in which the participant exercised epistemic agency, thereby

contributing substantively to the analytic process. Such negotiated clarification exemplifies the kind of collaborative meaning-making that constructivist scholarship positions as central to qualitative interviewing.

In contrast, St2D claimed adherence to interpretivism and acknowledged the relevance of constructivism in interview design; however, the interview schedule and resulting data revealed no instances of interactive dialogue. The structured format employed constrained opportunities for participant-led clarification or co-construction of insights, resulting in methodological inconsistency between the stated paradigm and practical execution.

Across StM3 to StM20, students variously employed semi-structured or structured interview schedules. Yet, across these submissions, there was no identifiable evidence of dialogical exchanges or co-constructed meaning. Despite the theoretical suitability of semi-structured formats for interpretivist inquiry, their application here remained largely unidirectional, reinforcing interviewer dominance and reducing participant voice. The absence of interactive dialogue suggests that the constructivist potential of these interview formats was not fully realised, limiting the extent to which the research processes aligned with the underlying interpretivist claims.

6. Discussion

The findings of this study reaffirm the long-standing epistemological position that social reality is not an objective entity but is continuously constructed through human interaction (Berger & Luckmann, 1967). Within this ontological frame, interpretivist research seeks to understand how individuals experience, interpret, and attribute meaning to phenomena in their social worlds. The close alignment between interpretivism and constructivism, therefore, demands research practices that facilitate, not constrain, the co-construction of knowledge between interviewer and interviewee. Interview processes that are dominated by the researcher, and that limit dialogical engagement, undermine the epistemic assumptions of interpretivist inquiry and risk invalidating the methodological integrity of a study. As Barrat (2009) argues, postmodernist orientations, which prioritise multiplicity of perspectives and dialogical meaning-making, offer a necessary corrective to traditional, researcher-led interviewing practices.

In this study, semi-structured interviews were selected as the primary instrument for data collection. This choice aligns with the interpretivist paradigm underpinning the research. Semi-structured interviews enable the researcher to engage with predetermined themes while retaining flexibility to pursue emergent insights. This flexibility creates space for participants to articulate subjective viewpoints, clarify assumptions, and introduce new dimensions of meaning that may not have been anticipated at the outset. Such dialogical flexibility is essential to the co-construction of meaning and is consistent with the interpretivist tradition, which privileges participants' lived experiences as central to knowledge generation.

However, the analysis of the student's interview schedule revealed substantive limitations in operationalising these interpretivist commitments. Despite employing a semi-structured format, the schedule did not provide opportunities for interviewees to pose questions or introduce lines of inquiry that would support the co-construction of knowledge. Instead, the interviewer retained exclusive control over the direction of the dialogue. This unidirectional approach reflects a transactional model of interviewing and contradicts interpretivist expectations that view participants as co-constructors rather than passive data sources. As a result, the interview process risks replicating modernist, hierarchical dynamics that marginalise participant agency and reduce the richness of potential qualitative insights.

To address these limitations, interpretivist interviewing must foreground relationality and collaboration. A relational focus positions the interview as an iterative interaction shaped by trust, mutual engagement, and shared meaning-making. Enhancing the interviewee's agency requires transforming the interview from a one-sided question–answer exchange into a dynamic, participatory conversation. Strategies to achieve this include building rapport early in the interaction, asking open-ended questions that invite reflexive exploration, actively listening, and explicitly encouraging participants to raise their own questions or seek clarification. Through such practices, interviewees become epistemic partners, contributing substantively to the development, interpretation, and refinement of emerging knowledge.

Furthermore, participatory research principles highlight that collaborative approaches can mitigate hierarchical power dynamics embedded within interview guides. When interviewees, conceived as co-researchers, are empowered to shape the direction of dialogue, the interview becomes a site of negotiation rather than extraction. Such negotiation facilitates richer data, deepens interpretive accuracy, and supports methodological

reflexivity within the research process. Designing interview schedules that permit dialogical reciprocity, therefore, strengthens both the ethical and epistemological foundations of qualitative inquiry.

In sum, the discussion underscores the essential role of dialogical, co-constructive engagement in interpretivist interviewing. Semi-structured interviews possess inherent potential to support such engagement; however, this potential is only realised when researchers intentionally create opportunities for participants to influence the interview trajectory. Moving toward postmodern, participatory, and relational models of interviewing will enhance the rigour, credibility, and interpretive depth of studies grounded in constructivist and interpretivist paradigms.

7. Recommendations

It is recommended that semi-structured and structured interview schedules include some questions that will enable an interactive dialogue to prevail. Focus-group interviews should also not be unidirectional and should provide scope for an interactive dialogue not only with the interviewer, but also between the interviewees of the focus group in a true constructivist/ interpretivist fashion. It becomes necessary for students to revisit interview schedules, or the one they may have designed, be it at a master's or doctoral level, and critique it to determine the extent to which it is truly interpretivist or constructivist.

8. Conclusion

The main finding of the study is that if it is in an interpretivist paradigm, it should be informed by research instruments that are of a truly constructivist nature. The interviewer and the interviewee should engage in an interactive dialogue to co-create knowledge wherever possible. While realizing the objectives of the study through a one-way dialogue with the interviewee is important, it is equally important that the interviewee should not be marginalized but be given a voice in the interview process through such an interactive dialogue of co-construction of knowledge with the interviewer. It is advised that postgraduate students should become aware of the need to produce data through an interpretivist paradigm by developing a constructivist engagement with the interviewee.

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Participatory Digital Storytelling for Data Collection and Research Communication

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Abstract: This study examines the application of digital storytelling as an innovative, emerging participatory data-collection technique and communication medium in research. Digital storytelling combines narrative with multimedia elements—such as images, audio, and video—to convey complex information in a relatable, emotionally engaging way, thereby translating research into compelling, human-centred narratives that resonate with diverse audiences. Several studies have examined the use of digital storytelling. The main focus of what is available has been on its applications in teaching practice and the production of digital stories as a means to archive knowledge for later access by unknown users or to capture tacit knowledge for future use. Few studies focus on conceptualising digital storytelling as a robust research methodology to attain specific outcomes. Digital storytelling can help address the problem of knowledge gaps that frequently arise in research and is positioned here as a means of knowledge brokering (or knowledge transfer and exchange, KTE) and engaged research. KTE has traditionally sought to address knowledge gaps that arise when applying research outputs to inform policy and improve practice. The development of Integrated Knowledge Transfer and Exchange (iTKE) as an alternative to traditional KTE increasingly involves people as research participants throughout the research process, promoting two-way exchange. Engaged Research is presented as a progressive alternative to KTE and iTKE, which values and can incorporate local and indigenous knowledge. In this paper, digital storytelling is explored as a data collection technique that facilitates participatory research, promotes inclusion, values and promotes indigenous knowledge, and improves communication and awareness of issues within communities. Two case studies, the One Ocean Hub initiative with the South African National Parks, and the Indigenous Marine Innovations for Sustainable Ecological Economies (IMISEE) project, illustrate its use. Key characteristics and challenges of digital storytelling are identified and discussed. The paper concludes with suggestions for using digital storytelling for knowledge transfer and exchange.

Keywords: Digital Storytelling, Knowledge Transfer and Exchange, Communication in Research, Knowledge Gaps, Knowledge Brokering

1. Introduction

Research knowledge can potentially be used for instrumental, conceptual, or symbolic ends. That is, "instrumental use [of] research knowledge … directly shapes policies and results in action; a conceptual use refers to a change in awareness or understanding of certain issues; and a symbolic use merely legitimises existing policies or positions" (Mitton *et al.*, 2007, p. 741). Solutions to complex social and organisational challenges require collaboration among diverse stakeholders (Leydesdorff, 2012), who use knowledge instrumentally. Through research, emerging risks are identified, mitigation and adaptation strategies evaluated, and new, research-informed approaches and technologies developed to support the implementation of sustainable solutions (Leal Filho *et al.*, 2019). However, gaps frequently arise between the production of research knowledge and its potential to inform policy and practice, because of a disconnect between the knowledge generated and its real-world application (Grimshaw *et al.*, 2012; Khatri *et al.*, 2025). Knowledge brokering, which can be described as "an iterative and bidirectional process of translation, tailoring of information for specific contexts, feedback, and integration" (Hering, 2016, p. 364), ensures knowledge is adopted and used to inform policy and practice. This paper primarily illustrates how digital storytelling can support the knowledge-brokering process.

The next section explores the evolution of approaches to knowledge brokering, followed by a review of the digital storytelling literature. Thereafter, the use of digital storytelling is illustrated, followed by a discussion of selected key characteristics and challenges observed. Finally, this paper concludes with recommendations for the use of digital storytelling in research.

2. Literature Review

The literature review begins by exploring how knowledge brokering in the form of knowledge transfer and exchange (KTE) has traditionally sought to address knowledge gaps. Thereafter, the development of Integrated Knowledge Transfer and Exchange (iTKE) as an alternative to KTE is outlined. Engaged Research is then introduced as an alternative to KTE and iTKE, and digital storytelling is offered as an effective and appropriate medium for knowledge creation and communication.

2.1 Knowledge Brokering, Translation, Transfer and Exchange

In the literature, a wide array of terms is used to refer to various forms of knowledge brokering. Knowledge brokering (Hering, 2016) has also been referred to as knowledge translation (Hering, 2016). In turn, knowledge transfer and exchange are also referred to as knowledge translation, knowledge transfer, and knowledge exchange (Van Eerd and Saunders, 2017). All these concepts are used to address the gap between the knowledge created and its use. In this paper, the term "knowledge transfer and exchange" (KTE) will be used. KTE has its origins in Health Sciences, acknowledging the inability to translate research findings into practice or to inform policy (Grimshaw *et al.*, 2012). KTE was therefore proposed as an approach to address this situation.

An increasing number of studies have applied KTE, with the work of Lavis and colleagues providing guidance on its implementation (Lavis *et al.*, 2009). Five key questions shape these guidelines, which highlight communication elements of (1) the content of the message, (2) the messenger who conveys it, (3) to which target audience, (4) how it is conveyed (i.e. what transfer process and supporting communication infrastructure), and (5) with what effect? (Lavis *et al.*, 2003). Furthermore, the primary interest of KTE has been four target audience groups: the general public as users of health services, service providers, managerial decision-makers, and policy decision-makers (Lavis *et al.*, 2003).

Integrated Knowledge Transfer and Exchange (iKTE) has developed from KTE, and is characterised by a "two-way exchange between researchers and diverse stakeholders across all phases of the research process, including study design and implementation, analysis and synthesis and dissemination" (Jetha et al., 2022, p. 4). That is, rather than adopting a "push" or "pull" approach to communicating research results, an equitable exchange is promoted (Yonas *et al.*, 2013). It is viewed as a superior approach, in viewing the knowledge user as an equal partner and sometimes co-creator (Van Eerd and Saunders, 2017). This co-creation is to increase the relevance of the research and its adoption (Jetha *et al.*, 2022). In addition, research results are communicated in accessible language and through accessible channels (Van Eerd and Saunders, 2017). While the vast majority of research has been medical-health related, there have also been studies applying iKTE in user-centred design (Guay *et al.*, 2020), agricultural catchment programmes (Mellander *et al.*, 2022), and occupational health and safety (Van Eerd and Saunders, 2017).

Engaged research refers to a range of methodological approaches that encourage collaborative research design and participatory engagement with research participants (Barkin *et al.*, 2013; Mikesell *et al.*, 2013). For example, in community-based participatory research (CBPR), community participation is encouraged throughout the research process, including determining a research question, collecting and analysing data, disseminating the findings, and designing action (Collins *et al.*, 2018). Like iKTE, engaged research approaches are concerned with the inclusion of non-expert communities in the research process, but they also draw on diverse knowledge to inform the research. That is, community-engaged research acknowledges that community-based groups and organisations hold credible and intimate insights into the prevailing assets, challenges, and lived experiences of their communities and constituencies (Pasick *et al.*, 2010). It recognises that some of this knowledge is tacit and that knowledge gaps arise when tacit knowledge is ignored, and only explicit and formal scientific knowledge is valued and used (Boersema, 2024). Therefore, engaged research aims to include community voices, indigenous knowledge, and indigenous knowledge systems (Kanu and Ndubisi, 2020) in policy and formal decision-making, as well as to inform the actions to address the social issues experienced by participating communities.

Central to the KTE, iKTE and engaged research processes is communication. Mitton et al. (2007) identify a range of communication related strategies available for knowledge transfer and exchange, including (1) face-to-face exchanges between decision makers and researchers, (2) education sessions for decision makers, (3) networks and communities of practice, (4) facilitated meetings between decision makers and researchers, (5) interactive, multidisciplinary workshops, (6) capacity building within organisations, (7) web-based information, electronic communications, and (8) steering committees that include local experts in the design, conduct, and interpretation of research. However, engaged research approaches require a commitment to participatory methods to ensure genuine engagement, and digital storytelling can address this requirement.

2.2 Digital Storytelling

In research, a digital story is described as "a 2 to 5 minute audio-visual clip combining photographs with voice-over narration (and other audio if desired)" created by research participants (De Jager *et al.*, 2017, p. 2549). Digital storytelling combines narrative with multimedia elements—such as images, audio, and video—to convey complex information in a relatable, emotionally engaging way (Sarıca, 2023). Cinematography techniques are

used to further imply meaning through visuals and audio. Couldry (2009, p.15) describes digital storytelling as having "the ability to represent the world around us using a shared infrastructure."

While storytelling has been used extensively for educational purposes (Wu and Chen, 2020), it is also emerging as a qualitative research methodology (Davey and Benjaminsen, 2021). Researchers have explored using storytelling to uncover people's implicit, experience-based knowledge, but it remains unclear which kinds of tacit knowledge can or cannot be effectively shared through digital stories (Petrucco, 2022). The narratives of digital stories are often inspired by the storyteller's lived experiences. Digital storytelling creates an archive of people's lived experiences (Nordin *et al.*, 2023), and can be used as a tool for data interpretation and communication (Davey and Benjaminsen, 2021). There has also been some application of digital storytelling in business and management studies, in areas such as public relations (Allagui and Breslow, 2016), hospitality and tourism (Hutchinson *et al.*, 2024; Li *et al.*, 2024), crowdfunding (Kim and Hall, 2020), and consumer behaviour (Lisboa *et al.*, 2025; Pera and Viglia, 2016).

While research can benefit from employing digital storytelling, there are additional benefits for research participants as well. Firstly, video can facilitate the inclusion of multiple languages and translations, which contributes to the recognition and legitimisation of indigenous languages (Ambala, 2016). Secondly, community members, though not necessarily experts in filmmaking, possess invaluable knowledge about their personal and communal lives and experiences (Chávez *et al.*, 2004), and sharing this knowledge can be important for catharsis or healing for individuals or groups (Ferrari *et al.*, 2015). Thirdly, storytelling facilitates a deeper understanding of participants' situations and their approaches to social change in the first instance (Hull and Katz, 2006). Fourthly, storytelling provides a means of collective reflection (Yan *et al.*, 2021).

3. Using Digital Storytelling in Research

Two cases of digital storytelling are illustrated next. These are the "One Ocean Hub" initiative with the South African National Parks, and the Indigenous Marine Innovations for Sustainable Ecological Economies (IMISEE) project.

3.1 South African National Parks

Digital storytelling was used as a method for trans-sector and transdisciplinary research, facilitated by three South African universities - Rhodes University, Nelson Mandela University, and the University of Pretoria - and involving researchers from the South African National Parks (SANParks) (South African National Parks, 2026), and funded by the One Ocean Hub. The One Ocean Hub is an international research programme for sustainable development that aims to promote fair and inclusive decision-making in ocean management, enabling people and the planet to flourish (One Ocean Hub, 2026). SANParks is a public entity that falls under the national Department of Forestry, Fisheries and the Environment (DFFE) (Department of Forestry, Fisheries and the Environment, 2026). It is mandated to facilitate the inclusive conservation of over 20 protected national parks. The research project aimed to explore the cultural heritage of the Tsitsikamma coastal region in the Eastern Cape Province of South Africa (Eastern Cape Parks & Tourism Agency, 2026). Cultural heritage describes the physical objects or places, as well as intangible aspects such as language or cultural behaviour, that are passed on from generation to generation (Bortolotto, 2007). The project produced maps and other findings that help to keep physical spaces dynamic and actively engaged, rather than fixed or static. It aimed to make visible the multilayered cultural assets, meanings, and identities of Tsitsikamma, while foregrounding diverse local knowledges and perspectives. To do so, researchers used a mixed-methods approach, combining semi-structured interviews, paper-based participatory geographic Information Systems (PGIS), Direct-to-Digital (D2D) mapping, and digital storytelling.

A digital storytelling workshop was conducted with SANParks employees who were residents of the area. The project draws on indigenous knowledge systems, creating and sharing knowledge through processes that are integrated with contemporary digital tools. Using workshop-based, collective engagement that supports individual expression, participants produced short, two-minute narrative multimedia video compilations exploring the theme of cultural heritage in Tsitsikamma. Digital storytelling was approached as a fluid, participant-led process in which contributors guided the direction the research should take, acting as creators of data rather than purely sources from whom information was extracted. Story work took place through story circles, where participants shared their stories with others. Language use throughout the workshops was flexible, with translators available to support participants where needed. Most stories were completed and ready to share within the workshop timeframe, although participants worked at varying paces—some required

step-by-step guidance while others progressed more independently. The completed stories were shared at the end of the process, creating a sense of collective accomplishment.

Many participants created stories that focused more on their personal experiences and that were unrelated to Tsitsikamma's cultural heritage. In doing so, they articulated understandings of the landscape as deeply interconnected with other natural environments and broader social conditions. At the same time, the participants' stories did not directly address the research question initially posed. Therefore, as a research project, however, the material gathered did not always align neatly with the initial focus on ocean narratives, as participants often expanded the themes beyond the original scope.

3.2 Indigenous Marine Innovations for Sustainable Ecological Economies (IMISEE) project

The second case illustrates how digital storytelling was used in the Indigenous Marine Innovations for Sustainable Environmental Economies (IMISEE) research project. The project involved university-based researchers from the South African Institute for Aquatic Biodiversity (SAIAB) and Rhodes University's Music and Musicology Department, as well as community-based researchers from the Keiskamma Arts Project, a non-profit organisation based in the coastal town of Hamburg. Through collaborative engagement and story work, the project sought to develop nature-based solutions to human development challenges in marine environments. Digital storytelling was introduced as a shared-narrative method through which the natural sciences, the humanities, and Indigenous knowledge systems could be brought into dialogue (Cunsolo Willox *et al.*, 2013). The study explored how this method could shape participants' understanding of the project and of coastal degradation associated with climate change. Both digital storytelling workshops and interviews were conducted. Four workshops were held with 12 researchers, all responding to a common prompt: What is your role in the IMISEE project, and what do you understand about the impact of climate change on the ocean?

Early findings suggest that digital storytelling functioned as both a capacity-building and knowledge-integration tool. Participants developed practical skills in producing short, narrative multimedia outputs that could communicate their work to non-academic audiences. More significantly, the process contributed to deeper mutual understanding among co-researchers, making visible the diverse interests, epistemological orientations, and positionalities within the project. The stories served as an internal mechanism for knowledge exchange and as resources for science communication and public engagement. This communicative dimension proved valuable as the project entered a phase requiring external funding and broader dissemination to support scaling and implementation.

4. Discussion

This paper has illustrated the use of digital storytelling for research purposes, and particularly as a communication strategy for knowledge transfer and exchange in engaged research (Mitton *et al.*, 2007). As an emerging research method, there are no established procedures for digital storytelling (Davey and Benjaminsen, 2021). However, the two illustrative cases highlight key characteristics of digital storytelling: a participatory premise balanced by peer feedback.

Firstly, the cases illustrate the participatory approach to designing digital storytelling workshops (Ambala, 2016; Cunsolo Willox *et al.*, 2013). That is, research participants get to lead and direct the narratives, thereby retaining ownership of their stories and maintaining the authenticity of their experiences (Nordin *et al.*, 2023) when sharing them as a communication strategy for knowledge transfer and exchange. By implication, external communication content for knowledge transfer and exchange purposes is already available, and no further interpretation of the data is needed. As a result, research knowledge becomes more accessible and actionable for community members (Van Eerd and Saunders, 2017).

Secondly, story work (Gachago and Sykes, 2017) facilitates a dialogical conversation amongst peers and other stakeholders. This provides an opportunity to test how the story is communicated and to receive peer feedback. This collaboration ensures more robust stories are produced. However, the cases also illustrate how this validation of stories can create tension between a research participant's personal objectives for participating in the research and the agreed-upon research objectives at the start of the research. This may leave researchers with research outputs that do not fully align with the research problems they had in mind from the outset and do not adequately address the research mandate set by funders.

5. Conclusion

In this paper, digital storytelling has been showcased as a communication method for knowledge transfer and exchange. It has described how direct and authentic communication outputs are produced, which are accessible and open forms of communication. It is therefore recommended that, when acting as knowledge brokers (Hering, 2016), researchers adopt digital storytelling as a method to more effectively inform policy and practice in addressing complex social challenges, particularly when confronting research problems that require the generation of instrumental knowledge and community support and action. It is also recommended that researchers carefully manage expectations when adopting digital storytelling as a participatory approach, balancing the needs and expectations of research participants and communities with those of researchers and funders, and other stakeholders.

Ethics Declaration

Permission was granted by Rhodes University's Human Research Ethics Committee for the two case studies referred to in the paper, which involved human participants. The Ethics approval reference numbers are IMISEE: 2022-4951-7185 and SANParks: 2021-2790-5991

AI Declaration

Grammarly was used to check and edit the spelling and grammar during the paper's development.

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Using AI And Research Methods To Prepare The Next Generation

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Abstract: Generative Artificial Intelligence has had a profound and continuing impact on both research and on higher education in recent years. There are a number of issues arising from this which are particularly relevant to teaching research methods at undergraduate level. Generative AI has considerable potential to facilitate research, notably in reviewing literature, and as such its use should arguably be part of the syllabus for students on a taught degree course. However much of the dialogue, so far, about generative AI in the context of university teaching, particularly at the undergraduate level, has focused on concerns that its use by students weakens established forms of assessment and could inhibit learning through being used as a short cut to obtaining a degree. To complicate the picture further, undergraduates are preparing to enter an uncertain environment for employment, with a concern that generative AI will directly affect many graduate-level jobs and that during their careers it will change the landscape within which they work in ways that cannot possibly be predicted. This paper builds on earlier conceptual work presented at ECRM in 2025 and uses data gathered in a focus group of recent Business Management graduates who took a research methods in their final year. It uses their experience to identify pointers for how use of generative AI can be incorporated into the teaching of research methods and how this can prepare a forthcoming generation of students for the workplace. The recent graduates participated in a focus group in which they reported varying experiences of use of AI whilst they were studying and following university. There were considerable differences between individuals in their propensity to engage with AI and in the resources that they used to support this engagement. However, a common theme highlighted by participants was the scope for universities to provide more thorough guidance about the practicalities of students' use of AI.

Keywords: AI, Students, Research

1. Introduction

The extent of students using AI for learning and assessments within Higher Education has grown immensely in the last few years (Sabsalieva and Valentini, 2023). Recent literature on generative AI and its connection to work by Mollick (2024) and others has shown the prevalence of growth and opportunities for AI and also highlighted the extent to which it fundamentally changes some of the knowledge and skills that students need to learn. This literature includes a string of works that have examined Chat GPT usage, perceptions of AI tools and the impact they have on performance (Abbas et al, 2024; Blahopoulou and Ortiz-Bonnin, 2025, Wang and Fan, 2025). Other work, such as Mumtaz et al., (2025) has highlighted that cultural values can shape how students across the globe interact with AI tools.

In the Higher Education context AI is highly relevant to both teaching and research and there is an emerging understanding of how it can contribute to each of these areas of a university's activity (Sabsalieva and Valentini, 2023). The two overlap in the teaching of research methods, which creates some interesting challenges for both students and educators. For teaching there is additionally a demand for graduates who could be considered career-ready in a fast-changing environment where AI is increasingly part of the landscape in which employers operate.

This paper takes contemporary literature about AI in university teaching as a base and uses the experience of a number of recent graduates in a focus group to examine student perceptions and what this means in practice.

2. Literature Review

The literature review is comprised of two key domains that focus the implications of AI usage within Business schools and the risks associated with these implications.

2.1 Domain 1: Impact of AI on Business Schools

2.1.1 Part i:

Pisica et al (2025) researched employers' views on what they expected from graduates and determined a need for business schools in particular to integrate AI into their teaching. They distinguish the need for graduates to understand AI in itself and to be aware of its potential applications. Biagini (2025) contributes a systematic

literature review, tracing AI back to its origins in the twentieth century while at the same time noting its current pervasiveness with the consequent imperative to develop AI literacy. This analysis supports the need for educators at every level, including those in business schools, to integrate AI into their activities.

Chatfield (2025), whose work on critical thinking underpins a significant element of the first year curriculum for Business Management students at the authors' institution, takes existing understanding of what works in education as a starting point and stresses that AI should not 'hollow out' the skills that humans need to navigate it. He analyses student learning in terms of three dimensions – cognitive, instructional, and social – and examines the impact of each of these. The strand linking these is that students need more than merely content delivery, and he highlights the importance of preparing them to adapt to changes.

2.1.2 Part ii:

Recent literature published in 2024 and 2025 covers the evolution of pedagogic techniques in the light of developments in AI. This includes work such as case studies like that by Blommerde et al (2024) who have offered innovative approaches to teaching research methods as an example of integrating generative AI closely into design of a module. They included tasks such as creating a literature review using AI within the module and therefore provided the students with practice in prompt engineering in particular, taking as a starting point that active use of AI as part of students' learning was more constructive and valuable than the situation that existed earlier when students tended to conceal their use of AI. In doing this they establish a clear link between AI and teaching and learning research methods. This recognises avenues of growth of AI with benefits for students and the potential of AI to contribute to analysis and coding of data.

2.2 Domain 2: Opportunities and Risks of AI in Higher Education

Specific studies identify particular issues and concerns about the use of AI. Notably widespread use of generative AI can increase students' moral disengagement and more likelihood of academic misconduct (Theoharakis, 2025), unless there is institutional support, leading to the argument that this is critical issue within HE that requires intervention. Suchanek (2025) highlights how AI usage in the form of chat GPT and other generative AI tools can be valuable tool within course satisfaction. Paradoxically, this can lead to wider concerns around learning dependency – such work requires further exploration

2.3 Interpretation

There remain contradictions among views of the value of AI: notably de fine Licht (2024) expresses scepticism about its value and makes the case for banning student use in some circumstances. By comparison Newell et al (2024) see AI as a disruptor to higher education and maintain that institutions are still at an early stage in the process of adapting to innovation. Arguably recent literature unpacks a nuance between the two camps of thoughts through identifying with more clarity the potential for AI to bring tangible benefits.

Csaszar et al (2025) position AI as a potential driver for what they term a third epoch of management education. By way of caution, they note that some innovations have generated a lot of interest but not typically resulted in major change. At the same time they set out to synthesise their analysis of the impact of AI on business schools by examining how educators can influence this. In respect to teaching, they highlight the need to teach what they term the higher-order skills most relevant to a world which includes AI.

2.4 Overall and Reasoning to Explore Topic:

Taken as a whole, there is a clear need for universities, and business schools to pay particular attention on how they embed AI practices to enhance student experiences and overall employability. Moreover, examining how to support students on research methods with the use of AI is vital given that it is a key module taught across several UK degree programs. To support practitioners in this domain, deep, exploratory work on connecting AI in teaching research methods to prepare students for employment would be useful. This stream of work has been overlooked and given the value of research methods modules across disciplines this would be beneficial.

3. Methods

This study adopts a qualitative lens to examine the experiences of business and management recent alumni (graduated in summer 2025) use of AI in their careers. All participants undertook a research methods module in their final year of their course. A focus group was run with five students to gather rich and diverse data on the

topic (Carey and Asbury, 2016). Given the emerging nature of the topic of AI usage within Higher Education, which calls for deep exploration, it was imperative to collect data from suitable participants (Carey and Asbury, 2016). This required careful sampling, and consequently one focus group with five appropriately selected participants was considered sufficient to provide the detailed insights into the research topic. As the sample consisted of those who commenced their post undergraduate roles recently, the students could aptly recall their recent year of study alongside their postgraduate career. Moreover, the use of one focus group is similar to other studies in the field and is deemed as a fitting research method (Huo and Siau, 2023, Takács, Tolner, and Pogátsnik, 2023; Angelis, 2025). To ensure reliability and minimise the possibility of errors and biases for researchers and participants, the two authors collaborated to determine a set of questions before the focus group, which took place in a room at the business school booked for the purpose. The research had ethics approval from the university and participation information sheets and consent forms were used in line with the university's policy.

Following the data collection, a thematic analysis was used to analysis the data and map out key themes in line with Braun and Clarke (2013) thematic analysis approach. In line with the Braun and Clarke (2013) methodology, the focus group transcript was first read several times over, before iteratively coding relevant phrases. Subsequently, the initial codes were grouped into appropriate sub-themes. The sub-themes were then reviewed, grouped into overall themes and all themes were then named. Where direct quotes from the focus group are included, the students are identified by pseudonyms to protect their identity.

4. Findings

Across the focus group the participants discussed the range of perceptions of AI, how it shaped their academic journeys, including to how it influenced their research methods module.

4.1 Theme 1: General Perception of AI

A common theme that emerged from the focus group centred around how the students *generally perceived AI tools.* Comments were made about how some viewed it with caution. For instance, Jay claimed the following about AI tools:

> "but you have to take it with a pinch of salt to say the least, you know, the accuracy that I think it can, you know, sort the miss accuracy and some of the errors" [Jay]

Similarly, others recognised the benefits but also the dangers of it:

> "don't let artificial intelligence completely substitute and replace the skills that you have as a human. Of course, use it for efficiency reasons to help with brainstorming ideas... I'm really scared that AI will replace so many jobs, humans, humanistic skills" [Andra]

The above sentiments showcase the nature of the dangerous nature of AI usage and how students see the potential risks associated with such tools. This comprises from issues with inaccuracies to other wider consequences. Other participants, such as Alex on the other hand spoke about the value of AI:

> "when I didn't have a lot of time to read everything from, let's say, a certain article, I could always generate an AI podcast. I could always generate an AI video. That would go over it. And I can get the general gist of the article...also with ChatGPT, there is the option to create custom GPTs" [Alex]

Alex's response depicts how some participants view AI tools as a useful resource to support their academic work. He also goes further about how the level of *effort required for desired outcomes from AI tools in work and studies.* He highlighted how he has used AI in a manner that is more sophisticated.

> "if you place the framework into charge with you when you start the chat...How can you prompt it so you can give me the best output? It sounds like a black magic but it works. It actually tells you how to efficiently prompt it and once you put that in the chat it actually gives you a perfect answer" [Alex]

The reference "black magic" indicates how powerful the tools can be. Emma shared similar sentiments to Alex and delved into the *level of effort required for desired outcomes.* For example, she stated:

> " We've actually done something similar to this at work and it only took about four hours like me and someone else working on it, and we're not experts. And it was our first time doing it." [Emma]

Evidently, from these participants' responses they can perceive that the AI tools to generate useful findings. There are differences to the approaches and Angela like the other shared comparable responses:

> "I do use AI, but it's more for like kind of structuring my thinking rather than producing actual content. I would go and research and find the source of myself." [Angela]

The account from Angela illustrates that not all participants trust AI tools and use it as a supplementary resource. Overall, it can be deemed that the participants have a differing level of approach to such tools and this could be linked to how they generally perceive them.

Related to this, within this theme, participants also discussed the *ethical and legal nature of AI tools*. For example, there were a few remarks that alluded to how AI utilises data sources incorrectly and does not critically challenge inputted data:

> "the work is basically wrapped, but there's no new thought or idea" [Jay]
>
> "I'm going to go back on the comment of Chat GPT agrees with you for everything. I found this annoying. I hate when people agree with me in general, especially artificial intelligence in that case" [Agne]
>
> "Actually, I don't trust ChatGPT that much because it always when it evaluates your work it it always says something like, yeah, you're thinking like a master students" [Angela]

The above comments showcase the distrust in the AI tools in terms of originality and validity. They highlight how they do not offer novel ideas and are aware of the ethical nature of the tools as well as how the tools can be frustrating to a degree.

Overall, this theme has displayed that students varying perceptions of the use of AI tools. The participants comments showcase the medley of views which can be linked to the level of effort they want to put into the usage of the tools. With that being said, there is a common theme that they do see the risks of the tools and question their ethical nature.

4.2 Theme 2: Academic "use" of AI

The second theme was linked to how participants differed in their AI usage approach in an academic context. Within this theme, the was a discussion about the *effective use of AI integration.* Some were highly organised for example in using AI tools to summarise the material for a particular module or assessment. Others saw it as something distinct from their academic activities. Alex, explaining his own expertise and confidence in using AI tools, noted that:

> "[ChatGPT] can produce quite a good output, but if you don't read what it actually uses as sources you are going to end up with some mistakes" [Alex]

The point about the value and accuracy of data could also be related to source academic papers and supporting academic argument developing. For example, the participants offered interesting observations about how ChatGPT was in particular useful as a study support tool:

> "The main way that Chat Gpt helped me... [was to] spot logical gaps in my arguments, so I did like a lot of the discussions with. So obviously I had my own ideas and my own research. But I think when you put out your arguments, it does spot some, like inconsistencies or maybe questions you want or something" [Angela]
>
> "ChatGPT summaries are not bad for sure, like double check absolutely everything, but it does save a lot of time in reading research papers because some of them are"
>
> "I use it quite a lot to brainstorm ideas to generate when the skeleton to help me figure out what sources are actually incredible" [Alex]

The above points highlight how the students take ownership of their learning and that AI provided ways to support this. For instance, Angela's quote in particular showcases how using AI to support her research project whilst owning the learning and analysis process that was taking place.

Beyond this, was some discussion of the importance of AI in the context of the research methods module which the students had taken in their final year of study. During this discussion, the participants made comments about the relevance of AI and the module, which is further highlighted in the third theme. Related to this, within

this theme there was a sub-theme that focused on *student ownership of learning and using AI as a complementor with limits:*

> "I think especially in the legal field, everyone is very reluctant to adapt any kind of form of AI, because we like my also my students alongside me, like we tried to use it to help us with the course and finding certain cases and stuff and it the amount of errors it produced was just unacceptable, and our professors, we have a very strict guidance on the use of AI and what's allowed, what's not allowed. (Andra)"

> "evaluate mistakes in the output I use two additional large language models like Gemini and Drop AI who can cross check each other" (Alex)

> "definitely errors within citations or like a data set, especially when it comes down to the really specific pieces of data. And I think the way that it can sort of output certain or tell the story and can make you understand it in a certain way which actually is not correct" (Jay)"

The above excerpts indicate how in an academic context there is some resistance to fully embrace AI tools and in fact that through experimentation there are issues with the limits to their capabilities.

There is a general sense that students want to take ownership of their work and as part of this process they detect confines of usage of these tools. Jay further declared:

> "I do think like, you know, I think maybe university should be more lenient towards using it because eventually you get to a point where students do realise actually it's not this great quick tool, but actually they think you know that perception." [Jay]

His above quote indicates that there is a slight difference between the student perspective and academic perspective on the use of AI. This is a common sub-theme and showcases how students do recognise that they cannot do everything through AI tools like Chat GPT, which is a view that academics may not recognise.

Overall, in the classification suggested by Sabsalieva and Valentini (2023), the participants' experience was closest to that of a *study buddy* providing assistance to students to reflect on their own learning and understanding, more so than that of a *guide on the side* which depends on teachers providing content to point students in an appropriate direction.

4.3 Theme 3: University Adoption of AI That Drives Student use of AI

During the discussion about the use of AI and the research methods module, the participants remained optimistic about how universities can adopt AI. They did question *AI's application to research methods:*

> "I don't really see how you can fit AI into research methods. Maybe there is a way I can't see, but yeah, I'm not sure because you don't. The main bit of it is sort of like getting those journals and finding the data and you don't want them to use AI for that because the AI is really not specific and accurate with it" [Emma]

Dissertations are the principal form of research within undergraduate studies, and Alex raised that questioning students about their dissertation work in person, would "make the lives of students quite miserable". Therefore when focusing on the research methods module and on the individual projects for which that module set out to prepare them, the students recognised issues around integrity stemming from the use of AI but did not see AI as a potential research tool.

Going further then the integration of AI and research methods, the participants did not refer to any great extent to *university policies and AI*. When the question of guidance was raised within the discussion, the only participant who referred to overall university policies was Andra, who did so in connection with a postgraduate law course that they were taking, not the undergraduate business course that they had recently completed:

> "We tried to use it to help us with the course and... the amount of errors it produced was just unacceptable, and our professors, we have very strict guidance on the use of AI and what's allowed, what's not allowed" [Andra]

Nor was there much discussion of tools provided by the university: if anything there was a sense that any use of AI, even to support their studies, was part of their personal activity and not in any way integrated into how they worked with the university.

There was no explicit mention of issues around Higher Education governance in the discussion but there was a sub-theme within this theme which was linked to the s*tudent perspective of AI and how it should be used.* Specifically, there was talk about how Turnitin as a tool to detect indications of academic misconduct and how it prompted consideration of what would be permissible in terms of university policies and guidelines. This was one university-provided tool which students were interested in, particularly because its use by staff could influence the outcome of their studies. Some discussion focused on policies imposed by the tool rather than those set up by the university:

> "Turnitin actually has a very interesting policy, and it is that in the beginning they said that they can percent guarantee that they can detect AI, but try. Right now they say this is just, you know, like an information guys who check their policy. They cannot guarantee it picks it up" [Alex]

This led to a discussion of a news story where Turnitin, an established plagiarism checker, had falsely identified the US Declaration of Independence as AI generated because the declaration had formed part of the data that AI models have been trained on. Alex and Andra were acutely aware of the way that information is processed and consequent implications for recognising when material could have been created using AI.

In line with this discussion, participants made comments about how universities should be lenient with their approach to Turnitin.

> "Maybe university should be more lenient towards using it because eventually you get to a point where students do realise actually it's not this great quick tool, but actually they think you know that perception" [Jay]

The above quote showcases how universities should support students better by recognising students genuine view on AI tools. The quote depicts that this should be a part of the university's role and students recognise that may not always see the student's perspective on this matter.

5. Discussion

Overall, we identified three key findings from our research. First, participants recognise the benefits of AI tools like Chat GPT and Gemini that generally support them with idea generation. Participants did also highlight the constraints of the tools. Interestingly, the participants took different approaches to the usage and experimentation of such tools in terms of the effort they put into using them. This was generally linked to their views on the risks associated with the AI tools as well as the ethical and legal nature of them.

Second, we find that the participants' approach to AI tools was demonstrated in their academic and current working life. They highlight how AI tools are supplementary resources and are useful to summarise and organise content as well as form connections between ideas. In essence, AI enabled them to continue to take ownership of their learning but that this was outside of the university area of responsibility. Yet the participants did voice that the AI tools were not error proof and there was general mix of approaches to utilising the AI tools. Generally, the participants highlighted that universities should be lenient in their approach to AI usage and let students recognise the limits of these tools, as generally students want to take ownership of their work. Academics may not always recognise that students are aware of the AI tool drawbacks.

Third, we find that the participants discussed the wider implications about AI usage in conjunction with their employment and university curriculum. Specifically, there was a common theme that AI should not directly applied in research methods module as it was not a direct research tool, but more generally across programmes given that it can support students in multiple ways. Going further, the participants highlighted how there was limited use of AI integration by the university and their utilisation of AI was more of a personal activity. Lastly, participants questioned Turnitin's ability to recognise what was genuinely written by the students as opposed to AI. They again flagged the differences in perspectives that students and the university hold regarding Turnitin as a plagiarism checker.

We advance scholarship on AI by specifically showcasing the diversity in AI usage and a blanket policy does not exist but the relevance of AI integration into Business School curriculums (Pisica et al; 2025, Biagini, 2025). In fact, students can be averse to such AI tools and conscious of the drawbacks. An indication of the complexity of the issue is that students who are expert and well-disposed towards the use of AI can also be very aware of the limitations of AI tools.

In terms of practical recommendations, we suggest that academics and practitioners use our findings in three ways. First, our findings showcase that students should be made further aware of the benefits and limitations

of AI tools across their curriculum and not solely in research method modules. In doing so universities can play an active role in how students utilise AI tools. Second, there should be a general leniency to reviewing students work that have been flagged to have used AI tools. Lastly, university practitioners should continue to push that students should take ownership of their own learning, and this can include how they utilise AI in their work.

Taken as a whole, our paper advances the literature on AI usage. It examines the practical responses of a set of participants who were final year students at the time that generative AI came into the mainstream of discussion in Higher Education and elsewhere, and who have some experience since graduation to place their ideas in context. While this is a small sample and any results should be generalised only with considerable caution, the participants are in a particularly strong position to observe the emergence of AI and its relevance both to studies at university and to the world of work. Since generative AI tools are still in their infancy and because of the potential that they offer to transform how education is delivered, any analysis of student experience contributes to understanding AI's impact. The themes which we identified, and the considerable variation in the level of expertise and familiarity with AI tools amongst participants, would be relevant to other cohorts and could contribute to a broader understanding of AI in universities.

AI Declaration

None of the paper was written using AI tools.

Ethics Declaration

The focus group was carried out with approval from the university's ethics committee and in line with the committee's policies.

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Listening as Method: Reframing Listening Circles as a Qualitative Approach in Business and Management Research

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Abstract: Business and management research increasingly engages with complex, context-dependent challenges that demand methods capable of capturing lived experience, tacit knowledge, and collective meaning-making. In community-embedded and emerging-economy contexts, conventional extractive approaches, such as surveys and structured interviews, often fail to yield the depth of insight required for organisational decision-making, strategy development, and curriculum innovation. This paper examines listening circles as an innovative qualitative data collection method for business and management research. Drawing on participatory and dialogic research traditions, listening circles extend focus group approaches by emphasising structured listening, narrative sharing, dialogic data generation and collective reflection. Rather than positioning participants as respondents to researcher-driven questions, this method creates conditions for participants to co-construct knowledge through shared experiences and dialogue. The paper offers a conceptual and methodological analysis of listening circles in research design, outlining key considerations including facilitation, sampling, ethical protocols, and data analysis. It also demonstrates how listening circles can be integrated into qualitative and mixed-methods research designs to support organisational learning, stakeholder engagement, and contextually responsive decision-making. By reframing listening circles as a rigorous qualitative method rather than a purely engagement-focused practice, this study contributes to ongoing debates about methodological innovation, reflexivity, and ethical research in business and management studies.

Keywords: Listening Circles; Qualitative Research Methods; Participatory Research; Business and Management Research; Dialogic Research

1. Introduction

Business and management research increasingly addresses complex organisational and societal challenges that demand research approaches capable of capturing lived experience, tacit knowledge, and contextual meaning-making (Maree, 2025). Organisations operate in environments marked by rapid change, uncertainty, and multiple stakeholder perspectives. Understanding these environments requires research methods that move beyond collecting surface-level opinions to provide deeper insight into how individuals and communities interpret their experiences.

Traditional research approaches in business and management studies have often relied on structured interviews, questionnaires, and survey-based methods. While these approaches can generate useful data, they often reflect an extractive model of research in which participants respond to researcher-defined questions, with limited opportunity to shape the direction of inquiry (Chapman, 2020). Such approaches may be insufficient when research aims to understand complex organisational processes, community engagement practices, leadership experiences, or institutional change processes. In these contexts, research participants possess situated knowledge that may not emerge through structured questioning alone.

Recent methodological discussions have emphasised the need for qualitative approaches that balance analytical rigour with contextual responsiveness and ethical engagement with participants. Participatory and dialogic approaches have increasingly been proposed to reduce power asymmetries between researchers and participants while generating richer, more meaningful data (Sven, Latham & Bateman, 2023). Listening-based approaches represent a promising development in this area. Listening circles build on traditions of participatory dialogue and group-based qualitative research, extending them through structured listening, narrative sharing, and collective reflection. Rather than positioning participants as respondents to researcher-driven questions, listening circles create conditions in which participants share experiences and perspectives that reveal contextual priorities and collective sense-making processes (Smallwood, Patterson & Kaufmann, 2024). As recent methodological discussions suggest, listening-based approaches may reduce power asymmetries, enhance trust, and generate analytically robust qualitative data while maintaining strong ethical integrity (Lepore, Hall & Tandon, 2024).

Listening-based data collection methods have become more prominent in recent methodological discussions. At a 2025 conference in Lusaka, Prof. George Openjuru, the vice-chancellor of Gulu University in Uganda, delivered a keynote speech on this approach. Since Gulu University brands itself as “for community transformation”, he spoke about community engagement and described how their medical researchers sat

under a tree in the community, listening to the narratives of the community's elders, who explained which plant or remedy to use for which illness. The scientists listened and took notes, then returned to their university laboratories to investigate what they had heard. Upon learning of their use of listening as a data-collection methodology, I reflected on its broader potential applications beyond community engagement. Even within the social sciences, it is occasionally essential, for specific studies, to refrain from posing questions that might influence participants to produce responses, and instead simply to listen and gather comprehensive data capable of guiding projects in unforeseen directions.

Despite their growing use in community engagement and participatory development contexts, listening circles have rarely been conceptualised as a rigorous qualitative data collection strategy in business and management research (Ardoin, Gould & Wojcik, 2022). They are often treated as engagement activities or consultation exercises rather than as structured research methods capable of generating analytically robust data through dialogue. This represents a missed opportunity for methodological innovation in business research.

In response to these methodological gaps, this paper introduces the concept of dialogic data generation to frame the epistemological contribution of listening circles to qualitative research. Dialogic data generation denotes the co-construction of qualitative data through structured listening, shared narrative exchange, and collective reflection among participants. This perspective positions listening circles not merely as a participatory technique but as a method for collaboratively producing knowledge in context-sensitive and ethically grounded ways.

The aim of this paper is to conceptualise listening circles as a rigorous qualitative data collection strategy for community-informed business and management research. It presents a methodological framework for designing and implementing listening circles and discusses their potential contributions to organisational research, strategy development, and curriculum innovation. By reframing listening circles as a research method rather than a purely engagement-oriented practice, the paper contributes to ongoing debates about methodological innovation, reflexivity, and ethical research practice in business and management studies. This paper thus positions listening circles not merely as a participatory technique but as a dialogic epistemological approach to qualitative inquiry in business and management research.

2. Qualitative Research in Business and Management

2.1 Traditional Qualitative Methods

Qualitative research has become an established approach in business and management studies, particularly in areas such as leadership, organisational culture, strategy development, and organisational change. Common qualitative methods include semi-structured interviews, focus groups, case studies, and ethnographic approaches (Maree, 2025). These methods enable researchers to explore meanings, perceptions, and experiences in ways that quantitative approaches cannot easily capture.

Semi-structured interviews remain among the most widely used qualitative data collection methods in business research (Quinlan, Babin, Carr et al., 2015). Interviews offer flexibility, allowing participants to elaborate on their experiences while still enabling the researcher to guide the conversation around specific themes. However, interviews remain largely researcher-driven interactions, with the researcher determining both the questions and the structure of the conversation.

Focus groups are another commonly used qualitative method. They enable interaction among participants and allow the researcher to observe how opinions and experiences are negotiated within a group setting. They are particularly useful for exploring shared experiences and collective perceptions. However, focus groups typically remain structured around predetermined questions and moderated discussion, which may limit the emergence of unexpected insights (Schutte & De Beer, 2025). Although these methods have proven valuable, they may be less effective for understanding collective sense-making, shared narratives, and contextual knowledge. In such contexts, methods that emphasise dialogue and listening rather than questioning may yield deeper insight.

2.2 Focus Groups and Listening Circles

Listening circles share some similarities with focus groups but differ in important respects. Both methods involve small groups of participants and rely on participant interactions as data sources (Smallwood et al., 2024). However, the underlying logic of the two approaches differs substantially. Listening circles offer a powerful alternative to focus groups in social sciences and business research by prioritising unstructured storytelling in a

non-judgemental space, allowing participants to share narratives at their own pace rather than responding to predefined questions.

In focus groups, discussion is typically structured around a set of research questions or topics introduced by the moderator. The moderator actively guides the conversation, ensuring that all topics are covered and that participants remain focused on the research objectives (Maree, 2025). Participants primarily respond to the moderator's questions and comments.

Listening circles, by contrast, are structured around the principles of dialogic listening and narrative sharing. Participants are encouraged to share experiences on their own terms, with minimal facilitator interruption or redirection (Ardoin et al., 2022). The facilitator's role is not to steer discussion towards predetermined answers but to create a structured environment in which participants can listen to one another and reflect collectively. Listening circles foster deeper, more authentic insights through open sharing, with participants building on each other's stories in a synergistic way, unlike the moderator-driven structure of focus groups, which can limit depth or encourage groupthink. This methodology excels when the goal is to capture lived experiences, emotions, and collective wisdom through dialogic data generation, without researcher-imposed framing. Table 1 illustrates key differences between focus groups and listening circles.

Table 1: Focus Groups vs Listening Circles

Feature	Focus groups	Listening circles
Structure	Question-driven	Dialogue-driven
Moderator role	Active direction	Facilitative listening
Participant role	Respondent	Co-constructors of knowledge
Knowledge produced	Opinions and attitudes	Narratives and lived experiences
Power relations	Researcher-centered	Balanced with a focus on participants
Data type	Thematic responses	Narrative accounts

Listening circles, therefore, represent a shift from researcher-centred data collection toward dialogic knowledge production (Smallwood et al., 2024).

3. Conceptualising Listening Circles

3.1 Origins and Development

Listening circles draw on a range of dialogic and participatory traditions. Similar practices appear in indigenous knowledge-sharing, knowledge development, and learning traditions (Reed, 2021), restorative justice processes (Aseron et al., 2013), and community dialogue initiatives (Lynn & Chase, 2022). These traditions emphasise respectful listening, equal participation, and collective reflection. Listening circles can also serve as mechanisms for including participants' voices in institutional decision-making. By providing structured opportunities for participants to share their experiences and perspectives, listening circles enable researchers and organisations to access experiential knowledge that is often excluded from traditional research methods.

In research contexts, listening circles are closely aligned with participatory and community-based research approaches that position participants as co-creators of knowledge rather than as passive respondents (Ardoin et al., 2022). Participatory research traditions emphasise collaboration, mutual learning, and the production of knowledge that is meaningful to both researchers and participants (Holmes, 2024).

Listening circles extend these traditions by applying structured listening protocols that prompt participants to share experiences, thereby revealing tacit knowledge and contextual insights. The focus on listening distinguishes listening circles from other group-based qualitative techniques and establishes them as a distinct method for generating qualitative data (Ardoin et al., 2022).

In the social sciences, listening circles are valuable for exploring community impacts, such as residents' narratives about how new developments affect social cohesion, cultural practices, or environmental health, highlighting unintended concerns that structured questions might overlook. They are also particularly suited to research on diversity, equity, and belonging, such as students' sense of inclusion, where participants collaboratively generate meaning through shared stories (Hanson, Polik & Cerna, 2017).

Business researchers can use listening circles to gather detailed accounts of client experiences, uncovering subtle pain points or unmet needs in customer journeys that quick feedback from focus groups often overlooks. For project sustainability, they allow stakeholders, such as end-users or affected communities, to voice long-term viability concerns, including ecological or social ripple effects, leading to more comprehensive evaluations (University of Wisconsin, 2015). Beyond data collection, participatory listening processes can enhance stakeholder engagement in organisational initiatives. When individuals are invited to share their perspectives through structured listening, they are more likely to develop a sense of ownership of the outcomes and to support subsequent initiatives emerging from the research process.

3.2 Core Principles of Listening Circles

Listening circles are characterised by several core principles that distinguish them from other qualitative research methods (Ardoin et al., 2022; Chiba, 2024; Smallwood et al., 2024; Sved et al., 2023), including:

3.2.1 Structured Listening

Listening circles are organised to provide structured opportunities for participants to speak and listen. Participants typically speak in turn, ensuring that all voices are heard and that dominant individuals do not monopolise the discussion. Structured listening fosters more balanced interaction and increases the likelihood that quieter participants will contribute.

3.2.2 Narrative Sharing

Participants are encouraged to share personal experiences rather than abstract opinions. Narrative accounts illustrate how individuals interpret their experiences and how meaning is constructed within organisational and community settings.

3.2.3 Collective Reflection

Listening circles emphasise reflection on shared experiences. Participants respond not only to the facilitator but also to each other, enabling collective sense-making.

3.2.4 Reduced Hierarchy

Listening circles aim to reduce hierarchical distinctions between participants and researchers. The facilitator adopts a listening role rather than an authoritative one, fostering a climate of trust and openness.

3.2.5 Ethical Reciprocity

Listening circles recognise participants as contributors to knowledge production rather than merely as data sources. Participants benefit from the opportunity to reflect on their experiences and to learn from others in the group.

3.2.6 Rigour and Trustworthiness

As with other qualitative research methods, maintaining rigour in listening circle research requires careful attention to methodological transparency and data analysis. Credibility can be strengthened through systematic documentation of discussions, verbatim transcription of narratives, and the use of thematic or narrative analysis. Reflexive practice is also vital, as researchers must remain mindful of their role in shaping the listening environment and interpreting the data.

4. Listening Circles as Research Design

4.1 Suitable Research Questions

Listening circles are particularly well suited to research questions that involve lived experience, organisational processes, and shared meaning-making (Sved et al., 2023). Examples include research on organisational culture, leadership experiences, organisational change, and stakeholder engagement.

It can be particularly valuable in research contexts where participants possess experiential knowledge that is difficult to capture through structured interviews or questionnaires. Primary data collection methods that

involve direct engagement with communities can uncover issues and perspectives often missing from secondary data sources. Directly involving participants in the research process enables researchers to identify locally relevant concerns and contextual dynamics that might otherwise go unnoticed. Listening-based approaches therefore complement existing data sources by filling knowledge gaps and revealing emerging themes within communities. For example, research into workplace transformation, professional identity, or community engagement may benefit from approaches that allow participants to express their experiences in their own words.

Listening circles serve not only as tools for gathering qualitative data but also as catalysts for collective reflection and action. In practice, they often prompt participants to collaboratively identify issues and develop both short- and long-term strategies to enhance organisational or institutional practices. In this way, listening circles bridge the traditional gap between data collection and organisational learning, enabling research processes to inform real-world change (Hanson, Polik & Cerna, 2017).

4.2 Sampling Strategies

Listening circle research typically uses purposive sampling to include participants with relevant experience or knowledge. Participants may be selected to represent stakeholder groups, organisational roles, or community perspectives. Maximum variation sampling may be particularly useful in listening circle research because it enables researchers to capture diverse perspectives within a single dialogic setting (Maree, 2025). Typical listening circles include between six and twelve participants, providing sufficient diversity while keeping interactions manageable.

4.3 Facilitation

Facilitation is central to listening circle research. The facilitator creates a respectful environment, minimises intervention in discussions, and ensures equal opportunities to speak by adhering to agreed protocols. Participants sit in a circle to promote equality and engagement (Smallwood et al., 2024). Structured speaking turns prevent dominance and include quieter members. Guidelines emphasise respect, confidentiality, and the suspension of judgement. The facilitator upholds these protocols and neutrality, avoids influencing the content, and supports open, reflective dialogue through broad prompts. This approach fosters organic narratives and shared understanding. Facilitation protocols may include speaking in turn, no interruptions, respectful listening, and confidentiality agreements. Clear facilitation protocols enhance both the ethical integrity and methodological consistency of listening circle research.

4.4 Data Recording and Documentation

For listening circles to serve as an effective qualitative data collection method, systematic procedures for recording and documenting discussions are crucial. While listening circles focus on narrative sharing and open dialogue, the information generated during these sessions must be captured in ways that facilitate careful analysis and interpretation. The most common method of documentation involves recording the listening circle audio, followed by a verbatim transcription of the discussion. Audio recording allows researchers to capture the richness of participants' narratives and ensures that important nuances, expressions, and interactions are preserved during the documentation process (Quinlan et al., 2015). In addition to recordings, researchers typically take field notes during or immediately after the listening circle to capture contextual observations such as group dynamics, emotional tone, or notable interactions among participants.

Reflective memos are also a vital part of the documentation process. After each listening circle session, the researcher or facilitator may write analytical reflections on emerging themes, methodological observations, and possible interpretations of the discussion. These memos support reflexive practice by helping researchers consider how their perspectives and facilitation style may influence data interpretation. Ethical considerations are vital to documentation. Participants must be informed that discussions will be recorded and kept confidential. Often, agreements prevent comments from being attributed to individuals outside the research, fostering a safe space for open sharing.

Once recorded and transcribed, narratives from listening circles can be analysed using established qualitative data analysis techniques, such as thematic analysis, narrative analysis, or grounded theory approaches (Maree, 2025). Through systematic coding and interpretation, researchers can identify recurring themes, patterns of

meaning, and collective insights emerging from participants' experiences. In this way, listening circles generate rich qualitative data that can be integrated into broader qualitative or mixed-methods research designs.

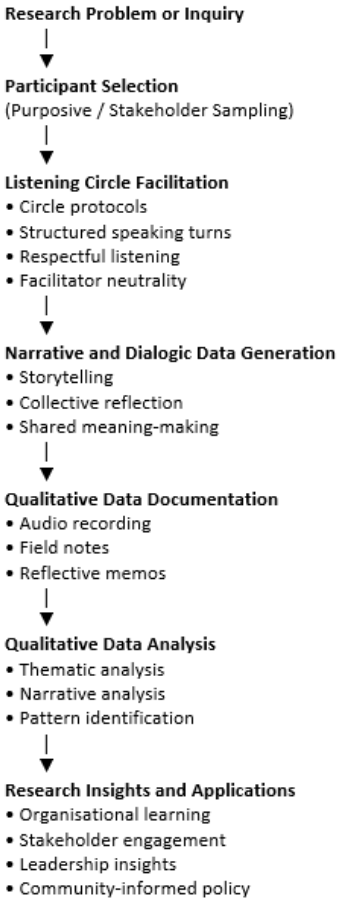


Figure 1: Listening Circles as a Dialogic Qualitative Data Generation Process

5. Applications of Listening Circles in Business and Social Science Research

Listening circles are a flexible qualitative research method applicable across organisational, managerial, and community contexts. They emphasise narrative sharing and dialogue, making them well suited to exploring lived experiences, collective meaning, and subtle dynamics that structured surveys might overlook. The following sections demonstrate how listening circles can enhance research in the business and social sciences.

5.1 Organisational Learning

Listening circles can be powerful tools for organisational learning, enabling employees, managers, or stakeholders to share experiences in a structured yet open environment. In many organisations, formal communication channels often restrict the expression of concerns, insights, or tacit knowledge. Listening circles provide an alternative space for participants to reflect collectively on organisational processes, workplace dynamics, and operational challenges. This method enables exploration of organisational culture, engagement, and experiences of change. They encourage sharing narratives rather than answering preset questions, helping identify patterns that influence behaviour. These insights inform decisions, leadership development, and organisational improvements.

5.2 Stakeholder Engagement

Listening circles enhance stakeholder engagement in research and decision-making, particularly in complex environments involving employees, clients, communities, and partners, thereby influencing sustainability and legitimacy. In business, they capture detailed customer or client experiences, revealing subtle issues or unmet needs that traditional feedback might overlook. They also inform sustainability and project assessments,

enabling stakeholders to share perspectives on long-term impact and viability, yielding deeper insights into social, economic, or environmental outcomes.

5.3 Leadership and Organisational Research

Leadership research often seeks to understand how individuals experience authority, influence, and organisational change. Listening circles offer a valuable method for exploring these dynamics, enabling participants to reflect collectively on leadership practices and organisational relationships. By sharing personal stories, participants can explain how leadership behaviours are perceived and experienced in organisations. Listening circles can be used to examine topics such as leadership identity, workplace trust, organisational change, and employee empowerment. Because participants respond not only to the facilitator but also to each other's experiences, this method can reveal collective patterns in how leadership is understood and enacted within specific organisational contexts.

5.4 Community-Informed Policy and Social Research

Listening circles are effective for research into community perspectives affected by policies or development projects. They allow residents, stakeholders, and community representatives to share stories about the impacts of policy on daily life. These circles can explore responses to urban development, infrastructure, or social interventions, highlighting issues such as social cohesion, environmental, or cultural impacts that structured methods might miss. They are also useful in diversity and inclusion studies, helping participants collaboratively build understanding of how practices influence experiences.

6. Discussion: Implications for Social Sciences and Business Research

The previous sections have conceptualised listening circles as a structured qualitative data collection method and described their design, facilitation, and potential applications in organisational and social science research. The discussion now examines the broader methodological implications of the approach for contemporary research practice.

6.1 Moving Beyond Extractive Research Approaches

Traditional social science research is often criticised for its extractive nature, in which researchers collect data without fostering mutual engagement. They usually control the process, set the questions, and interpret responses, viewing participants mainly as data sources. Listening circles challenge this by prioritising listening over question-driven data collection (Sved et al., 2023). They allow participants to share experiences freely, enabling narratives to emerge naturally and revealing insights that structured methods may miss. This shift fosters more dialogic research, transforming the process into a collaborative space for knowledge creation through interaction and reflection.

6.2 Dialogic Knowledge Production

Listening circles facilitate dialogic knowledge creation through interactions in which participants listen, respond, and reflect on shared experiences. This process enables building on each other’s narratives, fostering collective insights beyond those from individual interviews. Recognising similarities or differences prompts deeper reflection, enriching the data. Methodologically, they align with interpretivist views that regard knowledge as socially constructed through interaction, thereby providing opportunities to observe the collective interpretation of reality (Lepore et al., 2024).

6.3 Surfacing Tacit and Experiential Knowledge

Listening circles effectively surface tacit knowledge or personal understandings embedded in experience that are difficult to articulate. Unlike direct questioning, they facilitate narrative sharing, revealing stories and reflections that expose assumptions about organisational processes, relationships, and culture. For researchers, especially in business and management, they offer a method for accessing complex, lived organisational experiences related to culture, leadership, or stakeholder engagement.

6.4 Reducing Researcher – Participant Hierarchies

Listening circles help reduce the researcher-participant hierarchy (Lepore et al., 2024). Unlike traditional interviews, where the researcher holds authority, this method creates a shared space in which participants engage with one another and the facilitator, who primarily ensures respectful listening rather than steering the conversation. This promotes a more equitable, ethical, and participatory research process, enabling participants to share their experiences openly.

6.5 Connections to Participatory and Reflexive Research Traditions

Listening circles' methodological traits align with participatory research, emphasising collaboration, dialogue, and shared knowledge. They actively involve participants, enhancing relevance and ethical practice. These circles also promote reflexivity, as researchers must continually consider their influence on dialogue and interpretation (Maree, 2025). Overall, they support social science efforts to balance rigorous analysis with ethical and contextual sensitivity.

6.6 Methodological Implications

Taken together, these qualities indicate that listening circles are more than an alternative qualitative data collection method. They offer a methodological approach that redefines the relationship between researcher, participant, and the production of knowledge. By emphasising listening, dialogue, and narrative sharing, listening circles broaden the methodological options available to researchers seeking to understand complex organisational and social phenomena. They facilitate the collection of rich qualitative data while promoting ethical engagement with participants and communities. Consequently, listening circles show particular promise for research settings where lived experience, collective sense-making, and stakeholder perspectives are vital to understanding the phenomenon under study.

7. Limitations

While listening circles offer a valuable method for capturing narrative and experiential data, several limitations should be acknowledged. As with other qualitative research methods, the effectiveness of this technique depends heavily on the quality of facilitation and the dynamics within the group.

One potential limitation concerns the influence of group dynamics. Because listening circles involve interaction among participants, dominant personalities may steer the discussion or shape others' responses, even when structured speaking protocols are in place. Participants may also moderate their contributions due to social desirability or concerns about how others in the group might interpret their comments. Careful facilitation and clear listening guidelines are therefore essential to ensure balanced participation.

A second limitation concerns the methodological demands of facilitation. Listening circles require facilitators skilled not only in qualitative research practices but also in managing dialogue, maintaining neutrality, and fostering a safe conversational environment. Inexperienced facilitation may inadvertently influence the discussion or restrict the depth of participants' reflection.

Another consideration is the analytical challenges associated with narrative data. Listening circles often generate large volumes of rich qualitative data, which require careful transcription, coding, and interpretation. The interpretive nature of qualitative analysis means that researchers must remain reflexive about their assumptions and analytical decisions when identifying themes and patterns in the data.

Finally, as with most qualitative research methods, findings from listening circles are context-dependent and may not be statistically generalisable. The aim of listening circles is not to produce universally applicable results but to gain deep insights into specific organisational, social, or community contexts. Therefore, researchers must clearly define the scope and transferability of their findings.

Recognising these limitations is important for situating listening circles appropriately within the broader landscape of qualitative research methods. When carefully designed and facilitated, listening circles remain a valuable means of generating meaningful insights into complex organisational and social phenomena.

8. Conclusion

This paper has examined listening circles as a qualitative data collection strategy for community-informed business and social science research. Drawing on participatory and dialogic research traditions, the paper conceptualised listening circles as a method that emphasises structured listening, narrative sharing, and collective reflection. Unlike traditional extractive research approaches, listening circles foster a research environment in which participants are encouraged to articulate their experiences in their own words, enabling the emergence of rich, contextually grounded insights.

The discussion showed that listening circles can contribute to various areas of current research practice. By facilitating dialogic knowledge production, they enable researchers to observe how participants collectively interpret organisational and social realities. The method is particularly useful for revealing tacit knowledge embedded in lived experience and for diminishing hierarchical distinctions between researchers and participants. These features align listening circles with broader movements in qualitative research towards participatory, reflexive, and ethically engaged practices.

The paper further emphasised the potential uses of listening circles in organisational learning, stakeholder engagement, leadership research, and community-informed policy development. In these settings, listening circles can serve not only as tools for gathering qualitative data but also as spaces for reflection that enhance organisational learning and strategic decision-making.

Although listening circles pose methodological challenges, such as the demands of facilitation and the interpretive aspects of qualitative analysis, they nonetheless offer a valuable addition to the methodological toolkit of business and social science researchers. As organisations and communities face increasingly complex challenges, research methods that emphasise listening, dialogue, and contextual understanding become ever more important.

By redefining listening circles as a rigorous qualitative research method rather than merely an engagement practice, this paper advances ongoing debates about methodological innovation in qualitative research. Future research could build on this conceptual foundation by applying listening circles in empirical studies across diverse organisational and community settings, further examining their potential to generate meaningful, socially responsive knowledge.

Listening circles mark a shift from extractive data collection to dialogic data generation, offering social science and business researchers a method for capturing the complexity, context, and lived experience that shape contemporary organisational and community realities.

Ethics Declaration

No ethical clearance was needed.

AI Declaration

Elicit.ai was used to source suitable journal articles, and ChatGPT was used to assist with brainstorming and the article's structure. Grammarly did the language editing.

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The Application of Research Methods in Practice for the Efficiency of the Involvement of Academic Staff in the Formation of Intellectual Capital

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Abstract: The application of research methods in practice for the efficiency of the involvement of academic staff in the formation of intellectual capital at scientific institutions is highly topical. The object of the research is the application of research methods in practice for the efficiency of the involvement of academic staff in the formation of intellectual capital at scientific institutions in various branches of science while the subject of the research is the comparative analysis of the efficiency indicators of intellectual capital formation at scientific institutions in various branches of science in Latvia. The objective of the research is the application of research methods in practice for the efficiency of the involvement of academic staff in the intellectual capital formation at scientific institutions in various branches of science in Latvia in the period from 2013 to 2018. The following tasks were set to reach the objective: (1) to study the application of research methods in practice for the efficiency of the involvement of academic staff in the formation of intellectual capital at scientific institutions in various branches of science; (2) to calculate the main efficiency indicators thereof; and, (3) to carry out the comparative analysis of indicators characterising the efficiency of intellectual capital formation at scientific institutions in various branches of science in Latvia. Research methods used in the paper are as follow: content analysis, economic analysis, and economic experiment.

Keywords: Research Methods, Efficiency Indicators, Intellectual Capital, Academic Staff, Practice

1. Introduction

Efficiency indicators are widely used for evaluation of financial and economic activities of commercial enterprises, but these insufficient use for evaluation of the results of the work of scientific institutions. The authors therefore focused on studying the application of research methods and its quantitative indicators to the practice for the efficiency analysis of the involvement of academic staff in the formation of intellectual capital across different scientific sectors.

Nowadays different scientific institutions (SIs) have different amount and types of intellectual capital (IC) that their produce. One type of intellectual capital are an inventions that usually have be protected with different patents. These patented inventions can be commercialized on the market and therefor to attract more financial resource for new research in different scientific sectors.

In practice the Latvian scientific institutions only analyze the numbers of Latvian Patents (LPS) but the efficiency of the involvement of academic staff on the formation of Latvian Patents are not measured.

Specific economic indicators are needed to assess the performance of the SIs. Qualitative data is required for the calculation of economic indicators. For this purpose, the results of the international evaluation of scientific institutions (IESI) can be used.

Every six years, the Ministry of Education and Science of the Republic of Latvia (MoES) shall organise the IESI registered in Latvia. The last IESI took place for the period from 2013 to 2018. In order to establish the dynamics of the efficiency indicators of academic staff involved in the formation of LPS at SIs in Latvia (MoES, 2021), the authors used the output data of findings across the set of SIs evaluations in the period from 2013 to 2018 offered by “Technopolis-group” (TG). It provides an opportunity for the authors to calculate the LPS indicators at Latvian SIs and to compare their dynamics during the period from 2013 to 2018.

Data of the comparative analysis will help to develop support and motivation programs to increase the efficiency of involvement of academic staff in the LPS formation. In addition, the comparative analysis will show whether the score on the research quality at Latvian SIs in the IESI by TG coincides with the place of the relevant Latvian

SI in the ratings of the LPS indicators, and whether the score on the research quality of the Latvian SI also reflects the efficiency of the involvement of the academic staff of the Latvian SI in the LPS formation.

Hypothesis: The score of the research quality of SIs shows the efficiency of the LPS formation in Latvian SIs.

2. Theoretical Background

The authors rely on the research on understanding, adapting, and applying intellectual capital (IC) in universities (Mercado-Salgado et al, 2016); and the research on the role of human capital in educational-training process at a university (Contu, 2017) which presented different aspects of IC. Spica et al (2017a) state that IC is an economic category, the spiritual value created by the human potential, and it can be accumulated and converted into the value of other types of capital. By investigating certain information about the management of education, we can increase the capacity and significance of the country's total economic capital movement.

Scientific articles, monographs, and national and international patents form the totality of IC of each SI. Rondeau et al (2022) remind that peer reviewed publications remain a traditional form of academic productivity. From this set of elements forming IC, national patents can be considered as country scientific and technological development indicator that characterise usefull of national science and technologies for identification and solution different problems in national economics.

The analysis of the number of Latvian Patents (LP) and its efficiency indicators provide an opportunity to determine the national competitiveness of various scientists, SIs, and branches of science in Latvia on the area of national inventions.

Spica et al (2017a; 2017b) have worked out four indicators of the efficiency of the IC formation in a higher education establishment (HEE): (1) the efficiency of the involvement of academic staff in the IC formation per year in percentage (AIK); (2) the efficiency of the involvement of academic staff with a Doctorate degree in the IC formation per year in percentage (DIK); (3) the efficiency of the involvement of students in the IC formation per year in percentage (SIK); (4) mutual efficiency of the involvement of members of the academic staff with Doctorate degrees and the academic staff without Doctorate degrees in the IC formation per year in times (DE).

In order to calculate the AIK, DIK, SIK, and DE of a HEE, Spica et al (2017a; 2017b) developed four formulas:

(1) AIK=(ZPS:AS)x100; (2) DIK=(ZPS:DS)x100; (3) SIK=(ZPS:SS)x100; (4) DE=DIK:AIK; where: ZPS represents the number of scientific publications of HEE per year; AS represents the number of academic staff in full-time jobs per year; DS represents the number of academic staff in full-time jobs holding Doctorate degrees per year; and, SS represents the number of students per year.

3. Methodology

In their study, the authors will conduct a comparative analysis of SIs involved in the LPS formation in various branches of science in Latvia. It will comprise evaluation of SIs in six branches of science: 1)Engineering and Computer Sciences (E&CS); 2)Natural Sciences (NS); 3)Medical and Health Sciences (M&HS); 4)Agriculture, Forestry, and Veterinary Sciences (A&F&VS); 5)Social Sciences (SS); 6)Humanities and Art Sciences (H&AS).

For the purposes of the study, the authors modified the above formulas. Namely, they calculated LPS efficiency indicators for total numbers of full time equivalent (FTE) of academic and research personnel (KIK), for FTE academic staff (AIK), for FTE academic research personnel (PIK) and for PhDs completed at the SI (SIK). In addition, all of the above LPS efficiency indicators were calculated for total number of self-reported outputs of Latvian Patents. The authors calculated mutual efficiency indicators (PE) regarding involvement of FTE academic research personnel (PS) and the FTE academic staff (AS) in the LPS formation in times.

In the present research, the authors have used the following data from the IESI: output data on the number of FTE academic staff (AS), the number of FTE academic research personnel (PS), the total number of FTE academic and research personel (KS), the number of PhDs completed (SS), the number of Latvian Patents (LPS) in the period from 2013 to 2018 per SI in Latvia. The authors revised the above LPS for one year. TG analysed 62 SIs of Latvia.

In this study, one LP is accepted as one unit of IC. Next, using the modified formulas 1; 2; 3; and 4, the authors calculated KIK, AIK, PIK, SIK, and PE. Then, according to the results obtained through the author's calculations, a corresponding place in rating was assigned to each SI of Latvia per year and each of the above indicators KIK, AIK, PIK and SIK.

Each place in rating was then assessed with an appropriate score, where the lowest score is 1 point, and the highest score is 5 points. This assessment system enables comparing the quantitative efficiency indicators of SIs in various scientific branches in Latvia calculated by the authors with the IESI overall assessment criterion - the research quality of the SI. The relevant Panel of the TG was a score of the research quality of each SI using the scale where score 5 means an outstanding level of research, score 4 means a very good level of research, score 3 means a good level of research, score 2 means an adequate level of research, and score 1 means a poor level of research (MoES, 2021).

Next, a unified overview of all six branches of science in Latvia was created. Here, all SIs were arranged according to the rank obtained in their branch of science. Furthermore, indicators of the efficiency of the involvement of academic staff of each SI in the LPS formation were added. The authors then selected one SI with the highest efficiency indicator of the involvement of academic staff in the formation of LPS from the unified review of the branches of science in Latvia, accepted it as the basic indicator, and equated it to 100%. Subsequently, the authors calculated the proportion of the efficiency of the involvement of academic staff of each SI in the base indicator.

In the next step, a rating scale of the results obtained was created on five-point system, where the highest score is five points, and the lowest score is one point. The new efficiency rating system for the involvement of academic staff of SIs in the LPS formation created by the authors provides for granting one point for the obtained efficiency indicators from 1% to 20%, 2 points - for the obtained efficiency indicators from 21% to 40%, 3 points - for the obtained efficiency indicators from 41% to 60%, 4 points - for the obtained efficiency indicators from 61% to 80%, and 5 points - for the obtained efficiency indicators from 81% to 100%.

Afterwards, the authors compared the results of their own estimates of SI quantitative indicators to the relevant Panel of the TG's results of qualitative indicators and calculated the difference between the indicators and the changes. For this purpose, for each SI, the authors calculated the score of indicators recording efficiency of LPS and average score of each scientific sector. Then, authors compared these scores with scores of the research quality of each SI developed by Panel of the TG.

4. Results

To calculate the efficiency of the involvement of academic staff in the LPS formation, the authors used formulas that were elaborated and approbated already before and then modified by the authors:

$$AIK = (LPS : AS) \times 100 \quad (1)$$

$$PIK = (LPS: PS) \times 100 \quad (2)$$

$$KIK = (LPS : KS) \times 100 \quad (3)$$

$$SIK = (LPS: SS) \times 100 \quad (4)$$

$$PE = PIK : AIK \quad (5)$$

According to Table 1 the highest AIK indicator in the LPS formation in a year is 45% and was accepted by the authors as the basic indicator or 100%. The above indicator has been achieved by a SI representing the E&CS. Consequently, the efficiency indicator of SIs of other branches of science in Latvia were attributed to this higher efficiency indicator in order to determine their proportion as a percentage. Then, according to the new rating system developed by the authors, each SI was assigned a certain number of points.

Table 1: Performance indicators of the involvement of academic staff of SIs in the LPS formation in a year and the comparative analysis thereof in various branches of science in Latvia in the period from 2013 to 2018

AIK rating	E&CS AIK (%)	E&CS AIK (%) of base indicator	E&CS AIK score	NS AIK (%)	NS AIK (%) of base indicator	NS AIK score	M&HS AIK (%)	M&HS AIK (%) of base indicator	M&HS AIK score	A&F&VS AIK (%)	A&F&VS AIK (%) of base indicator	A&F&VS AIK score	SS AIK (%)	SS AIK (%) of base indicator	SS AIK score	H&AS AIK (%)	H&AS AIK (%) of base indicator	H&AS AIK score
1	45	100	5	39	87	5	17	38	2	7	16	1	3	7	1	15	33	2
2	39	87	5	9	20	1	3	7	1				3	7	1			
3	32	71	4	2	4	1	2	4	1				1	2	1			
4	28	62	4				1	2	1									
5	24	53	3															
6	20	44	3															
7	17	38	2															
8	16	36	2															
9	12	27	2															
10	4	9	1															
11	1	2	1															
Average	25	56	3	15	33	2	22	49	3	15	33	2	0	0	0	15	33	2

Having compared the numbers collected in Table 2 the authors conclude that the highest PIK indicator of 256% is for a SI representing the M&HS, and the lowest PIK indicator of 0% is for five SIs in various branches of science. It follows that only one SI gets the highest score of 5 points, only one SI gets score of 2 points, twenty-nine SIs gets 1 points, and the rest of SIs gets 0 points.

Table 2: Performance indicators of the involvement of academic research personnel of SIs in the LPS formation in a year and the comparative analysis thereof in various branches of science in Latvia in the period from 2013 to 2018

PIK rating	E&CS PIK (%)	E&CS PIK (%) of base indicator	E&CS PIK score	NS PIK (%)	NS PIK (%) of base indicator	NS PIK score	M&HS PIK (%)	M&HS PIK (%) of base indicator	M&HS PIK score	A&F&VS PIK (%)	A&F&VS PIK (%) of base indicator	A&F&VS PIK score	SS PIK (%)	SS PIK (%) of base indicator	SS PIK score	H&AS PIK (%)	H&AS PIK (%) of base indicator	H&AS PIK score
1	69	27	2	16	6	1	256	100	5	12	5	1	8	3	1	17	7	1
2	22	9	1	6	2	1	19	7	1	4	2	1	3	1	1			
3	22	9	1	2	1	1	10	4	1	2	1	1	1	0	0			
4	17	7	1	1	0	0	7	3	1	1	0	0						
5	12	5	1	1	0	0	5	2	1	1	0	0						
6	12	5	1				3	1	1									
7	11	4	1				2	1	1									
8	10	4	1				2	1	1									
9	9	4	1															
10	9	4	1															
11	6	2	1															
12	5	2	1															
13	2	1	1															
14	2	1	1															
Average	15	6	1	2	1	1	8	3	1	3	1	1	1	0	0	17	7	1

In Table 3, according to the SIK indicators, the first place and highest score of 5 points is taken by a SI in the M&HS, while the lowest SIK indicator of 1% is received by a SI representing the M&HS, and a SI representing the SS. It follows from Table 3 that only one of SIs in the E&CS gets score of 4 points, and only one of SIs in the NS gets score of 4 points, two of SIs in the E&CS gets score of 3 points, one of SIs in the E&CS, and one of SIs in the NS gets score of 2 points. The rest of SIs gets 1 point.

Table 3: Performance indicators of the involvement of PhDs completed at SIs in the LPS formation in a year and the comparative analysis thereof in various branches of science in Latvia in the period from 2013 to 2018

SIK rating	E&CS SIK (%)	E&CS SIK (%) of base indicator	E&CS SIK score	NS SIK (%)	NS SIK (%) of base indicator	NS SIK score	M&HS SIK (%)	M&HS SIK (%) of base indicator	M&HS SIK score	A&F&VS SIK (%)	A&F&VS SIK (%) of base indicator	A&F&VS SIK score	SS SIK (%)	SS SIK (%) of base indicator	SS SIK score	H&AS SIK (%)	H&AS SIK (%) of base indicator	H&AS SIK score
1	59	64	4	61	66	4	92	100	5	18	20	1	3	3	1	-	-	-
2	51	55	3	23	25	2	11	12	1	17	18	1	2	2	1	-	-	-
3	40	43	3	5	5	1	7	8	1	9	10	1	1	1	1	-	-	-
4	22	24	2	3	3	1	6	7	1	6	7	1				-	-	-
5	17	18	1	2	2	1	4	4	1	5	5	1				-	-	-
6	17	18	1				3	3	1							-	-	-
7	16	17	1				3	3	1							-	-	-
8	14	15	1				1	1	1							-	-	-
9	12	13	1													-	-	-
10	9	10	1													-	-	-
11	6	7	1															
12	5	5	1															
13	5	5	1															
14	2	2	1															
Average	19	21	2	5	5	1	10	11	1	10	11	1	0	0	0	-	-	-

According to Table 4, the highest KIK indicator is 256% and it represents a SI in the M&HS. In the six branches of science no SI gets 4 points, 3 points, or 2 points, but twenty-five SIs get 1 point, and ten SIs get 0 points. It follows that the total academic staff of SIs in various branches of science in Latvia in the period from 2013 to 2018 did not compete in the LPS formation in the national scientific environment.

Table 4: Performance indicators of the involvement of total academic staff of SIs in the LPS formation in a year and the comparative analysis thereof in various branches of science in Latvia in the period from 2013 to 2018

KIK rating	E&CS KIK (%)	E&CS KIK (%) of base indicator	E&CS KIK score	NS KIK (%)	NS KIK (%) of base indicator	NS KIK score	M&HS KIK (%)	M&HS KIK (%) of base indicator	M&HS KIK score	A&F&VS KIK (%)	A&F&VS KIK (%) of base indicator	A&F&VS KIK score	SS KIK (%)	SS KIK (%) of base indicator	SS KIK score	H&AS KIK (%)	H&AS KIK (%) of base indicator	H&AS KIK score
1	27	11	1	11	4	1	256	100	5	5	2	1	2	1	1	8	3	1
2	22	9	1	6	2	1	19	7	1	4	2	1	1	0	0			
3	17	7	1	2	1	1	7	3	1	2	1	1	0	0	0			
4	12	5	1	1	0	0	6	2	1	1	0	0						
5	8	3	1	0	0	0	3	1	1	1	0	0						
6	7	3	1				1	0	0									
7	7	3	1				1	0	0									
8	7	3	1				1	0	0									
9	7	3	1															
10	5	2	1															
11	3	1	1															
12	3	1	1															
13	2	1	1															
14	1	0	0															
Average	10	4	1	2	1	1	6	2	1	3	1	1	0	0	0	8	3	1

In Table 5, the PE indicators rest in the range from 0,2 to 3,8 in respect of SIs in Latvia. The highest PE is held by a SI in the M&HS while the lowest PE belongs to two SIs in the E&CS and one SI in the NS.

The highest average rate of the PE indicators is 1,8 in the SS; the second highest average rate of the PE indicators is 1,1 in the H&AS. It follows that academic research personnel of SIs in the SS and the H&AS is more efficient in the LPS formation than their academic staff. The lowest average rate of the PE indicators is 0,2 in the NS and the A&F&VS. It means that academic staff of the above branches of science is more efficient in the LPS formation than academic research personnel at SIs in the NS and the A&F&VS.

The comparison of QTG scores by TG to the new total quantity KIK scores calculated by the authors leads to conclusion that the difference between them forms 1 to 4 points in total. The assessment of the QTG scores and the new KIK scores of each SI in various branches of science in Latvia results in a deduction that new KIK scores were lower, except for the one SI in the M&HS, where new KIK scores were highest.

Table 5: Performance indicators of the mutual efficiency indicators regarding involvement of total academic research personnel and total academic staff of SIs in the LPS formation in times per year, scores of quality research by TG (QTG), new total quantity KIK scores of SIs, and the comparative analysis thereof in various branches of science in Latvia in the period from 2013 to 2018

KIK rating	E&CS PE	E&CS QTG score	E&CS KIK score	NS PE	NS QTG score	NS KIK score	M&HS PE	M&HS QTG score	M&HS KIK score	A&F&VS PE	A&F&VS QTG score	A&F&VS KIK score	SS PE	SS QTG score	SS KIK score	H&AS PE	H&AS QTG score	H&AS KIK score
1	1,5	2	1	0,4	2	1	0	2	5	1,8	3	1	2,7	3	1	1,1	2	1
2	0	2	1	0	4	1	0	4	1	0	3	1	1,0	3	0			
3	0	4	1	0,2	4	1	0	3	1	0	4	1	1,0	3	0			
4	0,9	2	1	0	4	0	0,6	4	1	0	4	0						
5	0,4	3	1	0,4	3	0	0	5	1	0	2	0						
6	0,2	3	1				0,9	3	0									
7	0,7	3	1				0,9	4	0									
8	0,7	2	1				3,8	1	0									
9	0,5	3	1															
10	0,2	2	1															
11	0,4	3	1															
12	2,6	2	1															
13	0	3	1															
14	1,5	3	0															
Average	0,6	-	1	0,2	-	1	0,4	-	1	0,2	-	1	1,8	-	0	1,1	-	1

Following the results summarised in Tables 6, the authors conclude that for all AIK, PIK, SIK, KIK indicators with score 1, the total margins of PIK indicators, total margins of KIK indicators and total average margins of PIK indicators are the highest ones. They are followed by the total margins of SIK indicators, total margins of AIK indicators, and total average margins of SIK indicators, total average margins of KIK indicators. The total margins for all indicators with score 5, belong to KIK, AIK , PIK, and SIK indicators. The total margins for all scores from 1 to 5, were found only in AIK indicators.

Economic indicators are needed to ensure the LPS management in order to measure the efficiency of the involvement of academic staff of SIs in the LPS formation. Thus, the annual total efficiency indicator margins and total average efficiency indicator margins of all SIs in various branches of science in Latvia summarised in Table

6 and their conformity with a specific IESI on five-point scale may serve as the basis for improvement of LPS management in the future.

Table 6: Summary of performance indicators of the involvement of total academic staff of SIs in the LPS formation in a year and the comparative analysis of their total margins of AIK, PIK, SIK, and KIK indicators in various branches of science in Latvia in the period from 2013 to 2018

Sco-res	Total margins of AIK (%)	Total margins of PIK (%)	Total margins of SIK (%)	Total margins of KIK (%)	Total average margins of AIK (%)	Total average margins of PIK (%)	Total average margins of SIK (%)	Total average margins of KIK (%)
0	0 - 0	1 - 1	-	1 - 1	-	1 - 1	-	0 - 0
1	1 - 9	2 - 22	1 - 18	2 - 27	-	2 - 17	5 - 10	2 - 10
2	12 - 17	69 - 69	22 - 23	-	15 - 15	-	19 - 19	-
3	20 - 24	-	40 - 51	-	22 - 23	-	-	-
4	28 - 32	-	59 - 61	-	-	-	-	-
5	39 - 45	256 - 256	92 - 92	256 - 256	-	-	-	-

5. Conclusions

The study of the authors did not result in confirming the hypothesis. The scores of SIs research quality do not show the efficiency of the LPS formation in Latvian SIs. When comparing the QTG scores of TG group to the new KIK scores by the authors, it can be concluded that they differ by 1 to 4 points in total.

The study shows that new performance indicators KIK of the involvement of total academic staff of SIs in the LPS formation in various branches of science in Latvia in the period from 2013 to 2018 were lower as presented by the results compiled by the relevant Panel of the TG except for the one SI in the M&HS, where the KIK score was higher for 3 points.

The authors are encouraged to supplement the methodology for international evaluation of scientific institutions with quantitative efficiency indicators AIK, PIK, SIK, KIK of the involvementof academic staff and PhDs completed at SIs in the LPS formation per year in percentage and PE in times, and performance indicators of the comparative analysis thereof in various branches of science in the country developed by the authors.

The methodology developed by the authors included five phases: (1) according to formulas previously developed by the authors, the efficiency indicators of each SI were calculated for AIK, PIK, KIK, SIK; (2) efficiency indicators for AIK, PIK, KIK SIK were ranked from the highest indicator to the lowest one, and each SI was given the rating in its branch of science; (3) the comparative analysis of the individual efficiency indicators of each SI was carried out for the AIK, PIK, KIK, SIK between all branches of science, and the highest efficiency indicators of the AIK, PIK, KIK, SIK as a whole in the science were found out; (4) the highest efficiency indicators for AIK, PIK, KIK, SIK were accepted as base indicator and

equated to 100%, and the proportion of the efficiency indicator of each SI in the base indicator was calculated; (5) according to the rating scale developed by the authors, each SI was awarded an appropriate score based on the previously calculated efficiency indicators of the proportion of AIK, PIK, KIK, SIK in the science as a whole.

The methodology provides an opportunity to identify more efficient SIs in the country and to distribute public funding to SIs representing various branches of science more efficiently in accordance with these results. Efficiency indicators can serve as a basis for comparative analysis, planning, management, control, and future improvement of the SIs performance.

Ethics Declaration

The authors declares that there are no ethical issues related to the research presented in this paper.

AI Declaration

The authors declares that no significant AI tools or technologies were used in the conduct the research for this paper.

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Autoethnography in Action: A Reflexive Methodological Approach to Investigating Academic Workload Allocation

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Abstract: This paper positions autoethnography as a rigorous, emotionally reflexive, and ethically grounded methodology for interrogating academic workload allocation in South African higher education institutions (HEIs). Drawing on 31 years of lived academic experience, the study integrates emotional reflexivity and ideographic inquiry to examine how managerialism, coercive governance, and neoliberal accountability mechanisms shape the lived realities of academic labour. Through personal narrative, the research illuminates the emotional, ethical, and political dimensions of academic life, revealing how invisible labour, surveillance, and inequitable workload models produce exhaustion, alienation, and moral injury. Autoethnography is advanced as both a methodological tool and a form of resistance that legitimizes insider knowledge and challenges technocratic paradigms. The study adopts an analytic autoethnographic approach, emphasizing theoretical engagement, institutional critique, and systematic triangulation of reflective journals, institutional documents, policy texts, and critical theory. Emotional reflexivity is employed as an ethical and analytical stance, enabling interrogation of positionality, emotional labour, and moral tensions embedded in academic life. The findings reveal four interrelated themes: the invisibility of care and service work; the manipulation of workload models under managerialism; the emotional toll of academic labour; and symbolic forms of resistance enacted by academics in pursuit of dignity and justice. These insights contribute to scholarship critiquing the erosion of collegial governance and the normalization of performativity in higher education. By situating personal experience within institutional critique, the study demonstrates how autoethnography transforms lived experience into an analytical lens for challenging systemic dysfunctions. It calls for transparent, context-sensitive workload models recognizing the full spectrum of academic labour, including emotional and relational dimensions, and advocates participatory governance prioritizing collegiality, care, and ethical accountability. This paper contributes to methodological innovation in higher education and management research by showing how autoethnography can humanize inquiry, restore academic voice, and inform socially just policy reform, reimagining academic work as a human, ethically engaged, and emotionally invested practice.

Keywords: Autoethnography, Reflexive Methodology, Academic Workload, Distributive Justice, Qualitative Research

1. Introduction

In the evolving landscape of higher education, academic workload allocation has emerged as a deeply contested and politically charged issue (Barrett & Barrett, 2011). While institutional models often present workload distribution as a neutral, technical exercise, such frameworks frequently obscure academic labour's emotional, relational, and ethical dimensions (Gill, 2016). Within South African higher education institutions (HEIs), neoliberal governance and managerialism have reshaped academic identities and institutional cultures, privileging performance metrics and compliance over collegiality and care (Van Vuuren, 2024). Consequently, questions of fairness, transparency, and recognition have become increasingly central to debates about academic work, institutional justice, and professional well-being.

This paper responds to this growing concern and the need for methodological innovation by positioning autoethnography as a rigorous, reflexive, and ethically grounded research approach (Ellis, Adams & Bochner, 2011; Méndez, 2013). Autoethnography offers a unique epistemological stance that merges personal narrative with critical theory, enabling researchers to interrogate institutional structures from within. It foregrounds the researcher's positionality and emotional entanglement with the research context, allowing for a nuanced exploration of how systemic dysfunctions are experienced at the body, psyche, and identity level.

Drawing on 31 years of academic experience, this study employs autoethnography as a method of inquiry and as a form of resistance, challenging technocratic paradigms and restoring voice to those navigating the complexities of academic labour. Integrating Bourdieu's reflexive sociology and ideographic inquiry, the paper illustrates how autoethnography can illuminate the invisible labour, emotional toll, and ethical contradictions embedded in workload allocation practices. These frameworks anchor the study's reflexive orientation and guide its interpretation of lived academic experience. In doing so, the paper contributes to the growing body of

scholarship that reimagines qualitative research as a transformative and humanising endeavour, capable of informing socially just and context-sensitive policy reform.

2. Literature Review

2.1 Autoethnography as Method and Epistemology

Autoethnography is a qualitative research methodology that links personal experience to broader cultural, institutional, and political contexts. Emerging in the 1980s amid the crisis of representation, it challenged positivist paradigms by positioning the self as both subject and site of inquiry (Méndez, 2013). This approach foregrounds lived experience as a critical source of knowledge, especially where institutional structures obscure emotional and ethical dimensions of academic life.

Defined as an autobiographical genre connecting personal experience to cultural contexts, autoethnography enables critical interrogation of systemic dysfunctions through narrative, emotion, and reflexive analysis (Poulos, 2021). Contemporary practice blends evocative and analytic trajectories: the evocative strand emphasizes emotional resonance, while the analytic strand theorizes experience within social frameworks (Adams, Holman Jones & Ellis, 2021; Anderson, 2006; Qutoshi, 2015). This hybrid approach legitimizes subjective experience as analytic evidence and challenges the division between researcher and researched.

Epistemologically, autoethnography situates personal narratives within systemic and historical forces (Holman Jones, 2005), surfacing invisible emotional labour, ethical tensions, and identity negotiations often excluded from formal workload models (du Toit, 2025). Reflexivity is central, guiding researchers to examine assumptions, positionality, and emotional entanglements, while upholding ethical responsibility in representing self and others (Bourdieu, 2003; Finlay, 2002; Joy, Rojas-Gaviria & Peña-Moreno, 2024; Pillow, 2003).

While critiques highlight subjectivity and limited generalizability (Walford, 2004), these overlook autoethnography's interpretive and transformative aims. It prioritizes situated understanding over positivist generalization, revealing the intersection of personal and institutional realities (Bochner & Ellis, 2006; Poulos, 2021). In this study, autoethnography serves as both method and epistemology, uniting self and structure, emotion and theory, and experience and critique, offering a reformative lens on institutional inequities in South African higher education workload allocation.

2.2 Reflexivity, Power, and Positionality in Autoethnographic Research

Autoethnography is more than a methodological choice; it is a reflexive, ethically complex, and politically engaged mode of inquiry (Finlay, 2002; Pillow, 2003). It requires researchers to confront their embeddedness within institutional structures and the emotional, epistemological, and ethical entanglements that shape knowledge production. In higher education, neoliberal governance has intensified managerial control and eroded collegiality (Gill, 2016), making reflexivity a political act: a practice of agency, resistance, and accountability. In South Africa, these tensions are amplified by colonial legacies and bureaucratic cultures that constrain professional autonomy (Fataar, 2018; Van Vuuren, 2024). These reflexive principles underpin the study's investigation of workload allocation, guiding analysis of moral tensions and institutional inequities.

2.2.1 Bourdieu's Reflexive Sociology: Field, Habitus, and Symbolic Violence

Bourdieu's reflexive sociology offers a critical lens for understanding how researchers are shaped by, and implicated in, the academic field. His concept of habitus—shaped by gendered, classed, and institutional experiences—explains how symbolic violence is reproduced through performance metrics, compliance cultures, and managerial authoritarianism (Bourdieu & Wacquant, 1992). In South African higher education, this violence manifests in coercive governance regimes that discipline academic labour and suppress dissent (Fataar, 2018).

Neoliberal regimes of visibility and performativity pressure academics to present themselves as auditable entities, subject to surveillance and competitive individualism (Gill, 2016). Reflexivity functions as resistance, enabling researchers to confront internalized norms and reveal mechanisms of domination. Autoethnography allows the integration of personal experience with institutional analysis, showing how academic identities are negotiated within managerial structures (Wall, 2006).

2.2.2 Reflexivity as Ethical Practice

Reflexivity is not an optional methodological add-on but a core ethical commitment. It requires ongoing self-scrutiny, critical evaluation of positionality, and relational accountability. Finlay (2002) argues that reflexivity strengthens qualitative validity by making the researcher's situatedness visible. Pillow (2003) emphasizes that reflexivity must be context-sensitive, visible, and disruptive. Ethical reflexivity is integral to this study, ensuring sensitivity to institutional hierarchies, labour inequalities, and personal bias.

In autoethnography, ethical reflexivity extends to the responsibility of representing others with integrity, sensitivity, and justice. Sparkes (2024) frames autoethnography as an ethically contested terrain, where relational ethics, informed consent, and representation are fluid and negotiated. This is particularly relevant in insider research, where boundaries between self and other are blurred, and disclosure carries significant stakes.

2.2.3 Researcher Vulnerability and Emotional Labour

Autoethnography foregrounds emotional truth as analytic. Researcher vulnerability, expressed through anxiety, trauma, and moral injury, is central to knowledge production. Emotional labour, often feminized and invisibilized, becomes a site of resistance, particularly in neoliberal academic contexts where care work is undervalued (Crisp, 2022). In South African academia, structural inequities and managerialism amplify exclusion, burnout, and ethical strain (Dhanpat, De Braine & Geldenhuys, 2019).

Emotional honesty and personal narrative are essential to understanding lived experience (Muncey, 2010). The discomfort of first-person writing is not incidental but integral to autoethnography's transformative potential (Wall, 2006). Audit cultures and pseudo-events (Alvesson, 2013) valorize quantifiable outputs while devaluing collegiality and care, producing shame, anxiety, and exhaustion. By highlighting these realities, autoethnography critiques dominant discourses of productivity and efficiency.

2.2.4 Positionality and Ethical Complexity

Entwined positionality (Bolade-Ogunfodun, Adisa & Mordi, 2022) emphasizes the interplay between a researcher's cultural background, emotional landscape, and institutional embeddedness. In autoethnography, positionality is negotiated and shaped by intersecting forces of marginalization and privilege. In South African HEIs, the researcher's identity as both insider and critic navigates toxic leadership, emotional exhaustion, and ethical dilemmas.

Autoethnography amplifies silent voices and hidden wounds, offering a humanizing lens to critique and reimagine institutional cultures. Sparkes (2024) advocates for situated, dialogic, and embodied ethics rather than rigid checklists. Ethical negotiation includes acknowledging limits to anonymity, contested informed consent, and the potential harms and emancipatory possibilities of difficult disclosures. Reflexive scholarship in South Africa must engage critically with colonial legacies, positioning self-study as both critique and transformation (Burman, 2024).

Reflexivity, positionality, and ethical accountability provide the scaffolding through which workload allocation is interrogated. They enable a situated understanding of how hierarchies, managerial norms, and emotional labour shape academic work. Through this lens, autoethnography becomes a method of inquiry, resistance, and ethical critique of inequitable institutional practices.

3. Methodology: Autoethnography Enriched Through Emotional Reflexivity and Ideographic Inquiry

This study employs autoethnography as its central methodological and epistemological framework, situating the researcher's lived experience within broader institutional, socio-cultural, and political contexts. As Ellis, Adams and Bochner (2011) describe, autoethnography functions as a method and a form of knowledge production, merging self-reflection with analytic interpretation. Unlike journaling or memoir, autoethnography involves systematic analysis, interpretation, and triangulation of multiple qualitative sources, including reflective journals, institutional documents (e.g., workload spreadsheets, meeting minutes), policy texts (e.g., teaching and learning frameworks, performance management guidelines), and theoretical literature, to construct a multilayered understanding of academic workload allocation (Holman Jones, 2005; Ibrahim et al, 2023).

This study extends traditional autoethnography by explicitly integrating emotional reflexivity and ideographic inquiry as dual analytical lenses, offering a distinct approach to examining the affective, cognitive, and structural dimensions of academic work.

Reflexivity is the ethical, political, and analytical lens through which this research is conducted. The researcher continually interrogates positionality, assumptions, and emotional responses to organizational structures, ensuring that inquiry remains attuned to moral and institutional responsibilities. Positionality acknowledges insider/outsider perspectives, identity, and socio-cultural location, shaping the interpretation of hierarchical structures, decision-making processes, and professional interactions. Reflexive engagement foregrounds the emotional labour inherent in academic work, including experiences of affective strain and moral injury, highlighting the human cost of managerialism and coercive accountability mechanisms (Finlay, 2002; Pillow, 2003; Sparkes, 2024).

The methodology is further enriched through ideographic inquiry, which integrates cognition, emotion, and lived experience to explore academic life's nuanced and embodied realities (Bentz & Shapiro, 1998). This approach allows the researcher to systematically connect personal experience with institutional structures, producing insight into how emotional reflexivity mediates engagement with professional responsibilities. Emotional labour, often feminized and undervalued, is treated not as anecdotal but as analytically significant (Bae, 2025; Muncey, 2010).

This study adopts an analytic autoethnographic approach (Anderson, 2006), which differs from evocative autoethnography by emphasizing theoretical engagement, systematic data analysis, and institutional critique. While evocative autoethnography prioritizes emotional resonance and storytelling, the analytic strand is more suited to this study's aim of theorizing workload allocation within neoliberal governance and organizational justice (Bochner & Ellis, 2006).

Ethical considerations were carefully managed, given the insider perspective and the sensitive nature of the institutional critique. The researcher anonymized institutional references, avoided naming individuals, and ensured that disclosures were framed to protect confidentiality while maintaining analytic integrity. Ethical reflexivity was central to navigating the tensions between transparency, accountability, and relational sensitivity (Koopman, Watling & LaDonna, 2020; Wall, 2006).

Ultimately, this methodology integrates autoethnography, emotional reflexivity, and ideographic inquiry to produce a multilayered, ethically engaged, and politically informed understanding of academic workload allocation. It positions personal narrative as both a method and a form of resistance, offering a humanizing, socially just lens through which institutional practices can be critically examined and reimagined.

4. Findings: Autoethnographic Insights Into Workload Allocation and Academic Well-Being

This autoethnographic inquiry explores how the protagonist's lived experiences of workload allocation within South African HEIs reveal broader systemic dysfunctions. Through emotional reflexivity and critical engagement, the narrative surfaces four interrelated themes illuminating how autoethnography operates as both a method and a form of institutional critique. These findings underscore the epistemological and ethical potential of autoethnography to connect personal experience with structural analysis, as articulated by Ellis, Adams and Bochner (2011), Poulos (2021), and Qutoshi (2015).

4.1 Invisible Labour and Emotional Overload

Autoethnography foregrounds academic labour's emotional and embodied dimensions often excluded from formal workload models. The protagonist's narrative illustrates how teaching responsibilities are easily quantified, while essential but less visible forms of work, such as mentoring, supervision, and student support, are routinely undervalued or omitted. As the protagonist reflects, *the workload template accurately estimates my teaching responsibilities, but it falls short in addressing other crucial aspects of my work, including my academic citizenship and research roles [P1]*. Despite raising these concerns, *my workload failed to accurately represent my responsibilities because it either underestimated or completely omitted the time needed for certain activities [P1]*.

These lived experiences echo critiques by Crisp (2022), who argue that institutional workload models often rationalize labour through metrics that obscure care work, collegial contributions, and intellectual effort. The emotional toll of this invisibility is profound, as the protagonist recounts *working seven days a week, starting at seven in the morning and often continuing until late at night, pushing me toward burnout and leaving me with no time to spend with my family [P1]*. The sense of imbalance and exhaustion culminates in the admission that *achieving a balance between work and home responsibilities feels unattainable [P1]*.

Through this lens, autoethnography becomes a space where such emotional truths gain epistemological legitimacy. As Méndez (2013) emphasizes, it allows affective experiences to emerge as analytic insights that challenge the technocratic paradigms underpinning higher education management. In articulating the exhaustion and invisibility embedded in academic life, the narrative exposes how institutional measurement systems fail to capture academic work's human and relational dimensions.

4.2 Managerialism and Coercive Governance

The protagonist's account reveals that workload allocation is often experienced as a top-down and opaque process driven by managerial imperatives rather than academic realities. The protagonist describes how *the workload process is manipulated to control the budget rather than accurately reflecting the work done or ensuring sufficient staffing [P1],* noting that this manipulation frequently manifests through *spreadsheets with fabricated numbers designed to achieve 15 teaching hours per week [P1].* While such figures may appear satisfactory on paper, they fail to capture the intensity and scope of the actual work required.

These reflections resonate with Papadopoulos (2017) and Van Vuuren (2024), who critique workload models as instruments of managerial control that obscure rather than reveal the true nature of academic labour. The protagonist's experience underscores how the lack of consultation and the presence of coercive managerial practices foster environments of mistrust and fear. The protagonist recounts that *senior management has resorted to bullying when concerns are raised [P1],* a behaviour that *further erodes confidence in leaders who are perceived as out of touch with the realities faced by staff [P1].*

Autoethnography makes it possible to expose such dynamics from within, legitimizing insider knowledge and positioning the self as a site of resistance against the dehumanizing tendencies of managerialism (Sparkes, 2024; Wall, 2006).

4.3 Emotional Exhaustion and Withdrawal

The protagonist's narrative reveals that emotional exhaustion is not merely personal but structurally induced by unrealistic expectations, constant surveillance, and a lack of institutional support. The protagonist reflects on the competing demands of professional and personal roles, explaining that they *"wear multiple hats - wife, student, lecturer - and it is a constant struggle [P1],* often accompanied by feelings of guilt for *not giving [their] family the attention they deserve [P1].* This tension illustrates how the demands of neoliberal academia extend beyond the workplace, encroaching on emotional and familial boundaries.

Over time, these pressures lead to disengagement and withdrawal from academic life. The protagonist acknowledges, *I am one of those faculty members who have withdrawn from the social and emotional life of the university [P1],* aligning the experience with Ryan's (2012) depiction of *academic zombies. These individuals* continue to perform their duties while feeling emotionally detached and devalued. This sense of invisibility is compounded by the perception that *efforts and achievements often go unnoticed or unacknowledged [P1],* reinforcing feelings of alienation and futility.

These experiences echo Gill's (2016) notion of the *hidden injuries* of neoliberal academia and Jantjies and Botha (2024) observations on toxic leadership cultures that erode morale and identity. Through autoethnography, as Muncey (2010) argues, such emotional vulnerability becomes a legitimate form of knowledge, allowing the researcher to write the self into systems of power and critique, transforming personal struggle into collective insight.

4.4 Resistance and the Search for Dignity

Despite operating within a system characterized by control and managerialism, the protagonist demonstrates a persistent commitment to their students and the ethical core of academic work. The protagonist explains that *"I feel compelled to maintain [my] commitment to teaching and ensuring the continuity of academic activities,*

often at personal cost [P1], reflecting a form of moral resistance grounded in care rather than confrontation. This quiet perseverance reflects the emotional labour of maintaining integrity within an institution that often devalues such commitment.

At the same time, a desire for a more humane and collegial academic environment is articulated, expressing that the protagonist *would prefer to work in a more collegial environment where everyone is recognized as peers, rather than in a hierarchical, controlled setting [P1].* Their longing for collegiality underscores the tension between academic ideals of collaboration and the bureaucratic realities that fragment and isolate staff.

In this context, resistance is subtle and adaptive rather than overtly revolutionary. The protagonist concedes that *resistance is rather limited, as it aims to alleviate rather than overthrow managerialism [P1],* suggesting that acts of care, persistence, and ethical commitment constitute everyday defiance. However, this limited resistance coexists with disillusionment, as the protagonist acknowledges that *the university is seen as a problem, something that needs to be escaped from [P1].*

These reflections align with Sparkes (2013), who emphasize the activist potential of autoethnography to reveal dissent and imagine alternative institutional futures. By situating personal experience within broader critique, autoethnography becomes a transformative methodology that restores voice, exposes injustice, and affirms dignity within constrained academic spaces.

5. Implications for Higher Education Institutions

These implications, grounded in emotional reflexivity, extend the autoethnographic insights from individual experience to institutional reform. The findings illuminate how systemic practices of managerialism and technocratic governance shape academic workload allocation and academic life's emotional and ethical dimensions. By legitimizing personal narrative as analytic evidence, autoethnography provides a transformative lens through which institutional cultures and governance practices can be interrogated and reimagined. As Ellis, Adams and Bochner (2011) argue, autoethnography connects the personal to the political, making visible the affective and moral complexities often obscured by managerial discourse.

One of the most urgent implications is the need to humanize workload models. The protagonist's narrative demonstrates that current systems frequently fail to account for the full spectrum of academic labour, particularly the invisible and relational tasks that sustain teaching, mentoring, and collegial engagement. This observation aligns with Crisp (2022), who critique the reduction of academic work to quantifiable metrics, and Sümer and Eslen-Ziya (2022), who highlights the gendered undervaluation of care work in academia. Autoethnography exposes how these omissions contribute to emotional exhaustion and professional disillusionment. Institutions must therefore move beyond technocratic templates and adopt workload frameworks that are context-sensitive, transparent, and co-designed with academic staff. Such models should reflect disciplinary nuances, accommodate individual circumstances, and recognize the emotional labour embedded in academic work (Gill, 2016; Méndez, 2013).

The coercive managerialism described in the protagonist's narrative mirrors the systemic hierarchies that shape academic workload allocation across South African higher education. The study underscores how the erosion of collegial governance and the normalization of surveillance and bullying reflect broader critiques of neoliberal governance (Ball, 2003; Van Vuuren, 2024). Autoethnography offers a counter-narrative to these practices by legitimizing insider knowledge and emotional truth. It invites institutional leaders to engage in reflexive dialogue about power, ethics, and accountability. As Sparkes (2024) and Poulos (2021) emphasize, autoethnography is not merely a method but a philosophical stance that demands vulnerability, relational ethics, and moral responsibility. Its integration into institutional research and leadership practice can foster more empathetic, inclusive, and responsive governance.

Furthermore, the emotional toll of academic labour documented in this study calls for fundamentally rethinking institutional approaches to staff well-being. Rather than relying on superficial wellness programs or standardized online modules, HEIs must address the structural conditions that produce burnout, anxiety, and moral injury. Autoethnographic research offers a rich foundation for designing well-being initiatives grounded in lived experience and distributive justice (Finlay, 2002). It encourages institutions to recognize emotional labour as legitimate work and to create environments where care, dignity, and professional integrity are actively supported.

Finally, this study positions autoethnography as a valuable tool for ethical policy reform. By connecting personal narrative with institutional critique, autoethnography enables universities to identify blind spots in governance,

understand the unintended consequences of performance-driven cultures, and co-create policies that reflect the values of equity, collegiality, and academic freedom. Integrating autoethnographic insights into participatory policy design can help institutions co-create fairer, more context-sensitive workload frameworks that embody emotional reflexivity, inclusivity, and justice. As Qutoshi (2015) argues, autoethnography is a transformative research paradigm that not only represents lived realities but reimagines them through reflexive engagement and critical dialogue. Its application in higher education supports the development of policies that are both efficient, ethically grounded, and socially just.

6. Conclusion

Grounded in emotional reflexivity, this paper affirms autoethnography as a rigorous, reflexive, and ethically grounded methodology for interrogating academic workload allocation in South African HEIs. By centering the protagonist's lived experience, the study demonstrates how autoethnography transcends narrative description to become a transformative mode of inquiry that exposes academic labour's emotional, political, and structural dimensions.

The findings illustrate how emotionally reflexive analysis enables the researcher to connect personal experience with broader institutional critique. The protagonist's reflections on invisible and emotional labour, managerial opacity, and quiet resistance reveal how workload models function not as neutral tools, but as mechanisms of control shaped by neoliberal governance and performative cultures. These insights resonate with the literature on symbolic violence (Bourdieu & Wacquant, 1992), emotional labour (Gill, 2016), and institutional injustice (Papadopoulos, 2017).

Methodologically, this study demonstrates the power of autoethnography to legitimize insider knowledge, foreground emotional truth, and challenge dominant discourses. As Poulos (2021) and Sparkes (2024) argue, autoethnography is not merely a method; it is a philosophical stance that embraces complexity, vulnerability, and ethical accountability. The protagonist's narrative exemplifies how reflexivity, positionality, and emotional engagement can illuminate the hidden injuries of academic life and offer a humanizing lens for institutional reform.

In reflecting on the journey undertaken through this autoethnographic inquiry, it becomes evident that the personal is not only political but also profoundly pedagogical. By tracing the contours of lived experience within the bureaucratic and emotionally charged terrain of academic workload allocation, this study affirms the capacity of autoethnography to illuminate the often-invisible dimensions of academic labour. It is through the deliberate act of writing the self into the institution that the researcher reclaims agency, challenges the epistemic violence of managerialism, and gestures toward more humane and just futures in higher education. In doing so, this work does not merely critique the structures that constrain academic life, it offers a call to reimagine them through the lens of care, dignity, and ethical responsibility.

Ethics Declaration

This study employed an autoethnographic research design based solely on the lived experiences and reflections of the researcher. No human participants, interviews, surveys, or third-party personal data were involved. Consequently, formal ethical clearance was not required in accordance with institutional research ethics guidelines.

AI Declaration

Limited use of artificial intelligence (AI) tools was employed in the preparation of this manuscript. AI was used solely for language editing, grammatical refinement and improving clarity of expression. No AI tools were used to generate original ideas, analyse data or produce substantive content. All interpretations, arguments and conclusions are the sole work of the author.

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Reclaiming Theory Building in Leadership Development Research: Why Strauss and Corbin's (1998) Grounded Theory Remains Methodologically Central

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Abstract: Grounded theory has become one of the most widely adopted qualitative methodologies within leadership and organisational research due to its capacity to explore process, interaction, and meaning-making in complex social environments. However, despite its widespread application, concerns have emerged that some contemporary grounded theory studies increasingly generate descriptive thematic frameworks rather than integrated explanatory theory. This paper argues that the progressive de-emphasis of axial coding, the paradigm model, and the explicit identification of a central phenomenon within later grounded theory developments has unintentionally weakened grounded theory's original theory-building mandate. Drawing on the methodological evolution of grounded theory from Glaser and Strauss (1967) through Strauss and Corbin (1990; 1998), Corbin and Strauss (2008; 2015), and constructivist grounded theory (Charmaz, 2006; 2014), the paper critically examines the growing convergence between grounded theory and thematic analysis within leadership development scholarship. Anchored in Taylor's (2013) grounded theory study of servant leadership development, the paper demonstrates how Strauss and Corbin's (1998) paradigm model enabled the construction of an integrated explanatory theory linking causal conditions, contextual influences, action/interaction strategies, and developmental consequences across institutional settings. The paper contends that leadership development research requires analytic architectures capable of explaining how leadership identities and practices emerge, stabilise, and evolve over time. Retaining Strauss and Corbin's (1998) grounded theory framework is therefore positioned not as methodological rigidity, but as a necessary safeguard for preserving grounded theory's explanatory and theory-generating capacity within contemporary qualitative leadership research.

Keywords: Grounded Theory, Leadership Development, Axial Coding, Paradigm Model, Theory Building, Qualitative Methodology, Strauss and Corbin

1. Introduction

Leadership development has emerged as a major field of inquiry within leadership and organisational studies, driven by growing recognition that leadership capacity is not fixed, innate, or exclusively trait-based, but rather socially constructed, developmentally shaped, and institutionally mediated (Day, 2000; Avolio & Hannah, 2008; Day & Antonakis, 2012). Across organisational and educational contexts, increasing attention has been directed toward understanding how leadership identities, practices, values, and capabilities develop over time through interaction with institutional environments, relational networks, and lived experience (McDermott, Kidney, & Flood, 2011; Murphy & Johnson, 2011). Alongside this growing scholarly interest has been a corresponding expansion in the use of qualitative methodologies, particularly grounded theory, due to their capacity to capture complexity, temporality, meaning-making, and social process within leadership contexts.

Grounded theory remains one of the most influential qualitative methodologies within organisational and leadership research because of its original mandate to generate explanatory theory grounded in empirical data (Glaser & Strauss, 1967). Unlike methodologies primarily oriented toward description or interpretation, grounded theory was explicitly developed to explain social processes through systematic conceptual integration. Strauss and Corbin (1990; 1998) further formalised this explanatory orientation through the development of open coding, axial coding, selective coding, and the coding paradigm, which collectively enabled researchers to move beyond descriptive thematic categorisation toward integrated substantive theory.

However, despite grounded theory's continued popularity within leadership studies, methodological scholars have cautioned that some applications prioritise thematic coding and descriptive categorisation over explanatory theory integration (Suddaby, 2006; Bryant, 2019). This concern is particularly evident within leadership development scholarship, where grounded theory studies frequently identify leadership attributes, developmental experiences, or leadership journeys without generating integrated explanatory theory capable of explaining how leadership development occurs as a socially situated process.

The progressive evolution of grounded theory methodology partly explains this shift. While Strauss and Corbin's (1990; 1998) formulations foregrounded the paradigm model, central phenomenon, and systematic category integration, later grounded theory developments increasingly softened the visibility of these analytic structures.

Corbin and Strauss (2008; 2015) repositioned the paradigm model as one possible analytic tool among many, while constructivist grounded theory (Charmaz, 2006; 2014) further reoriented grounded theory toward interpretive co-construction, reflexivity, and meaning-making. These developments made highly valuable contributions to qualitative inquiry by foregrounding researcher positionality, context, and interpretive flexibility. Yet they also unintentionally facilitated a drift in which grounded theory increasingly became associated with coding procedures and thematic interpretation rather than explanatory integration and substantive theory generation.

This methodological drift carries important implications for leadership development research. Leadership development is inherently processual, relational, and temporally dynamic. It involves identity formation, institutional socialisation, symbolic recognition, relational learning, and evolving behavioural practice across multiple social contexts and developmental stages (Day et al., 2021). Such complexity cannot adequately be theorised through thematic aggregation alone. Rather, leadership development research requires integrative analytic architectures capable of explaining relationships between contextual conditions, social interactions, institutional structures, and developmental outcomes over time (Langley & Tsoukas, 2017).

This paper therefore argues that the central methodological issue within contemporary grounded theory is not flexibility itself, but the weakening of explanatory integration as grounded theory's defining analytical purpose. Within leadership development research, where social processes unfold across institutional, relational, and temporal contexts, preserving explanatory integration remains essential for substantive theory generation. The contribution of this paper lies in repositioning Strauss and Corbin's (1998) grounded theory as a contemporary methodological framework capable of preserving explanatory integration within leadership development research.

The following literature review therefore examines the evolution of grounded theory methodology and the growing methodological debate surrounding theory integration, thematic drift, and the role of the paradigm model in leadership research.

2. Literature Review

The methodological debate surrounding grounded theory increasingly centres on whether contemporary grounded theory approaches retain sufficient explanatory integration to support substantive theory generation. While grounded theory was originally developed to explain social processes grounded in empirical experience (Glaser & Strauss, 1967), later methodological developments have progressively shifted emphasis toward interpretive flexibility and thematic meaning-making. Understanding this evolution is important because leadership development research requires methodologies capable not only of identifying themes, but of explaining how leadership identities, practices, and developmental processes emerge across time and context.

Strauss and Corbin (1990; 1998) later formalised grounded theory procedures through open coding, axial coding, and selective coding. Their approach emphasised integration between categories through the paradigm model, which linked causal conditions, context, intervening conditions, action/interactions, and consequences. The purpose of this structure was to move analysis beyond descriptive categorisation toward explanatory process theory.

The 1998 edition of Strauss and Corbin's work represented an important methodological refinement. While maintaining structured analytic integration, the framework allowed greater flexibility and reflexivity than earlier procedural grounded theory approaches. Importantly, however, the paradigm model and central phenomenon remained central mechanisms for explanatory integration (Strauss & Corbin, 1998).

Later grounded theory developments increasingly shifted toward interpretive flexibility. Corbin and Strauss (2008; 2015) softened the centrality of the paradigm model, while Charmaz's constructivist grounded theory foregrounded co-construction, reflexivity, and interpretive meaning-making (Charmaz, 2006; 2014). These developments significantly enriched qualitative inquiry, particularly within fields concerned with identity, power, and lived experience.

However, methodological scholars have raised concerns that grounded theory is increasingly being applied as a coding and categorisation technique rather than as a methodology for explanatory theory generation (Suddaby, 2006; Locke, 2001; Bryant, 2019). Within leadership and organisational research, this has contributed to studies that generate rich thematic description but more limited theoretical integration.

Leadership development research is especially vulnerable to this challenge because leadership development itself is highly processual and contextually situated. Leadership identities and practices emerge through socialisation, mentoring, institutional exposure, symbolic recognition, and developmental experience across time (Murphy & Johnson, 2011; Day et al., 2021). Explaining such complexity requires analytic approaches capable of integrating relationships between context, action, interaction, and developmental outcomes. Leadership development scholarship increasingly calls for process-oriented and longitudinal explanations of how leadership identities and practices emerge across institutional and relational contexts (Day et al., 2021; Vogel et al., 2021). However, much leadership research remains competency-focused or descriptively experiential. This creates a need for grounded theory approaches capable of integrating developmental process, social interaction, institutional context, and behavioural change into coherent explanatory frameworks.

Taylor's (2013) grounded theory study provides a useful illustration of how Strauss and Corbin's (1998) framework can support explanatory integration. The study identified the central phenomenon as "the development of an individual's leadership philosophy and practice" and systematically integrated categories using the paradigm model. This enabled the development of the substantive theory described as "the social field of servant leadership development."

The literature therefore suggests that the key issue is not whether grounded theory should be rigid or flexible, but whether it retains its explanatory purpose. Strauss and Corbin's (1998) framework remains methodologically significant because it preserves grounded theory's distinctive capacity for explanatory integration and substantive theory generation. While these developments expanded interpretive sensitivity, they also reduced the visibility of explicit explanatory integration within grounded theory analysis.

The literature therefore suggests that the key methodological issue is not whether grounded theory should remain rigidly procedural or interpretively flexible, but whether it retains sufficient explanatory integration to generate substantive theory. This issue is particularly important within leadership development research, where understanding developmental process requires analytic structures capable of linking context, interaction, action, and consequence. The next section therefore outlines the methodological positioning adopted in this paper and explains why Strauss and Corbin's (1998) paradigm model remains central to explanatory integration.

3. Methodology

This paper adopts a conceptual qualitative methodology grounded in critical analysis of explanatory integration within grounded theory research. Rather than presenting new empirical fieldwork, the paper examines how the evolution of grounded theory methodology has influenced theory construction within leadership development scholarship. The analysis is anchored in Strauss and Corbin's (1998) grounded theory framework and uses Taylor's (2013) servant leadership study as an empirical illustration of how explanatory integration can be achieved through the paradigm model.

The paper is positioned within an interpretivist research paradigm, which assumes that social reality is constructed through interaction, experience, and meaning-making (Charmaz, 2006; Creswell & Poth, 2018). This perspective is appropriate for leadership development research because leadership identities and practices emerge through social and institutional processes over time.

The methodological focus of the paper is Strauss and Corbin's (1998) grounded theory approach, particularly the use of:

- open coding,
- axial coding,
- selective coding,
- and the paradigm model.

The paradigm model organises analysis around:

- causal conditions,
- the central phenomenon,
- context,
- intervening conditions,
- action/interaction strategies,
- and consequences.

This structure supports integration between categories and movement from descriptive coding toward explanatory theory generation.

To illustrate this approach, the paper draws on Taylor's (2013) grounded theory study, which explored servant leadership development across school, university, and workplace contexts using thirty-six semi-structured interviews analysed through Strauss and Corbin's grounded theory procedures. The methodological focus on explanatory integration provides the analytical foundation for the discussion that follows. The next section examines how weakening emphasis on the paradigm model and central phenomenon has contributed to methodological drift within grounded theory and demonstrates how Taylor's (2013) study illustrates the continuing value of integrative grounded theory analysis within leadership development research.

4. Results and Discussion

The analysis presented in this paper suggests that contemporary grounded theory research increasingly faces challenges relating to explanatory integration. While grounded theory remains widely used within leadership and organisational studies, methodological scholars have cautioned that some applications prioritise thematic categorisation and descriptive coding over substantive theory generation (Suddaby, 2006; Bryant, 2019). The findings discussed below indicate that the weakening of integrative analytic structures such as the paradigm model has important implications for leadership development research, where process explanation remains essential.

However, later grounded theory developments increasingly prioritised interpretive flexibility and reflexive meaning-making while reducing emphasis on explicit integrative structures such as the paradigm model and central phenomenon (Corbin & Strauss, 2008; Charmaz, 2006; Charmaz, 2014). While these developments enriched qualitative inquiry, they also contributed to methodological drift in which grounded theory studies increasingly resembled thematic analysis rather than explanatory theory generation (Bryant, 2019; Suddaby, 2006).

Several grounded theory scholars have raised concerns that grounded theory is increasingly being applied as a coding and categorisation technique rather than as a methodology for explanatory theory generation (Suddaby, 2006; Locke, 2001; Bryant, 2019). Within leadership and organisational research, this has contributed to studies that generate rich thematic description but more limited theoretical integration. Three key findings emerge from this analysis. First, grounded theory literature demonstrates a progressive reduction in emphasis on explicit integrative structures such as the paradigm model and central phenomenon. Second, this methodological shift has contributed to increased convergence between grounded theory and thematic analysis within leadership research. Third, Taylor's (2013) study illustrates that Strauss and Corbin's (1998) framework continues to support substantive explanatory integration within leadership development research.

The findings also suggest that the reduced visibility of the paradigm model has contributed significantly to this shift. Strauss and Corbin's (1998) framework originally positioned the paradigm model as a mechanism for linking:

- causal conditions,
- context,
- intervening conditions,
- action/interaction strategies,
- and consequences.

This structure enabled researchers to reconstruct social processes and generate explanatory theory grounded in participant experience (Strauss & Corbin, 1998).

The empirical illustration drawn from Taylor's (2013) grounded theory study demonstrates the continuing value of Strauss and Corbin's framework within leadership development research. Taylor's study identified the central phenomenon as:

> "the development of an individual's leadership philosophy and practice."

Using the paradigm model, the study integrated leadership opportunities, institutional contexts, mentoring relationships, service experiences, reflection practices, and leadership identity formation into a coherent explanatory framework. This level of integration enabled the development of the substantive theory described as:

"the social field of servant leadership development."

The findings therefore support the argument that Strauss and Corbin's (1998) grounded theory framework remains methodologically valuable because it preserves grounded theory's explanatory architecture. Leadership development research requires methodologies capable of explaining social process, interaction, and developmental change across time and context (Day et al., 2021).

Taylor's (2013) study is significant within this paper not simply as an example of grounded theory application, but as evidence of how Strauss and Corbin's framework supports explanatory integration across conditions, interactions, institutional contexts, and developmental outcomes. Rather than producing isolated themes, the study demonstrates how the paradigm model enables movement from participant experience toward substantive explanatory theory.

The findings also carry implications for doctoral education and qualitative research training. Contemporary doctoral students and novice qualitative researchers are often introduced to grounded theory primarily through coding procedures rather than systematic theory construction (Tie, Birks, & Francis, 2019; Birks & Mills, 2023). As a result, researchers may become proficient in identifying themes but less confident in integrating categories into explanatory theory. This contributes to the growing convergence between grounded theory and thematic analysis identified by methodological scholars.

This paper is conceptual and methodological in nature and therefore does not present a systematic review or empirical comparative analysis of grounded theory studies within leadership research. The arguments advanced are based on critical methodological analysis and illustrative empirical application through Taylor's (2013) study. a contemporary integrative architecture capable of preserving grounded theory's explanatory purpose within leadership development scholarship

5. Conclusion

This paper has consistently argued that grounded theory's distinctive contribution to leadership development research lies not simply in inductive coding, but in its capacity for explanatory integration. While grounded theory has evolved in important and valuable ways, the progressive reduction of explicit integrative structures such as the paradigm model and central phenomenon has weakened grounded theory's original theory-building architecture.

Using Strauss and Corbin's (1998) framework and Taylor's (2013) study as an empirical illustration, the paper has demonstrated the continuing methodological value of the paradigm model for leadership development research. The paradigm model supports integration between causal conditions, context, action/interaction strategies, and consequences, enabling researchers to move beyond descriptive themes toward substantive theory generation.

The paper further suggests that current challenges in grounded theory application may partly reflect insufficient methodological training in theory integration. Contemporary doctoral students and novice qualitative researchers are often introduced to grounded theory primarily through coding procedures rather than through systematic theory construction (Tie et al., 2019; Birks & Mills, 2023). As a result, researchers may become proficient in identifying themes and categories but less confident in integrating categories into explanatory theory.

The paper therefore recommends that doctoral education and qualitative research training place greater emphasis on:

- the role of the central phenomenon,
- axial and selective coding,
- process explanation,
- and integration through the paradigm model.

Ultimately, the continued relevance of grounded theory within leadership development research depends not only on methodological flexibility, but also on preserving its explanatory purpose. Strauss and Corbin's (1998) framework remains methodologically important because it retains analytic structures capable of integrating context, interaction, process, and consequence into substantive theory. Preserving explanatory integration within grounded theory is therefore essential if leadership development scholarship is to move beyond descriptive thematic analysis toward rigorous theory generation capable of explaining how leadership develops

across institutional and social contexts. Future research may benefit from systematic examination of how grounded theory is operationalised across contemporary leadership development studies. The contribution of this paper lies in repositioning Strauss and Corbin's (1998) framework not as a rigid procedural model, but as a contemporary integrative architecture capable of preserving grounded theory's explanatory purpose within leadership development scholarship.

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The Use of AI Research Assistants by Knowledge Management Postgraduate Students, Supervisors and Emerging Researchers – A Case Study

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Abstract: The growing prevalence of artificial intelligence (AI), generative AI (GenAI), and AI-mediated research tools raise concerns around their implications for postgraduate research and education. Postgraduate students starting their research journey may believe that AI-powered research tools enhance efficiency and fluency. This could be the case, but there is a probability that its uninformed and indiscriminate use may exacerbate second-order articulation gaps. This may be evident during transitions from Honours to advanced postgraduate research. Whereas, independent analytical and creative problem solving, conceptualisation, methodological justification, and original contribution are research skills required on postgraduate level, an over-reliance on generative AI and other AI research assistants may deter this cognitive development and result in limited epistemic understanding. When combined with heuristic information behaviour, such as satisficing, superficial processing, cognitive overload, information avoidance, and confirmation bias of AI use may result in compromised research quality, originality, and ethical engagement. Although articulation gaps are well theorised in relation to the school-to-university transition, limited research addresses their recurrence within higher education itself in South Africa, particularly between NQF 7–8 and NQF 9–10. These gaps are often misinterpreted as motivational deficits rather than systemic misalignments that privilege procedural competence over deep scholarly identity formation. This mixed-method case study investigates how postgraduate students and supervisors perceive and manage AI use. Findings aim to inform supervision practices, and student support that scaffold ethical AI integration, strengthen research literacies, and support authentic researcher identity development. The value of the study lies in adding new knowledge to an unexplored area and to propose steps to close the current gap. The study involves a case studies.

Keywords: Articulation Gaps, Information Behaviour, Postgraduate Students, AI Research, Heuristics

1. Introduction

The fast-changing artificial intelligence (AI) and generative AI (GenAI) developments and its application in research, raises opportunities but also concerns. AI-powered or AI-mediated research assistants are computational tools designed to support knowledge organisation during the research process. These research assistants are digital tools that use AI to support , augment and organise research knowledge at various stages during the research process. While some authors argue that these tools could be seen as cognitive collaborators, assisting with information searching, synthesising, analysing, and academic writing, others (Mishra, 2023, Mishra & Oster, 2025) warn that they must be used responsibly and cannot create shortcuts to replace the research supervisor or be used in a way that impedes the learning required by emerging researchers.

With the increasing growth of available information, students and researchers may resort to new research tools, such AI-assisted writing tools to assist in tasks such as academic writing, literature reviews, citation management, proofreading, and content generation (Matthews, 2021). Tools like Elicit, LitMap and ResearchRabbit are just some examples of the tools used to create maps or networks of literature. Typically, these tools only access sources with open or indexable academic metadata, and exclude many high-indexed Quartile one and two journals with high quality research information.

AI tools and assistants are used to find research articles, and with over 5000 available tools, AI tools and models can help and support researchers by automating certain components of literature review, data analysis, and even recommending research questions, although the explanatory and creative elements of research may still need human contribution (Aithal & Aithal, 2023). Many of these tools make use of GenAI in the form of generative pretrained transformers (GPTs). GPTs are based on the transformer architecture suited for language processing tasks (Stahl & Damain, 2024) The aim of this case study was to inform both the students, supervisors and lecturers who participated in this case study about the current issues around the effective use of AI-powered AI tools and AI assistants. The paper aims to inform better supervision practices, and student support that scaffold ethical AI integration, strengthen research literacies, and support authentic researcher identity development. It can assist students and researchers with their academic writing and literature reviews. The paper focuses on experiences and expectations of AI-powered tools, such as Elicit and others within the case

study. It looks at how AI could be used to evaluate large volumes of scholarly books, articles, and publications; they are able to create or develop concise summaries, discover relevant sources and even develop research questions as explained in literatures such as posited by Aithal and Aithal (2023).

2. Literature Review

While recent research proliferates issues around AI ethics (Kazim & Koshiyama, 2021), its implication in research praxis begs more attention (Lauer, 2021; Anongu, 2025). There are concerns that AI-powered tools may not be used effectively and responsibly in all cases (Holmes et al. 2022). This concern is further highlighted when realising that not all students or even supervisors have the discipline knowledge depth and research acumen to use AI correctly in the research process. In addition to the challenges of using new technology, postgraduate students may experience a second wave of articulation gaps in adjusting to the demands postgraduate studies and research requiring self-reliance, self-regulation and independent problem solving. As Lortan and Maistry (2018) explain, articulations gaps are experienced from school to first year. As not much attention is given to possible articulation gaps experienced when students articulate to postgraduate studies, the questions are how over-reliance and blind trust may cause negative heuristics in information behaviour impeding student success. Expectations about how students engage with information, knowledge, and tools could potentially change faster than their competencies, literacies and academic acumen could develop (Van Wyk, 2021). increasing tendency among students to accept AI recommendations without critical assessment. Authors (Green, 2021; Abubakar, Jeilani, and Yusuf, 2025) showed that this over-reliance leads to a failure to critically consider the reliability and accuracy of information obtained via AI tools. They continue that this academic and information behaviour result in further ethical issues and potential misconduct. This study reports on a case where the experiences and expectations of both academics supervisors and postgraduate students engage with AI tools in doing their research.

In higher education, an articulation gap is commonly understood as a misalignment between successive levels of study, whereby the knowledge, skills, epistemological orientation, and learning dispositions developed at one level do not adequately prepare students for the expectations of the next, often resulting in transitional difficulty despite formal progression eligibility (Lortan & Maistry. 2018). This gap is most evident where students must enter tertiary education, and where not sufficiently prepared by their secondary studies. This is a well-known and extensively researched area, but two aspects are not well addressed. Firstly, as much as secondary education does not prepare FTE students for tertiary studies, undergraduate studies do not always prepare students to progress to NQF 8 and then NQF 9 leading to second-order articulation gaps. It is well established that the first articulation gap, between school and first-year tertiary study, has been extensively studied and is supported by detailed frameworks. Authors such as Gustafsson and Nonkenge (2025) allude to the importance of extended curriculum models, transition programs, and policy-driven approaches such as the South African Three-Stream Model, which focus on curriculum alignment, foundational academic literacies, and structured learner support. This attention is warranted, as the largest proportion of students who fail to complete their studies or drop out are concentrated in this secondary transition, highlighting both the scale and impact of the school-to-university gap. In contrast, the subsequent or “second-order” articulation gaps, from undergraduate (NQF 7) to Honours (NQF 8), and from Honours to postgraduate research (NQF 9 and 10), are far less systematically addressed.

AI and the ill-informed use of AI-powered research assistants and tools beyond NQF 7 studies are presenting second-order articulation gaps where there is a widening in students’ textual performance and epistemic competence. While substantial scholarly support and curriculum design attention has been devoted to the articulation gap between school and university, far less consideration has been given to articulation challenges within higher education itself, particularly the transitions from undergraduate study at NQF 7 to Honours level at NQF 8, and from Honours to postgraduate research at NQF 9 and NQF 10. Within this under-examined space, a significant articulation gap can be identified between Honours-level study and postgraduate research, rooted less in disciplinary knowledge deficits than in a fundamental shift in epistemological orientation, research autonomy, and scholarly identity (Van Wyk & Dawood, 2021). Honours programmes typically introduce students to research through structured, scaffolded engagements that emphasise the analysis and application of existing knowledge, whereas Master’s and Doctoral study assume the capacity to independently conceptualise research problems, justify methodological and theoretical choices, and contribute original insights to scholarly discourse(Uludağ, Kılıç, & Çelik. 2025). This already complex transition is further complicated by the increasingly ill-informed use of generative artificial intelligence tools, which may obscure rather than resolve underlying epistemic gaps. Students may present fluent, coherent academic text generated or heavily mediated by AI

without possessing the conceptual depth, methodological understanding, or theoretical positioning such work appears to demonstrate, giving rise to what Mishra (2025) has described as a false confidence scenario, where surface-level competence masks deeper learning deficiencies. For lecturers and supervisors, this creates significant pedagogical and research quality challenges, as traditional indicators of research readiness, authorship, and scholarly voice become less reliable. Consequently, the articulation gap must now be understood not only as a structural and pedagogical misalignment within the NQF, but also as a digitally mediated epistemic risk, underscoring the urgent need for explicit instruction in research epistemology, ethical and critical AI use, and the development of authentic researcher identity across the Honours–postgraduate continuum.

While some research and institutional support programs touch on research literacy, epistemic readiness, and postgraduate mentoring, there is a paucity in formalised frameworks that map these transitions in a comprehensive, evidenced manner. Consequently, these gaps persist, particularly in areas such as research competence, academic identity formation, ethical reasoning, and emerging AI literacy. This underscores the need for deliberate research and development of frameworks that scaffold literacy and competency development, enabling students to progress successfully through higher levels of study while maintaining ethical and epistemic rigor.

Students often engage in strategies that limit the depth and quality of their research. Satisficing is a phenomenon that occurs information is accepted on face-value as being adequate, rather than continuing to search for more comprehensive sources. Cognitive overload avoidance leads them to stop researching when the volume of information feels overwhelming. Surface learning results in superficial engagement with sources, without critical evaluation, while confirmation bias heuristics cause students to select information that aligns with prior beliefs rather than challenging their assumptions (Xu, 2025). Together, this behaviour can undermine information, digital-, AI- literacy, and research literacy as well as critical thinking, and the development of independent research skills.

When this information behaviour pattern presents, and is combined with the indiscriminate use of AI tools, a false confidence develops (Mishra, 2025) where students overestimate their understanding and research competence because AI produces fluent, seemingly complete outputs. This trap masks gaps in information literacy, research literacy, and critical thinking, reinforcing misaligned learning and making articulation gaps, particularly from Honours to postgraduate study, even more difficult to address. Mishra and Loster (2025) further allude that experiencing AI as a human collaboration may lead the anthropomorphized GenAI use, leading to cognitive biases due to its human-like interactions. Understanding differences between human cognition and GenAI is necessary for the effective use for GenAI's application in research.

3. Research Problem, Research Question and Sub-questions

The combination of heuristic shortcuts, learning misalignment and over-confidence of AI use could lead to postgraduate students and emerging researchers overestimate their understanding the complexities of postgraduate studies and research competence. This is particularly problematic in the second-order articulation gap, where the transition from undergraduate (NQF 7) to Honours (NQF 8) and postgraduate study (NQF 9), where a lack of deep literacies in information evaluation, research reasoning, critical thinking, and ethical engagement may not have developed to secure success. If unaddressed, it could contribute to high drop-out numbers and departments not meeting their targets. It may furthermore undermine research quality, delays progression, and risks academic integrity. Each transition assumes a higher-order literacy without explicitly teaching it. systemic mislearning or misalignment rather than individual failure. procedural success without conceptual grounding

The main research question to be answered is: How do postgraduate students doing research use AI-research assistants and how do their supervisors perceive and manage AI use in the research process?

Sub-Questions:

- How do students describe their expectations and experiences in using AI during research?
- What are supervisors' perceptions of students' AI use, heuristics, and readiness for independent research?
- What is the nature of heuristic information behaviour observed?
- How does the use of AI-research assistants articulate with known articulation gaps?
- How must requisite research literacies and competence adapt?

4. Theoretical Frames, Research Philosophy and Methodology

The study explores information behaviour in using AI assistance in research with in the backdrop of prevailing and escalating articulation gaps which may be accelerated by available AI platforms and tools. A multi-disciplinary conceptual framework guides this study, where the applicable concepts derived from the Situated Learning Theory, The diffusion of Innovation Theory and the Theory of Reasoned Action were used to explore both student and academic perceptions, knowledge and experiences of using AI-powered tools to assist in the research process. Lave and Wenger (1991) explain the cornerstone of situated learning as authentic activities, where knowledge is constructed socially. The Diffusion of Innovation Theory, developed by Rogers in 1962, provides understanding of how new technologies spread among users based on perceived usefulness, ease of use, and institutional support. The Situated Learning Theory by Lave and Wenger (1991) looks at communities of practice, and the Theory of Reasoned Action (TRA), where social psychologists Fishbein and Ajzen (1980), argued that there is a connection between an individual's intent and their behaviour, which in this study refers to information behaviour in choosing and using AI. Important for this study are constructs of information behaviour of both students and supervisors in using AI-research assistants, Information behaviour can be understood in terms of what motivates the student or emerging researcher to do research and to do this as ethical as possible. The conceptual frame forming the basis of this case study is explained in *Figure 1.*

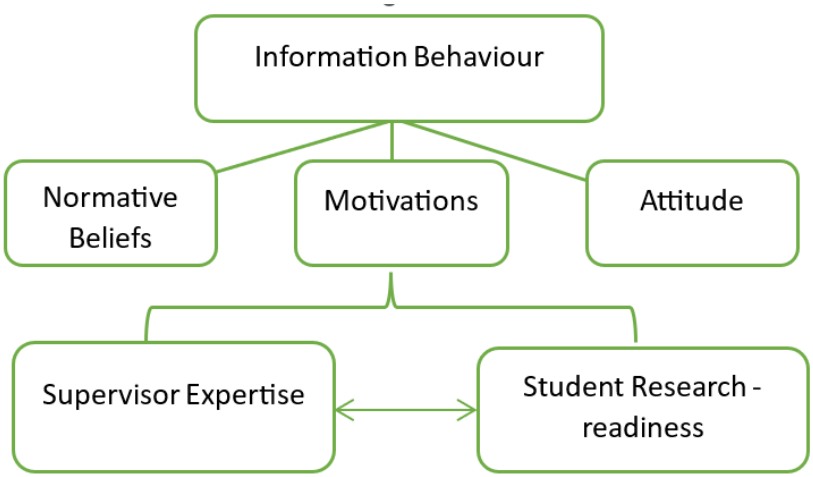


Figure 1: Conceptual Framework

The research design of this study is rooted in the interpretivist paradigm. This paradigm was the preferred philosophy, rather than Post-positivism or Pragmatism, because Interpretivist designs emphasise the analysis of mostly qualitative data, but also quantitative data that will inform sensemaking of lived experiences (Bezuidenhout, Davis, & Du Plooy-Cilliers, 2014). In this study, both quantitative and qualitative data were collected from the participants by means of open-ended survey questionnaires with students and supervisors. Qualitative research is a form of social inquiry that targets the way that people make sense of their experiences in the world (Willis, 2008), while quantitative data can be used, to identify patterns, trends, or contextual factors that inform deeper interpretivist analysis.

This research follows a case study design. The research design of this study is naturalistic and focusses on an existing complex phenomenon (as explained by Noon, 2018), in this case, postgraduate students and the academic staff responsible for lecturing and supervising postgraduate students. This design was chosen as it allowed for consideration of the actual experience and input of the target group as a unit. This allowed for comparison and the identification of recurring themes. It allows for observation and discussion of a real-life environment in its natural setting. The non-probability sample was purposively selected, consisting of a cohort of postgraduate students and supervising staff at a department of a university in South Africa.

5. Data Collection and Data Collection Method

Data were collected during and after a seminar on conducting and supervising postgraduate research. Qualitative and quantitative data were collected from the convenience sample. A cohort of postgraduate students and the academics completed open-ended, semi-structured survey questionnaires after attending a research workshop. Further qualitative data were collected from field notes and researcher observations to. The qualitative data collected were analysed using thematic reflective analysis. The 63 participants of a private

business school included both academics and students. Some of the emerging researchers (23) were both lecturing staff for postgraduate modules and students enrolled at other universities completing their masters and doctoral studies in Knowledge Management and Business Studies, while 20 were postgraduate students at the school. The workshop was also attended by support staff and academic staff that were not currently studying, but have roles in educational and technology support, and policy development.

6. Discussion of Findings and Data Analysis

Thematic analysis assisted in analysing collected data. It is a data representation approach that also involves interpretation in the form of resolving codes and theme creation. As a technique for analysing data, it entails searching for and analysing repeating patterns in a collection of data, as well as reporting on them (Braun & Clarke 2006, 2012, Noon, 2018). Data were collected after a training seminar attended by both lecturers and postgraduate students, via an online survey questionnaire. A total of sixty-three (63) participants attended the workshop. Forty completed the survey. The training session were recorded and further observations could be recorded via field notes and workshop recording and transcriptions. Further data were collected via observations and follow up discussions.

The types of AI tools used reported in this study are listed in Table 1.

Table 1: Table on Reported AI-assistants Use During the Research Process

AI-Research Assistants used	Tool Name	Combined Responses
Literature Search and Discovery	Perplexity AI	67.7.%
	GenAI	90%
	Google Scholar	87%
	ResearchGate	64.5 %
	Prescription databases	71%
	Scholarly	2%
Writing and Editing Tools	Grammarly	67.7%
	Elicit	6.5%
	Consensus	3.2 %
	ResearchRabbit	16.1%
Referencing Tools	EndNote	20%
	Zotero	5%
	Litmaps	3%
Statistical and Data Analysis Tools	Julias AI	3%
	SciteAI	1.5%
GenAI	ChatGPT	80.6%
	Grok	3.2%
	DeepSeek	16.1%
	Claude	3.2%
	Anara	3.2%
	Gemini	3.2%
	Copilot	38.7%

During discussions, the researcher observed that while supervisors and academic staff mostly use the subscription databases, students are more and more relying on GenAI sources. As GenAI professes to use only openly available material and sources, students do not expose themselves to high quality full text sources availed in databases.

The four distinct themes that emanated from the study can be explored based on evidence as follows:

6.1 Perceptions of Trust and Dependence

There was a marked difference between the usage, experience and perceptions between academic staff and postgraduate students. The 'false confidence gap' as explained by Mishra (2025) was more prevalent under students. Academics were less experienced in the available tools, and also less trusting: Some participants responded:

> *All information needs to be fact checked [Academic Participant 7]*
>
> *Trying to avoid AI tools as much as possible [Academic Participant [3]*
>
> *It has a space - but as augmentation, not a crutch or main source [Academic Participant 12]*
>
> *Good for summarizing but bad when you have to mark work that is AI generated [Academic participant 5]*
>
> *An over- reliance and assuming you are the one that is wrong [Participant 6]*

6.2 Information Behaviour Observed

In further conversations the academic staff conceded to know very little about AI-powered research tools such a Covidence. They had a general understanding of GenAI, but were surprised to learn that AI-powered tools if used responsibly can have a positive heuristic effect in the research process.

Students contended that they often discuss the topic with other students, and often experiment with tools recommended by friends. Here, further discussions and observations are that these recommendations often resulted in negative heuristic practices that take from the quality of research and academic writing. Students were more concerned with the functionality of traditional similarity detection tools like Turnitin, and its inability to detect AI use resulting in high false positives when tools like Grammarly is used.

> *I have tried using a paraphraser once or twice and I feel I am better off paraphrasing on my own. Grammarly has worked well [Participant 4]*

6.3 Articulation Gaps Observed and the use of AI Research Assistants

Conclusions drawn from the survey results and field notes, show that supervisors are concerned about student-readiness to transition from undergraduate level to postgraduate level, and both a lack of AI literacy and research literacy were observed.

> *I keep telling my students not to approach research writing the same as writing an assignment – they are too descriptive and barely touch the essence of their topics*
>
> *I am concerned when I see the majority of sources cited, do not include seminal and well-known works*
>
> *Without careful and ethical use, such tools may undermine critical thinking and independent scholarly development [Participant 20]*

6.4 Requisite Research Acumen and Accountability in Using AI

> *Prompts must be thought through and detailed to get relevant information. Sometimes irrelevant information [Participant 5]*
>
> *Students misuse them [AI tools] and it is hard to keep up with their level of competency [Participant 31]*

Findings are that the AI-mediated factor may cause dilemmas such as creating false confidence in AI and over-reliance among students, often where supervisors are not always fully equipped to manage the ethical AI use. Observations are that supervisors are hesitant to familiarise themselves with AI tools, creating a gap between the information behaviour of students and the expectations of the supervisor. This trend is confirmed by findings by Bozurk (2023), where AI literacy among academics is overlooked. This concern is further underpinned by Chan (2023), showing that 30% of students use AI and believes that their supervisors will not pick it up. This too reaffirms Mishras (2025)concern around the negative heuristics and existing false confidence traps that will not assist students to fully articulate into postgraduate research. We see that AI, though not the root cause, further impede articulation gaps, being accelerators that is exacerbated by the indiscriminate use of AI research assistants. This risks producing postgraduate research that is procedurally compliant, yet epistemically lacking.

This in turn undermines research quality, originality, and the formation of authentic scholarly identity. The use of AI fills cognitive gaps prematurely, and searching is confused with understanding.

7. Conclusion and Recommendations

The significance of this study lies in exploring the use of AI technology in a complex postgraduate ecosystem. It is important to identify gaps, and, possibly, strengths in getting a better understanding of how AI could be used towards attaining student success and to a better throughput rate (Valencia Quecano, 2024). This in turn could be used to inform the development of a professional development programme for academics and supervisors. It is hoped that this information could be shared in further workshops.

In answering the research question on how both students and their supervisors experience the use of AI, the findings indicate that the lack of skills and requisite literacies leads to negative heuristics. Findings are that lecturers are concerned about these shortcuts and unrealistic expectation of what the tools could accomplish. Furthermore, their concerns on the accuracy of AI tools that may impair learning was mentioned. The findings of this study correlate with the views of Mishra and Oster (2025) in terms of using AI without essential discernment. Mishra and Oster (2025) attribute this to the phenomena of AI Anthropomorphism, where humans interact and trust AI tools as if they were human knowledgeable experts. The language base of LLMs is known to err and may present information that are incorrect. In a research setting this has periled consequences (see Berkeley & Berlin, 2023 as cited in Mishra and Oster, 2025). Mishra and Oster (2025) warn that AI-empowered research assistants based on LLMs have the dual potential to improve access to information, while simultaneously mislead students.

Much research has been conducted the ethics of AI in learning and research (see Binde, 2002; Corrigan et al, Morley et al., 2023; Heilinger, 2022). More empirical research must be conducted into the broader implications of AI's presence as a psychological other (See Bisconti et al, Mishra & Loster, 2025, and others) , particularly in terms of social and emotional development of students and emerging researchers.

Ethics Declaration

For this research, ethical clearance was obtained from the HEI, and participants signed consent forms.

AI Declaration

For this research, the grammar assistant software tool Grammarly was used.

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Theory Building Through Hermeneutic Documentary Inquiry in Management Research

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Abstract: Management research increasingly addresses complex forms of organisational value, yet conceptual frameworks often remain fragmented across economic, social, environmental, governance and strategic traditions. This paper examines how hermeneutic documentary inquiry can be used as a rigorous theory-building strategy for constructing an integrative management framework from dispersed secondary sources. The study is derived from a doctoral research project that designed the RMS Model, translated as Multidimensional Sustainable Wealth (MSW) Model, but the purpose of this paper is methodological rather than confirmatory. It asks how conceptually rich documents can be selected, interpreted, reduced and synthesised to produce a coherent conceptual architecture without claiming empirical validation. The research followed a predominantly qualitative and exploratory design grounded in a hermeneutic-interpretive stance. The method was theoretical research operationalised through documentary inquiry, purposive theoretical sampling, iterative comparison, qualitative simplification and categorisation. A limited longitudinal review of economic, social and environmental indicators contextualised the problem, while the core analytical work focused on management models, ESG-related tools and associated theoretical contributions. The process generated an integrative framework organised around five dimensions of multidimensional sustainable wealth, ten subcategories and associated emergent themes. The MSW Model is presented as a theory-building output that systematises dispersed conceptual insights into a structured framework for future research, not as evidence of organisational effectiveness. The paper contributes to research methodology in three ways. First, it positions documentary inquiry as more than a literature review technique by showing its potential for conceptual construction. Second, it clarifies how hermeneutic interpretation can guide the movement from heterogeneous documents to theoretically ordered categories. Third, it distinguishes explicitly between conceptual model design, derivative practical instruments and subsequent empirical validation. This distinction helps prevent overclaiming in conceptual research and defines an agenda for future case-based, comparative and psychometric studies. The paper is relevant to scholars interested in theory development, conceptual framework design and qualitative methodology in business and management research.

Keywords: Theory Development, Hermeneutic Inquiry, Documentary Inquiry, Conceptual Framework Design, MSW Model

1. Introduction

Management research increasingly deals with organisational phenomena that are complex, multidimensional and difficult to explain through single-purpose frameworks. Firms are expected to achieve economic performance, productivity and competitive continuity, but they are also required to respond to social inequality, ecological deterioration, governance demands, human development concerns and long-term stakeholder expectations. This creates a scientific problem for business and management research: many frameworks are useful for analysing specific dimensions of organisational performance, yet they remain fragmented when the aim is to conceptualise value creation as a broader, multidimensional and sustainable phenomenon. The problem is therefore not only practical, but also theoretical and methodological.

This paper addresses that problem from a methodology-oriented perspective. It is derived from a doctoral study that designed the MSW Model, a management framework intended to conceptualise multidimensional sustainable wealth in organisations (Vega-Baez, 2025). However, this article does not aim to validate the MSW Model empirically, nor to present it mainly as a normative management proposal. Instead, it examines the methodological route through which such a model was constructed. The central concern is how hermeneutic documentary inquiry can support theory building when researchers work with heterogeneous secondary sources, including management models, ESG-related tools and associated theoretical contributions.

Three research gaps guide the article. The first concerns the methodological status of documentary inquiry in management research. Although documentary sources are often used to contextualise empirical studies or support literature reviews, their role as primary material for conceptual construction remains less developed. The second gap relates to literature-based theory development. Recent scholarship has shown that reviews can advance theory when they move beyond descriptive summary and become scientific inquiry, integrative synthesis and conceptual contribution (Post, Sarala and Gatrell, 2020; Fan et al, 2022; Kunisch et al, 2023). Yet

conceptual papers may still remain too descriptive or too broad. The third gap concerns the boundary between conceptual design and empirical validation. Conceptual frameworks may be theoretically grounded without being empirically tested, and this distinction must be explicit.

The article asks: How can hermeneutic documentary inquiry support theory building in business and management research through the construction of an integrative management framework? To answer this question, the paper pursues four objectives. First, it explains the methodological rationale for using hermeneutic documentary inquiry as a theory-building strategy. Second, it describes how purposive theoretical sampling, iterative comparison, qualitative simplification and categorisation were used to move from secondary sources to conceptual categories. Third, it presents the MSW Model as the conceptual output of this process. Fourth, it clarifies the limits of the contribution by distinguishing the framework from empirical validation and identifying future research paths.

The article contributes to business and management research methodology in three ways. It positions documentary inquiry as a structured mechanism for conceptual construction, demonstrates how hermeneutic interpretation can guide the movement from heterogeneous documents to theoretically ordered categories, and provides an example of how a conceptual management framework can be presented responsibly as a theory-building output without overstating its empirical status.

2. Literature Review

2.1 Review Research and Theory Building

The first gap identified in this paper concerns the methodological role of documentary and literature-based inquiry in theory development. A growing body of methodological literature argues that review-based research should not be treated as secondary or merely preparatory. Instead, it can serve as a route to theoretical insight when conducted with rigour, transparency and generative intent (Fan et al, 2022; Kunisch et al, 2023). Post, Sarala and Gatrell (2020) argue that review articles can advance theory when they identify conceptual tensions, reframe constructs, or reveal previously unconnected relationships. Patriotta (2020) adds that impactful reviews require a clear intellectual purpose rather than broad aggregation.

This shift matters for business and management research. Integrative reviews allow researchers to connect bodies of literature that have evolved in parallel but not necessarily in conversation (Cronin and George, 2023). Breslin and Gatrell (2023) describe this process as a continuum between “mining” and “prospecting”, where theory-building reviews may excavate latent insights within an established domain or create new conceptual territory by combining separated strands. Alegre, Callahan and Iszatt-White (2023) emphasise that conceptual contributions require authors to move from description to explanation, from mapping to synthesis.

For this paper, these arguments are central because the purpose is not to provide a descriptive review of management models or ESG-related tools. The objective is to show how dispersed conceptual sources can be interpreted and reorganised into a new framework.

2.2 Documentary inquiry and hermeneutic interpretation

The second gap concerns the use of documentary inquiry as a primary route to conceptual construction. Rouleau (2024) argues that documents should not be treated merely as background or contextual evidence. They can serve as central research material when interrogated interpretively and comparatively. This is important for research that seeks to reconstruct conceptual patterns over time, across traditions and through multiple genres of managerial discourse.

A hermeneutic stance reinforces this possibility. Rather than assuming that texts contain fixed meanings awaiting extraction, hermeneutic inquiry treats interpretation as a reflexive movement between parts and wholes, between individual documents and the broader phenomenon they illuminate. The researcher does not simply collect evidence; the researcher interprets, compares and recontextualises it. This raises the importance of reflexivity and positional awareness (Pearse, Snowball and Drummond, 2025). Developments in reflexive thematic analysis also stress that interpretive coding and categorisation are iterative acts of sensemaking that can support conceptual emergence when handled transparently (McManus, Basini and O’Driscoll, 2025).

For the present study, documentary inquiry is not used to produce a conventional systematic review. It is used as a hermeneutic and theory-oriented process in which documents are selected, interpreted, compared, reduced, categorised and synthesised to generate a conceptual framework.

2.2 Conceptual Frameworks and Responsible Theoretical Contribution

The third gap concerns the boundary between conceptual framework design and empirical validation. Conceptual frameworks organise complex phenomena and offer researchers a structure for further investigation. However, they require methodological caution. A framework may be theoretically grounded and coherent without yet being empirically validated. Recent guidance on literature reviews and conceptual contributions stresses the need to clarify what kind of contribution is being made and what evidence supports it (Kraus et al, 2022; Kraus, Bouncken and Yela Aránega, 2024; Delery and Shi, 2026).

This distinction is relevant in the case of integrative management frameworks. The broader issue addressed by the underlying doctoral research is that dominant management models have often privileged economic performance, efficiency, or competitive positioning while under-integrating social, environmental, governance and longer-horizon concerns (Vega-Baez, 2025). Later sustainability and ESG-oriented tools have broadened the agenda, yet often operate as evaluative overlays rather than as comprehensive models of management purpose and design.

This creates an opportunity for theory development. If the literature contains partial but valuable insights distributed across management models, governance approaches, sustainability discussions and ESG-related tools, then an integrative framework may emerge from their structured comparison. The challenge is methodological: how to identify relevant sources, compare heterogeneous contributions, synthesise them into a conceptually ordered model and avoid presenting conceptual construction as empirical validation.

3. Research Methodology

The study was designed as a predominantly qualitative and exploratory inquiry grounded in a hermeneutic-interpretive stance. Its principal method was theoretical research, operationalised through documentary inquiry. Theory building did not emerge from interviews, surveys or direct field immersion. It emerged from the interpretive analysis of conceptually rich secondary sources spanning three broad domains: global economic, social and environmental indicators; business management models; and ESG-related tools.

3.1 Methodological Foundations

The methodological position of the study is rooted in hermeneutic interpretation. Hermeneutics is associated with the interpretation of texts and meanings through the movement between parts and wholes. Gadamer (2004) emphasises that understanding is historically situated and develops through a dialogical encounter between interpreter and text. Ricoeur (1976) extends this view by showing how texts generate a surplus of meaning that requires interpretation rather than simple extraction. In this study, documentary sources were therefore not treated as neutral containers of information. They were interpreted as texts expressing assumptions about organisational purpose, value creation, responsibility and sustainability.

The use of documentary inquiry was also informed by qualitative document analysis. Bowen (2009) describes document analysis as a systematic procedure for reviewing and evaluating documents in qualitative research. Here, however, documentary inquiry is not used only to contextualise an empirical study. It is used as the main route for conceptual construction, consistent with recent organisation research on the theoretical potential of documentary sources (Rouleau, 2024).

Source selection followed the logic of theoretical sampling. Glaser and Strauss (1967) introduced theoretical sampling as a process in which data sources are selected for their relevance to emerging concepts rather than for statistical representativeness. Later qualitative research extended this logic through saturation and inductive category development (Strauss and Corbin, 1998; Charmaz, 2014). In this study, theoretical sampling was adapted to documentary inquiry: sources were chosen because they were conceptually information-rich and capable of illuminating emerging categories.

Finally, the analysis was influenced by reflexive qualitative methodology. Alvesson and Sköldberg (2018) argue that qualitative research requires awareness of interpretation, language, theoretical assumptions and the researcher's role in producing meaning. This reflexive stance is important because the MSW Model was not discovered mechanically in documents. It was constructed through iterative comparison, reduction, categorisation and synthesis.

3.2 Research Logic and Source Selection

The research began with a problem-driven orientation. The underlying problem was the gap between the growth of economic wealth and the parallel intensification of social inequality and environmental deterioration. In the doctoral study from which this paper is derived, this problem was contextualised through a limited longitudinal review of global indicators from the Industrial Revolution to the present. This contextual layer did not constitute the main contribution of the research. It served to frame the problem space and justify the need for a management framework capable of addressing wealth in broader and more sustainable terms (Vega-Baez, 2025).

Source selection followed purposive theoretical sampling. Documents were chosen not because they formed a statistically representative corpus, but because they were expected to contribute to the conceptual development of the emerging framework. The sample included foundational and later management models, ESG-oriented tools and supporting conceptual materials related to wealth creation, organisational responsibility and sustainability. Sampling proceeded until theoretical saturation was reached, understood here as the point at which additional documentary sources no longer introduced materially new properties into the emerging categories (Zherdeva, McQuillan and Morales, 2025).

3.3 Analytical Procedure and Quality Criteria

The analytical procedure involved five steps. First, the study delimited the phenomenon of interest: multidimensional wealth in organisational settings. Second, it contextualised the problem through a longitudinal reading of economic, social and environmental indicators. Third, it examined management models and ESG tools comparatively, seeking recurring patterns, omissions, complementarities and latent organising principles. Fourth, it applied qualitative simplification and categorisation. Concepts extracted from documents were compared iteratively, grouped into provisional categories, refined through contrast and reorganised as new patterns emerged. This step is consistent with inductive qualitative approaches that move from empirical or documentary material to higher-order conceptual categories (Gioia, Corley and Hamilton, 2013). Fifth, the categories were synthesised into an integrative framework.

The quality of the study rests on interpretive coherence, transparency of analytical logic, theoretical relevance of sources, conceptual saturation and clarity regarding the limits of the contribution. The study also maintains an explicit boundary regarding validation. A complementary diagnostic instrument, the MSW Instrument, emerged from the framework, but it is treated as a derivative practical artefact rather than as empirical evidence validating the model.

4. Findings: From Documentary Inquiry to the MSW Model

4.1 From Fragmented Sources to Conceptual Categories

The documentary analysis revealed that the selected sources contained valuable but fragmented understandings of organisational value creation. Traditional management models contributed insights into efficiency, structure, human relations, strategic adaptation and systems thinking. ESG-related tools contributed broader evaluative concerns regarding environmental, social and governance responsibilities. However, these contributions often remained dispersed across traditions and were not organised as a unified management architecture.

The theory-building process therefore moved from documentary fragmentation to conceptual integration. Through iterative comparison, concepts were interpreted in relation to the central research problem: how organisations may generate wealth in a multidimensional and sustainable way. The analysis did not treat each document as an isolated source. It compared assumptions, emphases and omissions to identify higher-order categories. The resulting categories were constructed through hermeneutic interpretation, qualitative simplification and conceptual synthesis.

4.2 Integrative Matrix of the MSW Model

The MSW Model was organised around five dimensions of multidimensional sustainable wealth, ten subcategories and associated emergent themes (Vega-Baez, 2025). Table 1 presents the model as an integrative matrix. Its purpose is not only to list components, but to show the conceptual role of each dimension and its interaction with the others.

Table 1: Integrative matrix of the MSW Model

Wealth Dimension	Subcategories	Core Conceptual Role	Interaction With Other Dimensions	Methodological Interpretation
Economic Wealth	Basic Processes & Support Processes	Provides operational viability and the material base for organisational action.	Enables the development of human, functional, contextual and transcendent wealth, while depending on them to avoid short-term economic reductionism.	Synthesised from traditions focused on efficiency, productivity, process design and performance.
Human Wealth	Corporate Culture & Corporate Talent	Represents the social and developmental capacity of the organisation.	Strengthens economic performance, functional learning, contextual responsibility and transcendent purpose.	Constructed from human relations, organisational behaviour, leadership and talent development perspectives.
Functional Wealth	Corporate Intelligence & Corporate Strategy	Captures the capacity to interpret information, learn, decide and act deliberately.	Connects resources and human capabilities with strategic direction and coordinated action.	Derived from learning, strategy, knowledge use and adaptive capability approaches.
Contextual Wealth	Corporate Governance & Corporate Ecology	Situates the organisation within institutional, stakeholder and environmental systems.	Provides accountability and legitimacy to the other dimensions by linking performance to governance and ecological responsibility.	Synthesised from governance, stakeholder, sustainability and ESG-related approaches.
Transcendent Wealth	Corporate Philanthropy & Corporate Legacy	Extends organisational value towards contribution, continuity and long-term meaning.	Gives higher-order orientation to economic viability, human development, strategic capability and contextual responsibility.	Constructed from sources concerned with purpose, social contribution and intergenerational continuity.

4.3 Interaction Among the Five Dimensions

The matrix shows that the MSW Model is not a linear sequence of components. It is a relational framework. Economic Wealth provides the operational foundation, but it is not treated as the final purpose of management. Human Wealth gives internal vitality through culture, talent and capability. Functional Wealth transforms resources and capabilities into strategic intelligence and coordinated action. Contextual Wealth embeds the organisation within governance structures, stakeholder expectations and ecological responsibility. Transcendent Wealth connects organisational action with contribution and legacy.

The interaction among the dimensions is circular rather than hierarchical. Economic Wealth supports the development of other dimensions, but its sustainability depends on human commitment, functional intelligence, contextual legitimacy and transcendent purpose. Multidimensional sustainable wealth is not produced by maximising one dimension independently. It emerges from the balanced development and mutual reinforcement of all five dimensions.

4.4 Methodological Meaning of the Findings

The findings are significant not only because they present the MSW Model, but because they illustrate the methodological potential of hermeneutic documentary inquiry. The model emerged through interpretation and reorganisation of dispersed conceptual materials. This supports the argument that documentary inquiry can move beyond descriptive literature review when used to identify latent categories, compare heterogeneous traditions and construct a conceptual architecture.

The findings also clarify the limits of the contribution. The MSW Model is a theory-building output, not a validated empirical model. Its dimensions and subcategories are theoretically grounded and analytically

ordered, but they require future empirical examination. Similarly, the MSW Instrument is a derivative practical artefact; it does not constitute empirical validation of the framework.

5. Discussion

5.1 Documentary Inquiry as a Theory-Building Strategy

The first implication of this study is that documentary inquiry can function as a theory-building strategy when guided by an explicit interpretive and conceptual logic. Documents are often used in management research as background sources, contextual evidence or literature review material. However, they can also become the primary basis for conceptual framework design when selected theoretically, interpreted hermeneutically and compared systematically.

This argument extends recent discussions on review research as scientific inquiry (Kunisch et al, 2023) and theory development through literature-based research (Post, Sarala and Gatrell, 2020; Breslin and Gatrell, 2023). The contribution of documentary inquiry does not lie in the accumulation of sources, but in the transformation of dispersed concepts into higher-order categories. In this study, documentary material was used to identify conceptual patterns across management models, ESG-related tools and sustainability-oriented contributions. The framework therefore emerged from interpretation and synthesis rather than from simple description.

5.2 Hermeneutic Interpretation and Conceptual Integration

The second implication concerns the role of hermeneutic interpretation in conceptual integration. The MSW matrix shows that the five dimensions are not isolated components. They interact as a system of organisational wealth generation. This interaction could not have been generated through a purely mechanical coding procedure. It required movement between individual documentary sources and the broader conceptual whole.

The MSW Model is therefore not presented as a neutral extraction from documents, but as a theoretically informed synthesis derived from interpretive engagement with documentary material. This is relevant for management research because complex organisational problems rarely fit neatly into a single theoretical tradition. Integrative theory building benefits from methods capable of comparing, translating and reorganising contributions from multiple streams.

5.3 Conceptual Framework Design and Methodological Caution

The third implication relates to methodological caution. A conceptual framework may be theoretically grounded and analytically coherent without being empirically validated. The MSW Model should be understood as a theory-building output that organises multidimensional sustainable wealth into an integrative architecture. It should not be interpreted as evidence that the model has already been tested in organisations.

The same caution applies to the MSW Instrument. The instrument is a practical derivative of the framework, but it does not validate the model by itself. This distinction is important because conceptual papers sometimes blur the boundary between model design, practical application and empirical confirmation. By separating these stages, the paper contributes to more responsible framework-building in management research.

5.4 Implications for Future Research

The discussion points to a future research agenda. First, the MSW Model can be examined through qualitative case studies in different organisational contexts. Second, comparative research could examine whether the framework behaves differently across industries, firm sizes, ownership structures or institutional environments. Third, the MSW Instrument could be subjected to technical validation, including construct clarity, reliability, dimensional structure and diagnostic usefulness. Finally, future research could use the MSW Model as a sensitising framework rather than as a fixed measurement model, allowing flexible application while preserving its integrative logic.

6. Conclusion

This paper examined hermeneutic documentary inquiry as a theory-building strategy in business and management research. Its central argument is that documentary sources can support conceptual framework

design when they are not used merely as background material or as a descriptive literature base, but as interpretive material for comparison, reduction, categorisation and synthesis.

The study contributes methodologically by making explicit the route from heterogeneous secondary sources to an integrative conceptual architecture. The process shows that theory building through documentary inquiry requires more than collecting relevant texts. It requires a problem-driven orientation, theoretically justified source selection, interpretive comparison, category development and transparency regarding the limits of the resulting framework.

The MSW Model illustrates the outcome of this process. It organises multidimensional sustainable wealth into five interacting dimensions: Economic Wealth, Human Wealth, Functional Wealth, Contextual Wealth and Transcendent Wealth. These dimensions are not presented as empirically validated constructs. They are presented as a conceptual proposal derived from hermeneutic documentary inquiry and intended to guide future research.

The paper also reinforces an important methodological distinction. Conceptual model design, derivative practical instruments and empirical validation should be treated as different stages of knowledge development. Future research should therefore examine the model through case studies, comparative organisational research, sector-specific applications and technical validation of the diagnostic instrument.

Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

The structural editing of this paper was carried out by the authors. As non-native speakers of English, they used ChatGPT and Grammarly for translation, stylistic editing, and orthotypographic editing. The authors are fully responsible for the content and the final text.

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Operationalising Descriptive Phenomenology in Management Research to Derive Contextually Relevant Competency Frameworks

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Abstract: Management may be understood as a contextual practice comprising a blend of analysis, experience, insight, and practical wisdom in an environment filled with ambiguity and uncertainty, with no single best way to take action. Much existing work on managerial competence continues to rely on generic competency frameworks; however, such frameworks offer only a partial representation of the practice of management and have limited capacity to capture its contextual and ambiguous character. Such frameworks tend to emphasise stable, clearly demarcated competencies and, in doing so, abstract management from the contexts in which it is practised. This reliance creates a methodological challenge for management research concerned with contextual relevance. Phenomenology provides a means of accessing lived experience and is therefore well suited to the study of management as contextual practice. By focusing on lived experience, phenomenological research enables the examination of management practice as it is meaningfully constituted in everyday organisational contexts. At the same time, phenomenological inquiry introduces substantial analytic and procedural demands, particularly in applied disciplines that require structured and communicable outputs. Concerns commonly cited relate to subjectivity, limited generalisability, and the perceived absence of systematic analytic procedures. As a result, phenomenological approaches remain relatively underutilised in management research. Giorgi's descriptive phenomenological method offers a systematically articulated analytic approach that remains faithful to phenomenological principles while providing explicit procedural guidance, making phenomenological inquiry more tractable within applied fields such as management research (Giorgi, 1997). Drawing on this approach, the study uses descriptive phenomenology, following Giorgi's human scientific method, to examine managers' lived experience of the contextual practice of management. The study is located within an interpretivist paradigm and focuses on the systematic application of the phenomenological method. In-depth, semi-structured interviews were conducted as open, dialogical engagements to obtain concrete and detailed descriptions grounded in participants' lifeworld. The focus is on methodological design and analytic procedure rather than substantive findings. Practical decisions made during operationalisation are examined, including how accounts of lived experience were translated into discipline-relevant analytic expressions while remaining faithful to phenomenological principles. The analytic procedure involved working with participants' descriptions as they were given, applying phenomenological reduction, identifying meaning units, and transforming these units into discipline-relevant expressions. Through this process, experiential accounts were translated into phenomenologically grounded structural statements that articulate essential aspects of the lived experience of management practice. By providing a transparent account of methodological operationalisation, this paper offers transferable methodological insight for management researchers seeking to work with descriptive phenomenology to produce contextually grounded, discipline-relevant outputs. It demonstrates how Giorgi's human scientific method can be applied systematically within management research to move from lived managerial descriptions to phenomenologically grounded expressions without reducing experience to abstract categories.

Keywords: Managerial Competencies, Descriptive Phenomenology, Giorgi's Human Scientific Method, Management as Contextual Practice

1. Introduction

A substantial body of management scholarship suggests that management may be understood not as a set of universally applicable techniques, but as a contextual practice that unfolds within conditions of ambiguity, uncertainty, and competing demands. In this view, effective management requires a dynamic blend of analysis, experience, insight, and practical wisdom, rather than the application of prescriptive rules or standardised solutions (Mintzberg, 2004; Billsberry and Birnik, 2010). Despite these perspectives, much research on managerial competence continues to rely on generic competency frameworks that abstract management from the contexts in which it is practised. Such frameworks tend to privilege stable, clearly bounded competencies and, in doing so, offer only a partial representation of managerial work as it is experienced in practice.

This reliance on generic frameworks creates a methodological challenge for management research concerned with contextual relevance. While competency lists may be useful for classification and comparison, they have limited capacity to capture the fluid, relational, and situational nature of managerial practice. As Anosike et al. (2012) note, the relationship between management theory and management practice can be challenging to

examine using predominantly positivistic research paradigms, which prioritise measurement, generalisability, and causal explanation.

In response to these limitations, this study adopts a phenomenological perspective, which provides access to managers' lived experiences and explores management as it is enacted in context. Phenomenology was selected as it is well suited to investigating certain experiential and lived dimensions of managerial competence that remain underrepresented in dominant competency-based approaches (Finlay, 2009). By foregrounding lived experience, this paper contributes to ongoing methodological discussions about how contextually grounded insights into management practice can be generated and analytically represented. Phenomenology is presented as one way of examining lived, contextually embedded aspects of managerial practice.

The purpose of this paper is therefore methodological rather than substantive. It provides a transparent account of the analytic procedures used in a descriptive phenomenological study, following Giorgi's human scientific approach, to examine managers' lived experience of contextual practice. The focus is on analytical procedure and the translation of lived experience into phenomenologically grounded expressions that are typical and relevant to management scholarship within an applied research context.

Giorgi's descriptive phenomenological method is adopted because it offers a systematically articulated analytic framework that remains grounded in Husserlian phenomenology, while also providing explicit procedural guidance suitable for human scientific inquiry. Unlike more interpretive or hermeneutic variants, Giorgi's approach emphasises disciplined description, eidetic analysis, and methodological transparency, thereby offering a viable bridge between philosophical phenomenology and applied management research.

The next section positions management as contextual practice within the literature establishing the theoretical foundations for a phenomenology approach. This is followed by an outline of descriptive phenomenology and Giorgi's methodological framework. The research design and analytic procedure are then detailed, with particular emphasis on analytical translation. The article concludes with methodological reflections and implications for management researchers working in applied contexts.

2. Research Paradigm and Theoretical Positioning

This study is located within the interpretivist research paradigm, which views social reality as meaningfully constructed through human experience rather than as an objective phenomenon that can be observed independently of those who enact it (Saunders et al., 2019). In contrast to positivist approaches that prioritise measurement and prediction, interpretivism seeks to develop rich understanding of phenomena as they are experienced and interpreted by social actors within specific contexts. This orientation is particularly relevant to the study of management, which unfolds in environments characterised by complexity, ambiguity, and change.

The theoretical roots of interpretivism can be traced to the work of Weber and Schutz, who sought to establish an objective science of the subjective by analysing the meanings that constitute the social world (Blaikie, 2011). Schutz's emphasis on the constitutive role of everyday experience provides a foundation for phenomenology, which takes lived experience as its primary point of departure. From this perspective, management practice can be understood as emerging through managers' interpretations of situations, responsibilities, and relationships as they are meaningfully established in everyday organisational life. Given the study's focus on management as contextual practice, an interpretivist paradigm is therefore appropriate. It provides a philosophical foundation for descriptive phenomenology, enabling the systematic examination of managers' lived experiences while remaining attentive to scientific rigour and contextual meaning.

3. Literature Review

Building on the view of management as a contextual practice, the literature increasingly challenges positivist assumptions that managerial work can be captured through standardised models, prescriptive techniques, or generic competency frameworks. As Mintzberg (2004) and Billsberry and Birnik (2010) argue, management unfolds in environments marked by ambiguity, uncertainty, and competing social and organisational demands, requiring judgement, sense-making, and practical wisdom rather than the application of universal rules. Understanding management therefore requires recognising that realities and identities are constituted relationally through everyday interaction, rather than existing as objective structures independent of practice (Cunliffe, 2004). This has prompted scholarly interest in methods that engage more directly with managers' lived experience.

Research concerned with understanding complex phenomena often requires engagement with the experiences of others in order to generate meaningful insight (Neubauer et al., 2019).

Phenomenology offers one such approach by providing a systematic means of examining lived experience and the structures of meaning through which phenomena present themselves in everyday practice (Giorgi, 2005; Neubauer et al., 2019). Rooted in an epistemological concern with consciousness and meaning, phenomenology focuses on how phenomena are experienced rather than explaining them through external causal mechanisms. In phenomenological terms, a phenomenon is that which presents itself to consciousness in experience (Shudak, 2018). As Giorgi (1997) explains, phenomenology refers to the totality of lived experiences that belong to a person, offering access to the meaning structures that underpin human action.

3.1 Phenomenological Philosophy: From Husserl to Contemporary Methodologies

The philosophical foundations of phenomenology are often traced to the work of Franz Brentano (1838–1917), whose descriptive psychology foregrounded consciousness and intentionality as central to human experience and influenced the development of phenomenology (Shudak, 2018). Phenomenology was subsequently established as a systematic philosophical project by Edmund Husserl (1859–1938), at a time when positivism dominated the philosophy of science (Dörfler and Stierand, 2021).

Central to Husserl's philosophy is the concept of intentionality: the idea that consciousness is always consciousness of something. Experience is therefore relational, involving both the act of consciousness (noesis) and the object as it appears (noema) (Husserl, 1913/1983; Eberle, 2013). This insight provides a foundation for phenomenological research, as meaning is understood to be constituted through lived experience rather than imposed by theoretical categories.

Husserl's phenomenological method is typically described as involving phenomenological reduction, description, and the search for essences. Through reduction, the researcher suspends the natural attitude, that is, taken-for-granted assumptions about the world, to consider how the phenomenon is given in experience. This suspension, referred to as epoché or bracketing, does not deny the existence of the world, but places assumptions temporarily out of play to allow the phenomenon to be described as it appears (Giorgi, 1997). Description seeks to articulate the phenomenon without recourse to explanation or theory-building. Through eidetic reduction and imaginative variation, the researcher identifies the essential meaning structures that constitute the phenomenon across variations of experience.

3.2 Descriptive Phenomenology and its Contribution to Organisational Research

Within organisational and management research, phenomenology has been recognised for its capacity to describe taken-for-granted practices, relational dynamics and aspects of experience that can be obscured by positivist methodologies (Gill, 2014).

By focusing on lived experience, phenomenological research enables examination of management practice as it is meaningfully constituted in everyday organisational contexts, offering insights that are both contextually grounded and meaningful to practitioners (Anosike et al., 2012).

Despite its potential, phenomenology remains underutilised in management research. Concerns commonly cited relate to subjectivity, limited generalisability, and the perceived absence of systematic analytic procedures (Finlay, 2009; Anosike et al., 2012). In applied disciplines such as management, there is often a tension between the philosophical depth of phenomenology and the demand for structured, communicable outputs that can inform practice.

Giorgi's descriptive phenomenological method addresses some of these concerns by providing a systematically articulated analytic procedure grounded in Husserlian principles, while maintaining methodological transparency. The approach emphasises disciplined description, systematic reduction, and the transformation of everyday experiential accounts into phenomenologically grounded, discipline-relevant expressions. Importantly, this process moves from concrete descriptions to general meaning structures that are typical rather than universal, rather than hermeneutically interpreting experience (Giorgi, 2007).

The literature on managerial competencies highlights a gap that descriptive phenomenology is well positioned to address. Existing competency frameworks tend to include decontextualised attributes and measurable behaviours, offering limited insight into how competencies are experienced, enacted, and interrelated in practice. Ruth (2006) and Datar et al. (2011) note that such frameworks struggle to capture the contextual,

relational, and often paradoxical nature of managerial work. In response, scholars such as Nkomo (2015) have called for research approaches that engage more directly with managers' lived experiences, particularly in contexts characterised by social and organisational complexity.

The literature highlights both the promise and the methodological demands of applying descriptive phenomenology within management research. The effective application of phenomenology requires alignment between the research question, philosophical positioning, and methodological approach (Neubauer et al., 2019). These considerations inform the design of the present study, which seeks to work systematically with managers' lived experience while maintaining phenomenological rigour. The following section therefore outlines how this methodological approach was applied

4. Methodology

Building on the methodological foundations discussed in the literature, this study employed Giorgi's human scientific approach to descriptive phenomenology to examine managers' lived experience of management as contextual practice, recognising that engagement with such experience enables the generation of contextually grounded insight. The descriptive phenomenological method represents a methodology that is consistent with its phenomenological foundations (Englander and Morley, 2023).

The focus of the methodological design was to ensure a systematic and rigorous application of the phenomenological method, enabling the translation of experiential accounts into phenomenologically grounded, discipline-relevant expressions. In line with Giorgi's principles, the analytic procedure involved working with participants' descriptions as they were given, applying phenomenological reduction, identifying meaning units, and transforming these units into general structural descriptions. The emphasis throughout remained on disciplined description rather than interpretation, ensuring alignment with the principles of descriptive phenomenology. This section therefore provides a transparent account of the procedures followed, including the practical decisions involved in operationalising the method for applied management research.

Giorgi's approach is adopted because it offers explicit procedural guidance while retaining fidelity to phenomenological commitments. It enables the generation of findings that are both phenomenologically grounded and communicable within applied management research.

4.1 Participants

The empirical material analysed through the methodological lens presented here was generated through a phenomenological study involving 20 practising managers. These managers were selected to reflect a group occupying senior to executive roles, enabling access to rich descriptions of the contextual practice of management in South Africa. Participants operated across multiple industries and sectors. The average management experience of participants was 20 years.

4.2 Data Collection

In phenomenological research, the data collection process is shaped by the nature of the phenomenon itself, with the design required to fit the phenomenon rather than impose a predefined structure (Englander and Morley, 2023). In-depth, semi-structured interviews were conducted as open, dialogical engagements informed by phenomenological principles, enabling participants to provide concrete and detailed descriptions of their lived experience of management practice in South Africa. In line with Giorgi's (1997) recommendation that questions remain broad and open-ended, the primary question invited participants to describe their experience of managing, namely: "What is it like to manage/be a manager in South Africa?" Follow-up prompts were used to guide participants toward detailed accounts of day-to-day experience rather than general opinion.

The focus of phenomenological inquiry is on experience as concretely lived in particular situations, rather than abstracted from context (Englander and Morley, 2023). The aim was therefore to obtain descriptions grounded in the participants' lifeworld and expressed from the "everyday attitude" (Giorgi, 1997, p. 243), using terminology familiar to them (Benner, 1994). Consistent with phenomenological principles, the researcher adopted an attitude of openness and deliberate naïveté (Bevan, 2014; Kvale and Brinkmann, 2009), remaining receptive and withholding prior assumptions to allow the phenomenon to reveal itself as experienced (Gibson and Hanes, 2003). The interviews were transcribed verbatim and securely stored for each participant. These descriptions constituted the data from which the essential meaning structures of the experience were subsequently derived (Giorgi, 1997).

4.3 Analytic Procedure

The analytic procedure is presented not only to document the steps followed, but to demonstrate how methodological choices were made to remain aligned to descriptive phenomenological principles while producing discipline-relevant expressions.

The operationalisation of Giorgi's method in this study followed the systematic steps articulated by Giorgi (1997; 2005; 2007), summarised in Figure 1.

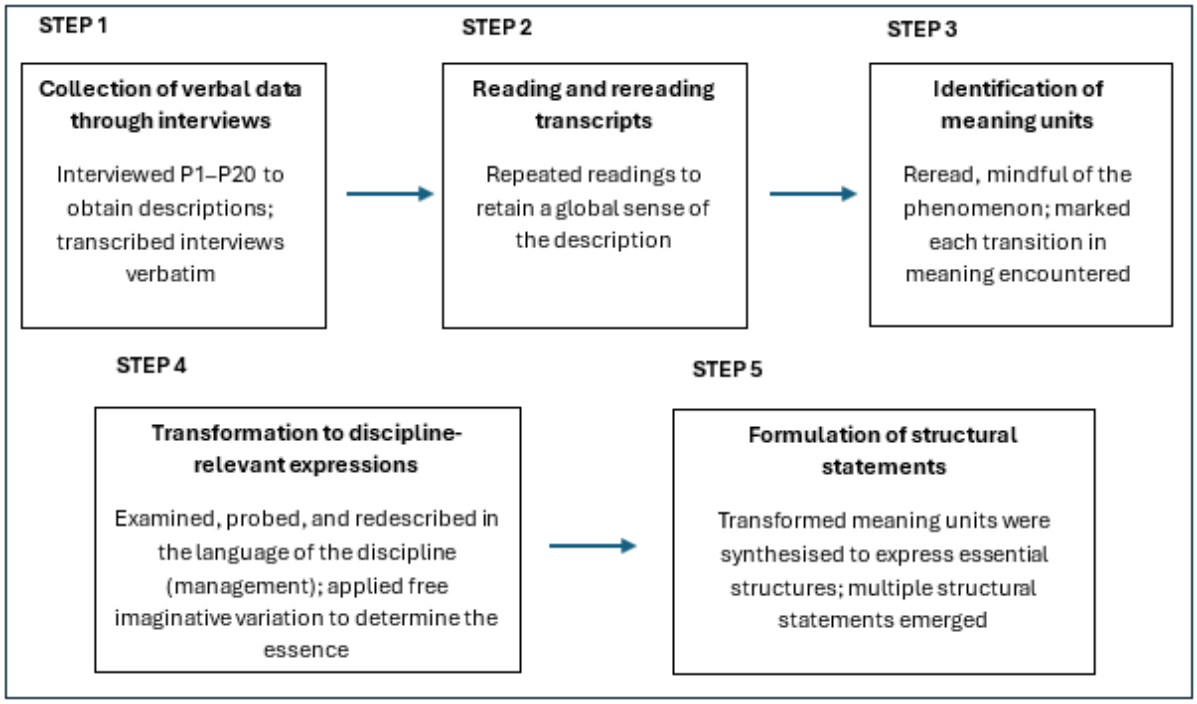


Figure 1: Operationalising Giorgi's method (1997) in this study

4.3.1 Step 1: Reading and Rereading

The process began with repeated readings of the interview transcripts to retain a global sense of the description and not to attempt any thematisation (Giorgi, 1997). The participants generally gave several shorter descriptions, based on their everyday management experiences. Each participant's descriptions were organised in a Microsoft Excel spreadsheet, saved with the relevant participant number (P1–P20). The first worksheet of each spreadsheet contained the full text of the descriptions.

4.3.2 Step 2: Identification of Meaning Units

Since phenomenology is concerned with meanings, the next step is to identify meaning units, defined as shifts in meaning that occur naturally in the participant's description. Meaning units are assigned by rereading the text, mindful of the phenomenon being researched, and marking each transition in meaning, to enable a systematic engagement with shifts in meaning while remaining grounded in the participant's description. Meaning units must be small enough to be manageable, but large enough to have an explorable significance (Giorgi and Giorgi, 2003). The result is a series of meaning units, still expressed in the language of the participant. Giorgi (2012) explains that meaning units carry no theoretical weight and different researchers will have different meaning units. Each meaning unit was placed in a new row in another column of the participant's worksheet. The first column was used to number the specific meaning unit (e.g., P1.1.1, referring to Participant 1, first description, first meaning unit).

4.3.3 Step 3: Transformation Into Discipline-Relevant Expressions

The next step involves the organisation and expression of data in the language of the discipline. At this stage, the meaning units are "examined, probed and redescribed so the disciplinary value of each unit can be made more explicit" (Giorgi, 1997). Meaning units were transformed into expressions articulated in the language of

the discipline, here, management, while remaining faithful to the phenomenological content. The participant's everyday language is reformulated through the researcher's disciplinary insight to ensure that the transformed expressions remain grounded in lived experience and analytically meaningful within managerial scholarship, without compromising phenomenological description (Gill, 2014). A process of free imaginative variation is then applied to discern the essence of the experience.

4.3.4 Step 4: Formulation of Structural Statements

In the final step, the transformed meaning units are synthesised to formulate structural statements, which express the essential constituents of the phenomenon across participants. Structural statements are phenomenologically grounded articulations of meaning that capture invariant features of lived experience (Giorgi, 2005). While the aim is generally to derive one structural statement, this is not a requirement, and data should not be forced into a single structure (Giorgi, 1997); multiple structural statements may emerge.

Practically, the transformed meaning units were gathered from the 20 participant spreadsheets and organised into competency themes in a single document, with the numbering of each unit retained, and read and rearranged as necessary. Finally, the meaning units were integrated into structural statements following Giorgi's guidelines (2007). The process of free imaginative variation was applied to extract the essence of the practice of contextual management.

5. Findings

The phenomenological analysis yielded 37 structural statements, each articulating an essential element of the lived experience of management as contextual practice in the form of a competency description. These statements were derived through the systematic application of Giorgi's descriptive phenomenological method and represent discipline-relevant transformations of participants' descriptions. Based on the research aim of uncovering the contextually relevant managerial competencies, the structural statements were organised in the form of competency descriptions. The structural statements articulate invariant features of the phenomenon as experienced by senior managers. They express typical aspects of contextual managerial practice and reflect the essential structures without which the experience would be inconceivable.

To illustrate the nature of the phenomenologically derived structural statements, one example, for the competency of *Equanimity*, is presented below (Venter, 2024, p. 152):

"Equanimity refers to the manager's ability to remain calm and composed in the face of challenging circumstances, chaos or crisis. Managers with equanimity do not pass on the stress of the situation to their staff, making them approachable and effective in handling serious challenges. Managers who practise equanimity are aware of the deconstructive impact that critical language can have, when used both by themselves and by others. It is a constructive approach to handling challenges, requiring stillness of the mind and discipline on the part of the manager to remain composed amid the noise of the environment. Equanimity allows the manager to show restraint under pressure and to encourage team members to be disciplined in the manner they engage."

This statement illustrates how participants' descriptions were transformed into discipline-relevant expressions while remaining faithful to the lived experience of the phenomenon. The articulation captures essential constituents of the experience rather than behavioural indicators or performance criteria. The remaining structural statements formulated in the study follow a similar form, each expressing a distinct but interrelated constituent of contextual managerial practice as a competency.

5.1 Overview of Competencies

For organisational clarity, the structural competency statements were arranged across three levels as follows:

- *Self* (10) - related to the manager's internal orientation, including dispositions, values, and existential stance toward ambiguity and responsibility.
- *Others* (13) - relational competencies emerging from managers' engagement with colleagues, teams, and stakeholders.
- *World of Work* (14) - associated with organisational, strategic, and contextual demands, including those specific to the South African environment

These levels emerged from participants' descriptions of the phenomenon of management and reflect different but related aspects of managerial engagement in context. The Self level captures the internal orientation of the manager, while the levels of Others and the World of Work reflect engagement in relational and organisational contexts (see Figure 2).

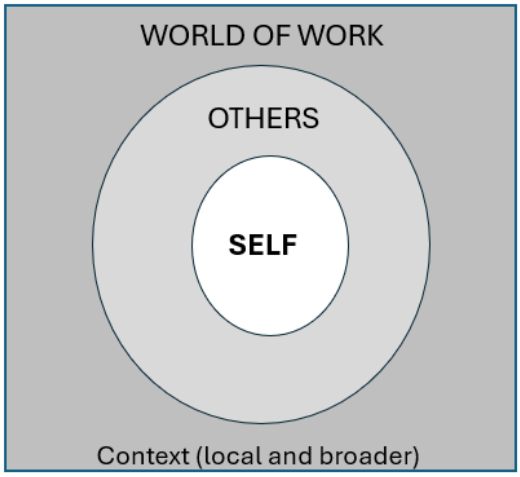


Figure 2: Conceptual representation of the interrelated levels of competencies in the contextual practice of management, showing Self (internal orientation), Others (relational engagement), and the World of Work (organisational and contextual environment).

While analytically distinguished, these levels are not discrete domains. The levels reflect distinct but interrelated layers of managerial engagement emerging from the analysis. The competencies are derived as structural statements and represent essential aspects of the lived experience of management. The categorisation into levels provides an organising structure rather than fixed boundaries. Competencies are experienced as interrelated and, in some cases, contain elements of different levels, with placement reflecting where the strongest links exist.

The structural statements indicate that competencies are experienced as interdependent and dynamically connected within lived managerial practice, reflecting the interplay of different elements that result in managerial behaviour, with the Self level exerting a mediating influence across the other levels.

6. Discussion and Recommendations

The discussion that follows focuses on the methodological implications of applying Giorgi's descriptive phenomenological method in this study, with particular attention to the rationale for key analytic choices within an applied management context.

6.1 Description Versus Opinion

A central methodological concern in this study was the distinction between lived description and evaluative opinion. In a management context, participants are often accustomed to speaking in broad, strategic, or normative terms. Descriptive phenomenology, however, requires attention to concrete experience rather than general statements. The interview process therefore required continual guidance, with prompts redirecting participants from abstract commentary to specific experiences of being a manager.

This highlights a practical challenge when applying phenomenology in applied fields. Professionals tend to draw on the conceptual language of their discipline when speaking about their work. The researcher must therefore remain attentive during data generation to ensure accounts remain grounded in experience rather than professional discourse. Without this focus, analysis may shift toward organising opinions thematically rather than articulating the structural meaning of lived experience.

6.2 Operationalising Essence in Management Language

A second methodological issue concerned the translation of phenomenologically derived structures into the language of management competencies. Descriptive phenomenology seeks to articulate essential constituents of experience, while competency language often refers to behavioural indicators or measurable traits. The

transformation process therefore required careful judgement to ensure that structural meanings were not reduced to performance descriptions.

Free imaginative variation supported the identification of indispensable aspects of the experience, allowing constituents to be included based on necessity rather than frequency. In descriptive phenomenology, inclusion rests on indispensability rather than numerical repetition. For management researchers, this means grounding analytic decisions in structural coherence rather than frequency.

6.3 Structural Statements

The decision not to collapse the analysis into a single unified statement, but to retain multiple interrelated articulations, reflects the complexity of contextual managerial practice. In management research, phenomenological outputs may therefore resist consolidation, particularly where the phenomenon is multidimensional. Clear explanation of analytic decisions helps maintain phenomenological integrity while presenting findings accessibly.

7. Conclusion

Giorgi's human scientific method provided a systematically articulated framework through which managers' lived descriptions could be transformed into discipline-relevant expressions. The operationalisation undertaken in this study demonstrates that descriptive phenomenology can be applied rigorously within management research, provided that careful attention is given to the distinction between description and interpretation and the discernment of essence.

These considerations indicate that descriptive phenomenology can be effectively applied in management research when three methodological commitments are upheld:

- Maintaining a disciplined focus on participants' descriptions of their experiences;
- Articulating the essential aspects of the experience without relying on frequency as a marker of significance; and
- Remaining critically aware of how disciplinary language and representational choices influence the analytic process.

By making these operational decisions explicit, this study provides a transparent and systematic account of how descriptive phenomenology was operationalised and offers methodological guidance for management researchers applying phenomenology in research contexts. It shows how Giorgi's human scientific method can move from lived managerial descriptions to phenomenologically grounded and discipline-relevant expressions without reducing experience to abstract categories.

In doing so, the study demonstrates how descriptive phenomenology can be applied in a methodologically rigorous and contextually sensitive manner within management research.

Ethics Declaration

Ethical clearance was granted by the University of Stellenbosch Business School Departmental Ethics Screening Committee under reference number 14876825, on 1 July 2019.

AI Declaration

Microsoft Copilot was used in a secure institutional environment to assist with language refinement, reducing word count and formatting references. All conceptual development, methodological design, analysis, and substantive content are the sole work of the authors.

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Knowledge Sharing and Self-Efficacy as Predictors of Academic Productivity and Innovative Work Behaviour among Lecturers

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Abstract: This study examines the roles of knowledge sharing and self-efficacy in predicting academic productivity and innovative work behaviour among lecturers in higher education institutions. A quantitative survey approach was employed, and data were collected from 312 lecturers from public and private higher education institutions located in the Klang Valley, Malaysia. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess both the measurement model and the structural relationships among variables. The findings indicate that knowledge sharing and self-efficacy have significant positive effects on innovative work behaviour and academic productivity. Knowledge sharing emerged as the strongest predictor of academic productivity, while self-efficacy played an important role in supporting innovative work behaviour among lecturers. The model demonstrates strong explanatory power, particularly for innovative work behaviour and academic productivity. The findings highlight the importance of strengthening collaborative academic practices and enhancing individual confidence to improve lecturer performance in higher education institutions.

Keywords: Knowledge Sharing; Self-Efficacy; Academic Productivity; Innovative Work Behaviour; Higher Education

1. Introduction

Higher education institutions operate in an increasingly demanding environment characterised by heightened accountability, competition, and expectations for measurable academic performance. Universities are required to demonstrate excellence not only in teaching but also in research output and societal contribution. Within this context, lecturers play a central role in ensuring that institutional goals are translated into meaningful academic outcomes. As a result, academic productivity has become a major concern for higher education leaders and policymakers (Altbach, 2015; Ramsden, 2003).

Academic productivity refers to the effectiveness and consistency with which lecturers perform their academic roles, including teaching, research, supervision, and institutional service. Lecturers are expected to balance multiple responsibilities while maintaining high standards of performance across these areas. The increasing complexity of academic work requires lecturers to adapt continuously, engage in innovation, and collaborate effectively with colleagues. These demands highlight the need to understand the factors that support sustained academic productivity in higher education institutions.

Although institutional policies and performance management systems influence academic outcomes, they do not fully explain differences in lecturer productivity. Increasing attention has been given to individual and social factors that shape academic work behaviour. In particular, knowledge sharing has been recognised as a critical process in knowledge intensive organisations such as universities. Through sharing ideas, expertise, and experiences, lecturers are able to improve teaching practices, develop research capacity, and enhance overall academic performance (Davenport & Prusak, 1998; Wang & Noe, 2010). At the individual level, self-efficacy represents a key personal resource that influences how lecturers approach academic tasks. Self-efficacy refers to an individual's belief in their ability to perform tasks successfully and manage work challenges (Bandura, 2001). Lecturers with strong self-efficacy are more likely to engage actively in teaching and research activities, persist in the face of difficulties, and experiment with new approaches. These behaviours are closely related to innovative work behaviour and academic productivity.

Recent studies have increasingly highlighted the importance of psychological and collaborative factors in shaping lecturer performance within higher education institutions. Contemporary higher education environments require lecturers not only to fulfil traditional academic responsibilities but also to demonstrate adaptability, innovation, interdisciplinary collaboration, and continuous professional development (Fullwood, Rowley, & Delbridge, 2013; Kim & Lee, 2013). As universities become more knowledge intensive and performance driven, knowledge sharing and self-efficacy have emerged as important predictors of both individual and organisational outcomes.

Existing literature suggests that knowledge sharing contributes positively to academic effectiveness by facilitating access to expertise, promoting collaborative learning, and enhancing problem-solving capabilities among academic staff (Javaid et al., 2023; Wang & Noe, 2010). Similarly, self-efficacy has been associated with higher levels of motivation, resilience, creativity, and work engagement, all of which are essential for sustaining academic productivity and innovative work behaviour in complex academic environments (Bandura, 2001; Tierney & Farmer, 2002).

However, despite the growing body of literature on these constructs, previous studies have often examined knowledge sharing, self-efficacy, innovative work behaviour, and academic productivity independently rather than within an integrated framework. Furthermore, empirical evidence focusing specifically on lecturers in Malaysian higher education institutions remains relatively limited. Most existing studies are concentrated in corporate or non-academic settings, thereby limiting understanding of how collaborative and psychological factors jointly influence lecturer productivity and innovation within universities. This gap highlights the need for a more comprehensive examination of the relationships among these constructs in the higher education context.

Despite growing interest in knowledge sharing and self-efficacy, empirical studies that examine their combined influence on academic productivity and innovative work behaviour among lecturers remain limited, particularly in the Malaysian higher education context. Therefore, this study aims to examine how knowledge sharing and self-efficacy predict academic productivity and innovative work behaviour among lecturers in public and private higher education institutions in the Klang Valley. By adopting a quantitative approach and using structural equation modeling, this study seeks to provide empirical evidence that informs academic leadership and institutional development strategies.

2. Literature Review

This section reviews relevant literature on academic productivity, knowledge sharing, and self-efficacy in higher education settings. The review focuses on how collaborative academic practices and individual confidence jointly contribute to innovative work behaviour and academic productivity among lecturers.

2.1 Academic Productivity in Higher Education

Academic productivity is widely recognised as a multidimensional concept that reflects performance in teaching, research, and institutional service. Earlier approaches focused mainly on measurable outputs such as publication counts and teaching hours, whereas contemporary perspectives emphasise the quality, impact, and sustainability of academic contributions (Ramsden, 2003). In Malaysia, higher education policy highlights balanced contributions across teaching excellence, research productivity, and institutional engagement, indicating that lecturer productivity is influenced by both individual capability and institutional environment (Ministry of Higher Education Malaysia, 2015).

Recent studies suggest that academic productivity is shaped by institutional and behavioural factors, including collaboration, innovation, and adaptability to changing academic expectations (Bland et al., 2005; Santos et al., 2021). Productivity is no longer assessed solely through publication quantity but also through research impact, interdisciplinary engagement, and contribution to institutional development.

In addition, scholars argue that academic productivity should be understood within the broader context of academic sustainability and professional wellbeing. Excessive performance pressure without sufficient collaborative and psychological support may negatively affect lecturer motivation and long-term engagement (Kinman, 2014). Lecturers who demonstrate innovative work behaviour are more likely to adapt teaching practices, develop new research ideas, and contribute positively to institutional development. Therefore, academic productivity should be examined through both behavioural and contextual perspectives within higher education institutions.

2.2 Knowledge Sharing in Higher Education Institutions

Knowledge sharing refers to the exchange of information, skills, and expertise to support learning and performance improvement. In higher education institutions, knowledge sharing occurs through activities such as collaborative research, mentoring, and professional discussions, enabling lecturers to enhance academic capabilities and access collective knowledge (Davenport & Prusak, 1998).

Previous studies indicate that knowledge sharing contributes positively to individual and organisational performance. Wang and Noe (2010) argue that knowledge sharing supports learning and problem solving by allowing individuals to apply shared insights to their work. In academic settings, lecturers who actively engage in knowledge sharing are better able to improve teaching quality, strengthen research competence, and enhance academic productivity. Knowledge sharing also promotes innovative work behaviour by exposing lecturers to diverse perspectives and encouraging creativity and experimentation.

However, the effectiveness of knowledge sharing is influenced by organisational culture, trust, leadership support, and communication climate (Fullwood et al., 2013). Competitive academic environments and individual performance systems may discourage open knowledge exchange among lecturers. Nevertheless, recent studies continue to show that knowledge sharing enhances both productivity and innovation capability through collaborative problem solving and intellectual exchange (Javaid et al., 2023).

2.3 Self-Efficacy and Academic Work Behaviour

Self-efficacy refers to an individual's belief in their ability to perform tasks effectively and is a key concept in social cognitive theory (Bandura, 2001). In academic settings, self-efficacy influences how lecturers approach challenges, sustain effort, and engage in teaching and research activities. Lecturers with higher self-efficacy tend to demonstrate stronger motivation, persistence, and adaptability in performing academic responsibilities.

Previous studies show that self-efficacy positively influences both performance and innovative work behaviour. Lecturers who possess greater confidence in their capabilities are more likely to experiment with new teaching methods and research approaches (Tierney & Farmer, 2002). Similarly, Luthans, Youssef, and Avolio (2007) suggest that self-efficacy strengthens adaptive capacity and sustained performance in challenging work environments. Empirical evidence also indicates that lecturers with higher self-efficacy demonstrate greater commitment and engagement in academic activities (Skaalvik & Skaalvik, 2014).

Nevertheless, self-efficacy alone may not guarantee high productivity without supportive institutional and collaborative environments. This suggests that lecturer performance is influenced by the interaction between psychological resources and organisational factors. In higher education institutions, strong self-efficacy enables lecturers to manage academic demands effectively and contribute positively to academic productivity.

2.4 Integrating Knowledge Sharing and Self-efficacy

Recent literature suggests that knowledge sharing and self-efficacy are interconnected constructs that jointly influence academic performance and innovative work behaviour. Knowledge sharing allows lecturers to exchange expertise and participate in collaborative learning processes, while lecturers with higher self-efficacy are generally more willing to contribute ideas and engage in professional interaction (Bandura, 2001; Wang & Noe, 2010).

Scholars argue that the interaction between collaborative academic culture and psychological capability is essential for sustaining productivity and innovation in knowledge intensive organisations. Fullwood et al. (2013) emphasise that supportive knowledge sharing environments encourage professional learning and collective problem solving, while Tierney and Farmer (2002) suggest that self-efficacy strengthens individuals' willingness to engage in innovative behaviour.

In higher education institutions, lecturers are required to perform both individual and collaborative academic responsibilities. Therefore, academic productivity and innovative work behaviour are likely to emerge through the interaction between psychological resources and collaborative academic practices rather than isolated factors alone. Despite increasing interest in these variables, empirical studies examining their combined influence among lecturers in Malaysian higher education institutions remain limited. Accordingly, this study adopts an integrated framework to examine how knowledge sharing and self-efficacy jointly predict academic productivity and innovative work behaviour among lecturers.

3. Methodology

3.1 Research Design

This study employed a quantitative research design to examine the relationships between knowledge sharing, self-efficacy, innovative work behaviour, and academic productivity among lecturers. A survey approach was

used to collect data from lecturers, enabling statistical analysis of relationships among latent variables. The quantitative design was appropriate for testing predictive relationships and analysing complex interactions using structural equation modeling. This approach supports the objective of generating empirical evidence on the role of knowledge sharing and self-efficacy in shaping academic outcomes in higher education institutions.

3.2 Sample and Data Collection

The population comprised lecturers from public and private higher education institutions in the Klang Valley, Malaysia, selected due to its concentration of higher education institutions and diverse academic workforce. Data were collected using a structured questionnaire distributed across institutions. A total of 312 usable responses were obtained, exceeding the minimum sample size requirements for structural equation modeling (Hair et al., 2021).

Respondents represented various academic ranks and disciplinary backgrounds, ensuring broad representation of the academic community. Participation was voluntary, and confidentiality was assured. Purposive sampling was employed to ensure that respondents were actively involved in teaching, research, and institutional activities.

3.3 Research Instrument

The research instrument consisted of measurement scales adapted from established studies in organisational behaviour, higher education, and knowledge management. Knowledge sharing items were adapted from Wang and Noe (2010), while self-efficacy items were based on Bandura (2001). Innovative work behaviour was measured using items adapted from Janssen (2000), and academic productivity was assessed through lecturers' perceptions of their effectiveness in teaching, research, supervision, publication, and institutional service activities.

All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was reviewed to ensure clarity and suitability for the Malaysian higher education context. Reliability and validity assessments were conducted within the PLS-SEM procedure. Composite reliability was used to assess internal consistency reliability, while convergent validity was evaluated using Average Variance Extracted (AVE). Discriminant validity was assessed using cross loadings, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio (HTMT).

3.4 Data Analysis Technique

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. PLS-SEM was selected because the study aimed to predict relationships among constructs and examine complex interrelationships within an exploratory higher education context. The analysis involved two stages. First, the measurement model was evaluated to assess reliability and validity. Second, the structural model was examined using path coefficients and bootstrapping procedures to determine the significance of relationships among constructs. This approach provides a robust framework for examining how knowledge sharing and self-efficacy influence innovative work behaviour and academic productivity among lecturers.

4. Findings

This section presents the empirical findings of the study based on survey data collected from 312 lecturers from public and private higher education institutions in the Klang Valley. The data were analysed using Partial Least Squares Structural Equation Modeling to examine the relationships between knowledge sharing, self-efficacy, innovative work behaviour, self-leadership, and academic productivity. The findings are organised into respondent profile, measurement model results, structural model results, and model explanatory power.

4.1 Respondent Profile

The final dataset comprised 312 valid responses from lecturers representing various academic positions, including instructors, lecturers, senior lecturers, and professors. The respondents were drawn from both public and private higher education institutions located in the Klang Valley. This diverse representation ensures that the findings reflect a broad range of academic roles and institutional contexts. The sample size satisfies the recommended requirements for structural equation modeling and is adequate for analysing complex

relationships among multiple latent constructs. The inclusion of lecturers from different academic ranks strengthens the generalisability of the findings within the higher education context.

4.2 Measurement Model Results

Prior to examining the structural relationships, the measurement model was assessed to establish the reliability and validity of the constructs. Internal consistency reliability was evaluated using composite reliability values, while convergent validity was assessed through average variance extracted values. Discriminant validity was examined using cross loading analysis, the Fornell-Larcker criterion, and the heterotrait-monotrait ratio. The results indicate that all constructs achieved acceptable composite reliability values, exceeding the recommended threshold for social science research. Average variance extracted values were also above the minimum acceptable level, confirming adequate convergent validity. Cross loading results showed that all indicators loaded higher on their respective constructs than on other constructs, indicating satisfactory discriminant validity.

Although several heterotrait-monotrait ratio values exceeded the recommended threshold, this outcome is theoretically justifiable given the close conceptual relationships between knowledge sharing, innovative work behaviour, and academic productivity in academic environments. Overall, the measurement model was deemed adequate for subsequent structural model analysis. A summary of the measurement model assessment is presented in Table 1.

Table 1: Measurement Model Assessment

Construct	Composite Reliability	Average Variance Extracted
Knowledge Sharing	0.835	0.629
Self-efficacy	0.880	0.720
Innovative Work Behaviour	0.808	0.641
Academic Productivity	0.906	0.548
Self-leadership	0.887	0.664

4.3 Structural Model Results

The structural model was assessed to examine the relationships among knowledge sharing, self-efficacy, innovative work behaviour, self-leadership, and academic productivity. Hypothesis testing was conducted using a bootstrapping procedure with 5000 resamples to determine the significance of the path coefficients. The findings indicate that knowledge sharing has a strong and significant positive effect on academic productivity ($\beta = 0.717$, $p < 0.001$), suggesting that lecturers who actively share knowledge with colleagues demonstrate higher productivity across teaching, research, and academic service activities. Knowledge sharing also has a significant positive relationship with innovative work behaviour ($\beta = 0.607$, $p < 0.001$), indicating that collaborative academic practices foster creativity and innovation among lecturers.

However, knowledge sharing shows a significant negative relationship with self-leadership ($\beta = -0.277$, $p < 0.001$), suggesting that greater reliance on collaborative academic processes may reduce emphasis on individual self-regulation and shift work behaviour toward collective academic engagement.

Self-efficacy demonstrates a significant positive effect on innovative work behaviour ($\beta = 0.372$, $p < 0.001$) and academic productivity ($\beta = 0.295$, $p < 0.001$), indicating that lecturers with stronger confidence in their capabilities are more likely to engage in innovative practices and sustain academic performance. In addition, self-efficacy positively influences self-leadership ($\beta = 0.181$, $p = 0.001$), suggesting that confident lecturers are better able to regulate and manage their academic responsibilities. The structural model results are presented in Table 2.

Table 2: Structural Model Results

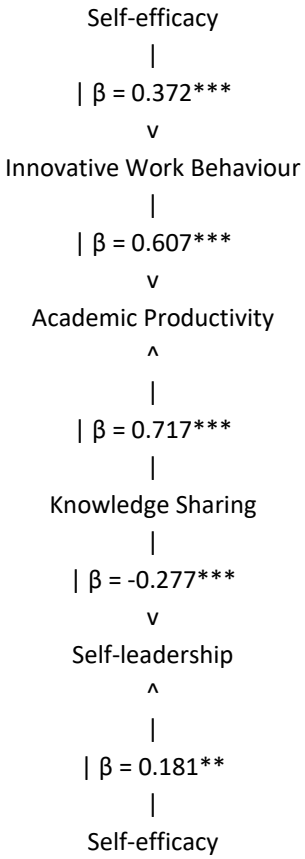
Relationship	Path Coefficient (β)	p Value
Knowledge Sharing → Academic Productivity	0.717	< 0.001
Knowledge Sharing → Innovative Work Behaviour	0.607	< 0.001
Knowledge Sharing → Self-leadership	−0.277	< 0.001
Self-efficacy → Innovative Work Behaviour	0.372	< 0.001
Self-efficacy → Academic Productivity	0.295	< 0.001
Self-efficacy → Self-leadership	0.181	0.001

4.4 Model Explanatory Power

The explanatory power of the model was evaluated using coefficient of determination values. The results show that innovative work behaviour recorded an R^2 value of 0.686, indicating that 68.6 percent of the variance in innovative work behaviour is explained by knowledge sharing and self-efficacy. This demonstrates a strong level of explanatory power for innovative behaviour among lecturers.

Academic productivity achieved an R^2 value of 0.769, indicating that 76.9 percent of the variance in academic productivity is explained by knowledge sharing and self-efficacy. This result confirms that collaborative academic practices and individual confidence are key predictors of lecturer productivity in higher education institutions.

In contrast, self-leadership recorded a lower R^2 value of 0.069, suggesting limited explanatory power. This outcome is acceptable given the behavioural nature of self-leadership and the influence of additional personal and contextual factors beyond the scope of this study. The structural relationships and explanatory power of the model are illustrated in Figure 1.



Notes:
*** p < 0.001
** p = 0.001

Figure 1: Structural Model Results Using Partial Least Squares Structural Equation Modeling (PLS-SEM)

5. Discussion

This section discusses the empirical findings of the study by interpreting the structural relationships identified through Partial Least Squares Structural Equation Modeling (PLS-SEM). The discussion focuses on how knowledge sharing and self-efficacy influence self-leadership, innovative work behaviour, and academic productivity among lecturers in higher education institutions in the Klang Valley. The findings are interpreted in relation to existing literature to highlight theoretical and practical implications.

5.1 Knowledge Sharing and Academic Productivity

The results demonstrate that knowledge sharing has a strong and positive influence on academic productivity, with the highest path coefficient observed in the structural model ($\beta = 0.717$, $p < 0.001$). This finding indicates that lecturers who actively engage in exchanging ideas, experiences, and academic resources tend to demonstrate higher levels of productivity across teaching, research, and scholarly engagement. The high explanatory power for academic productivity further confirms that collaborative academic practices play a central role in enhancing lecturer performance.

This finding is consistent with prior studies that emphasise the importance of collaborative knowledge environments in higher education institutions. Knowledge sharing enables lecturers to access collective expertise, improve instructional practices, strengthen research output, and reduce professional isolation. In knowledge intensive organisations such as universities, productivity is not solely an individual outcome but is shaped through interaction, collegiality, and shared academic norms. The strong relationship identified in this study reinforces the argument that institutional efforts to promote knowledge sharing can yield substantial performance benefits.

The present finding is also consistent with recent empirical evidence reported by Fullwood et al. (2013), who found that collaborative knowledge exchange enhances academic engagement and research performance among university staff. Similarly, Javaid et al. (2023) demonstrated that knowledge sharing positively influences innovation capability and organisational effectiveness in knowledge intensive environments. The consistency of these findings suggests that collaborative academic cultures remain a critical mechanism for sustaining lecturer productivity across different higher education contexts.

5.2 Knowledge Sharing and Innovative Work Behaviour

The analysis also reveals that knowledge sharing significantly predicts innovative work behaviour among lecturers ($\beta = 0.607$, $p < 0.001$). This finding suggests that when lecturers participate in active academic exchanges, they are more likely to generate new ideas, adopt novel teaching approaches, and engage in creative problem solving. Knowledge sharing creates an environment where experimentation and innovation are supported through peer learning and intellectual stimulation.

This result aligns with existing research that positions knowledge sharing as a catalyst for innovation in professional settings. In academic contexts, innovation often emerges from exposure to diverse perspectives and interdisciplinary collaboration. The findings of this study indicate that innovative work behaviour among lecturers is not an isolated individual trait but is fostered through social interaction and shared academic practices. This highlights the importance of creating institutional structures that encourage open communication and collaborative scholarship.

5.3 Knowledge Sharing and Self-leadership

Interestingly, the study finds a significant but negative relationship between knowledge sharing and self-leadership ($\beta = –0.277$, $p < 0.001$). This suggests that increased engagement in collective knowledge sharing activities does not necessarily strengthen individual self-leadership capacity and may, in some contexts, reduce reliance on self-directed regulation. This finding provides an important contribution to the literature by challenging the assumption that collaborative practices always enhance individual leadership behaviours.

One possible explanation for this relationship is that highly collaborative academic environments may encourage shared decision making and collective responsibility, thereby reducing the emphasis on individual self-regulation and autonomous leadership. In such contexts, lecturers may rely more on group norms and peer guidance rather than self-initiated leadership behaviours. This finding suggests that while knowledge sharing enhances

productivity and innovation, it may also reshape how leadership is enacted within academic settings, shifting from individual to collective orientations.

5.4 Self-Efficacy and Self-Leadership

The results indicate that self-efficacy positively influences self-leadership among lecturers ($\beta = 0.181$, $p = 0.001$). This relationship suggests that lecturers who have stronger confidence in their capabilities are more likely to regulate their own behaviour, set academic goals, and manage professional responsibilities effectively. Although the effect size is moderate, the relationship remains statistically significant and theoretically meaningful.

This finding supports social cognitive theory, which posits that belief in one's capabilities influences self-regulation and goal-directed behaviour. In higher education, lecturers with higher self-efficacy are better positioned to navigate complex academic roles and maintain control over their professional development. The result underscores the importance of psychological capacity in enabling lecturers to exercise self-leadership within demanding academic environments.

5.5 Self-Efficacy and Innovative Work Behaviour

Self-efficacy is also found to be a significant predictor of innovative work behaviour ($\beta = 0.372$, $p < 0.001$). This indicates that lecturers who believe in their ability to perform academic tasks are more willing to experiment, adopt new teaching strategies, and engage in innovative research practices. Confidence in personal capability appears to reduce fear of failure and encourages proactive engagement in innovation-related activities.

This finding aligns with prior empirical studies that identify self-efficacy as a key psychological driver of creativity and innovation. In academic settings, innovation often requires persistence, experimentation, and risk taking. Lecturers with higher self-efficacy are more likely to sustain innovative behaviour despite challenges such as limited resources or institutional constraints. This highlights the role of psychological empowerment in fostering innovation within higher education institutions.

This finding is consistent with Tierney and Farmer (2002), who reported that individuals with stronger self-efficacy are more likely to engage in creative and innovative activities because they possess greater confidence in their ability to overcome uncertainty and implement new ideas successfully. The current study extends this understanding to the higher education context by demonstrating that lecturer innovation is strongly influenced by psychological confidence alongside collaborative academic practices.

5.6 Self-Efficacy and Academic Productivity

The structural model further demonstrates that self-efficacy has a positive and significant effect on academic productivity ($\beta = 0.295$, $p < 0.001$). This finding suggests that lecturers who possess higher confidence in their academic abilities tend to perform more effectively across multiple academic roles. Self-efficacy enhances motivation, persistence, and adaptive behaviour, which collectively contribute to sustained productivity.

This result reinforces the argument that academic productivity is influenced not only by institutional policies but also by internal psychological resources. Lecturers with strong self-efficacy are more resilient in managing workload demands and maintaining consistent engagement in teaching and research activities. The findings suggest that interventions aimed at strengthening lecturer self-efficacy may have a meaningful impact on institutional performance outcomes.

5.7 Study Limitations

Several limitations should be acknowledged when interpreting the findings of this study. First, the study employed a cross-sectional research design, which limits the ability to establish causal relationships among the constructs. Future studies may adopt longitudinal approaches to examine how knowledge sharing, self-efficacy, and academic productivity evolve over time.

Second, the study focused only on lecturers from higher education institutions located in the Klang Valley, which may limit the generalisability of the findings to other geographical or institutional contexts. Future research should include broader samples from different regions and institutional categories.

Third, the study relied on self-reported survey data, which may be influenced by common method bias and respondents' subjective perceptions. Future studies may benefit from incorporating multiple data sources,

including objective performance indicators and qualitative approaches, to obtain a more comprehensive understanding of lecturer productivity and innovative behaviour. Despite these limitations, the study provides important empirical insights into the combined influence of collaborative and psychological factors on academic productivity and innovative work behaviour among lecturers in higher education institutions.

6. Conclusion

This study set out to examine the roles of knowledge sharing and self-efficacy in predicting self-leadership, innovative work behaviour, and academic productivity among lecturers in higher education institutions in the Klang Valley. Using Partial Least Squares Structural Equation Modeling and data collected from 312 lecturers, the study provides empirical evidence that both collaborative academic practices and psychological resources are critical determinants of lecturer performance.

The findings demonstrate that knowledge sharing is a powerful predictor of academic productivity and innovative work behaviour, highlighting the importance of collaborative environments in knowledge intensive organisations such as universities. Lecturers who actively engage in sharing ideas, expertise, and academic experiences are more likely to demonstrate higher productivity and stronger innovative behaviour. However, the negative relationship between knowledge sharing and self-leadership suggests that increased collaboration may shift leadership orientation from individual self-regulation towards more collective academic engagement. This finding adds nuance to existing literature by illustrating that collaboration does not uniformly strengthen all individual capacities.

In addition, self-efficacy emerges as a significant psychological resource that enhances self-leadership, innovative work behaviour, and academic productivity. Lecturers who possess stronger confidence in their academic abilities are better equipped to regulate their work behaviour, pursue innovative approaches, and sustain performance across teaching and research responsibilities. Together, these findings confirm that lecturer productivity is shaped by an interaction between internal psychological capacity and external collaborative practices rather than by structural or policy factors alone.

Overall, this study contributes to higher education research by offering an integrated perspective on academic productivity that combines social and psychological dimensions. The results underscore the need for higher education institutions to move beyond performance monitoring mechanisms and instead focus on cultivating supportive academic cultures that promote knowledge sharing and strengthen lecturer self-efficacy. Such an approach is essential for sustaining academic excellence in increasingly complex and competitive higher education environments.

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Ethics Declaration

The authors declare that they have no competing interests.

AI Declaration

This work involved the use of AI tools to assist with [e.g., grammar checking, idea generation, formatting, summarization]. The final content was reviewed and edited by the author(s) to ensure accuracy, originality, and adherence to academic standards. No AI-generated content was submitted without critical human oversight.

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Research Methodology 2.0: A Hybrid Theoretical-Pedagogical Model for Postgraduate Marketing Education

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Abstract: The teaching of research methodology in postgraduate marketing education has long relied on traditional, linear, and largely instrumental approaches, which often emphasise procedural compliance over deep conceptual understanding and critical engagement. While such approaches may adequately convey technical skills, they frequently fail to foster the higher-order analytical, reflective, and self-directed competencies required of marketing postgraduates to navigate complex, real-world research challenges. Despite the proliferation of hybrid and technology-enhanced learning environments in higher education, scholarship on research methodology pedagogy in business and management remains largely fragmented, with limited conceptual frameworks that integrate theory-driven learning principles into hybrid teaching models. Addressing this gap, this paper proposes Research Methodology 2.0, a theoretically grounded conceptual framework for hybrid research methodology education tailored to postgraduate marketing students and related disciplines. The framework is developed through the synthesis of Constructivist Learning Theory (CLT) (Fosnot, 2013; Vygotsky, 1978) and Experiential Learning Theory (ELT) (Kolb, 2015; Kolb et al., 2014), two complementary pedagogical paradigms that together provide a robust theoretical foundation for hybrid teaching. Constructivist Learning Theory emphasises active knowledge construction, cognitive scaffolding, and the contextualisation of learning within authentic disciplinary practices, thereby enabling students to develop critical thinking and reflective capacities. Experiential Learning Theory, in turn, foregrounds learning through iterative cycles of experience, reflection, conceptualisation, and experimentation, supporting students' ability to apply methodological knowledge to dynamic marketing research contexts. By integrating these theories, Research Methodology 2.0 moves beyond a purely procedural orientation, foregrounding the interplay between conceptual understanding, practical application, and reflective synthesis. The conceptual framework delineates three interrelated components: (1) Knowledge Construction, emphasising theory-practice alignment and learner agency; (2) Experiential Engagement, incorporating real-world, problem-based scenarios and virtual simulations; and (3) Reflective Integration, fostering metacognition and continuous self-directed learning. Relationships between these constructs highlight the recursive, iterative nature of research skill development, wherein engagement with authentic tasks informs conceptual understanding, and reflective practice reinforces experiential learning. The theoretical contribution of this paper lies in reconceptualising research methodology pedagogy for the digital and hybrid era, offering a coherent, integrative model that bridges the divide between constructivist principles and experiential praxis. Practically, the framework provides actionable guidance for curriculum design, instructional strategies, and assessment in postgraduate marketing programmes, promoting deeper engagement, critical reasoning, and transferable research competencies. The framework also offers a foundation for the systematic integration of hybrid and technology-enhanced learning tools without compromising the rigour and reflective depth of methodology education. Finally, Research Methodology 2.0 opens new avenues for scholarly inquiry and pedagogical innovation by providing a theoretically grounded basis for empirical testing, cross-disciplinary application, and further conceptual development. By articulating a structured, theory-driven approach, it enhances the quality and impact of research methodology education, while foregrounding the dynamic tension between theoretical reasoning and methodological practice, and demonstrating how ontological positioning and pedagogy shape epistemological understanding.

Keywords: Research Methodology Pedagogy, Hybrid Learning, Constructivist Learning Theory, Experiential Learning Theory, Postgraduate Marketing Education, Conceptual Framework.

1. Introduction

Research methodology education occupies a foundational role in postgraduate business and marketing programmes by equipping students with the conceptual tools and procedural fluency necessary to undertake independent inquiry. Within these fields, methodological competence underpins not only academic research projects but also evidence-informed managerial decision-making, strategic analysis, and innovation. Contemporary scholarship emphasises that research methods teaching must transcend procedural tutorials to include higher-order cognitive skills, such as critical reflection, epistemological reasoning, and interpretive judgement, to ensure that future marketing leaders can engage robustly with complex, real-world problems. This pedagogical imperative mirrors broader trends in research-informed teaching, where the integration of research and instruction enhances students' analytical capabilities and fosters deeper disciplinary understanding (Matos et al., 2023).

Rigorous training in research methodology is especially significant in postgraduate marketing education because it bridges theoretical concepts with empirical inquiry in contexts characterised by volatility, uncertainty, and

rapid technological change. Marketing scholars and practitioners alike must negotiate multifaceted datasets, shifting consumer behaviours, and globalised competitive environments; robust methodology pedagogy supports these competencies by fostering analytical precision, ethical research practices, and reflective problem-solving. Additionally, postgraduate students with solid methodological grounding are better prepared to contribute to academic knowledge, critique existing studies, and produce research that withstands scholarly scrutiny. Given persistent concerns that traditional, procedural models of instruction may underprepare students for these demands, the call for pedagogical innovation is gaining prominence in the business and management education literature.

Recent developments in higher education have accelerated the adoption of hybrid and technology-enhanced teaching approaches, reshaping how research methodology courses are delivered. Hybrid learning, defined as the deliberate integration of on-campus instruction with online or remote teaching modalities, creates flexible learning environments that combine face-to-face engagement with digital resources and activities (Gudoniene et al., 2025). This approach affords opportunities for asynchronous learning, learner autonomy and access to a broader range of instructional tools, while also presenting challenges related to pedagogical coherence, equity of access and effective engagement across modalities. Contemporary systematic reviews of hybrid teaching emphasise the importance of innovative pedagogical strategies, faculty support, and purposeful integration of technology to enhance student engagement and learning outcomes (Gudoniene et al., 2025). In the context of research methodology education, these trends signal a shift toward more interactive, student-centred designs that leverage digital platforms to support active learning, collaboration, and reflective practice, while maintaining the intellectual rigour expected in postgraduate business and marketing programmes (Gudoniene et al., 2025).

2. Problem Statement and Research Gap

Research methodology is a core component of postgraduate marketing and business education, yet the ways in which it is commonly taught present several persistent challenges. In many programmes, research methods are delivered through highly structured and procedural approaches that focus on teaching students how to follow prescribed steps, techniques, and formats. While this instrumental focus may help students complete assessments, it often reduces research methodology to a technical exercise rather than an intellectual process requiring judgement, interpretation, and critical reasoning (Bryman and Bell, 2023). As a result, students may become competent in applying methods mechanically without fully understanding the theoretical assumptions that underpin methodological choices in marketing and business research.

A key limitation of these conventional approaches is their limited support for the development of critical thinking and epistemological awareness. Postgraduate students are expected to question knowledge claims, justify research decisions, and engage critically with competing methodological perspectives. However, traditional lecture-based or technique-driven teaching often leaves little space for sustained discussion, critique, or reflexive engagement with research philosophy and design (Biggs and Tang, 2022). Consequently, students may struggle to articulate the rationale behind their methodological decisions, particularly when faced with complex or ambiguous research problems common in contemporary marketing contexts.

In addition, opportunities for reflection and self-directed learning are frequently underdeveloped in research methodology teaching. Reflection on one's assumptions, positionality, and learning process is essential for developing advanced research competence, yet it is often treated as an optional or peripheral activity rather than as a central pedagogical objective. This limits students' ability to become independent researchers who can adapt methodological knowledge to new contexts and evolving research challenges (Selwyn, 2020).

From a scholarly perspective, research on research methodology pedagogy remains fragmented. While there is growing literature on teaching research methods and a separate, expanding body of work on hybrid and technology-enhanced learning, these areas are rarely brought together in a theoretically coherent manner. Studies on hybrid learning tend to focus on digital tools, platforms, and delivery modes, often without sufficient attention to how pedagogical theory informs meaningful learning in advanced methodology education (Bond et al., 2020; Hodges et al., 2020). Similarly, discussions of research methods teaching frequently overlook the implications of hybrid learning environments for how students engage with, apply, and reflect on methodological knowledge.

This fragmentation points to a clear research gap. There is a lack of an integrated, theory-driven conceptual framework that systematically connects pedagogical theory with hybrid learning design in the teaching of research methodology for postgraduate marketing students. Current approaches do not adequately explain how

conceptual understanding, practical application, and reflective learning can be intentionally aligned within hybrid environments. Addressing this gap is necessary to move beyond procedural instruction towards a more coherent, intellectually robust model of research methodology education that better supports both student learning and pedagogical innovation in postgraduate marketing and business programmes. This gap also reflects a deeper tension between theoretical abstraction and methodological application, where existing pedagogies struggle to integrate conceptual reasoning with practical execution in a coherent manner.

3. Aim and Objectives

The purpose of this conceptual paper is to contribute to ongoing scholarly debates on research methodology pedagogy within postgraduate marketing and business education. In response to the limitations of conventional, procedurally focused teaching approaches and the growing adoption of hybrid and technology-enhanced learning environments, the paper adopts a theory-building orientation. It does not report empirical data or findings; rather, it seeks to advance understanding through conceptual analysis and theoretical integration.

The overarching aim of this paper is to develop a theoretically grounded conceptual framework, referred to as Research Methodology 2.0, to support hybrid teaching and learning in postgraduate marketing education. The framework is intended to reconceptualise research methodology education by aligning pedagogical theory with contemporary hybrid learning contexts, thereby offering a coherent foundation for both teaching practice and curriculum design.

Objectives:

1. Critically review dominant teaching approaches in methodology education.
2. Identify theoretical underpinnings suitable for hybrid pedagogy.
3. Develop an integrative framework synthesising Constructivist and Experiential Learning theories.
4. Highlight pedagogical and curriculum implications for business schools.

4. Research Methodology Education in Business and Marketing Studies

In postgraduate business and marketing education, research methodology is traditionally taught through a combination of lectures, skills workshops, and modularised online units. In conventional formats, lectures remain the dominant vehicle for introducing core concepts, procedural steps and technical terminologies associated with research design and analysis (Palak and Walls, 2020). These sessions, typically teacher-centred and content-driven, emphasise the transmission of information from instructor to student. Complementary to lectures are skills-based workshops that focus on discrete methodological techniques such as questionnaire construction, sampling strategies, or statistical software applications. Workshops often provide structured opportunities for hands-on practice but remain bounded by narrowly defined tasks and may not consistently promote deeper understanding of underlying epistemological assumptions. In parallel, modularised online teaching has become increasingly widespread, offering asynchronous learning units and self-paced content that aim to enhance flexibility and scalability in research methods instruction (Bond et al., 2020).

While these traditional and modular approaches serve functional purposes, they exhibit notable limitations. One significant concern is student disengagement and surface learning. When research methodology is presented as a sequence of procedures to memorise and replicate, students may adopt surface strategies that prioritise compliance with assessment formats rather than critical engagement with methodological reasoning (Biggs and Tang, 2022). In such contexts, knowledge becomes transactional rather than transformational, and students may struggle to internalise conceptual foundations or to apply methods meaningfully in complex research scenarios.

A second limitation derives from limited opportunities for real-world application and contextualisation. Conventional workshops and online modules often isolate technical skills from authentic research problems, thereby obscuring the relevance of methodological choices to substantive marketing questions. This separation reinforces an instrumental view of methods as technical tools devoid of theoretical grounding or contextual sensitivity. As a result, students may complete skills exercises without recognising how methodological decision-making interacts with the substantive challenges of marketing research, such as understanding consumer behaviour or evaluating brand equity in culturally diverse markets.

Moreover, there is a weak integration between theory and practice in many existing teaching approaches. Despite the central role of theory in guiding research design and interpretation, classroom activities frequently treat theoretical discussion as secondary to procedural instruction. This disconnect undermines students'

capacity to link abstract methodological principles with practical research tasks, ultimately limiting their ability to design coherent and philosophically informed research projects (Rosário and Dias, 2024).

In response to these limitations, hybrid, blended, and experiential teaching approaches are gaining traction within higher education. Hybrid learning models combine face-to-face interaction with online engagement, creating opportunities for diversified learning pathways that accommodate different student needs and preferences (Gudoniene et al., 2025). Importantly, such models can support active, student-centred learning, where learners participate in inquiry, problem solving and collaborative sense-making rather than passively absorbing content. This shift aligns with broader pedagogical movements that advocate for constructivist, dialogic and reflective forms of teaching capable of fostering deeper conceptual understanding (Selwyn, 2020).

Technology-enhanced and digital learning environments play an increasingly prominent role in this evolution. Digital platforms, virtual simulations and interactive media can scaffold student engagement with research tasks that mirror real-world complexity, such as designing mixed-method studies or interpreting multi-source data sets. These tools not only extend the reach of instructional content but also create spaces for iterative practice, peer collaboration and reflective feedback, elements that are essential for developing methodological competence (Hodges et al., 2020).

Finally, experiential and applied learning approaches foreground learning through doing. By situating methodological learning within authentic contexts, such as live case studies, consulting projects, or community-based research, students can connect theoretical constructs to practice and reflect on the implications of their methodological choices. Such approaches are particularly relevant to research methodology education because they support the integration of abstract principles, practical skills and reflective judgement, thereby addressing many of the shortcomings of conventional teaching practices.

Collectively, these evolving pedagogical trends signal a shift towards more integrated, theory-informed, and learner-centred models of research methodology education. They create the conditions for rethinking how research methods are taught in postgraduate marketing and business studies, laying the groundwork for conceptual frameworks that can bridge the divide between traditional instruction and contemporary learning needs.

5. Theoretical Foundations

A sound conceptual framework for research methodology education must be grounded in robust pedagogical theory. In this paper, Constructivist Learning Theory (CLT) and Experiential Learning Theory (ELT) are adopted as complementary lenses through which the teaching and learning of research methodology can be reconceptualised, particularly within hybrid and technology-enhanced contexts.

5.1 Constructivist Learning Theory (CLT)

Constructivist Learning Theory posits that learners actively construct knowledge rather than passively receive it. Central to this perspective are three interrelated principles: knowledge construction, scaffolding, and learner agency. Knowledge construction emphasises that learners build understanding by integrating new information with prior experiences, engaging actively with concepts rather than memorising procedures (Fosnot, 2020). Scaffolding refers to the instructional support provided by educators to bridge the gap between learners' current capabilities and desired learning outcomes, progressively withdrawn as competence grows (Boud and Molloy, 2021). Learner agency highlights students' role as active agents in their own educational journeys, making choices about how they engage with content and reflect on their learning.

In postgraduate research methodology education, CLT facilitates deeper engagement with conceptual and philosophical underpinnings of research practice. By encouraging students to interrogate assumptions, construct meaning through dialogue and critique, and reflect on their evolving understanding, constructivist approaches promote critical thinking and reflective reasoning, capabilities that are essential for independent research. Studies in business and management education have shown that constructivist pedagogies, when intentionally applied, can enhance students' ability to synthesise methodological theory with practice, especially when learning activities encourage active inquiry and peer collaboration (Kali and Litman, 2020; Meyer and Land, 2022). For example, integrated problem-based discussions and concept mapping exercises grounded in CLT have been reported to strengthen students' epistemological awareness and interpretive skills in research methods courses.

However, CLT is not without limitations. Constructivist approaches can yield superficial engagement if not carefully facilitated; learners may struggle to self-regulate or link isolated activities to broader disciplinary frameworks without structured guidance. Recent scholarship emphasises the need for deliberate pedagogical design, including clear learning outcomes, formative feedback, and scaffolded tasks to ensure that constructivist learning translates into meaningful conceptual growth (Dyke et al., 2023).

5.2 Experiential Learning Theory (ELT)

Experiential Learning Theory foregrounds learning as a cyclical process of experience, reflection, conceptualisation, and active experimentation. Kolb's model, widely referenced in higher education literature, suggests that learners engage with concrete experiences, reflect on those experiences, abstract general principles, and then apply the insights to new situations (Kolb et al., 2015; Kolb, 2021). The emphasis on reflection and application aligns with the iterative demands of research methodology: students must not only understand methodological concepts but also test and adapt them in practice.

In research methodology education, ELT supports the design of learning activities that simulate or engage with real-world research tasks, such as drafting research proposals, critiquing study designs, or analysing datasets in context. Experiential approaches enable learners to connect theoretical constructs to practical challenges, thereby enhancing both competence and confidence in methodological decision-making. Recent studies have documented the effectiveness of experiential and simulation-based activities in postgraduate and hybrid learning contexts, noting improvements in student engagement, problem-solving skills, and the ability to transfer learning to authentic research problems (Smith and Hill, 2022; Oliver et al., 2024).

Nevertheless, ELT presents its own challenges. Designing quality experiential learning opportunities can be resource-intensive, requiring access to real or simulated data, technological platforms, and sustained instructor support. Additionally, without careful scenario design and reflective prompts, experiential activities may become disconnected from theoretical foundations, limiting their pedagogical value (Brown et al., 2023).

5.3 Rationale for Combining CLT and ELT

Although CLT and ELT originate from distinct pedagogical traditions, they are complementary in ways that align with the goals of hybrid research methodology education. CLT emphasises the construction of meaning and critical engagement with disciplinary concepts, while ELT provides a structure for applying these concepts in iterative, reflective cycles. Combined, they offer a coherent theoretical basis for designing activities that not only deepen conceptual understanding but also engage learners in authentic, applied research tasks.

The integration of these theories is particularly relevant in hybrid and technology-mediated learning environments. Digital platforms can facilitate constructivist interactions (such as online discussions and collaborative knowledge construction) while also supporting experiential activities (such as virtual simulations and iterative feedback loops). Scholars have increasingly pointed to the value of theoretically informed hybrid pedagogy that integrates active, reflective, and context-rich learning experiences, arguing that such designs better prepare postgraduate students for the complexities of contemporary research work (Garrison and Vaughan, 2021; Evans and Waite, 2025). Importantly, this integration is not purely pedagogical but philosophical, as it reflects an alignment between ontological assumptions about the nature of knowledge, methodological approaches to inquiry, and epistemological outcomes in terms of how knowledge is constructed and validated.

6. Development of the Research Methodology 2.0 Conceptual Framework

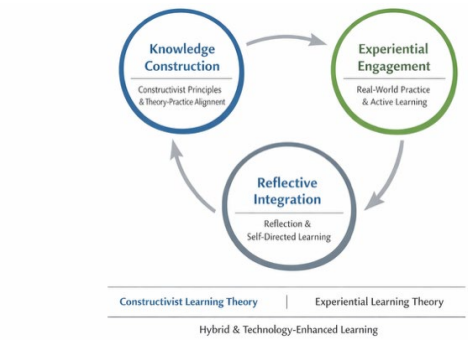


Figure 1: Research Methodology 2.0 Conceptual Framework

Source: Author, 2026

The Research Methodology 2.0 framework in Figure 1.1. synthesises the principles of Constructivist Learning Theory (CLT) and Experiential Learning Theory (ELT) to provide a comprehensive model for postgraduate research methodology education, particularly within hybrid and technology-enhanced learning environments. This integration seeks to bridge the limitations of conventional methodology teaching, such as procedural focus, superficial engagement, and weak theory-practice integration, by aligning conceptual understanding, applied engagement, and reflective practice in a coherent, iterative structure (Fosnot, 2020; Kolb, 2021).

6.1 Theoretical Synthesis

CLT emphasises knowledge construction, scaffolding, and learner agency, encouraging students to actively interpret and apply methodological concepts rather than passively memorising procedures (Boud and Molloy, 2021). ELT complements this by embedding learning within experiential cycles, whereby students engage in concrete research tasks, reflect on their experiences, conceptualise insights, and apply these in subsequent cycles (Smith and Hill, 2022; Oliver et al., 2024). The synthesis of these theories provides a dual focus: CLT ensures deep conceptual reasoning, while ELT promotes practical competence and iterative skill development. By combining these approaches, the framework supports hybrid pedagogy that integrates digital and face-to-face learning modes, facilitating meaningful engagement even in technology-mediated contexts (Garrison and Vaughan, 2021).

6.2 Description of Framework Components

The diagram illustrates the Research Methodology 2.0 framework, designed to guide hybrid pedagogy in postgraduate marketing education. The framework, as illustrated in Figure 1.1., comprises three interrelated components arranged in a cyclical and iterative sequence.

6.2.1 Knowledge Construction

Positioned as the foundation of the framework, Knowledge Construction operationalises CLT by foregrounding learner agency and scaffolding. Students actively construct methodological understanding by connecting new concepts to prior knowledge, critically evaluating research paradigms, and engaging in guided activities that encourage analytical reasoning. This component develops epistemological awareness and fosters critical thinking, which is central to postgraduate research training (Kali and Litman, 2020; Meyer and Land, 2022).

6.2.2 Experiential Engagement

Building on ELT, Experiential Engagement focuses on real-world research tasks and active learning. Students participate in authentic or simulated activities such as designing studies, analysing datasets, or applying methodological concepts to practical marketing research scenarios. Iterative learning cycles within this component enable students to apply theory in context, reflect on outcomes, and refine strategies, thereby reinforcing conceptual understanding while developing practical skills (Oliver et al., 2024; Brown et al., 2023).

6.2.3 Reflective Integration

Reflective Integration overlays and connects the other two components. Through structured reflection, metacognition, and self-directed learning, students consolidate their insights, critically evaluate methodological choices, and identify areas for ongoing development. This component ensures that learning is transformational rather than transactional, enhancing autonomy, judgement, and lifelong learning capacity (Selwyn, 2020; Evans and Waite, 2025).

6.2.4 Relationships Between Constructs

The framework is iterative, cyclical, and mutually reinforcing, as represented in the conceptual diagram. Knowledge Construction informs Experiential Engagement by providing the conceptual foundation required for meaningful application. Experiences in Experiential Engagement generate insights that feed back into Knowledge Construction, refining conceptual understanding. Reflective Integration spans both processes, ensuring continuous evaluation and consolidation of learning. This cyclical relationship promotes learner autonomy, critical reasoning, and practical skill acquisition, enabling students to navigate complex research challenges with confidence and adaptability (Garrison and Vaughan, 2021; Hodges et al., 2020).

By explicitly integrating constructivist and experiential principles, Research Methodology 2.0 addresses key gaps in conventional methodology pedagogy and is inherently suited to hybrid and technology-enhanced learning environments. The framework provides a conceptually robust and pedagogically informed model that supports postgraduate marketing students in developing both deep understanding and applied research competence, bridging the divide between theory, practice, and reflection.

7. Theoretical Contributions

The paper can therefore be understood not only as a conceptual contribution, but as part of the ongoing development of a broader theoretical thesis on research methodology pedagogy in hybrid learning environments. This paper makes a clear conceptual contribution to scholarship on research methodology pedagogy by reconceptualising how research methods are taught within postgraduate marketing and business education. Through the development of Research Methodology 2.0, the paper advances a theory-driven framework that responds directly to long-standing critiques of procedural, instrumental, and content-heavy approaches to methodology teaching, particularly within hybrid and technology-enhanced learning environments (Tight, 2018; Ashwin et al., 2020).

7.1 Reconceptualising Research Methodology Pedagogy for Hybrid Learning

A central theoretical advance of this paper lies in its reframing of research methodology education as an iterative learning process rather than a linear transmission of technical skills. Existing scholarship has repeatedly noted that research methods are often taught as rule-based procedures or compliance exercises, with limited attention to epistemological reasoning, reflexivity, or methodological judgement (Kilburn et al., 2016; Wagner et al., 2021). Research Methodology 2.0 responds to these concerns by positioning methodology learning as a dynamic interaction between knowledge construction, experiential engagement, and reflective integration. This reconceptualisation is particularly significant in hybrid and digitally mediated contexts, where scholars have called for pedagogical models that go beyond content delivery and actively support sense-making, application, and reflection (Bond et al., 2020; Henderson et al., 2023).

7.2 Extending Higher Education and Marketing Education Literature Through Theoretical Integration

The framework extends higher education and marketing education literature by systematically integrating Constructivist Learning Theory (CLT) and Experiential Learning Theory (ELT)—two theories that have frequently been applied in isolation within pedagogy research. Prior studies demonstrate that constructivist approaches support critical thinking and learner agency in postgraduate education but often lack mechanisms for applied skill development if not carefully designed (Fung, 2017; Kember, 2021). Conversely, experiential learning has been widely praised for aligning academic learning with real-world practice, particularly in business and marketing education, yet scholars caution that experiential approaches can become superficial if not grounded in strong conceptual scaffolding and reflective processes (Kolb, 2015; Burch et al., 2019).

Research Methodology 2.0 advances the literature by showing how these theories can be combined into a coherent pedagogical architecture, rather than treated as complementary but separate approaches. Recent calls within methodology education emphasise the need for integrated theoretical models that explicitly connect epistemological understanding, applied research activity, and reflective reasoning (Wagner et al., 2021; Earley, 2023). This framework directly addresses these calls by offering a structured synthesis that aligns conceptual learning with experiential tasks and metacognitive reflection.

7.3 Addressing Fragmentation and Under-Theorisation in Methodology Education

Another key contribution lies in responding to scholarly critiques of fragmentation and under-theorisation in research methodology pedagogy. Studies in higher education and business education literature highlight that methodology teaching is often disconnected from broader pedagogical theory, resulting in inconsistent learning experiences and weak curriculum coherence (Luckett, 2016; Tight, 2018; Ashwin et al., 2020). Research Methodology 2.0 provides a unifying conceptual lens that explicitly links theory, practice, and reflection, thereby strengthening pedagogical alignment across teaching activities, assessment design, and learning outcomes.

Importantly, the framework also contributes to emerging discussions on hybrid learning design by demonstrating how pedagogical theory can inform technology-enhanced teaching without becoming

technology-driven. Scholars increasingly argue that digital and hybrid learning environments require stronger theoretical grounding to avoid replicating traditional didactic practices in online formats (Bond et al., 2020; Henderson et al., 2023). Research Methodology 2.0 addresses this gap by foregrounding learning processes rather than tools, positioning technology as an enabler of constructivist and experiential pedagogy rather than an end in itself.

7.4 Advancing Theoretical Understanding Rather Than Methodological Technique

Finally, the contribution of this paper is explicitly theoretical rather than technical. Rather than proposing new research methods or instructional tools, Research Methodology 2.0 advances understanding of how research methodology education can be conceptualised and structured in contemporary postgraduate contexts. By offering a clear, theory-driven framework that is intelligible to both students and educators, the paper contributes to ongoing debates on curriculum design, pedagogy, and the future of research training in business and marketing education (Wagner et al., 2021; Earley, 2023). In doing so, it provides a robust conceptual foundation for future empirical testing and cross-disciplinary application.

8. Implications for Teaching and Curriculum Design

The Research Methodology 2.0 framework carries important implications for how postgraduate research methodology is designed and taught within marketing and business programmes, particularly in hybrid and technology-enhanced contexts. By foregrounding the interrelated processes of knowledge construction, experiential engagement, and reflective integration, the framework encourages a shift away from fragmented or skills-only curriculum designs towards more coherent, pedagogically aligned learning journeys.

8.1 Implications for Curriculum Design

At the level of curriculum design, Research Methodology 2.0 supports the development of structured hybrid modules in which conceptual instruction, applied research activity, and reflection are intentionally integrated rather than treated as separate components. Existing scholarship in higher education has highlighted that postgraduate methodology curricula often prioritise content coverage and technical competence at the expense of epistemological understanding and reflective learning (Luckett, 2016; Ashwin et al., 2020). The proposed framework responds to these concerns by encouraging curriculum designers to sequence learning activities around iterative cycles of conceptual engagement, application, and reflection.

Within a hybrid module, theoretical concepts such as research paradigms, methodological choices, and ethical reasoning can be introduced through guided conceptual engagement, followed by experiential tasks that simulate authentic research challenges in marketing and business contexts. Reflective activities, embedded throughout the module rather than appended at the end, enable students to critically examine their methodological decisions and assumptions. This design approach aligns with calls for curriculum coherence and constructive alignment in postgraduate education, ensuring that learning outcomes, teaching activities, and assessment practices are pedagogically consistent (Biggs and Tang, 2011; Kember, 2021).

8.2 Implications for Teaching Practice

For teaching practice, Research Methodology 2.0 positions educators as facilitators of learning rather than transmitters of procedural knowledge. The framework highlights the importance of scaffolded learning, where academic guidance supports students' gradual movement towards methodological autonomy. Scholars working within constructivist and experiential traditions emphasise that without appropriate scaffolding, student-centred approaches may result in surface engagement or confusion, particularly in complex methodological domains (Fung, 2017; Wagner et al., 2021).

In practical terms, teaching strategies informed by the framework may include guided inquiry, structured reflective exercises, and collaborative problem-solving activities. Digital tools and platforms—such as virtual simulations, online discussion forums, collaborative research spaces, and blended workshops—can be strategically employed to extend learning beyond the classroom while maintaining pedagogical coherence. Importantly, the framework encourages educators to view technology as an enabler of learning processes rather than as a substitute for sound pedagogy, echoing recent scholarship that warns against technology-led curriculum design in hybrid education (Bond et al., 2020; Henderson et al., 2023).

8.3 Educational Outcomes and Student Development

From an educational outcomes' perspective, Research Methodology 2.0 offers a theoretically grounded pathway for enhancing postgraduate engagement and capability. By integrating conceptual understanding with experiential application and structured reflection, the framework supports deeper learning and the development of methodological judgement, rather than rote procedural competence. Prior studies in business and marketing education suggest that such integrated pedagogical approaches are particularly effective in fostering critical thinking, reflexivity, and confidence in research decision-making (Burch et al., 2019; Earley, 2023).

Moreover, the framework contributes to the development of transferable research and professional skills, including problem-solving, analytical reasoning, collaboration, and reflective practice. These competencies are increasingly recognised as essential for marketing and business graduates operating in complex, data-rich, and uncertain professional environments (Tight, 2018; Wagner et al., 2021). By explicitly linking theory, practice, and reflection within a hybrid learning design, Research Methodology 2.0 provides curriculum designers and educators with a clear pedagogical blueprint for preparing postgraduate students to engage critically and confidently with research in both academic and applied settings.

9. Directions for Future Research

As a conceptual contribution, Research Methodology 2.0 provides a theoretically grounded foundation for rethinking postgraduate research methodology education; however, it also opens several important avenues for future scholarly inquiry. These directions are essential for deepening theoretical understanding, strengthening pedagogical coherence, and ensuring the framework's relevance across diverse educational contexts.

9.1 Empirical Validation and Theoretical Refinement

A key direction for future research lies in the empirical validation of the Research Methodology 2.0 framework. While the present paper advances a theory-driven model, subsequent studies could examine how the framework operates in practice across different postgraduate settings. Qualitative research designs may explore how students and educators experience the integration of knowledge construction, experiential engagement, and reflective integration, providing insight into learning processes and pedagogical alignment (Wagner et al., 2021; Earley, 2023). Quantitative and mixed-methods studies could further assess relationships between framework components and outcomes such as student engagement, methodological confidence, and reflective capacity. Such empirical work would not only test the internal coherence of the framework but also allow for its refinement in response to contextual and disciplinary variation (Ashwin et al., 2020; Tight, 2018).

9.2 Cross-Disciplinary and International Applications

Future research should also examine the transferability of Research Methodology 2.0 beyond postgraduate marketing education. Scholars have noted that challenges associated with research methodology teaching, such as proceduralism, student anxiety, and limited epistemological engagement, are evident across business, management, and the social sciences more broadly (Kilburn et al., 2016; Wagner et al., 2021). Comparative studies across disciplines could explore how the framework adapts to different epistemological traditions, research cultures, and professional expectations.

In addition, international and cross-cultural research would be particularly valuable. Higher education systems differ significantly in terms of curriculum structure, pedagogical norms, and technological infrastructure, all of which shape how hybrid learning is designed and experienced (Bond et al., 2020; Henderson et al., 2023). Investigating the application of Research Methodology 2.0 across diverse institutional and cultural contexts could extend its theoretical robustness and contribute to global debates on postgraduate research training.

9.3 Advancing Hybrid Pedagogy in Postgraduate Education

A further direction for future research concerns the ongoing refinement of hybrid pedagogy in postgraduate methodology education. As digital technologies continue to evolve, scholars are increasingly calling for research that moves beyond tool-focused evaluations towards deeper pedagogical analysis (Bond et al., 2020; Kember, 2021). Future studies could explore how emerging technologies, such as virtual research simulations, collaborative digital platforms, and learning analytics, can be pedagogically aligned with constructivist and experiential principles embedded in Research Methodology 2.0.

Importantly, future inquiry should also examine how hybrid pedagogies can support inclusion, accessibility, and learner agency in postgraduate education. Research that critically interrogates how different student groups engage with hybrid methodology curricula may offer valuable insights into designing equitable and responsive learning environments (Ashwin et al., 2020; Earley, 2023).

Future research has an important role to play in testing, extending, and contextualising Research Methodology 2.0. By pursuing empirical, cross-disciplinary, and pedagogically focused studies, scholars can build on the conceptual contribution of this paper and further advance understanding of research methodology pedagogy in hybrid and technology-enhanced postgraduate education.

10. Conclusion

This paper set out to advance scholarship on research methodology pedagogy by developing a theoretically grounded conceptual framework, Research Methodology 2.0, tailored to the needs of contemporary postgraduate marketing and business education. In response to persistent critiques of procedural, instrumental, and fragmented approaches to methodology teaching, the paper has argued for a reorientation of research methodology education towards a more integrated, learner-centred, and pedagogically coherent model.

At a conceptual level, the paper has demonstrated how Constructivist Learning Theory and Experiential Learning Theory can be meaningfully synthesised to address long-standing gaps in methodology pedagogy. Through the interconnected components of knowledge construction, experiential engagement, and reflective integration, Research Methodology 2.0 offers a clear theoretical explanation of how postgraduate students can develop not only technical competence, but also epistemological awareness, critical judgement, and reflective research capability. The framework explicitly links theory, practice, and reflection, thereby responding to scholarly calls for stronger theoretical alignment and coherence in research methodology education.

In the context of postgraduate marketing programmes, the framework provides a timely response to the increasing complexity of research environments and the growing prevalence of hybrid and technology-enhanced learning. Marketing postgraduates are expected to navigate diverse methodological paradigms, applied research problems, and data-intensive decision-making contexts. Research Methodology 2.0 reframes methodology education as a developmental process that supports these demands by foregrounding learner agency, real-world application, and metacognitive reflection. In doing so, it moves beyond viewing research methods as a set of tools, instead positioning methodology as a way of thinking, reasoning, and engaging with knowledge.

The paper also contributes to broader debates on innovation in higher education pedagogy by emphasising that effective hybrid learning must be pedagogy-led rather than technology-driven. While digital tools and platforms play an important enabling role, the framework underscores the primacy of educational theory in shaping meaningful learning experiences. This perspective reinforces the need for evidence-based, theoretically informed curriculum design that can adapt to evolving institutional and technological contexts without compromising pedagogical integrity.

In conclusion, research methodology 2.0 represents a conceptual step forward in rethinking how research methodology is taught and learned at postgraduate level. The paper calls for continued innovation in methodology education that is grounded in robust pedagogical theory, responsive to hybrid learning environments, and attentive to the intellectual and professional development of postgraduate students. By doing so, future scholarship and practice can contribute to more engaging, coherent, and impactful research training in marketing, business, and related disciplines. More broadly, the paper positions research methodology education as an evolving conceptual domain, where theory and practice remain in productive tension, continuously informing the development of methodological understanding and epistemological insight.

AI Declaration

The author used an artificial intelligence tool to assist with language editing. All ideas, analysis, interpretations, and conclusions are the author's own, and the author takes full responsibility for the content of this article.

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PhD Research Papers

Strengths and Limitations of Mixed Methods Research in Examining Knowledge Management within Private Higher Education in South Africa

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Abstract: Mixed methods research (MMR) approach is commonly employed to address the limitations associated with the use of a single methodological approach. However, mixed methods research examining knowledge management within private higher education institutions in South Africa remains limited, despite the sector's highly competitive operating environment, rapid technological advancements, and recently amended governance and quality assurance requirements. Generally, diverse methodological approaches have been adopted within the field, yet insufficient attention has been given to evaluating the methodological rigour and limitations of these approaches, particularly in relation to their ability to capture the complexity of KM and its influence on operational excellence. This paper addresses this gap through a systematic literature review (SLR). Based on literature sourced from Google Scholar, Taylor and Francis, Emerald, EBSCOhost, ScienceDirect, Sabinet and Journal of International Business and Management up to April 2026, and applying the PRISMA framework, 13 articles were selected for analysis. The findings provide a critical synthesis of methodological trends and contribute to strengthening the rigour of future research, focusing on the use of MMR approach in the context of researching knowledge management and operational excellence within private higher education in South Africa. Key findings reveal that current literature within this scope are constrained by methodological homogeneity and limited contextual depth. The study emphasizes the importance of adopting integrated, mixed-method and longitudinal approaches, as well as expanding research within underexplored contexts such as private higher education institutions in developing countries such as South Africa.

Keywords: Mixed Method Research, Knowledge Management, Private Higher Education, Operational Excellence, PRISMA

1. Introduction

Knowledge has long been recognised as a critical source of power and competitive advantage, a notion captured as early as 1597 by Sir Francis Bacon. In contemporary organisations, knowledge is seen as an organisational resource of strategic significance that underpins performance, innovation, and sustainability (Laihonen, Kork and Sinervo, 2024). Within this context, knowledge management (KM) has emerged as a key organisational capability, encompassing the processes, technologies, and structural mechanisms through which knowledge is created, shared, and utilised (Ogunbanwo et al., 2021). As global competition intensifies, organisations are compelled to leverage KM to optimise operational outcomes and sustain competitive positioning (Kumaravel and Vikkraman, 2018).

In higher education institutions (HEIs), the strategic importance of KM is amplified by the knowledge-intensive nature of academic environments. In South Africa, this is further complicated by historical inequalities, institutional diversity, and socio-economic pressures that continue to shape curriculum delivery, access, and operational performance (Boughey and McKenna, 2021). Private higher education (PHE) institutions, in particular, face dual pressures to expand access while maintaining financial sustainability and service quality in an increasingly competitive landscape (Tamrat and Fetene, 2020). Within such contexts, KM represents a critical enabler of operational excellence and institutional effectiveness.

Despite the growing body of research on KM in higher education across both developed and developing contexts, several gaps persist. Existing studies often focus on isolated institutional settings, overlook managerial perspectives, and provide limited engagement with KM in rapidly evolving technological environments (Lam et al., 2021; Nakash et al., 2022; Nawaz et al., 2020). More critically, while diverse methodological approaches have been adopted, insufficient attention has been given to evaluating the methodological rigour and limitations of these approaches, particularly in relation to their ability to capture the complexity of KM and its influence on operational excellence.

This study addresses this gap through a systematic literature review (SLR) guided by the following research questions:

1. What research methods are commonly used in KM studies within higher education?

2. What strengths and weaknesses characterise these methods in examining operational excellence?

Drawing on literature sourced from Google Scholar, Taylor and Francis, Emerald, EBSCOhost, ScienceDirect, and Sabinet up to April 2026, and applying the PRISMA framework, 13 articles were selected for analysis. The findings provide a critical synthesis of methodological trends and contribute to strengthening the rigour of future KM research in higher education.

The paper proceeds with a review of relevant literature, followed by the research methodology and PRISMA process. Thereafter, the findings are presented and discussed, and concluding remarks and recommendations for future research are provided.

2. Literature Review

Knowledge management (KM) is conceptualised as a holistic organisational capability that encompasses the identification, selection, sharing, and utilisation of knowledge to support operational requirements (Di Vaio et al., 2021). As a strategic resource, knowledge extends beyond information to include insights related to processes, markets, and organisational experience, thereby contributing to long-term sustainability and competitiveness (Nuaimi and Jabeen, 2020; Obermayer et al., 2020). Within higher education institutions (HEIs), KM plays a critical role in facilitating the systematic generation, dissemination, and application of both explicit and tacit knowledge, ultimately enhancing teaching, learning, and administrative effectiveness (Ngoc-Tan and Gregar, 2018).

Operational excellence, broadly defined as the continuous improvement of organisational processes and performance mechanisms (Niedlich et al., 2020), is increasingly positioned as a key outcome of effective KM. In the higher education context, operational excellence is reflected in the quality of teaching and learning, administrative support, and service delivery, all of which are essential for meeting regulatory requirements and stakeholder expectations (Kumar et al., 2021). As HEIs face intensifying competition, technological disruption, and rising student demand, the integration of KM practices has become central to achieving institutional efficiency and adaptability (Acharya et al., 2022; Haider, 2019).

Contemporary literature further highlights the growing convergence between KM and digital transformation. The emergence of Industry 4.0 has necessitated the integration of technological capabilities with knowledge processes to enhance organisational responsiveness and service delivery (Cabeza-Pullés et al., 2020). While studies have begun to explore this relationship, particularly in relation to artificial intelligence and data-driven systems, there remains limited empirical clarity regarding how these dynamics influence operational excellence within HEIs, especially in the South African and private higher education (PHE) context.

Empirical research across diverse contexts generally supports a positive association between KM practices and organisational performance outcomes. Quantitative studies consistently demonstrate that factors such as knowledge sharing, process capabilities, leadership, and organisational infrastructure contribute to improved institutional effectiveness, innovation, and competitive advantage (Valarmathi and Kumar, 2020; Mahdi et al, 2019; Budur et al, 2023; Ogunbanwo et al, 2021). However, these findings are often derived from structured survey-based approaches, which, while enabling generalisation, provide limited insight into the contextual and experiential dimensions of KM.

Qualitative research offers complementary insights by highlighting the influence of organisational culture, governance, and leadership on KM practices (Ngoc-Tan, 2023; Haryani and Suryasari, 2020). Such studies reveal that KM is frequently embedded within routine institutional processes and may be under-recognised despite its strategic importance. Nevertheless, qualitative studies remain limited in scope and scale, restricting their broader applicability.

Mixed-method approaches, although less frequently employed, have the potential to bridge these limitations by integrating statistical analysis with contextual depth. However, existing studies often demonstrate methodological constraints, including low response rates (Kaira and Phiri, 2022), limited qualitative depth, and reliance on questionnaire-based data collection (Ogunbanwo et al., 2021), thereby reducing the effectiveness of methodological integration.

Overall, the literature reveals a methodological imbalance, with a strong emphasis on quantitative approaches and insufficient exploitation of methodological pluralism. Furthermore, many studies adopt fragmented perspectives, focusing on individual KM processes rather than an integrated view of KM as a dynamic, socio-technical system influencing operational excellence. These limitations are particularly evident within the PHE

sector and developing contexts, where research remains underdeveloped. Accordingly, there is a need for a systematic synthesis of existing research to critically evaluate the methodological approaches employed in studying KM and its influence on operational excellence in HEIs. Addressing this gap will contribute to enhancing research rigour and informing more comprehensive and contextually sensitive future studies.

3. Methodology

This study adopted a systematic literature review (SLR) guided by the PRISMA framework to synthesise existing knowledge on knowledge management (KM) in higher education. PRISMA was selected to ensure a transparent, rigorous, and replicable review process (Mishra and Mishra, 2023). A comprehensive search was conducted across Google Scholar, Taylor and Francis, Emerald, EBSCOhost, ScienceDirect, Sabinet and Journal of International Business and Management for peer-reviewed journal articles published in English until April 2026 using combinations of keywords including “operational excellence” AND "knowledge management" AND "higher education" AND "South Africa" expanded to "knowledge management" OR "knowledge sharing" OR "information management" OR "intellectual capital management" OR "operational excellence" OR "process optimization" OR "performance enhancement" OR "continuous improvement" OR streamlining OR "private higher education" OR "higher education" OR “tertiary education”. Studies were included if they focused on KM within higher education institutions with a particular focus on operational excellence, and excluded if they addressed other sectors, book chapters, inaccessible full text, used a desktop method or non-English publications. Although the study focuses on South Africa, a broader geographical scope was utilised in the SLR for richer data. The search yielded 1558 records. Following the removal of duplicates and the application of inclusion and exclusion criteria, 216 studies were retained for full-text review. After assessing full text accessibility, relevance and methodological quality, 13 studies were included in the final analysis. The study selection process is presented through a PRISMA flow diagram.

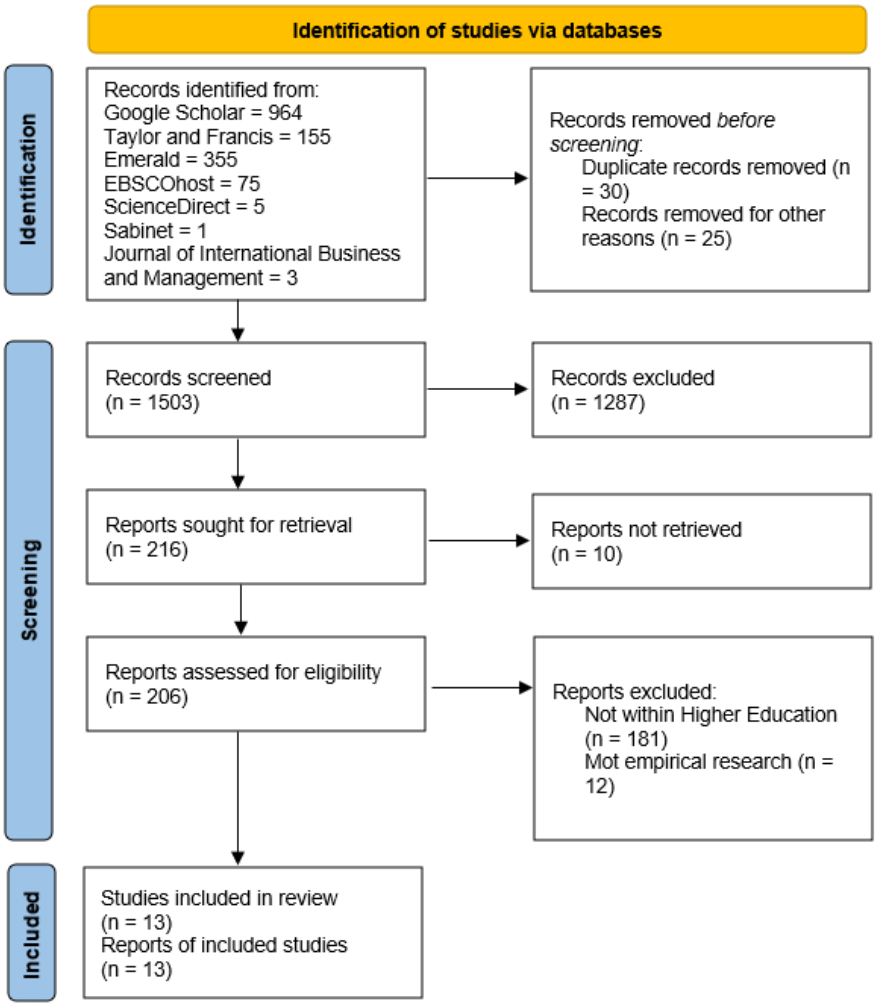


Figure 1: PRISMA Framework application for article selection

Data were extracted from each eligible study using a structured review matrix developed for this study enabling systematic comparison for subsequent thematic analysis. The matrix captured key study characteristics, including author(s), year of publication, country of study, methodological approach, sample characteristics, data collection methods, key focus and principal findings. For purposes of this paper, the below summary table reveals the frequency of methods used across the selected papers.

Table 1: Summary of key characteristics

Characteristic	Frequency
Quantitative	8
Qualitative	2
Mixed Methods	3
Questionnaires	12
Interviews	2
Purposive Sampling	4
Probability Sampling	8

The extracted data were analysed manually using thematic analysis according to the following steps. Post data extraction, iterative reviews were done to identify recurring methodological patterns. These categories according to methodological characteristics were grouped and synthesized into themes aligned within the study context. Particular attention was given to the methodological rigour, strengths, and weaknesses associated with the approaches employed. The themes were continuously reviewed and compared across studies to ensure consistency and relevance. This process facilitated the identification of dominant methodological trends and gaps within knowledge management research in higher education with respect to its influence on operational excellence, providing a basis for recommendations regarding future empirical investigations.

4. Results and Findings

The key results of the manual thematic analysis are presented in this section under 6 themes with a synthesized overarching theme addressing the main aim of the paper regarding the strengths and weaknesses of research methods utilised in KM research addressing operational excellence in higher education.

4.1 Theme 1: Predominance of Quantitative Positivist Designs

A strong reliance on quantitative survey-based methodologies characterises the field (8 out of 13 studies), typically employing cross-sectional structured questionnaires administered online or in-person with statistical analysis completed. Quantitative positivist designs enable hypothesis testing and generalisability, which is evident in studies targeting larger samples (e.g. 319 respondents in Zambia; 372 respondents in Nigeria) (Mulomba and Mpofu; 2026; Saadiq, 2014). Furthermore, it supports the measurement of relationships between KM constructs and performance outcomes, such as operational excellence, institutional effectiveness, and organisational agility with evidence of significance (e.g., p-values in Govender et al. 2018), which inherently strengthens claims of association. A notable weakness of this design is reductionism where complex KM processes (e.g. tacit knowledge, organisational culture) are inadequately unpacked subjectively and are instead simplified into measurable variables. Within the private HE landscape, these contextual nuances are crucial to consider as these institutions operate in diverse environments across multiple countries, catering to the changing needs of industry, staff and students as well as operating under environmental, regulatory and financial pressures (Tamrat and Fetene, 2020). Additionally, the quantitative approach relies heavily on self-reported data which introduces the possibility of bias such as respondents seeking social desirability or answering under perceptual distortion. The dominance of positivist paradigms constrains epistemological diversity, limiting deeper theoretical development of KM as a socially embedded and context-dependent phenomenon.

4.2 Theme 2: Heavy Dependence on Questionnaires as Primary Data Collection Instruments

Almost every study, regardless of utilising a qualitative or mixed method approach, relied on the use of questionnaires for data collection (12 out of 13 studies), often self-administered or online. Questionnaires boast the ability to reach a larger audience across geographically dispersed HEIs, it enables comparability of responses across participants and contexts through standardisation and supports statistical modelling and cross-

institutional analysis (Adiele and Gbekee-Kalagbor, 2025). Although the strengths are impressive, questionnaires are inadequate for capturing nuances and deeper understanding of knowledge management in practice (e.g. tacit knowledge dynamics) which requires interpretive exploration (Murumba et al., 2020). These studies described instrument validity; however, the constructs pertaining to KM are complex and multidimensional which leaves its exploration limited in a questionnaire. Last but not least is the inability to probe for further insight, reasoning or clarification which reduces the depth and richness of the findings. The methodological over-reliance on questionnaires reflects an instrument-driven research culture, rather than one aligned with the ontological complexity of KM systems.

4.3 Theme 3: Underutilisation of Qualitative and Interpretivist Approaches

Superficially, 2 qualitative studies and 3 mixed-method studies are reported, yet closer engagement reveals that of these, there was only 1 purely qualitative study and 1 mixed method study utilising interviews for rich data were conducted, indicating limited engagement with interpretivist paradigms. Qualitative approaches (e.g. semi-structured interviews) provide rich, contextually embedded insights into KM practices, organisational culture, and barriers (Maphangwa, 2022). A major strength in using qualitative approaches is the ability to explore and understand lived experiences of knowledge workers which is particularly beneficial for unpacking topics such as tacit knowledge or culture. The mixed method approach therefore enhances methodological triangulation which improves the validity of the data and findings (Malekano, 2016). A key limitation of qualitative studies is the narrowed focus which utilises smaller samples subsequently limiting transferability. In mixed method studies, the inclusion of a qualitative component has been surface-level through the inclusion of open-ended questions in a self-administered or online questionnaire and in the reporting of findings, the integration of this has been limited. The limited use of qualitative and mixed approaches restricts the field's ability to sufficiently theorise KM as a socio-technical system, particularly in relation to operational excellence.

4.4 Theme 4: Sampling Strategies and Representativeness

A mix of probability (8 studies) and non-probability sampling (purposive, convenience) is evident and in some cases, with the use independent of the approach (e.g. convenience sampling utilised in a quantitative study) (Madbouly et al., 2021). Each sampling method has its own strength when well-aligned to the aim of the study. Probability sampling enhances representativeness and generalisability, particularly in large-scale quantitative studies. Purposive sampling is appropriate for targeting knowledge-rich participants (e.g., HR practitioners, managers, academics, KM workers) (Saunders et al., 2019). Half of the studies relied on convenience or purposive sampling which thus introduces selection bias. Several studies which collected data across HEIs, or cross-countries lacked description of sampling equivalence which blurred the validity of findings between being true differences in variables measured or disparities in the sample structures themselves, subsequently affecting comparability. In the field of KM, this is especially important to consider noting that it involves heavy reliance on technology adoption, culture and diverse people. Sampling limitations undermine the external validity of findings and restrict the ability to generalise KM–operational excellence relationships across diverse HEI contexts.

4.5 Theme 5: Cross-Sectional Designs and Temporal Limitations

Most studies employ cross-sectional designs which captured data at a single point in time. Besides its feasibility, this design is efficient and practical for exploratory and relational research seeking to understand the relationship between KM and performance (Enakrire and Smuts, 2022; Adiele and Gbekee-Kalagbor, 2025). A critical weakness is the inability to establish causality, especially when seeking to understand barriers and mitigation strategies or to track longitudinal effects of practices and strategies (Jemal and Zewdie, 2021). The design also fails to effectively showcase the active nature of KM and the subsequent transformation of the HEI, especially when digital transformation is involved. The lack of longitudinal or experimental designs weakens causal inference and limits understanding of KM as a dynamic capability influencing sustained operational excellence.

4.6 Theme 6: Contextual and Geographic Diversity vs. Contextual Fragmentation

Studies span multiple regions (Africa, Middle East, Europe, Asia), as well as a focus on public HEIs with private HEIs targeted in a combined manner, thus revealing a geographical and contextual target often with differing institutional and socio-economic conditions (Alkaabi, 2025; van Reijsen et al., 2015). Although this strategy

enhances contextual richness and comparative insights, in some cases, the contextual diversity is not theoretically integrated which results in fragmented findings or a lack of methodological harmonisation. While geographically diverse, the literature lacks a coherent contextualisation strategy, weakening cumulative knowledge development.

The findings reveal a clear predominance of quantitative, cross-sectional survey designs and a strong reliance on questionnaire-based data collection within KM research focusing on operational excellence in higher education. While these approaches offer strengths in terms of statistical validation, they limit the exploration of contextual and tacit knowledge processes. There is also limited use of qualitative and mixed-method approaches, reducing insight into socio-cultural dynamics, with mixed-method applications often lacking depth. In addition, sampling limitations and cross-sectional designs constrain generalisability and causal interpretation. Overall, the literature provides valuable empirical evidence but remains methodologically constrained, underscoring the need for greater methodological diversity and integration.

5. Discussion

The findings of this SLR reinforce the view that KM in higher education is largely examined through a positivist lens (Budur et al., 2023; Bashir et al., 2017), privileging measurement and association over contextual understanding. This methodological orientation partly explains the strong evidence base linking KM to organisational performance but also accounts for the limited theorisation of KM as a dynamic, socio-technical capability.

The underutilisation of qualitative and mixed-method approaches suggests that critical dimensions of KM—particularly tacit knowledge, organisational culture, and knowledge flows—remain insufficiently explored (Ngoc-Tan and Gregar, 2018; Ngoc-Tan, 2023. This is especially significant in higher education, where knowledge is inherently embedded in human interaction and institutional practices (Kumar et al., 2021). Furthermore, the lack of longitudinal and multi-level research designs constrains the ability to understand how KM contributes to sustained operational excellence over time, particularly within rapidly evolving, technology-driven environments (Jemal and Zewdie, 2021). The limited focus on private higher education and developing contexts further exacerbates this gap, reducing the contextual relevance of existing knowledge (Kaira and Phiri, 2022). Taken together, these insights point to the necessity for methodological pluralism, combining quantitative rigour with qualitative depth and contextual sensitivity (Collis and Hussey, 2021). Such an approach is essential for advancing both the theoretical and practical understanding of KM and operational excellence in higher education.

6. Concluding Remarks

This study set out to critically evaluate the methodological approaches used in KM research focusing on operational excellence in higher education. Through a SLR, it is evident that while existing research, albeit minimal, provides an empirical foundation, it is constrained by methodological homogeneity and limited contextual depth. The study contributes by ascertaining methodological strengths and weaknesses, thereby informing the design of more robust future research. It underscores the importance of adopting integrated, mixed-method and longitudinal approaches, as well as expanding research within underexplored contexts such as private higher education institutions in developing countries such as South Africa.

Future research should seek to develop contextually grounded and methodologically diverse frameworks that better capture the complexity of KM as a strategic capability influencing operational excellence. In doing so, scholars can generate more nuanced, transferable, and practically relevant insights that support the evolving needs of higher education institutions.

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AI Declaration

Generative AI – Copilot – was utilised to edit and condense the article.

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Measuring Innovation Efficiency Using Stochastic Frontier Analysis

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Abstract: Innovation is widely regarded as a key driver of firm competitiveness, technological progress, and long-term economic growth. However, measuring innovation efficiency remains a challenging issue in both academic research and practical policy analysis. Many existing studies rely mainly on innovation input or output indicators, such as R&D expenditure, patent applications, or patent grants. Although these indicators provide useful information, they do not fully reflect how efficiently firms transform innovation resources into actual innovation outcomes. In addition, several commonly used measurement approaches, including simple ratio indicators and Data Envelopment Analysis (DEA), often assume that all deviations from the efficiency frontier are caused entirely by inefficiency. In reality, however, part of these deviations may result from external shocks, statistical noise, or measurement errors, which can lead to biased estimates of innovation efficiency. To address this issue, this paper proposes a more structured framework for measuring firm-level innovation efficiency using Stochastic Frontier Analysis (SFA). Compared with traditional non-parametric approaches, SFA provides the advantage of separating inefficiency effects from random disturbances, thereby offering a more realistic and reliable evaluation of innovation performance. The paper presents the basic theoretical logic of the SFA framework, including model specification, parameter estimation through maximum likelihood methods, and the calculation and interpretation of innovation efficiency scores. In addition, the study discusses the practical applicability of the framework in empirical research and highlights its advantages in handling firm-level panel data. To illustrate the proposed approach, an empirical example is conducted using panel data from Chinese A-share listed firms covering the period from 2012 to 2023, including more than 40,000 firm-year observations. The findings indicate that substantial differences in innovation efficiency exist across firms and industries. The results further suggest that the SFA-based approach is better able to identify these differences and provide more stable efficiency estimates than several conventional measurement methods. Overall, although the framework still has certain limitations, it offers a practical, transparent, and relatively flexible tool for evaluating innovation efficiency, and may provide useful implications for future academic research, enterprise management, and innovation policy design.

Keywords: Innovation Efficiency; Stochastic Frontier Analysis (SFA); Measurement Framework; Conventional Indicators

1. Introduction

New Ideas can help the company improve its competitiveness and promote the long-term economic development of the region. However, the amount of investment in innovation and the number of output units produced by the firms differ significantly, as well as the efficiency with which these innovation inputs are converted into outputs. Innovation efficiency refers to the amount of innovation output that can be achieved per unit of input resources; that is, the maximal increase in innovation output for a fixed set of inputs (Griliches, 1990; Dosi, 1988). Assess the actual effects of innovation accurately in the research and policy stage.

The Problem of innovation efficiency has not been addressed by a reliable measure yet. A typical type is a simple ratio-based index, such as the number of patents per unit of R&D investment (Griliches, 1990; Hall, Jaffe, & Trajtenberg, 2005). These are simple to compute, but they attribute all deviations from the best-observed performance solely to inefficiency and fail to consider random shocks, measurement errors, etc. Todorov and others (2024) have pointed out some problems of comparability and reliability in the analysis of the 23 innovation indicators. Data Envelopment Analysis (DEA) is another widely used method that constructs an efficiency frontier from the best practices in the data and does not assume a functional form (Charnes, Cooper, & Rhodes, 1978). DEA is also deterministic and therefore cannot differentiate between inefficiency and random noise. In the face of innovation, due to the uncertainty of the results and the noisiness of the data, there is a risk of biased efficiency estimates and incorrect rankings of the companies (Aigner, Lovell & Schmidt, 1977; Coelli et al., 2005).

Aigner and Meeusen and van den Broeck (1977) introduced Stochastic Frontier Analysis (SFA) to overcome the above problems by splitting the error term into a two-sided random noise component and a one-sided inefficiency component. Therefore, researchers can exclude random fluctuations in the inefficiency data. Although SFA has been used extensively in the study of productivity (Battese & Coelli, 1995; Kumbhakar & Lovell, 2000), it has not been applied to evaluate the efficiency of innovation and, thus far, has not been systematically compared with other indices.

Provide a practical SFA-based system for assessing the innovation efficiency at the firm level and empirically compare its results with those of traditional ratio indicators in this paper. Panel data of Chinese A-share listed companies from 2012 to 2023, with more than 40,000 firm-year observations, is used to estimate firm-level innovation efficiency based on a stochastic frontier innovation production function and compare the results with

other indices.

The two reasons are as follows. First, construct an organised and reproducible SFA model for assessing innovation efficiency to provide researchers with an accessible tool in the presence of noisy innovation data. Second, we can establish a good evaluation system for the utility value function of the two SFA/traditional index groups and identify the different ranges of assessment that these indicators will cover for a company's innovation performance.

The remaining contents of this paper are as follows. Section 2 is a summary of related studies on the economy of innovation. Section 3 shows the SFA method. Section 4 shows the data and variables. Section 5 is the Empirical Results. Section 6 introduces the impact and shortcomings, and Section 7 concludes.

2. Literature Review

2.1 Measurement of Innovation Efficiency

Researchers have focused on how efficiently enterprises convert innovation resources into new products or services in empirical studies for a long time (Griliches, 1990). Todorov et al. (2024) have evaluated 23 innovation indicators and found that, while there are many such indicators to observe all faces of innovation, problems with comparison, time sensitivity and accuracy have arisen. The problem of reduced innovation efficiency is to identify and address shortcomings in the quality of the transformation process from raw materials to final products.

The most basic is a ratio, such as the number of patents per unit of R&D investment (Griliches, 1990; Hall et al., 2005). They are relatively simple to calculate, but they have a serious defect: they attribute all deviations from the best-performing model to inefficiency and ignore random shocks or measurement errors. Innovation has uncertain results and noisy patent data; therefore, the estimation will be biased. Ratio indicators only show one input-output relationship at a time and are thus inadequate for the multiple-input nature of innovation.

Therefore, the above deficiencies were no longer tolerable. Two broad classes have emerged: non-parametric approaches, notably DEA, and parametric approaches, notably SFA.

2.2 DEA and its Deficiencies

Charnes and his colleagues (1978) introduced the DEA model; it is a form that does not need to assume a functional form for the efficiency frontier and is suitable for multiple-input and multiple-output problems. Therefore, this has been widely used in studies of innovation efficiency.

However, as a deterministic method, DEA assigns all deviations from the frontier to inefficiency. Measurement errors in innovation data, random fluctuations in patent filings, or temporary external shocks may be wrongly identified as inefficiency. Due to the abundance of imperfections in the data for innovation, an overestimation of inefficiency and thus skewed firm rankings may occur (Aigner et al., 1977; Coelli et al., 2005). If there are problems of measurement error and random shocks in a specific situation, parametric stochastic methods can be used.

2.3 SFA as an Alternative

SFA addresses the first limitation of DEA by adding a stochastic error term that is split into two parts: a symmetric random noise term and a one-sided inefficiency term (Aigner et al., 1977; Meeusen & van den Broeck, 1977). Thus, the true inefficiency in SFA can be separated from the random noise to obtain a more stable estimate in the presence of measurement errors.

Battese and Coelli (1995) extended SFA to panel data and introduced time-varying efficiency estimation. Coelli et al. (2005) and Kumbhakar and Lovell (2000) have offered all-encompassing discussions of the SFA method. Innovation activities are naturally uncertain; R&D projects may fail, and the timing of patent applications is also unpredictable, so the SFA can be used to handle these random disturbances.

2.4 Innovation Efficiency in the Chinese Context

China's high-speed growth of R&D investment provides an appropriate background for the study of innovation efficiency. Zhou, Zhang, and Ruan (2023) use SFA to calculate the corporate innovation efficiency of Chinese listed companies and find that perceptions of economic policy uncertainty significantly affect this efficiency. Kong, Yang

and Wang (2023) found that innovative efficiency promotes the market-to-book ratio of a company. Li and others (2023) have studied how artificial intelligence can be applied in boosting the speed of enterprise-level innovation. The above studies use innovation efficiency as the end-point and have not examined whether there are deficiencies in the measurement method.

2.5 Research Gaps

Methodological studies have shown that, to distinguish inefficiency from random fluctuations, SFA can be used and it is theoretically more advantageous than DEA and ratio indicators in noisy environments (Aigner et al., 1977; Coelli et al., 2005). Most empirical studies have used DEA without considering its deterministic nature, and SFA efficiency scores have not been systematically compared with simpler indicators. No one has investigated whether SFA-based indices can modify the performance indicators of innovation in companies to some extent by replacing traditional factors. Therefore, a reasonable SFA framework will be established and, at the same time, compared to traditional ratio-based indicators in this study.

3. Methodology

3.1 SFA Framework

SFA is used to study firm-level innovation efficiency in this paper. Aigner et al. (1977) and Meeusen and van den Broeck (1977) proposed a way to distinguish between two kinds of reasons for deviation from the frontier: real inefficiency and random statistical fluctuations. Therefore, SFA is relatively suitable for analysing innovation due to the uncertainty of the outcome and the uneven availability of data (Griliches, 1990; Coelli et al., 2005).

The key feature of SFA is the composed error structure. The error term is specified as the sum of a symmetric random disturbance and a one-sided inefficiency term. The general form is:

$$y_{it} = f(\mathrm{x}_{it}; \beta) + v_{it} - u_{it}$$

Where y_{it} is output, x_{it} is a vector of inputs, β is a parameter vector, and $f(\cdot)$ is the deterministic production frontier. The error components are: v_{it}~N (0, σ_v^2), a two-sided random noise term capturing measurement errors and random shocks; and u_{it} ≥0, a one-sided inefficiency term. This separation distinguishes SFA from deterministic methods, which implicitly assume v_{it} = 0 for all observations.

3.2 Innovation Production Function

Based on the knowledge production function tradition (Griliches, 1990, 1994), we assume a Cobb-Douglas innovation production function where innovation output is a function of R&D expenditure, physical capital and labour:

$$\ln(1 + \mathrm{Patent}_{it}) = \beta_0 + \beta_1 \ln(\mathrm{RD}_{it}) + \beta_2 \ln(\mathrm{Capital}_{it}) + \beta_3 \ln(\mathrm{Labor}_{it}) + v_{it} - u_{it}$$

Patent counts are widely used as innovation output measures, capturing codified technological inventions systematically recorded over time (Griliches, 1990; Hall et al., 2005). We use *ln(1+Patent)* to accommodate zero patents. R&D expenditure represents deliberate knowledge creation investment (Griliches, 1990; Kumbhakar & Lovell, 2000). Capital and labor capture broader firm resources supporting innovation. The coefficients β_1 through β_3 represent output elasticities, with their sum indicating returns to scale.

3.3 Model Estimation

The Model is based on maximum likelihood estimation. Assuming that v_{it} follows a normal distribution and u_{it} follows a half-normal distribution, the likelihood function can be obtained and optimised numerically (Aigner et al., 1977; Coelli et al., 2005).

A Typical Characteristic is the variance ratio:

$$\gamma = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_v^2}$$

where γ∈ [0,1]. When γ is close to 1, most of the variations in the composite error are caused by inefficiency,

and SFA decomposition can be used. When γ is close to 0, random noise is relatively large. A likelihood-ratio (LR) test on H_0: $\sigma_u^2=0$ has shown good statistical support for the stochastic frontier assumption.

3.4 Innovation Efficiency Scores

Firm-level innovation efficiency is defined as the ratio of actual output to the maximum achievable output:

$$TE_{it} = \frac{f(\mathrm{x}_{it};\beta)exp(v_{it}) - u_{it}}{f(\mathrm{x}_{it};\beta)exp(v_{it})} = exp(-u_{it})$$

Since $u_{it} \geq 0$, $TE_{it} \in [0,1]$. A value of 1 indicates that it is running at full speed of innovation. Values less than 1 are inefficient. They are relative measures that compare firms to the best-practice frontier constructed from the data (Coelli et al., 2005; Kumbhakar & Lovell, 2000).

3.5 Comparison with Conventional Indicators

We construct the following two representative ratio-based indicators for comparison:

$$Ratio_1 = \frac{Patent_{it}}{RD_{it}}; Ratio_2 = \frac{ln(1+Patent_{it})}{ln(RD_{it})}$$

The first are raw correlations of innovation output and R&D investment. They do not control for capital and labor inputs, and they are not random noise. We compare SFA efficiency scores with the above indicators using Spearman rank correlation coefficients. A relatively large positive correlation (greater than 0.90) indicates that SFA and the former indicators are positively correlated. A relatively strong correlation (0.50 - 0.80) would be expected for SFA and other dimensions of innovation efficiency. The two are used to verify whether SFA can better reflect the actual level of innovation efficiency by addressing random fluctuations.

4. Data and Variables

4.1 Data Source and Sample Construction

Panel data of Chinese A-share listed companies from 2012 to 2023 were used for the analysis. Financial variables such as R&D expenditure, total assets and employee count are available in the CSMAR database. Patent data are from the Chinese Patent Database. Exclude firms in the financial sector, remove observations with missing key variables, and winsorize continuous variables at the 1st and 99th percentiles. The final sample has 37,658 firm-year observations and 5,269 unique firms. China provides a suitable background for this study, and R&D investment has been expanding rapidly recently; moreover, enterprises in China are not uniform (Zhou et al., 2023; Kong et al., 2023).

4.2 Variable Definitions

Innovation output is measured by patent applications filed in a given year. Patents are the most widely used indicator of innovation output, capturing codified technological inventions that are systematically recorded and comparable across firms and over time (Griliches, 1990; Hall et al., 2005). We use ln(1+Patentit) to accommodate zero patent filings. While not all innovations are patented and patent value varies (Griliches, 1990; OECD/Eurostat, 2018), patent counts remain the most feasible output indicator for large-scale firm-level studies..

The three Innovation Input factors are: R&D expenditure is defined as the natural logarithm of total R&D investment, which accounts for conscious knowledge-creation investments (Griliches, 1990). Capital input, expressed as the logarithm of total assets, indicates the total resource foundation for innovation. Labor input is the logarithm of the total number of employees, which represents the human capital that generates new knowledge (Cohen & Levinthal, 1990; Moreira et al., 2024). All of the inputs are in log form and consistent with the Cobb-Douglas function.

The first two are conventional ratio indicators. Ratio 1 is the raw patent-to-R&D ratio ($\mathrm{Patent}_{it}/\mathrm{RD}_{it}$), indicating the number of patents per unit of R&D investment. Ratio 2 is the log-transformed ratio (ln (1+Patent_{it})/ln (RD_{it})), which reduces skewness and is more suitable for the log-log SFA structure. They are used to determine the efficiency score of SFA.

4.3 Descriptive Statistics

Table 1 presents descriptive statistics. Innovation output, ln(1+Patent), has a mean of 1.332 (SD = 0.278), with some firms filing no patents and the most active reaching 1.792. Inputs display wide variation: ln (RD) has a standard deviation of 1.510, reflecting large differences in R&D scale. The SFA innovation efficiency score has a mean of 0.787 (SD = 0.132), ranging from 0.161 to 0.980. The mean efficiency of 0.787 implies that, on average, firms could increase innovation output by approximately 21% without additional inputs by operating at the best-practice frontier.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ln(1+Patent))	37,658	1.332	0.278	0.000	1.792
ln(R&D)	37,658	17.928	1.510	13.607	21.937
ln(Capital)	37,658	20.152	1.741	10.804	27.298
ln(Labor)	37,658	7.615	1.248	2.398	13.464
Innovation efficiency	37,658	0.787	0.132	0.161	0.980

Notes: Sample consists of Chinese A-share listed firms, 2012–2023. Efficiency estimated via SFA. All continuous variables winsorized at 1st and 99th percentiles.

The distribution of efficiency (Figure 1) is nearly unimodal and concentrated in the range of 0.70-0.90. The mass of the distribution is significantly below the frontier value of 1.0; thus, it is considerably inefficient. A right-skewed distribution indicates that fewer enterprises are located in the forward area. The distribution is relatively even at a low end and does not have any sudden large dips, which is in line with the noise-filtering property of SFA (Coelli et al., 2005).

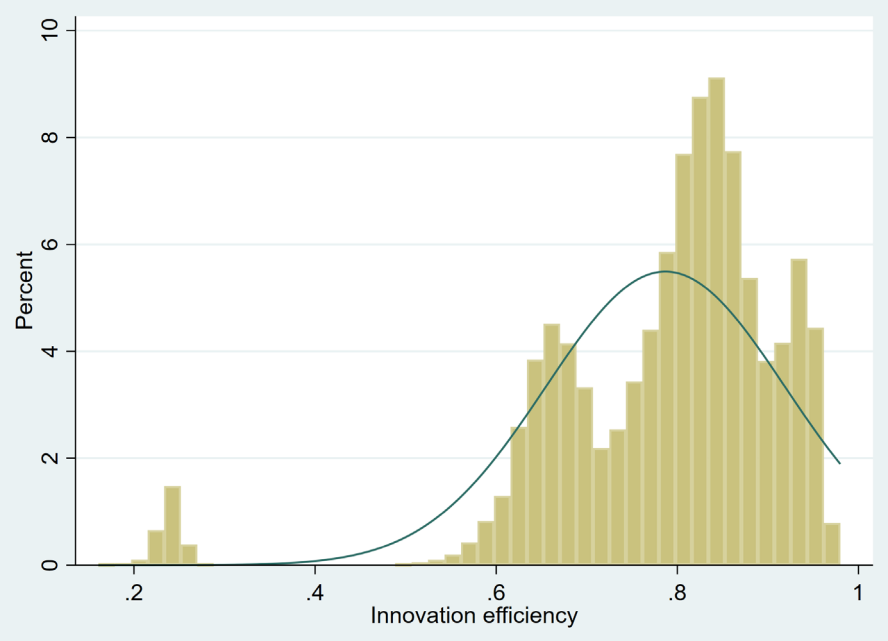


Figure 1: Distribution of innovation efficiency

Most firms cluster around efficiency levels between 0.75 and 0.90, while a smaller group of firms exhibits substantially lower efficiency levels.

5. Empirical Results

5.1 Stochastic Frontier Estimation

Table 2 reports the maximum likelihood estimation results. All three input coefficients are positive and significant at the 1% level. The coefficient on ln(R&D) is 0.0285, the largest among the three elasticities, confirming the

central role of R&D in generating innovation output. The sum of elasticities is approximately 0.065, indicating strongly decreasing returns to scale—consistent with the inherent uncertainty and high risk of innovation (Griliches, 1990).

Table 2: Stochastic frontier estimation

Variable	Coefficient	Std. Error	z-stat
ln(R&D)	0.0285***	0.0008	35.85
Ln (Capital)	0.0189***	0.0008	22.36
Ln (Labor)	0.0172***	0.0014	12.67
Constant	0.5712***	0.0159	35.89

Table 3: Frontier parameters

Parameter	Estimate
σ_u	0.3589
σ_v	0.0862
σ^2	0.1363
λ	4.1637

Table 4: Model statistics

Statistic	Value
Observations	37,658
Log-likelihood	4334.71
Wald χ^2	6789.57
LR test ($\sigma_u = 0$)	p < 0.001

*Notes: *** p<0.01p<0.01. Dependent variable: ln(1+Patent).*

The estimate of γ is 0.945, indicating that approximately 94.5% of total variance in the composite error is attributable to inefficiency rather than random noise. This demonstrates that inefficiency is the dominant source of deviation from the frontier and provides strong justification for SFA over OLS. The LR test rejects the null hypothesis of no inefficiency (p<0.001). The parameter λ=4.164 reinforces the conclusion that systematic inefficiency, rather than random variation, is the primary source of firms' deviations from the frontier.

5.2 Distribution of Innovation Efficiency

Based on SFA estimates, firm-level efficiency scores are obtained as $TE_{it} = exp(-u_{it})$. As noted, mean efficiency is 0.787 (SD = 0.132). The right-skewed distribution (Figure 1) indicates that while most firms operate at moderate efficiency, very few achieve near-frontier performance. For an average firm with efficiency of 0.787, the output shortfall relative to the frontier is approximately 21.3%, suggesting that improving innovation resource utilization may be as important as increasing inputs themselves.

5.3 Comparison with Conventional Indicators

Table 5 presents Spearman rank correlations among the three efficiency measures.

Table 5: Spearman rank correlations

	SFA efficiency (TE)	Ratio 1 (Patent/RD)	Ratio 2 (ln(1+Patent)/ln(RD))
SFA efficiency (TE)	1.000		
Ratio 1	0.387***	1.000	
Ratio 2	0.621***	0.782***	1.000

*Notes: *** p<0.01*p*<0.01. All correlations computed on 37,658 observations.

SFA efficiency scores are positively correlated with both conventional indicators and thus belong to the same group. The correlations of Ratio 1 and Ratio 2 with it are relatively small: 0.387 and 0.621, respectively. The first result is that the above correlations are less than 0.90, so SFA cannot merely replicate the ranking of a simple model. A correlation of 0.621 shows that some companies are significantly more or less efficient under different measures.

These two are the different traits of SFA. First, SFA considers multiple inputs at the same time and is not a single input-output relationship. Second, SFA separates inefficiency from random noise. Firms that have been adversely affected by random shocks will be penalized in line with the ratio-based indicator, and SFA partially mitigates this noise. Firms that have received favorable shocks are considered relatively efficient under the above-mentioned indicators.

The relatively weak rank correlations do not support the main conclusion that a different measurement mode was used. Based on the theoretical strengths of SFA and empirical evidence that the proportion of error attributable to inefficiency is relatively large (γ=0.945), these differences are likely to reflect an actual innovation inefficiency of the firm.

5.4 Robustness Tests

Three Robustness Checks are conducted. First, we re-estimate the SFA model with a translog production function, and the efficiency scores are highly correlated with those obtained from the Cobb–Douglas model (Spearman ρ>0.95), and the rank correlations with traditional indicators remain unchanged. Second, we limit the sample to observations with at least one patent application; the rank correlation between SFA efficiency and Ratio 2 is 0.598 (compared to 0.621 in the full sample), and the qualitative conclusion remains unchanged. Third, we build an alternative index Ratio3=Patent/Total AssetsRatio3=Patent/Total Assets, which also has a rank correlation of 0.412 with SFA efficiency and is thus considered moderate. The above checks confirm that the main results are not due to particular model selection.

6. Discussion

6.1 Interpreting the Divergence

The moderate rank correlation (Spearman ρ=0.621) between SFA efficiency and conventional indicators reflects two distinguishing features of SFA. First, SFA accounts for multiple inputs simultaneously, whereas ratio indicators capture only a single input-output relationship. Second, and more fundamentally, SFA separates inefficiency from random noise. The estimated γ of 0.945 validates that efficiency differences are real, while the fact that approximately 5.5% of total error variance is attributable to noise implies that deterministic methods produce distorted rankings. For researchers and policymakers who rely on efficiency measures to identify best practices or make resource allocation decisions, such ranking differences have meaningful consequences.

6.2 Research Methodology

The three results have been revealed. First, the selected mode of measurement is not solely based on technology. Ratio-based indicators and DEA are different from those in SFA, and therefore may show different pictures of firm efficiency. Secondly, SFA does not need to be very complicated. The framework shown here is a Cobb-Douglas function with three inputs, estimated using maximum likelihood, and has transparent and reproducible diagnostic parameters (γ, LR test) to assess model suitability. Third, as shown in the comparison, the method is open. Research on the effectiveness of innovation should be sensitive to all kinds of changes in measurement.

6.3 Limitations and Future Research

Some deficiencies will also be listed. Patent counts do not cover all dimensions of innovation (OECD/Eurostat, 2018), and a simple count fails to differentiate between high-value and low-value inventions. Future studies can add quality-adjusted patent indicators or several innovation outputs. The SFA framework is for a single output; multi-output SFA models and distance-function approaches offer good extensions. The sample is restricted to Chinese listed companies, and cross-country comparative studies may not be generalizable. Problems of endogeneity in the estimation of the production function can be addressed by instrumental variable or dynamic panel SFA methods. Finally, other functional forms for Cobb-Douglas and translog were not used. Despite the

above deficiencies, the main content remains unchanged: accounting for stochastic noise does not alter the distribution of firm innovation performance.

7. Conclusion

The following study will address a long-standing problem in research methodology: how to measure firm-level innovation efficiency in the presence of inherent noise and uncertainty in the innovation process. Panel data of Chinese A-share listed companies from 2012 to 2023 were taken as the sample for an SFA-based estimation of innovation efficiency. Frontier estimation shows significant differences in efficiency; the mean is 0.787, so generally speaking, an increase of about 21% in innovation output per unit of input can be achieved. The variance parameter γ was estimated at 0.945, demonstrating that inefficiency—rather than random noise—is the dominant source of deviation from the frontier.

The first result of this paper is an introduction to the SFA efficiency index. Spearman's rank correlation between SFA efficiency and the logarithm of the patent-to-R&D ratio is 0.621; thus, the selection of a different indicator may have yielded a significantly different result. The Division of SFA can be attributed to its collection of various indicators to distinguish inefficiency from randomness in the unpredictable environment of innovation. The study has shown that, in terms of improving the efficiency of innovation research, methods should be more open, and a practical, verifiable model has been proposed that can be used or adapted by others in the future.

Ethics Declaration

No ethical approval was required for this study because the research used publicly available secondary data from Chinese A-share listed firms.

AI Declaration

AI tools were used only for language polishing, grammar checking, and improving readability. All academic content, analysis, and conclusions were developed and verified by the author.

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Work in Progress Papers

Ethics Management Framework for Local Government in South Africa: Category A Municipality

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Abstract: There is a lack of a context-specific, integrated ethics management framework that adapts King IV principles to the operational authenticities of South African local government which contribute to persistent corruption and weak accountability mechanisms that undermine public trust. This study aimed to develop an integrated ethics management framework for local government, using the City of Cape Town as a case study. A mixed-methods explanatory sequential design was used, involving a survey of 57 junior and middle managers and interviews with senior managers within the HR department. Data were analysed using descriptive statistics and thematic analysis, underpinned by institutional theory, virtue ethics, and stewardship theory. Key challenges include political interference, coalition fragmentation, cadre deployment, and tick-box training programmes. Thus, prioritising an ethical climate and systemic reforms such as depoliticised oversight and values-based interventions is essential to restore public trust and good governance.

Keywords: Ethical Climate, Ethics Management, Ethical Leadership, Local Government, King IV Principles

1. Introduction

Despite comprehensive legislative frameworks and the adoption of King IV corporate governance principles, municipalities continue to grapple with corruption, political interference, and weak accountability mechanisms that undermine public trust and service delivery. The paper was based on incorporating the ethics principles outlined in the King IV Report on Corporate Governance.

2. Literature Review

The literature traced the global to local trajectory of integrated reporting and management systems and critically analysed South Africa's paradoxical struggles in the face of King IV commitments. Internationally, corporate governance diffusion literature highlighted challenges in transplanting complex principle-based norms into contexts with weak institutional enforcement and different cultural norms. Locally, research converged on persistent implementation gaps, highlighting the discord between King IV principles of integrative and ethical leadership and the country's operational realities of rampant political interference and a compliance-oriented culture. This literature presented South Africa's struggles not as a failure of the King IV Code itself, but as a systemic pathology in which form undermines content.

2.1 Theoretical Orientation and Ethical Management

The study argued that failure at local government level stems from inconsistency with deep socio-political realities of developing states, characterised by neopatrimonialism, political patronage networks, and dominant party systems. This study focused on a critique of policy transfer, arguing that observed box-checking compliance represented superficial isomorphism where forms of ethical governance were adopted without substantive normative foundations. Studies by Durokifa, Johnson, Ramlachan, Mdhluli and Magqirana (2023), Harry and Shopola (2024), Mamokhere (2024) and Nkwinika, Mafunisa and Nekhavhambe (2025) consistently found that while South Africa has guiding rules for local government behavior, ethical behavior of municipal workers had not improved, as demonstrated by numerous corruption cases.

2.2 Ethical Dilemmas in the Public Sector

By examining conflicts where adherence to formal norms conflicts with political directives, clientele loyalties, or organisational survival norms, research revealed how gaps between policy and practice were actively negotiated on the ground. Studies by Jam, Bayat and Rulashe (2025) examined the systematic character of "state capture," while Mdlalose, Ntini, Ndebele and Yende (2024) explored tensions between reporting misconduct and organisational loyalty. Sibanda (2022) argued that an organisation's ability to deal with ethical dilemmas relates to how ethics management initiatives were placed at organisational fulcrums. In South Africa, civil servants face

tough ethical choices between helping the community or following political party rules (Adanlawo and Chaka 2024).

2.3 Conceptualisation of Ethics and the Triad Model

This research conceptualised ethics by distinguishing between "ethics as compliance" (check-box, rule-based commitments to avoid sanctions) and "ethics as integrity" (active, value-based commitments to the public good). The Triad of Ethics Concept Model examined the interplay between the self (individual moral agency), the good (ethical principles and public interest), and others (stakeholders and community). The model revealed a profound disconnect in defining and pursuing the good for others within complex metropolitan spaces, where the "good" is often contested and politicised with competing priorities between service delivery, transformation, and fiscal sustainability. Simultaneously, the "others" comprising marginalised citizenry were frequently treated as passive recipients rather than active partners in ethical governance, creating a reciprocally strengthening cycle that stalemates even benevolent ethics management frameworks.

2.4 Operational Definitions and Ethical Theories

Governance refers to systems and processes of decision-making and control; integrity involves consistent alignment with moral values; ethics encompasses codified social principles; morality concerns individual beliefs of right and wrong; and values represent fundamental priorities guiding behavior. Three theories of ethics were examined. Deontological theory claims community members have a moral duty to act morally. Teleological theory emphasises that the ethical scale of actions is measured by their results. Virtue theory focuses on an individual's ethical character rather than actions performed (Creswell and Plano Clark 2025). Koma and Madzivhandila (2022) and Kanyane (2024) investigated how Ubuntu ethos could illuminate community engagement in local government, though caution that Ubuntu should not be misappropriated to justify favouritism.

2.5 Corruption and the Legal Framework

In South Africa, the government faced a massive test of winning back public trust, particularly at local government level since democracy post-1994. Factors contributing to unethical behavior included high-level political interference with the concept of “toe the party line" and cadre deployment from the ruling African National Congress party. The ethical governance framework was built on domestic legal provisions including the Constitution and other supporting legal statutes. Despite this comprehensive legal structure, serious compliance difficulties stem from systemic disconnect where formal implementation became performative box-checking driven by political favouritism and weak enforcement (Kanyane 2024).

2.6 Conceptual Framework and Research Model

The conceptual framework examined systematic failure of ethics management in South African local governments based on conceptual insufficiency and institutional isomorphism, bringing together three components: an imported formal rational ethical model (derived from OECD/King IV Principles), a dominant neo-paternalistic governing culture (characterised by political patronage), and a mediating indigenous philosophy of Ubuntu. This study investigated whether CPT had responded to the national government's call to create ethics officer positions to oversee ethics matters when rendering public services (Institute of Race Relations 2025).

3. Research Methodology

3.1 Data Collection and Sample Size

This study adopted a mixed-methods research approach with an explanatory sequential design, combining quantitative and qualitative phases to investigate ethics management misrepresentation within local government in South Africa. The target population comprised of public managers within the HR section. For the quantitative phase, 57 junior and middle managers with more than five years' experience completed a structured survey questionnaire. For the qualitative phase, senior managers (Heads of Department) were purposively selected for in-depth, semi-structured interviews. The exclusion criteria included temporary appointments and management experience of less than five years.

3.2 Data Analysis

Quantitative data were analysed using SPSS (version 27) to generate descriptive statistics, including frequency distributions, percentages, means, and standard deviations. Qualitative data from interview transcripts

underwent thematic analysis through iterative coding stages. Emerging themes included "political intervention as habitual corporate governance," "strategic separation of policy and practice," and "compliance as performative ritual."

3.3 Ethical Considerations

The study adhered to strict ethical guidelines including informed consent, data privacy, and confidentiality. All participants were fully informed of the study's purpose, risks, benefits, and data usage, with the opportunity to ask questions or decline participation without providing reasons. Participant identities remained confidential, with data stored securely in password-protected files accessible only to researcher. Trustworthiness was ensured through triangulation, member checking, rich description, and maintaining a clear audit trail. Validity was addressed through content and criterion validity measures, while reliability was established via pilot testing and consistency protocols.

3.4 Results

The quantitative findings revealed that while formal ethics management initiatives exist, they demonstrate weak institutional capacity and superficial implementation. Only 30% of respondents positively affirmed ethical behaviour as an organisational norm, with significant ambivalence (22%) indicating widespread uncertainty. Ethical leadership perceptions showed compartmentalised ethics, where personal ethical orientation (50.8% positive) contrasted sharply with lower ratings for fairness (31.2%) and power sharing (45.8%). The qualitative results identified increased political interference as the dominant pattern fostering unethical behaviour, characterised by coalition governance fragmentation, cadre deployment, and the "construction mafia" phenomenon affecting procurement integrity. Additional challenges included siloed ethics measures, misalignment between policy and practice, competing priorities between service delivery and ethical compliance, and inadequate training programmes that function as tick-box exercises rather than transformative interventions.

4. Discussion

The study synthesised quantitative and qualitative findings to explain why ethics management fails within CPT despite formal policies and structures. Key challenges identified included siloed and fragmented measures (ethics committees operating without input from audit, risk, or HR departments), misalignment between policy and operational practice (81% agreed policies exist but only 34% agreed they guide daily decisions), competing priorities where service delivery and political agendas override ethical procedures (76% agreed "getting the job done" takes precedence), weak accountability and impunity (79% agreed disciplinary processes are slow or politically influenced, with average case resolution taking 18-24 months), and inadequate training (72% agreed training was too generic to prepare for real ethical dilemmas). Specific failure areas included whistleblower mechanisms (only 23% would feel safe using the system, with just 7 reports filed over three years in a municipality of 20,000+ employees), ethics committees lacking enforcement powers, and a disciplinary system where senior staff face systematically lighter sanctions than junior employees.

The study concluded that the municipality had achieved formal compliance but not functional ethics, with systems designed to appear effective on paper rather than operate effectively in practice. Suggested solutions based on international benchmarks (Sweden, New Zealand, Malaysia) included centralising ethics management into a single coordination unit, depoliticising oversight bodies by requiring external members, replacing generic training with mandatory scenario-based programmes, guaranteeing whistleblower anonymity through third-party-managed systems, enforcing consistent consequences with published disciplinary outcomes and strict time limits, and integrating ethics into performance management as a weighted criterion for promotions. The observed patterns were interpreted through the study's theoretical framework of institutional isomorphism and neo-patrimonialism. Municipalities adopted uniform ethics policies to gain external legitimacy, but these policies remain decoupled from daily practice because of competing political and cultural logics.

5. Conclusion

The study concluded that fostering an ethical climate must be prioritised to restore public trust and ensure good governance at local government level, given its proximity to the most vulnerable South Africans. The research underscores that the need for systemic reforms that reinforce ethical conduct through depoliticised oversight structures, integrated ethics management, and values-based cultural interventions.

6. Contribution

This study contributes to public administration theory and practice by developing a phased 36-month implementation strategy is proposed to ensure sustainable institutionalisation. The framework comprises preventive measures (policies, stratified training, ethics-based recruitment), detective measures (integrated risk monitoring, integrity audits, multi-layered reporting), and responsive measures (graduated sanctions, ethics advice services, restorative justice processes).

Ethics Declaration

The data in this article was taken from a work in progress of a PhD study that collected the data anonymously and provided participants with detailed privacy policy and rights after ethical clearance from the institution and research setting was provided. Only participants who gave consent to the policy participated in this study.

AI Declaration

The authors confirm that no generative AI tools were used in the conception, writing, analysis or interpretation of this study.

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Late Submissions

Design Science Research as an Interative Assessment Redesign Approach for a Gamified Assessment

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Abstract: A custom board game was developed in conjunction with an industry partner as an assessment in an introductory Business Management course. The objective of this serious game is to develop the business acumen of students enrolled in an Accountancy degree which culminates in the professional designation of Chartered Accountant recognised by the South African Institute of Chartered Accountants. The custom board game was originally designed in 2014 and this serious game has been used as an assessment annually; minor updates occurred in 2016 and 2017 in terms of updating rules to the board game which updated key game mechanics. Qualitative data collection involves multi-year after action feedback surveys from students, reflection notes made annually by the researcher and meeting minutes between the industry partner and researcher. Institutional ethical clearance has been received for the research project from the University, as well as permission from the industry partner and informed consent from each participant that chose to complete the surveys. The objective of the research is to document the 2026 revision and update of the board game using Design Sciences as the methodological paradigm. Design Sciences Research is well suited to the development and subsequent evaluation of artifacts. This research considers the board game itself, game pieces, rules and training materials used to prepare students for participation as artifacts, with the goal of developing students business acumen. Applying Design Science to the iterative development of a custom assessment is a novel approach, as this paradigm is more frequently used for engineering and information system applications. However, utilising games as assessments for the purpose of serious learning is an area of research receiving growing attention and robust systematic, literature informed approaches to the development and testing of tools and artifacts where assurance of learning is increasingly important can prove helpful to scholars.

Keywords: Design Science Research, Artifact Evaluation, Board Game, Assessment Design, Serious Games, Management Education

1. Introduction

As is characteristic of serious games the Boardroom Challenge was developed with a learning objective in mind, namely to develop the business acumen of students. Even though changes have been made since the original design in 2014 the changes were made with the concern of limiting cost of new materials and maximising the use of originally developed artifacts, such as the physical board and cards. Consequently, the changes were limited to theory card reprints – when the textbook was updated, and rule changes, as well as the addition of share tokens to add another level they can be promoted to. The first larger scale redesign is taking place in 2026 with key considerations revolving around whether the game is still fit for purpose to develop students' business acumen and in this vein to update the game mechanics and artifacts to ensure contemporary relevance and fidelity of the game. The methodological approach that will be used in this iterative redesign process to build and evaluate the updated board game is Design Sciences Research.

2. Background

To participate in the board game challenge students are randomly allocated six to a board with an industry based game master seated at each table. The students participate in a connection quiz, comprised of true and false theory questions. Students with the most correct answers select the industry that they will be representing in the Boardroom challenge first. The six industries that students can choose from, include; Pharmaceuticals and healthcare, Financial Services, Telecommunications, Construction, Automotive and Mining (see figure 1). Once game play starts students roll the dice to determine which scenario they will respond to. Each block displays an icon, representing a scenario the student must respond to, including; Theory – from the prescribed textbook, World Event, Risk and Enabler cards. For scenario cards students need to answer the generic scenario by first contextualising it to their chosen industry, then discussing how they will manage the situation and finally how they will recover (in the case of a risk card) or benefit (in the case of an enabler or world event card) from the situation. The game master decides if the answer is correct and this entitles the player to earn the rewards made possible by the card they are responding to (see figure 2). The grading of the game aligns with the achievement mechanisms in the game as students play the goal is to accumulate game cash and promotions through answering questions correctly.



Figure 1: Board game overview

There are also chair icons representing the opportunity for promotions and demotions, and finally lucky break cards. Additionally, the promotion in the game represents their career progression through the accounting field, from; Accounting Clerk, Accountant, Group Accountant, Finance Manager, Finance Director and Chief Executive Officer. Annual after action surveys have been completed by student participants and game masters providing feedback and suggestions about their experience with the board game.



Figure 2: Overview of icons on the board game

3. Problem Statement and Research Question

A crucial element in conducting design sciences research is the articulation of a relevant problem. In the case of this research the goal of the Boardroom Challenge is to develop students' business acumen, to bridge the gap between theory and practice. According to the industry partner, the trainees that are onboarded annually, straight from their university studies, have good technical proficiency, but translating theoretical insights into practical scenarios and in client engagement presents a knowledge gap. The board game was originally designed to create an experiential learning and assessment opportunity where students are required to use critical thinking and creativity to respond to dynamic scenarios afflicting their selected industries.

While updates have tweaked game dynamics, student preparation and some secondary mechanics, the essence of the board game has remained unchanged since its inception. The research aimed to use DSR as an iterative redesign methodology, thus the problem at hand is;

Updating and redesigning the board game as an artifact using DSR to develop students' business acumen

4. Review of the Literature

Design sciences research will be contextualised, common methodological choices embedded in the process will be introduced and the importance of the evaluation of artifacts will be conveyed, setting the scene for DSR as an appropriate methodological choice for this study.

4.1 Design Sciences Research

DSR can be characterised as a research approach and paradigm (Venable et al, 2017; Baskerville & Pries-Heje, 2019). Natural sciences investigates physics, chemistry and biology, social sciences answer questions emanating from anthropology, politics, economics and sociology while design science is suited to inquiries in medicine, engineering and management (Dresch, Lacerda & Miguel, 2015). DSR can be applied to a variety of problem classes, ranging from strategic alignment, best practices and governance to process modelling, skills development and organisational culture (Goecks, de Souza & Librelato, 2021). In contrast to more traditional research methods, design science is not only concerned with understanding a research problem, but also with providing possible solutions (Dresch et al, 2015). DSR projects are focused on generating innovative solutions to these real-world problems (Tuunanen & Winter, 2026).

A contribution of DSR to the field of management is that it reduces "the distance between rigor and relevance" (Dresch et al., 2015). Relevance of management research is contextualised by Dresch et al (2015) as knowledge that has been produced by the academy which also has a significant practical impact on the field. The process of building and evaluating artifacts are regarded as the two key activities in design science (Herselman & Botha, 2015).

DSR proposes an iterative process flowing from awareness of the problem and ultimately to evaluation of the artifact. Most authors present DSR as having iterative sequential steps (figure three below), that may differ slightly but generally include a phase of identifying the problem at hand, defining the objectives to be achieved, designing and developing theory and/or artifacts in response, demonstration of the artifact and finally evaluating the artifact (Tuunanen & Winter, 2026; Venable et al, 2017). The iterative nature comes into effect when the operationalised knowledge is put to the test and evaluated against the original problem identified (Dresch et al, 2015). Tuunanen et al, (2024) described the process as starting with a problem statement, design requirements, followed by solution design (design and development), and proof of concept (demonstration), and finally proof of value (the evaluation phase). This characterization highlights the practical side of DSR in artifact creation.

This research deals with the iterative redesign of a board game assessment and as output, deals with the proposal and attempt to make changes, which will result in an updated artifact. The timeline for the design of the artifact is August 2026, with the first round of testing from demonstration coming when the board game can be played by students as an assessment in October 2026.

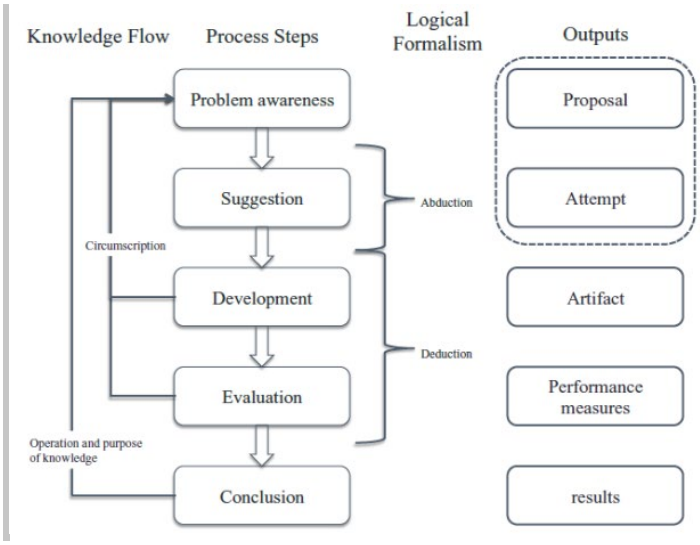


Figure 3: Main stages and deliverables of DSR

Source: Dresch et al, (2015)

A variety of artifacts can represent the outcome of DSR, including algorithms, models, frameworks, and methods, with the end result notably being that the artifact is in a functional state (Goecks et al, 2021). Design theory outlines the product – properties the artifact should have, as well as the process – the design principles that should be used for artifact development. Certain properties need to be incorporated in artifact development and this should simultaneously enable later testing of the artifact by ensuring testable hypotheses and an artifact that meets requirements (Prat, Comyn-Wattiau & Akoka, 2015). What sets DSR apart from other methodologies which are solely concerned with designing solutions, is the evaluation component which is intrinsically tethered to the original scientific aims.

4.2 Methodologies Employed in DSR

While DSR is the overarching method, the DSR steps which involve data collection and the process of generating the artifact rely on more traditional qualitative and quantitative methodological approaches. Systematic and coherently organised research methods are critical in ensuring the rigour of the research, reliability or trustworthiness of results and of course answering the research problem (Dresch et al, 2015).

According to Tuunanen et al, (2024) each phase in the DSR process has intermediate artifacts, criteria for validation and techniques that can be used for validation as pictured in figure four below, for every step in the DSR process. The validation techniques represent different methodological tools and choices available to researchers in the development process. Each step in the DSR process has a variety of methodological options, during the problem analysis phase, for example, a literature review, surveys and expert interviews can be conducted to validate the problem at hand. In the case of this research annual surveys are completed by student participants and game masters soliciting feedback. In the context of this particular redesign process a meeting with the industry partner representatives who also manage graduate recruitment was held, representing the validation technique.

Design echelon type	Intermediate artifact	Validation criteria	Validation techniques	Design knowledge
Problem analysis	Problem statement	• Degree to which the problem has been solved • Solvability (continuum, degree)	• Literature review • Review practitioner initiatives • Expert interview • Focus group • Surveys	Validated problem statement

Figure 4: Activities and design contributions per step

Source: Tuunanen, Winter and vom Brocke, (2024)

The most common methodological tools listed as evaluation techniques by Tuunanen et al., (2024) are literature reviews, expert interviews, focus groups, surveys, benchmarking, mathematical proof, simulation, demonstration or experiment with prototype, and case studies. Dresch et al., (2015) concurs with the use of simulations, and experiments being primary methodological tools for the evaluation phase. It is however important to note that a variety of methodological tools play a role throughout the process, notably case studies – if the bounded nature of the inquiry supports this and action research, as an overarching approach of co-development if the researcher has an opportunity to work within an organisation to develop the artifact (Dresch et al, 2015; Peffers, Tuunanen & Niehaves, 2018).

4.3 Artifact Evaluation

While DSR is gaining popularity, the evaluation of artifacts in particular has not reached maturity (Prat, Comyn-Wattiau and Akoka, 2015). Different methods can be used to evaluate the outcome of the artifact in action, while observation is popular, case studies, action research, focus groups, experiments and simulations can all play a role (Goecks et al, 2021).Ultimately, for DSR to live up to the *science* in its name, it means the evaluation should be relevant and rigorous, evaluating the utility of the artifact, its quality and its contribution to knowledge (Venable et al, 2017).

Demonstration is often the primary evaluation tool. While demonstration does serve a purpose, such as confirming that the artifact works, more formal evaluation, demonstrating the true utility and feasibility of the artifact is necessary (Prat et al, 2015). Hevner (2010) proposes five kinds of evaluation methods; observational, analytical, experimental, testing and descriptive, however guidance on which method to use and why needs clarification. Prat et al, (2015) propose a taxonomy for testing different types of artifacts, including;

criterion, evaluation technique, form of evaluation, secondary participants, level of evaluation and relativeness of evaluation.

There are a variety of dimensions for artifact evaluation, ex ante – formative evaluation during artifact development and ex post – summative evaluation after the artifact has been developed (Venable et al, 2012; Venable et al, 2014). Evaluations can also be naturalistic – conducted with real users performing a task (Sun & Kantor, 2006), or artificial – and thus 'unreal' in one of the aforementioned conditions (Venable et al, 2016). Additionally, evaluation should not simply determine if an artifact worked, but also how and why it worked, or perhaps did not work (Herselman & Botha, 2015).

Ultimately, the purpose of evaluation of an artifact is to determine if it reaches the set goal and is useful (Prat et al, 2015). Based on their systematic review Prat et al, (2015) found that efficacy was by far the most common criteria, followed by usefulness, technical feasibility, accuracy, performance and effectiveness, with ease of use, robustness, scalability and operational feasibility rounding out the picture. A major challenge with regards to evaluation is that it extends the duration of a given study and consequently can incur high costs and time commitment (Baskerville et al, 2026). Planning to evaluate the artifact early in the DSR process can play an important role by ensuring that important inputs are preserved or created as needed to enable efficient and best practice evaluation later (Baskerville et al, 2026).

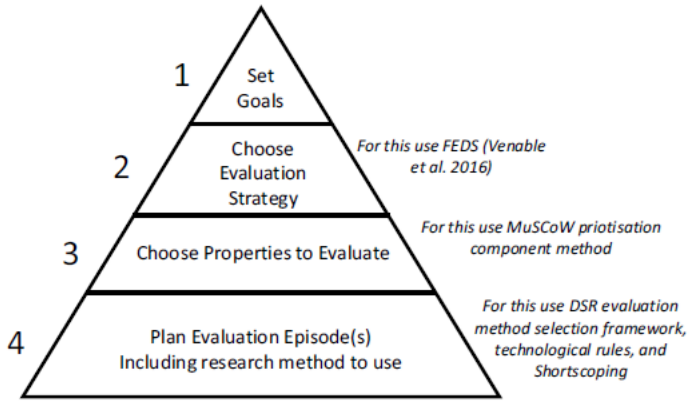


Figure 5: Overview of Methodology for Evaluation in Design Science

Source: Baskerville et al (2026)

While authors agree on setting goals (in this case its for the evaluation) and choosing the evaluation strategy Baskerville et al's, (2026) contribution adds step three, MuSCoW prioritisation and step four, careful planning of when the evaluation episodes will occur (see figure five) . The MuSCoW evaluation is about prioritising which criteria is appropriate in the context of the research question, it is also important that too many criteria are not used to evaluate because then it will become inefficient which is the reason evaluations often fall short. MuSCoW means dividing the potential evaluation criteria into four categories; properties that Must be evaluated, Should be evaluated, Could be evaluated and Would be nice to include (Baskerville et al, 2026).

5. The Study

The Board game was first developed in 2014. Since being originally designed, the only cards that have been frequently updated are the theory cards, updated and reprinted as new textbooks are prescribed. The evolution of the board game has primarily involved updates to rules, training for game masters (facilitators) and pre-game challenges, which enables people to select the industries they are competing in. As the figure six below illustrates, changes were made in a way that minimized costs and maximised the use of existing artifacts in pursuit of ensuring a return on investment regarding the original design and printing of artifacts. Arguably, all changes that were possible to finetune the board game in light of the aforementioned constraints had been made.

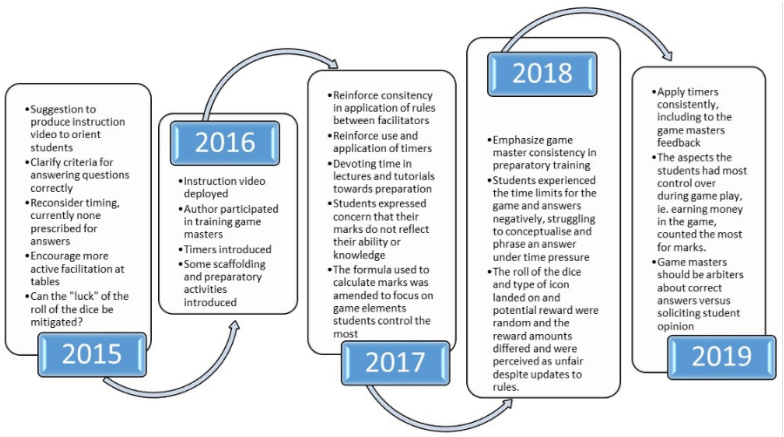


Figure 6: Overview of board game changes

In 2026 an opportunity arose to engage in the most significant redesign of the board game to date. Engaging in this redesign in a systematic manner is the focus of this article.

5.1 Data Collection and Analysis

Qualitative data collection includes multi-year after action feedback surveys completed by students, reflection notes made by the researcher and meeting minutes between the industry partner and researcher. In particular, the planning and redesign meeting was transcribed with the consent of participants and forms the basis of textual data analysed.

Upon reviewing the game, and changes made up to 2025 the following emerged:

- The primary mechanics of the board game are currently focused on the advancement of the individual player, measured by the achievement of promotions (after reaching the level of CEO, shares are earned) and game cash earned (for correct answers). While the students select an industry and present all their answers from the perspective of a chosen business, with the game creating opportunities for critical thinking and creative solutions, the answers remain conceptual and no game mechanics relate to the company students are representing in the game, only players personal advancement.
- A consistent point of feedback that students provide annually relates to their discomfort with the role of luck. The icons that students game pieces land on are determined by the roll of the dice, correct answers for a theory card earns 100 bucks, but no promotion, correct answers for a risk and enabler card earns 100 bucks and a promotion and correct answers to world events earns 200 bucks and a promotion. Thus, students perceive that their ability to do well is hampered by what icons they land on, thus consecutive world event cards are far more favourable than consecutive theory cards.
- Even though students are seated six to a board game they play independently and take turns, in between turns students are waiting. If their student engagement could be increased in between rounds that would be beneficial to their engagement in the learning experience.
- The dimensions of the original board mean that in the time allocated for game play students only navigate around a quarter of the board.
- In order to address procedural justice concerns by students' timers were introduced for all answers and feedback and in 2025 the decision was made for every student to have six turns, thus equating the opportunity to earn benefits, but also limiting their potential to accrue benefits.

The meeting where planning for board game updates took place can be summarised by figure seven below. The discussion regarding changes, updates and improvements centred around three themes:

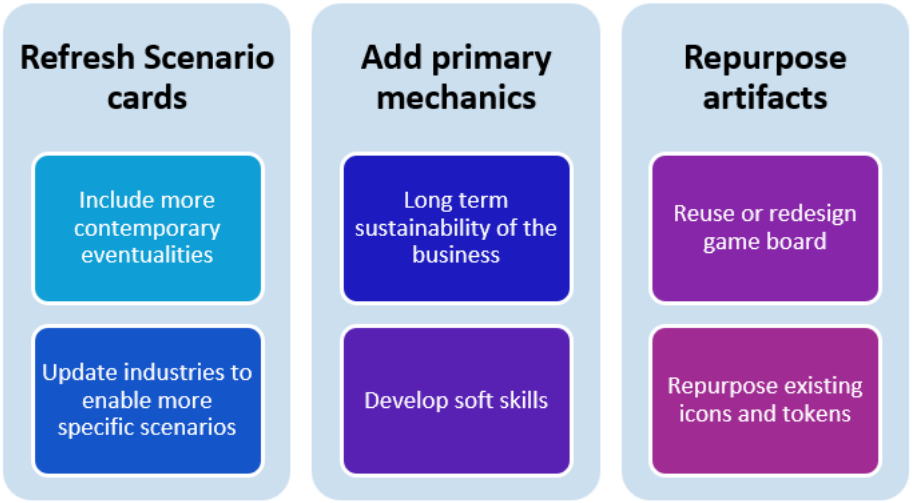


Figure 7: Overview of identified themes from planning meeting

5.2 Theme 1: Refresh Scenario Cards

At first the discussion centred around updating scenarios for the world event, risk and enabler cards to reflect more contemporary goings on. This is low hanging fruit as reprinting cards is an affordable redesign option. Since the original printing of scenario cards several world events have transpired, including Covid-19, Economic sanctions and complex regional conflicts that have influenced food and oil prices and the advent and increasing use of Artificial Intelligence, have proliferated.

The current scenario cards are very broad precisely so that they can be answered by students with businesses nested in the diversity of industries presented by the existing board (see figure one). The suggestion is to narrow down the industries present in the game so that scenarios that are updated can be more customised, focusing on either services or manufacturing.

5.3 Theme 2: Add Primary Mechanics

Based on the analysis of changes up to 2025, a goal is to add game mechanics that relate to the sustainable performance of the business. Ideas include layering in dynamics about key investments for the business in sustainability, governance, risk management, and capital investment products. A goal that can be added in is that they have to aim for the competitive advantage of the business they represent, and not just their own career advancement. A particular request from the industry partner is to incorporate soft skill development opportunities through scenarios. This could include interpersonal scenarios and ethical dilemmas. An objective is to layer these changes into the game using existing icons and tokens?

In the current game set-up, after completing the connection quiz the highest ranked students can select the industry they want to be in for the rest of the game. They proceed to design a business card with a logo for their imaginary company, and they answer all the scenario questions from the perspective of this company. If industries are narrowed down (instead of one business per industry) and mechanics are added which relate to the advancement of the business then the business card design can become a higher stake activity in the game. In order to achieve this, students have to pitch their business to the game master, a score for this activity can be added to their marks.

5.4 Theme 3: Repurpose Artifacts

An important idea in repurposing artifacts and existing cards is to standardize the opportunity presented by each type of card, meaning that whichever opportunity card someone lands on they have the same potential to earn money and gain a promotion. The tokens currently used to represent shares can be repurposed to represent commodities. If resources or commodities are added as game play goals then the mechanics can be updated to incorporate ‘pauses’ or rounds for bartering, to layer in opportunities for business advancement. This can take place after every three rounds, with 15 minutes given to negotiate for their business advancement – this can also be connected to rolling the dice but with a different range of benefits to pre-existing icons, related

to advancing their business. Possible outcomes can include launching a new product for their business, building a new facility, or making a capital acquisition. As in business, resource limitations means that trade-offs need to be made in order to save, trade or invest in commodities.

DSR Evaluation Method Selection Framework	Formative (some adaptable for summative)	Summative (some adaptable for formative)
Naturalistic	• Action Research • Interview/Focus Group • Field Experiment • Think Aloud Protocol Analysis • Qualitative Survey	• Quantitative Survey • Participant Observation • Pilot Study • Field Study or Case Study • Ethnography
Artificial	• Criteria-Based Evaluation • Scenarios • Prototype Demo • Lab Experiment • Theorem Proof	• Lab Experiment • Optimisation Analysis • Testing • Role Playing Simulation • Computer Simulation

Figure 8: DSR Evaluation method selection framework

Source: Baskerville et al (2026)

In line with the best practices proposed by Baskerville et al., (2026) the changes to the board game will be made with the evaluation of the updated artifact in mind (see figure eight). The industry partner is open to updating the board if this can be done cost effectively. Both ex-ante and ex-post evaluations will be conducted. In terms of ex-ante evaluations, formative checks will be put in place during development, selected game masters with previous involvement in the board game during previous iterations will play the game and provide feedback.

In terms of ex-post evaluations, the summative evaluation envisioned will be naturalistic – involving students actually participating in the board game assessment and completing a self-reporting questionnaire, as well as facilitators (game masters) completing a questionnaire. In both cases the researcher will be observing and noting changes.

6. Implications for Practice

As the Board game has clear educational goals, which were originally problematised in the context of cultivating the business acumen of undergraduate students pursuing a qualification in accounting, DSR is an appropriate methodological tool. Gamified assessments are increasing in popularity and use and DSR presents a robust and systematic methodology to use in their iterative development and improvement.

7. Conclusion

The study investigates the use of DSR in the redesign of a board game used as an assessment. The process of how the board game was originally developed and evolved was presented. Both the criteria and considerations pertinent to the redesign process were discussed. Due to the timeline for development and the planned board game assessment date, the evaluation component of the board game falls outside the scope of this article. The evaluation phase will be designed alongside the implementation of changes to enable efficient evaluation of the artifact.

Ethics Declaration

The study required ethical clearance from the relevant committees at the University which was granted from November 2023 until November 2026, the ethical clearance code is: 23SOM/BM44. Only a subset of the data collected is utilised for this study. In particular, the industry partner granted permission for staff members to participate in the study and each individual participant consented to participate.

AI Declaration

No AI was used in the compilation of this paper.

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The Deterrent of Concepts in Applying Sociotechnical Theories in Research

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Abstract: Researchers and postgraduates are increasingly exploring and applying sociotechnical theories such as structuration theory, actor-network theory, and activity theory for their studies. In the pursuit of selecting and applying the theories to improve rigour, complexities and confusion surge from the lack of understanding of the concepts. The challenges shape research outcomes, including the duration, the valuable time spent trying to ensure the most appropriate use of the theories. This research examines how the sociotechnical theories' concepts are confused and the influence it has on studies. The findings emphasise the implications of Lexicon, selection criteria, and interchangeability while also highlighting the lack of appropriateness in research. By addressing these issues, this research offers original, actionable strategies for researchers who are new to sociotechnical theories and postgraduates in exploring and paying more attention to the concepts. Additionally, it contributes to the wider discourse on the application of sociotechnical theories in research, highlighting the significance of concepts within context and fields.

Keywords: Deterrent of Concepts, Sociotechnical Theories, Information System, Research

1. Introduction

Over the years, there has been an increase in the application of sociotechnical theories in research particularly, in qualitative studies (Shaanika et al.,2025; Iyamu, 2024; Sekgweleo et al., 2017). This could be attributed to the quest to improve the rigour and credibility of qualitative studies (refs). Sociotechnical theories are foundational for gaining a deeper understanding of social systems and structures, and they therefore guide research across various disciplines (Abu Hassim et al., 2024). Walker et al. (2007) describe sociotechnical theories as a set of concepts that speak towards the interrelatedness of social and technical aspects of entities, including objects, subjects, and organisations. Some of the commonly used sociotechnical theories include activity theory (AT) by Vygot-sky, structuration theory (ST) by Anthony Giddens, actor-network theory (ANT) pioneered by the French sociologists in the persons of Bruno Latour, John Law, and Michael Callon (1988), contingency theory (CT), technology acceptance model (TAM) and diffusion of innovation (DoI) (Fair & Modafferi, 2022; Iyamu, 2024).

Sociotechnical theories are usually applied as lenses to guide data analysis and the interpretation of findings (Shaanika et al., 2025; Sekgweleo et al., 2017). Through their lenses, sociotechnical theories provide a theoretical basis for describing and explaining complex phenomena and inform practical applications of systems (Abu Hassim et al, 2024). According to Nehemia-Maletzky et al. (2018), sociotechnical theories are employed to guide the analysis of the data, allowing researchers to gain a better understanding of why things happen in the way they do. Dennehy and Conboy (2017) asserted that theories are used as conceptual frameworks for analysing complex and human activities within social systems. There has not been a debate about whether theories should be applied in research. The focus has been on the significance of applying sociotechnical theories, which have been documented in the literature (Bostrom et al., 2009)

The potential benefits have helped to grow the popularity of sociotechnical theories across social sciences disciplines such as healthcare, accounting, education, psychology, and information systems (IS). Even though the theories have been used widely across fields, their application continues to be challenging for researchers and postgraduates (Iyamu, 2024). The challenges inspire further studies. At the time of this study, we could only identify a few works that are closely related to addressing the challenges. Iyamu (2024) proposes a set of guidelines for selecting and applying sociotechnical theories in research. Shaanika et al. (2025) developed a three-step approach to ease the selection of sociotechnical theories. Chirisa and Matamanda (2025) reported on the sociotechnical theory that can be used as a lens to understand the challenges of extreme weather events in the global south. Despite the work, challenges persist. One of the challenges is attributed to confounded confusion and misunderstanding of sociotechnical theories' concepts.

When applying sociotechnical theories, understanding the associated concepts is important and contributes to the plausibility associated with the theory. This is primarily the concepts influence and shape the thinking and outcome of the study. Terminology refers to "the study of and field of activity concerned with the collection,

description, processing and presentation of terms that are lexical items belonging to specialised areas of usage of one or more languages" (Bowker, 2019, p. 5). The concepts lead to ambiguity, multiplicity, and interchangeability, which pose various difficulties in research. For example, ambiguity manifests into misunderstanding of terms or concepts such as actor. In activity theory, an actor is a living being with consciousness (Kaptelinin & Nardi, 1997). While in ANT, it refers to humans and non-humans (Tatnall, 2003). In simplistic terms, structuration theory defines 'structure' as rules and resources (Giddens, 1984), while the contingency theory refers to it as an interrelation between levels of entities within an environment (Blanton et al., 1992). These are some of the concepts that cause confounded confusions for many postgraduates and researchers who are new to sociotechnical theories.

Interchangeability leads to the loose use of terms or concepts to represent or describe things, thereby misrepresenting or associating different meanings and levels of relevance. Logan et al. (2018) emphasise that interchangeable use of concepts or terms may cause an inaccurate description of an object and affect the fathom of differentiate may be used interchangeably to describe the same phenomenon. Understanding sociotechnical theories' terminologies is not an easy task, and never has been. van Mil and Henman (2016) draw our attention to some of the influencing factors that the understandings of terminologies, which are shaped by various factors such as language, education and cultural differences. The authors further argued that it's therefore critical to define terminologies in a study, as readers are often from different backgrounds, where the same terminology has another connotation. Thus, there is a need to provide clarification for the different concepts or terminologies from the various sociotechnical theories perspectives. The objective of the paper was, therefore, to understanding the deterrent to the sociotechnical theories concepts in research and the influence it has on the outcome.

For logical flow purposes, this paper is organised into six main sections. It began with an introduction. The this followed by a comprehensive literature review that covers three critical, core areas of the paper. In the third section, the methodology as applied in the study is discussed. The findings towards achieving the objective of the paper are discussed in the fourth section. We highlight some implications of the study in the fifth section, and a conclusion is drawn in the last section.

2. Literature Review

The review of literature focuses on the two fundamental aspects of the study, which are concepts and terminology. Both entities cut across the sociotechnical theories under discourse. From the concept perspective, the focus is on actor, agency, and structure.

2.1 Concepts in Sociotechnical Theories

Actor is a concept that appears in activity theory, actor-network, and structuration theory. In activity theory, an actor refers to a human with consciousness. Although the word or concept is scarcely mentioned or used in other theories, it is not the focus. The concept of actor in actor-network theory refers to any entity, human or non-human, that has the capacity to make a difference (Callon, 1986). In Rogers (1995; 2003) explanation, the actor is an individual, group, or organisation that plays a role in the process of adopting a social system. Giddens (1984) in structuration theory interchangeably uses the terms actor and agent, as humans with knowledge and reflexivity, meaning they have "have, as an inherent aspect of what they do, the capacity to understand what they do while they do it" (p. xxii).

Agency is a common concept in AT, ANT, and ST sociotechnical theories. AT describes agency as the capacity of an individual or a group to act intentionally towards the transformation of social structure (Engeström, 1999). In ANT, agency is the capacity to act and influence change within a network (Latour, 2005). In Giddens (1984, p. 9). "Agency refers not to the intentions people have in doing things but to their capability of doing those things". Thus, "agency concerns events of which an individual is the perpetrator, in the sense that the individual could, at any phase in a given sequence of conduct, have acted differently" (p. 9).

Agency in AT, ANT, and ST might seem like the same in meaning because of the verbal or textual similarity in the form of "capability to act", but the difference is materially more significant to theorists with perennial interest. The fundamental difference lies in their fabrics of 'intentionality' (AT), 'distributed action' (ANT), and 'independently' (ST). Internationality allows for the distinction between humans and things in gaining an understanding of individuals' conscious actions (Jarzabkowski & Wolf, 2010). From the AT perspective, the notion of intentionality is employed in the construction of human consciousness (Nardi, 1996). In ANT,

distributed agency is described as a situation where no actor acts alone (Latour, 2005). The term independent is used to distinguish the relationship between agents and their actions in ST. According to Giddens (1984, p. 26), "structure has no existence independent of the knowledge that agents have about what they do in their day-to-day activity".

Structure in its dialectical variety evidently shows that it cannot be viewed from a single perspective. Structuration describes structure as "rules and resources, organised as properties of social systems" (Giddens, 1984 p. 25). From the ST standpoint, Iyamu (2024) emphasises that structure should not be viewed or read from a linguistic point. Structure is viewed as the entity that edifice the design, relationships, and coordination of an environment in CT (Iyamu, 2024).

2.2 Terminology

Teminology refers to specific words and technical lexicons used within a context or discipline. Coancă and Museanu (2010) explained that terminology is purposely to be specific about meaning and ensures unambiguity in fields of activity. It is thus understood to reduce ambiguity among researchers and industry professionals, and to eradicate confusion (Dam & Tarp, 2017). Thus, the use of terminology can, in research, ensure consistency, leading to better and uniform understanding. However, there exist challenges. One of the challenges is that the word 'terminology' is usually used synonymously with spoken 'language' (Diethelm & Goschler, 2015). Due to the significant role of terminology, Bowker (2017) explores the interdisciplinary relationship between lexicography and terminology to gain a better view of the consequences in fields of study.

The computing fields (computer science and information systems) have, over the years, witnessed a revolution of terminology, which are sometimes confused with or by lexicography (Bowker, 2017). From a language perspective, terminology can be misinterpreted or incorrectly used if the lexicon or dictionary is consulted primarily because both facets are broader in associating meanings (Dam & Tarp, 2017). Diethelm and Goschler (2015) emphasised that terminology must be appropriately used or applied and highlighted one of the problems as limited research about the use of terminology in the computing field. Another challenge, identified by Veisbergs (2023), is that terminologies have entities, which are multidimensional in character and sometimes affect meaning. This could be attributed to why and how computing terminologies have often been used loosely interchangeably, incorrectly or ambiguously (Khuwaileh & Khwaileh, 2011).

3. The Significance of Sociotechnical Theories Appropriateness in Research

Sociotechnical theories are defined by concepts. These concepts are unique and are used to distinguish theories. Even with this special characteristic, researchers often face challenges in applying socio-technical concepts. The challenges are attributed to many reasons. 4 Sometimes the concepts portray different meanings other than those found and applied in everyday language, such as English. For example, in structuration theory, structure has a different meaning from the word structure found in English.

This study focuses on the most commonly applied sociotechnical theories in information systems studies to understand their underlying concepts. These sociotechnical theories include activity theory (AT), structuration theory (ST), actor-network theory (ANT), contingency theory (CT), technology acceptance model (TAM) and diffusion of innovation (DoI).

Sociotechnical theories are used to underpin studies where the social and technical aspects are intertwined (Hoda, 2025). According to Shaanika et al. (2025), socio-technical theories provide a holistic view of the interconnectedness between human actions and technological capabilities. Booth et al. (2016) explain that reality is complex, nonlinear, and developed through interaction between various humans and technical objects. Thus, without the socio-technical theories, the holistic view will be impossible to attain, as researchers' understanding of the phenomenon is limited to their natural views. A researcher's natural view consists of the objects and subjects as seen and experienced through the five senses: touch, sight, hearing, smell and taste. As a result, researchers gain meaning in the process and activities beyond the conventional interpretivist approach by applying socio-technical theories(Shaanika et al., 2025)

In many studies, socio-technical theories are known for guiding data analysis and interpretation. The socio-technical theories provide a lens through which one or more types of context can be understood (Bostrom et al., 2009). The lenses act as a microscope, enabling researchers to see things differently and think more deeply.

In addition to data analysis and interpretation of findings, socio-technical theories can be useful in guiding data collection, too. Grounded theory (GT) is an inductive approach to theory development that offers a systematic approach for data collection and analysis (Morse et al., 2021). During data collection, GT provides an iterative process which fosters a dynamic dialogue between data and emerging concepts (Adaba, 2026). Shaanika and Iyamu(2025) developed a five step guidelines for the iterative data collection in GT. The concurrent data collection and data analysis in GT distinguishes it from other qualitative approaches, making it a useful approach for studying complex socio-technical phenomena.

Socio-technical theories are very important as they shape how researchers view and understand the world. The sociotechnical theories provide a holistic view by providing a framework to guide data collection, analysis and interpretation of findings. Graham et al.(2007) argued that sociotechnical theories are useful as they provide an organisation for thinking, observing and interpreting what is seen. Sociotechnical theories act as an important heuristic devices that enable researchers to make sense of large amounts of data (Sovacool & Hess, 2017).

There is a need for researchers to know and understand the sociotechnical theories concepts before using them as a lens to underpin studies. This is because the researcher's understanding of the concepts shapes how the researcher applies socio-technical theories. Without a good understanding of the theory's concepts, the researcher risks being misguided and applying the theory incorrectly. This limits the researcher from using the theory correctly for its intended purpose. Consequently, this affects the outcome of the study, which is informed by how the theory concepts were applied during data collection, analysis and interpretation of the findings. Mueller and Raeth (2012) asserted that the conclusions that are drawn from empirical observations are influenced by the choice of a theoretical lens. Thus, based on the data analysis that was guided by a theory, findings are identified, which are then interpreted to gain a higher understanding that will inform the development of the solutions towards addressing the problem initially identified.

4. Methodology

This study applied a qualitative research strategy. This is because the study was concerned with understanding how researchers and postgraduate students are challenged with the application of sociotechnical theories concepts. According to Saunders et al. (2023), a qualitative research helps researchers understand complex systems, behaviours and processes that cannot easily be measured using numbers.

A case study was employed as a research design. Yin (2024) defines a case study as an empirical method used when the research focuses on a real-world process. Iyamu and Shaanika (2025) claimed that selecting a research design is not always straightforward because it is influenced by various factors, such as the objective and focus of the study. Based on the objective of this study, which was to examine how the sociotechnical theories' concepts are confused and the influence it has on studies, researchers and postgraduate students from the Cape Peninsula University of Technology (CPUT) were used as a case. The following criteria were used in selecting the researchers and post-graduate students: (1) all students were using sociotechnical theories to underpin their studies, (2) all students attended a research symposium where they shared views of challenges encountered.

Data was collected using the focus group discussion technique. A focus group discussion allows participants with common experiences to examine a particular subject of interest(Lune & Berg, 2017). During the discussion, the students were grouped according to the theories they used. This was to enable students with the same knowledge and understanding of the theories to be in the same group. The students were grouped into six groups according to the theories used to underpin their studies, namely: ANT, AT, DOI, CT, TAM and ST. The table below shows the group compositions

Table 1:

Program	Participants	Level	Codename	Theory
• Postdoctoral fellow	1	1st	POD_01	Structuration Theory(ST), Activity Theory (AT)
• Doctoral Students	7	2nd	DoS_01	Actor Network Theory (ANT)
		2nd	DoS_02	Contingency Theory (CT)
		2nd	DoS_03	Diffusion of Innovation(DoI)
		3rd	DoS_04	Structuration Theory(ST),

Program	Participants	Level	Codename	Theory
		3rd	DoS_05	Technology Acceptance Model(TAM)
		3rd	DoS_06	Actor Network Theory (ANT)
		4th	DoS_07	Structuration Theory(ST),
• Master Students	7	1st	MoS_01	Activity Theory (AT)
		1st	MoS_02	Technology Acceptance Model(TAM)
		1st	MoS_03	Structuration Theory(ST),
		2nd	MoS_04	Activity Theory (AT)
		3rd	MoS_05	Actor Network Theory (ANT)
		3rd	MoS_06	Technology Acceptance Model(TAM)
		4th	MoS_07	Structuration Theory(ST),
Total	15			

5. Finding and Discussion

Lexicography, material implication, and selection criteria are found to be the most common and fundamental factors influencing the challenges being encountered in applying sociotechnical theories in research.

5.1 Lexicography

Often, lexicon is thought of and applied instead of the terminology. This confuses my emerging researchers and postgraduates. Terminology can be misinterpreted or incorrectly used if a lexicon or dictionary is consulted primarily because both facets are broader in associating meanings and are not limited to translation equivalents only. There is a strong relationship between lexicon and translation (Dam & Tarp, 2017). This makes the line between them thin, leading to confusion.

5.2 Material Implication

Material implication focuses on value within context. This requires distinctive attention because the value an agent brings to `problem-solving in a social system is highly significant. In structuration theory, an agent can induce discursive or practical consciousness, which can shape interaction and lead to a particular outcome. While in CT, material implication only focuses on direct sentences between entities. The implication is essential in formal reasoning and argumentation, such as data analysis and interpretation of findings. Material implications imbibe logic into reason, which is critically crucial in research.

5.3 Selection Criteria

A dichotomic understanding of the concepts from each sociotechnical theory perspective is crucial. Shaanika, Nyikana and Iyamu (2025) identified some of the challenges and proposed an approach to ease the selection of sociotechnical theories for research. This study fortifies the existing selection criteria by making it essential to avoid misunderstandings that lead to incorrect choices of theories for research. For example, the relation between structures in structuration theory and structures in contingency theory, including organisational setting are vastly different. So, if they are loosely applied, interchangeably used or misinterpreted, the outcome of the analysis will be skewed or produce false narratives.

6. Conclusion

This research examined the deterring factors in the application of Sociotechnical theories in research, revealing both opportunities and challenges emerging researchers and postgraduates often encounter. Our findings indicate that while sociotechnical theories have significant potential to improve the rigour of studies, it relies heavily on deterring factors, which are dynamics and fundamental to their successful applications. One key insight from our research is linguistic has major role to play in avoiding confusion in the context of each theory. Also, it is critical to gain an understanding of implications often fuel the confusion and shape the outcome of the study.

Additionally, gaps in technical expertise present further barriers, limiting emerging researchers and postgraduates' ability to advance the application of sociotechnical theories in their studies. Despite these challenges, emerging researchers and postgraduates that understand the deterring factors and how to select the theories will be better equipped to overcome the confusion caused by Lexicography and material implications. For emerging and postgraduates to improve the rigour of their studies through sociotechnical theories, they need to gain a better understanding of understanding the deterrent to the sociotechnical theories concepts in research and the influence it has on the outcome.

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Complementarily Applying Activity Theory Concepts for Data Analysis in Research

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Abstract: This paper aimed to propose a complementary approach for applying the activity theory's (AT) concepts of contradiction, activity hierarchy, and activity systems model for data analysis in research. The approach is a two-step process that must be applied in parallel. The first part of the approach entails three levels consisting of micro, meso, and macro, which are apprehensive of social reality, in data analysis. For this purpose, the document (collection and selection) analysis technique was followed. This complementary-based approach brings a fresh perspective to the application of AT. The paper contributes to the reflection and discussion on applying activity theory's concepts. Additionally, the study helps to gain a better understanding of socially constructed reality in studying complex phenomena.

Keywords: Activity Theory, Activity System, Activity Hierarchy, Complementary Approach, Contradiction.

1. Introduction

Activity theory (AT) is a sociotechnical theory that focuses on human activities and how social contexts influence them (Dennehy et al, 2023). The theory is primarily concerned with human consciousness, making human reasoning a critical aspect of social context and activities (Hashim & Jones, 2007). Given its interconnectedness with human activities and actions, the theory is consistently and increasingly applied in various fields such as education, management, and information systems (IS) (Kamanga & Alexander, 2020; Nonthecumjane & Johansson, 2022). According to Iyamu (2024), AT has been used more than three million times across disciplines. Dennehy et al (2023) list some of the benefits of using AT as a lens for understanding the context in which words are used, focusing on an activity system. Nonthacumjane and Johansson (2023) argued that AT has been employed to understand the interaction between humans and technology. It is important to note that AT can be used in both qualitative and quantitative studies, particularly because it offers a holistic, contextual approach.

From a qualitative and interpretative research standpoint, Hashim and Jones (2007) argued that the theory provides a holistic and contextual way for researchers. In its holistic approach, AT is used as a lens for both data analysis and interpretation of findings (Murphy & Rodriguez-Manzanares, 2008). Additionally, AT draws its strengths from historical and cultural contexts, which envelop how activities and objectives are rapidly changing (Weeger et al, 2021). Increasingly, the theory is used as a lens in the research domain (Iyamu, 2024). An activity is a collection of actions that are performed by human beings from both historical and cultural contexts. The theory consists of concepts such as the activity model, hierarchical structure, and contradictions (Engeström et al, 2024; Jones, 2014). In Iyamu's (2024) empirical submission that the theory has been applied in over 3 million studies, it is the activity model that is most applied. The hierarchical structure is growing in popularity. The concept of contradictions is scant in its use.

From the activity model perspective, Nyikana and Iyamu (2024) explained how objects utilise tools to achieve a specified outcome. Kamanga and Alexander (2020) suggested how activities can be assessed at three levels, activity, actions and operations by applying the activity hierarchy concept. The activity model consists of six interrelated components: subject, object, tools, rules, community and division of labour (I). The activity hierarchy is embedded with three hierarchical levels: activity and motive (level 1), action and goal (level 2), and operation and conditions (level 3) (Leont'ev, 1981). The concepts, such as the activity model and the activity hierarchy, are used as lenses to guide data analysis and interpretation of findings in research. In applying either, the activity model or the hierarchical structure, there are contradictions, which this study explores.

Generally, the term contradiction has a negative connotation, which often creates disadvantage in social structures and systems. In many quarters, contradictions refer to tensions, inconsistencies, which manifest themselves as problems, gaps or conflicts (Weeger et al, 2021). In contrast, in AT,

contradiction indicates and embraces the richness of data, flexibility, as well as the capability of an activity to develop in a network of human activity systems. (Karanosios et al, 2017). In AT, four contradictions have been identified and discussed in the literature, which include primary, secondary, tertiary, and quaternary contradictions (Gedera & Williams, 2013). Engeström (1987) proposes the contradictions as: primary contradiction happens within a single element of the activity; secondary contradiction happens between two elements of a single activity system; tertiary contradiction happens between older and newer versions of activities; and the quaternary contradiction happens between activities that are related in a network.

From a more optimistic angle, Kamaga and Alexander (2022) suggest that it helps to identify contradictions that may occur to inspire change and ultimately develop theories that explain and encourage changes over time. Despite the numerous works that have been done to increase researchers' interest in how to apply the concept of contradiction, challenges persist, which can be attributed to various factors, such as a lack of understanding and confusion. Consequently, the activity model remains the commonly used concept. This limits the advancement of applying the theory in research. We therefore explored how richness, flexibility, and capability can be embedded into the concept of contradiction to advance the use of AT for data analysis and interpretation of findings in research. The study is intended to improve the ease of understanding and applying the concept of contradictions of AT in research. However, the concepts seem to be applied, either in learning or research. This study provides details about the concepts, starting from a review of the literature.

2. Literature Review

The concepts, such as the activity model and activity hierarchy, are increasingly applied in research but separately. This study focuses on the complementary application of the three concepts, activity hierarchy, activity model and contradiction.

2.1 Activity Hierarchy

The activity hierarchy was developed in a quest to understand the motivation and the consciousness structure (Hashim & Jones, 2007). According to Camargo-Henríquez and Silva (2022), the hierarchy has three levels and two columns as shown in Figure 1: activity, actions and operations, motive, goal, and condition.

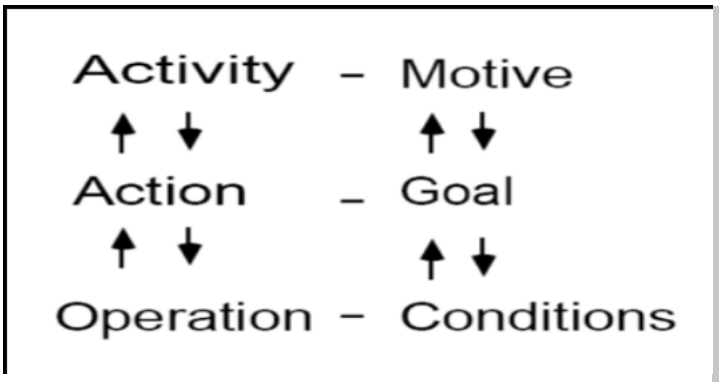


Figure 1: Hierarchical levels of an activity (Leont'ev, 1981)

The activity hierarchy comprises three core levels, namely activity, action and operation (Camargo-Henríquez & Silva, 2022). The collective hierarchical system should have a motive (Kamanga & Alexander, 2021). An activity consists of different actions, and each action determines the operation (Iyamu, 2024). Russell (1997) lists the following (i) an activity system is linked to a motive, and a collective subject (ii) Actions are linked to a specific goal and to individuals or groups, and (iii) operations are linked by conditions, constraints and affordances, also linked to individuals or groups.

2.2 Activity System

The activity system model consists of six components, as shown in Figure 2, namely, tools, subject, rules, community, division of labour, and object (Hashim & Jones, 2007). In AT, the subject is a human with consciousness (Engeström & Sannino, 2021). The subject and object are mediated by tools (Kuutti, 1995; Karanasios et al, 2021). This means that by indication, the human actions are mediated by tools (Nonthacumjane & Johansson, 2023). Gedera and Williams (2013) emphasised that an activity must be

understood in the context of cultural and historical environments. This means that within the context of a community, rules apply. Thus, Dai et al (2024) suggest that community, rules and division of labour are referred to as social components. It has been emphasised that human activity cannot be merely explained through the mediations but should rather include all the elements of the activity system (Karanasios et al, 2021). Thus, an activity system can be described as a social structure that focuses on collectivism, where tools, rules, and division of labour mediate.

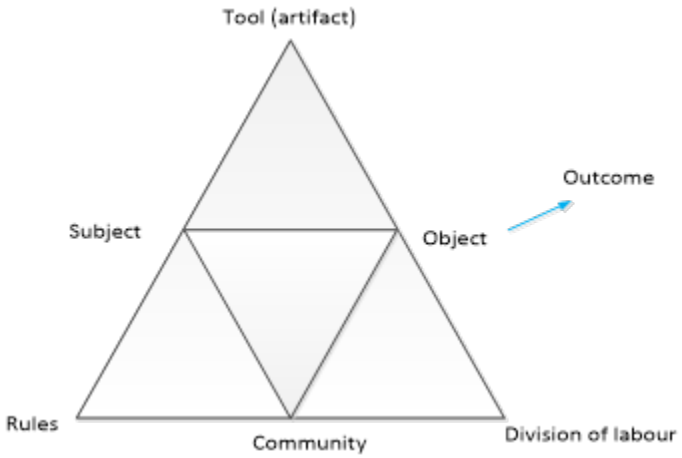


Figure 2: Activity Model (Engeström, 1999)

The AT model focuses on the structure of the activity system with six components, as shown in Figure 2. The object defines what the activity is and determines the meaning of the preceding actions. The subject is the individual performing the actions. Tools can form part of either actions or operations. The following components provide the social context of the activity system. Which is made up of the rules shapes the operation as it specifies what is allowed or not. The community are groups or people working towards a common motive. The division of labour determines who is doing what and how the tasks are distributed amongst the community.

2.3 The Concept of Contradictions in Activity Theory

The concept of contradiction has been used multiple times in research, across different fields (Karanasios et al, 2017), including the fields of information systems, management sciences, and education (Keegan et al., 2022; Qu et al, 2022; Mwogosi & Mambile, 2024). Contradictions are deeply embedded structural tensions that occur within a system from an AT perspective (Dennehy et al, 2023). Contradictions are a basic principle of AT that manifest themselves as problems, conflict or tensions in an activity system (Gedera & Williams; Weeger et al, 2021). According to Satijadi et al. (2024), contradictions can occur at any stage of an activity system. Additionally, the contradictions are consistently evolving and transforming (Keegan et al., 2024). Qi et al. (2022) state that contradictions are not always a bad thing. Through the identification process, it creates an opportunity to find solutions (Engström et al, 2024).

Thus, contradictions could assist in development, innovations and change of the activity system (Aldaremi, 2022). It is important to note that contradictions may not be obvious, and it could be culturally and politically challenging to approach (Keegan et al, 2024). There are four levels of contradictions: (i) primary, (ii) secondary, (iii) tertiary, and (iv) quaternary (Engeström, 1987). Primary contradictions occur with a component of the activity system (Qi et al, 2022). Secondary contradiction happens between different components of the activity system (Gedera et al., 2023). Tertiary contradiction is described as the tension within an activity system (Keegan et al, 2024). Quaternary contradictions occur between different activities (Nonthacumjane & Johansson, 2023).

A study by Aderemi (2022) reported poor and inaccurate interpretation of certain terminology and elementary concepts when using the concept of contradiction. Similarly, Karanasios et al (2017) noted that there was no clear meaning of terms in the literature on contradictions. Keegan et al (2014) explained that contradictions are not consistently visible or discussed openly and therefore, may not always be resolved. In addition to the argument in the literature, Adamide (2023) states that the application of the concepts could be limited, and researchers may only uncover surface-level contradictions or merely identify the problems that exist in an activity system. It maybe that researchers need to identify the activity, understand the components of AT and identify and explain the levels of contradictions. It could be because the process of data analysis is iterative

and multi-layered. The concept of contradiction could serve as a conceptual tool, not restricted to identifying and analysing, but also to explaining the different theoretical roots (Weeger et al, 2021). Adamides (2023) explained that using AT and the concept of contradiction is methodologically complex and may require an expert to apply correctly in the real world. It could also suggest a need for a guide to apply the AT model with contradictions.

3. Research Approach

Qualitative document analysis is a systematic procedure used to review or evaluate documents it could either printed or electronic (Morgan, 2021). This is an analytic approach which seeks to study, examine and interpret documents to create meaning and produce knowledge (Okoko, Tunison & Walker 2023). This approach is important tools for deeper comprehensive analysis across different disciplines. According to Wood, Sebar and Vecchio (2020) explains the interpretive process is reflexive and recursive as researchers move between development of concepts, data collection, analysis of data and interpretation. The collection of peer-reviewed articles was guided by the aim of the study to complimentarily apply AT concepts for data analysis in research. Thus, articles that have used of applied contradictions were collected. Scholarly databases such as google scholar, Scopus, Springer. The following keywords were used to search for the articles; activity theory, activity system, activity hierarchy, activity model levels of contradictions. the key words were chosen in line with the aim of the study. The themes were created based on the different AT tenets such as the activity hierarchy, activity system model and the concept of contradictions. AT was also used a lens for both data analysis and interpretation of this study. Content analysis provides flexibility in the pursuit for meaning and understanding as opposed restrictive procedures and rigid parameters (Wood, Sebar & Vecchio 2020). The written documents are crucial in qualitative study because of low cost of access, it provide different perspectives from scholars, and provides historical context (Okoko, Tunison & Walker 2023).

4. Activity, Hierarchy, Model and the Four Contradictions

An activity is a collection of actions that are performed by human beings against objects utilising tools to achieve a specified outcome (Nyikana & Iyamu, 2024). According to Johanssen and Rohrer-Murphy (1999), activity needs to be consciously applied in a relevant context. The hierarchy describes how an activity (driven by motive) is composed of actions (driven by a goal), which are made up of operations (driven by condition) (Kuutti, 1996). The hierarchy is not rigid but is flexible. The activity hierarchy cuts across the activity model.

The activity model signifies an overall activity system which does not happen in isolation (Nyikana & Iyamu, 2024). Bawa (2023) explains that the AT model, identifiable by the triangular shape, which shows the interconnectedness of the components, helps to understand the overall activity system in a social and cultural context (Camargo-Henríquez & Silva, 2022). The level of contradictions is structural tensions within the activity system, which inspire change and innovation (Aldaremi, 2022). Therefore, the hierarchy relates to how things are done within the structure (Kamanga & Alexander, 2021). While the model illustrates the systematic context in which the hierarchy operates. The contradictions are the tensions that could occur within the model, which disturb the correct performance of the hierarchy.

Table 1: Complementary use table

Levels of Contradictions	Complementarity	Activity Model Components
Primary contradictions	Primary contradictions which could occur within components of the activity system (Gedera & Williams, 2014; Hasan & Kazlauskas, 2014). For example, primary contradiction can occur within an object, a tool, a subject, rules, a community or division of labour (Qi et al, 2022).	Can occur within any of the AT components, such as tools, subject, object, rules, community and division of labour Contradictions on this level occur in one component. For example, within a tool, inefficiencies in the use of the tool may occur
Secondary contradictions	According to Gedera et al (2023), secondary contradictions happen between components of the activity system. For example, secondary contradictions could occur between a technology(tool) and the organisation's rules (Kelly, 2017).	Secondary contradictions occur between activity components (Kamanga & Alexander, 2021). Examples: Between subject and tools; Between subject and rules; Between tools and object; Between object and rules; Between community and division of labour; Between rules and division of labour; and between community and object

Levels of Contradictions	Complementarity	Activity Model Components
Tertiary contradictions	These contradictions are potential problems resulting from the relationship between an existing system and an evolved object or system (Keegan et al, 2024). For example, in a study by Gedera et al (2023), tertiary contradiction took place when the participants had to use an advanced technology to achieve their objective.	Tertiary contradictions occur within the same activity. Occurs between the new and old as a way of reform and the resistance of change (Nonthacumjane & Johansson, 2023). For example: Subject vs new rules; Object vs tools; Old tool and new tool; Community vs division of labour; and Division of labour vs object
Quaternary contradiction	Quaternary contradictions occur between the related activities in an activity system (Nonthacumjane & Johansson, 2022; Qi et al, 2022).	Happens between activity systems. This could be between the interconnected activity systems. Indicates that it occurs between the central activity system and the neighbouring activity systems (Qi et al, 2022).

5. Complementarily Applying the at Concepts for Data Analysis

This paper proposes that the activity model, activity hierarchy, and contradiction can be complementarily applied in the analysis of data in research, in fields such as information systems and business sciences, including education. Figure 3 illustrates the relationship between the hierarchy, the activity model and the contradictions. Complementarily, the concepts can be applied at three levels, micro, meso, and macro, as shown in the model (Figure 3). The levels are indicated using colours: black, blue, and green for micro, meso, and macro, respectively.

An activity does not occur in isolation, but there may be multiple interactions between the system and the existing hierarchy (Shaanika & Iyamu, 2025; Mwogosi & Mambile, 2024). Various interactions influence and shape activity within context and relevance (Adamides, 2022). Engeström & Sannino (2011) clarify that organisational changes follow a sequence of events. This allows for data analysis (Houssin, 2025). These are consistent with our proposed approach that entails a two-step process. The two-step (Figure 3 and Table 2) must be applied in parallel.

5.1 Step #1

The first level, the *micro,* focuses on individual interconnectedness and interactions mediated by tools, rules, and division of labour associated with a community and an object to determine an outcome. It therefore enables the analysis of the nuances which exist in interactions, to examine how actors perceive and assume reality and respond. The *meso* is the intermediate level. It bridges the micro and macro levels in an analysis. At this level, it demonstrates how social structures influence interactions between actors' activity and motive, action and goal, and operation and conditions. This includes how social processes, such as norms, operate within communities. The *macro* level focuses on the "big picture". It is concerned with a community as a whole (large-scale), such as social systems or structures and institutional patterns. This is to gain an understanding of widespread disparity and social trends. From the complementarity, there are manifestations, labelled *MF* in Figure 3 (complementary model). The manifestations are discussed below.

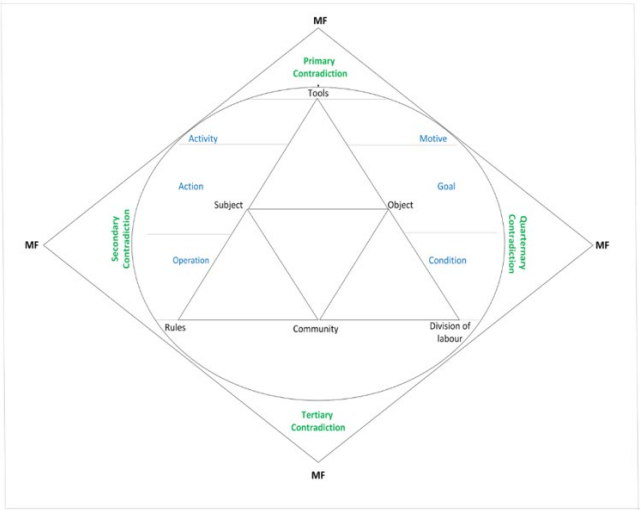


Figure 3: Complementarity-based Approach of AT Concepts

An activity occurs because there is a motive. In achieving the motive, tools, rules and division of labour are used to mediate towards an object, and subsequently, reach an outcome. In the midst, contradictions happen between the mediators, hierarchy (e.g. activity and action, motive and goal), or

The manifestations catalyse transformation. This is attributed to the movement in an activity or motive, the action or goal, and the conditions of operations. This is where a community is impacted by due to perceived differences (Russell, 1997). As the movement progresses, layers of contradiction emerge, reflecting the adaptation of the original activity to suit the objectives of the phenomenon being studied. Schön (1983) suggests that reflexivity enables practitioners to reflect on their actions (knowing-in-action) and view problems as matters of choice and decision (reflection-in-action) rather than as given situations. This can help in units of analysis in achieving research objectives. This is because it is a process that entails interplay between actors and processes, including technology solutions. Reflexivity is an integral aspect of the socially constructed reality, which assists in gaining practice-based insights (Armour, 2013).

Some of the challenges manifest from unspoken or unwritten influences of actors in an activity or motive, during action or goal. Communication challenges arise from an act of misunderstanding, delayed responses, or passiveness. In this instance, conflicting opinions are conveyed with hesitation between individuals or within a person's discourse (Houssin, 2025). Individuals who engage in an activity often encounter conflicting motives, influenced by the mediators, such as the ideals of the tools, rules interpretation, and biased interest in assigning tasks in the division of labour. This brings about reflexivity, which Archer (2010) defines as the capacity to introspect on thoughts and conversations. Consequently, this shapes actions towards a goal and enacts operations that are bound by conditions.

Table 2: Levels of analysis

Level of Analysis	Manifestation	Possible Contradiction	AT Hierarchy	Activity System Model	Examples
Micro	What are actions identifiable? What words are used? Do the actions or words enable or hinder the activity?	Primary or secondary	Operations Actions	Single components Subject or individual mediated actions	Is the tool functioning as intended?
Meso	As the six components interact what can be observed, are there any breakdown, disturbances, conflicts, or Deviations?	Primary Secondary, Tertiary	Actions Activity	Collective activity system	How a collective activity system functions or interests the actors
Macro	Is the object shared amongst the activities? Are the object conflicting?	Quaternary contradictions	Activity	Multiple activity system activities with shared object	When there are two neighbouring activity systems sharing an object

5.2 Step #2

Researchers could apply the elements of analysis. Iyamu (2024) argues that the elements of analysis are the foundation for coming up with answers during data analysis. Using what, who, when, why and where for assessing a system in qualitative research.

Table 3: Elements of analytics

Elements	Description
What	Clarifying the object, subject or tools used or applied in an activity within a context and relevance. This reduces or eradicates the structural tension which exists between actors, processes, and technological solutions involved in an activity such as the analysis of a phenomenon under study. The clarification entails that the situation cannot be resolved by an individual alone (Russell, 1997). Thus, determine whether any contradictions exist, and what contradictions exist within the activity system (Iyamu 2024).

Elements	Description
Who	Identify the actors that showing an interest and participating in an activity. This includes their roles, boundaries, and interactions. This removes any conflicting opinions conveyed with hesitation between individuals or within a person's discourse (Houssin, 2025). This helps to gain a better understanding of the level of the contradiction that exists (Iyamu, 2024).
How	In effect, determine the interconnectedness of the actors that are involved in the activity. Additionally, define the use of the mediators towards goals and operations, and how the contradictions happen (Iyamu, 2024). This includes the conditions of operandi associated with the goal and motive.
When	Defines the context or period where the activity takes place. Establish when the contradictions occur (Iyamu, 2024)
Where	The geographical location provides a boundary or scope identified and explained. Define time and space in identifying the components of an activity, such as tools, subject, rules, and community (Adamides, 2023).
Why	Assist in identifying factors (components) that enable and constrain an activity system. Thereafter, examine why the contradiction happened (Iyamu 2024). Actions rely on the operations, which are the routine process, and depend on the conditions within the activity system (Jonassen & Rohrer Murphy, 1999).

6. Implications

Comprehensive and logical flow assists the researcher in narrating what the data is saying without leaving out details that may be important to report on. This entails having a good understanding of the components of an activity (Iyamu & Shaanika, 2019).

Some of the gaps relating to AT contradictions is that contradictions are not consistently visible or discussed openly and therefore, may not always be resolved (Keegan et al., 2014). Thus, the application of the contradiction concept could be limited in uncovering surface-level contradiction or merely identify the problems that exist (Karanasios et al, 2017). Adamides (2023) explained that using AT and the concept of contradiction is methodologically complex and may require a expect to apply correctly in the real world. It could also suggest a need for a complementary use of the AT concepts. However, Weeger et al. (2021) suggested that contradictions could serve as a conceptual tool for explaining different theoretical roots. Hence, it is important to highlight the implications of the concept.

One of the implications from their study is that a collective activity system is highly vulnerable to conflict, as sub-orientated actions are explicitly or implicitly characterised by ambiguity, surprise, interpretation, making sense and potential for change. (Keegan et al, 2024). A study by Tan et al (2023) illustrates that the tensions and contradictions in a system may create opportunities for change, emphasising the importance of context as an influencer on how components interact with the system. This study offers a holistic detail that help with understanding of activity systems, contextualised interpretation of data, multiple levels of analyses of the activity hierarchy and the activity system, and the levels of contradictions.

7. Conclusion

Applying the complementary-based approach proposed in this paper for data analysis enables researchers to linearise the order of equations, deconstruct an activity, and overcome many of the uncertainties in socially constructed reality that research seeks to unpack.

The use of socio-technical theories to underpin studies brings fresh perspectives into information systems and information technology studies. When it comes to Activity Theory (AT), its six components are mostly applied as a lens rather than as a hierarchical structure. This is primarily because it is difficult to find studies that have applied the hierarchy structure mechanism of the AT guiding analysis. The AT hierarchy structure provides a sequential process for understanding activity systems. However, without a guide on how to apply the hierarchical structure, researchers will continue to be challenged, missing the wholeness that AT provides. This study developed a model on how to apply the activity hierarchy as a lens for data analysis. The model provides a step-by-step guide that can be employed by researchers to understand information systems activities. Fortunately, the model is not tested, thus it remains a theoretical contribution.

However, our analysis carries typical limitations of an exploratory study. The model has not been assessed using an empirical study in the IS field. The present study focuses only on how to employ the hierarchy structure for analysis in IS research. It excludes how to complementarily use the activity model and hierarchy structure. The limitations notwithstanding, the study is a huge step toward a theoretical and methodological approach for a

systematic analysis using the hierarchy of activity theory. In the future, the proposed model needs to be tested and validated by researchers in IS and other fields of study.

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Mapping the Methodological Landscape: A Critical Review of Qualitative Approaches to Business Research in Emerging Economies

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Abstract: Qualitative business research in emerging economies has expanded significantly over the past decade, yet its methodological foundations remain fragmented and often misaligned with the cultural, institutional, and epistemological realities of these contexts. Existing reviews focus either on substantive findings or on generic qualitative methods and methodological principles, without addressing the contextual realities specific to emerging economies which this review directly fills. A structured critical literature review was conducted using Scopus, Web of Science, EBSCO Business Source Complete, and Google Scholar, yielding a final sample of 40 peer reviewed studies published between 2011 and 2025, supplemented by seminal methodological works. Studies were analysed through an original five dimension framework addressing contextual imperatives, dominant methodological approaches, cross cultural challenges, quality and rigour, and methodological innovation. Findings reveal a persistent tension between established Western methodological frameworks and the need for context sensitive approaches that reflect local ways of knowing. Case study designs and semi structured interviews dominated the literature, yet methodological justification and adherence to recognised quality standards were often weak. Member checking was analytically consequential in only 20 percent of the studies reviewed which is a concrete benchmark not previously reported in the literature. Three critical gaps are identified and consolidated for the first time including the absence of validated indigenous quality criteria, limited South South methodological exchange, and the systematic exclusion of digitally marginalised populations from technology enhanced research. The review makes four original contributions including a systematic evidence based mapping of methodological tensions, identification of three previously unconsolidated gaps, an empirical benchmark on member checking practice, and a contextually grounded decision framework for qualitative method selection in emerging economy settings. These contributions advance the academic debate on research methodology for business and management studies by providing an evidence base rather than advocacy for methodological pluralism, culturally grounded quality frameworks, and digitally inclusive research design.

Keywords: Qualitative Research, Emerging Economies, Business Research Methodology, Contextual Adaptation, Cross-Cultural Research, Methodological Rigour, Critical Literature Review

1. Introduction and Background

Qualitative business research in emerging economies has expanded significantly over the past decade, yet its methodological foundations remain fragmented and often misaligned with the cultural, institutional, and epistemological realities of these contexts. Emerging economies are characterised by rapid economic transition, diverse institutional frameworks, cultural values, and evolving market systems. These conditions create research environments that cannot be fully understood through the direct application of Western developed methodologies (Plakoyiannaki, Wei, & Prashantham, 2019; Halme et al., 2024). The expansion of qualitative research across Africa, Asia, Latin America, and Eastern Europe has highlighted concerns regarding the suitability of dominant qualitative traditions in non Western contexts. Many established approaches are grounded in assumptions about individualism, institutional transparency, and formal documentation, which may not align with environments shaped by informal economies and collectivist knowledge systems (Creswell & Poth, 2018; Yin, 2018). Qualitative methods remain important in contexts where quantitative data is limited, yet balancing methodological rigour with contextual relevance remains a persistent challenge. Existing reviews focus either on substantive findings or on generic qualitative methods and methodological principles, without addressing the contextual realities specific to emerging economies (Plakoyiannaki et al., 2019; Creswell & Poth, 2018). This creates a gap in the literature which this review addresses directly by focusing on methodological tensions rather than research outcomes alone.

1.1 Problem Statement

Qualitative business research in emerging economies often relies on Western-developed methods that may not align with local realities shaped by institutional voids, collectivist knowledge systems, and informal economies. Approaches such as case studies, grounded theory, and semi-structured interviews are frequently applied without sufficient contextual adaptation, reducing validity and limiting methodological relevance (Plakoyiannaki et al., 2019). The field faces three key challenges: the uncritical application of Western methods, poor

documentation of contextual adaptations, and the lack of validated quality criteria for indigenous approaches (De Klerk & Swart, 2023; Mpofu & Mudau, 2026; Lincoln & Guba, 1985). As a result, methodological fidelity may compromise contextual validity, while adaptation and indigenisation may weaken transparency and credibility (Saunders & Rojon, 2011).

1.2 Rationale of the Study

This review is justified by four interrelated factors. Emerging economies account for a large share of global population growth and economic expansion, yet methodological understanding of how qualitative research is conducted in these contexts remains underdeveloped (Halme et al., 2024). Although qualitative research has grown rapidly, methodological reflection has not kept pace with this expansion. Existing reviews tend to focus either on substantive findings or on general methodological principles rather than on systematic mapping of context specific methodological tensions (Plakoyiannaki et al., 2019; Creswell & Poth, 2018). Foundational qualitative standards are also inconsistently applied, with many studies referencing methodological authority without demonstrating full adherence to established quality criteria (Eisenhardt,1989, Lincoln & Guba, 1985; Yin, 2018). In addition, calls to decolonise research methods highlight the need to evaluate both Western and indigenous approaches based on evidence rather than assumption (Meyer, 2014).

1.3 Search Strategy and Scope

The search was conducted systematically across four major academic databases. Search terms, date ranges, and inclusion criteria are documented below in Table 1 to guard against selection bias (Saunders & Rojon, 2011).

Table 1: The full bibliographic details of the 40 studies comprising the final corpus are included in the Reference list.

Element	Detail
Databases	Scopus · Web of Science · EBSCO Business Source Complete · Google Scholar
Search terms	"qualitative research" AND ("emerging economies" OR "developing countries") AND "business research"; "methodology" AND "cross-cultural" AND "qualitative"; "institutional voids" AND "qualitative"
Date range	2011–2025 (primary); seminal works pre-2011 retained
Inclusion criteria	Peer-reviewed articles; qualitative or mixed-methods studies; business/management focus; explicit methodological discussion
Exclusion criteria	Purely quantitative studies; grey literature; no methodological discussion
Final corpus	40 studies

1.4 Analytical Framework

This review uses a five-dimension analytical framework to ensure systematic synthesis rather than descriptive summary (Croom et al., 2000). The framework comprises contextual imperatives, dominant methodological approaches, cross cultural challenges, quality and rigour, and methodological innovation. Table 2 maps these dimensions to the corresponding sections of the review, providing a clear structure for analysing methodological tensions in emerging economy research.

Table 2:

Dimension	Analytical Focus	Key Sub-Themes
Contextual Imperatives	Why emerging economies demand methodological adaptation	Institutional voids; cultural epistemologies; resource constraints
Dominant Approaches	Which qualitative traditions are deployed and how	Case study; grounded theory; interviews; mixed methods
Cross-Cultural Challenges	Language, ethics, and power in cross-cultural inquiry	Translation; positionality; ethical protocols
Quality & Rigour	How trustworthiness is established under contextual pressure	Saturation; triangulation; transparency
Innovation & Futures	Emerging directions and capacity-building imperatives	Digital methods; decolonising; South–South networks

2. Contextual Imperatives: The Case for Methodological Adaptation in Emerging Economies

Research in emerging economies is shaped by four key contextual features: cultural diversity, economic variability, institutional differences, and resource constraints. Together, these factors create a distinct research environment that often challenges methodologies developed in Western contexts and requires methodological adaptation to generate meaningful and contextually relevant insights (Plakoyiannaki, Wei & Prashantham, 2019; Halme et al., 2024).

2.1 Institutional Voids and Informal Economy Dynamics

Emerging economies are characterised by institutional voids, that is the absence of market-supporting institutions that facilitate transactions in developed economies. Research on open innovation shows how firms navigate institutional constraints through partnerships with startups and academic institutions (Gassmann, Enkel, & Chesbrough, 2010). Studies of informal female entrepreneurs in India further demonstrate how traditional business frameworks struggle to capture enterprises operating outside regulatory systems (Shet et al., 2024). These businesses often lack documented records, rely on oral agreements, and resist conventional data collection methods. Institutional instability also creates temporal challenges, reducing the transferability of findings across time (De Klerk & Swart, 2023). The key methodological challenge is not the rejection of Western tools, but their deliberate adaptation to institutional context. Researchers may need to adapt their methodologies to align with local governance structures and legal requirements (Nguyen et al., 2025).

2.2 Cultural Epistemologies and Local Knowledge Systems

Emerging economies are characterised by diverse cultural values, beliefs, and social norms that influence research processes and outcomes. Cultural competence is therefore essential for engaging effectively with participants and ensuring valid and reliable findings (Mazonde & Carmichael, 2020; Oliver & Lincoln, 2025). Researchers often need to adapt research designs to reflect local cultural contexts rather than relying solely on Western assumptions (Oliver & Lincoln, 2025). This challenge extends to knowledge production, as Western epistemological frameworks may not fully capture indigenous perspectives (Meyer, 2014). For example, Ubuntu, Christian values, and collective obligations shape business sustainability in Zimbabwean family firms (Chagwesha et al., 2025), while hierarchical relationships influence behaviour in Confucian contexts (Liu, 2011). These cultural differences often require researchers to modify existing concepts and analytical approaches to ensure contextual relevance.

2.3 Resource Constraints and the Digital Divide

Infrastructure disparities create methodological asymmetries with significant implications for research quality. Researchers in emerging economies may lack reliable electricity, internet access, or computing resources (Subramaniam & Wuest, 2018). Digitally mediated research can also exclude marginalised populations whose experiences are often most important to study. Addressing these constraints therefore requires both

methodological adaptation and broader investment in equitable research infrastructure (Frimpong & Mamuti, 2026; Couper & Piekkari, 2025). Researchers in emerging economies are increasingly recognizing the value of adapting their approaches to better capture the complexities of these environments. This shift towards methodological flexibility and contextual sensitivity is essential for advancing knowledge that is both locally relevant and globally significant.

2.4 External Validity in Transitional Contexts

A fourth contextual challenge is the stability of research findings over time in rapidly changing emerging economies. Institutional environments often evolve faster than the research cycle, meaning that findings may become less relevant as economic, regulatory, and social conditions change (De Klerk & Swart, 2023). Longitudinal research can help address this challenge by tracking change over time rather than relying on a single snapshot of a particular context (Pettigrew, 1990). Where longitudinal designs are not feasible, researchers should clearly report the period of data collection and the institutional conditions under which the study was conducted. Such transparency enables readers to assess the continuing relevance of the findings and their applicability to changing contexts. Having established why emerging economies constitute a distinct research environment.

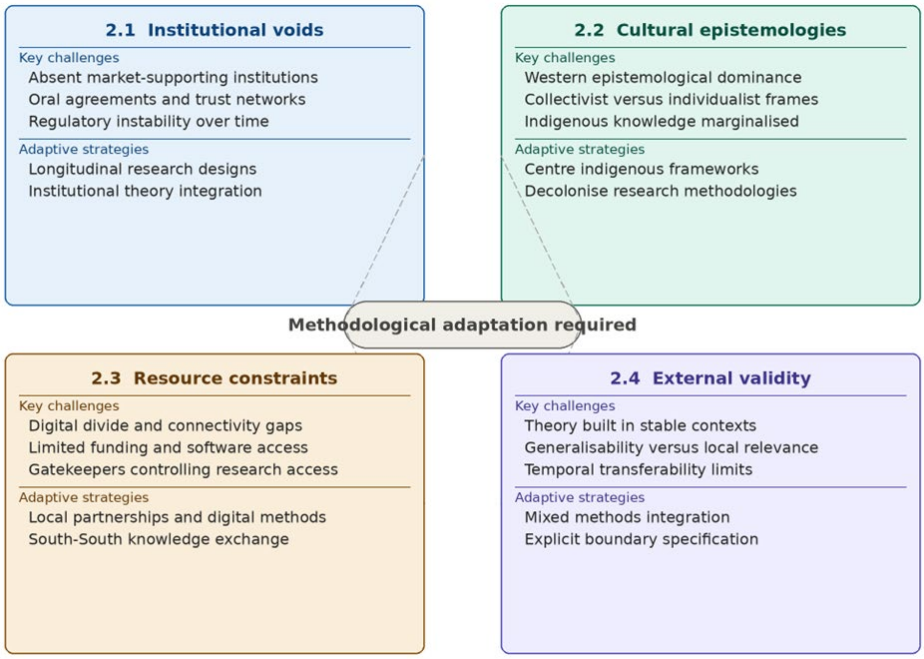


Figure 1: Contextual challenges requiring methodological adaptation in emerging economies (Sections 2.1–2.4).

3. Dominant Qualitative Approaches: Critical Assessment

This section critically evaluates research design, sampling rigour, and the quality of evidence each tradition produces. The goal is evaluative synthesis, not descriptive catalogue.

3.1 Case Study Research

Case study methodology is the most widely used qualitative approach in emerging economy research because it provides rich contextual insights (Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mäntymäki, 2011; Yin, 2018). However, many studies rely on purposive sampling through personal networks, which can exclude businesses operating in informal settings and limit broader applicability. In addition, important methodological frameworks such as Eisenhardt's (1989) approach to theoretical sampling, Yin's (2018) procedures for construct validity, and Creswell and Poth's (2018) guidance on qualitative inquiry traditions are often not clearly applied or reported, reducing methodological rigour.

3.2 Grounded Theory

Grounded theory has gained prominence where existing theories are insufficient to explain local phenomena (Shet et al., 2024). However, many studies claim theoretical saturation without adequately documenting how it was achieved, raising concerns about sampling adequacy and premature closure (Mpofu & Mudau, 2026). Researchers also rarely distinguish between Glaserian, Straussian, and constructivist grounded theory traditions, despite their different epistemological assumptions. This limits methodological transparency and makes comparison across studies more difficult (Strauss & Corbin, 1998; Miles, Huberman, & Saldaña, 2014).

3.3 Interview-Based Methodologies

Semi structured interviews remain the dominant data collection method in qualitative business research in emerging economies (Qu & Dumay, 2011). Vignette techniques, which use hypothetical scenarios to encourage more open discussion, have shown value in addressing cultural deference and sensitive topics (Azman & Mahadhir, 2017). However, interviews with senior managers and business leaders can be challenging because access is often gained through personal networks that may influence participant responses. Although less common, focus groups offer value in collectivist contexts because they capture how shared meanings are developed through group interaction.

3.4 Mixed Methods

Mixed methods research reflects a pragmatic approach to addressing complex research problems (Creswell & Plano Clark, 2018). Sequential exploratory designs are particularly useful because qualitative findings can inform the development of quantitative instruments grounded in local language and cultural understanding. However, several studies do not clearly explain how qualitative and quantitative components are integrated, limiting the overall value of methodological mixing. Effective mixed methods research requires explicit justification of how different forms of evidence contribute to interpretation and knowledge generation. The literature provides limited comparative evidence on which qualitative approaches generate the most transferable insights across different emerging economy contexts. Figure 2 presents a decision framework for selecting an appropriate research approach based on theoretical adequacy, research objectives, contextual conditions, and access constraints. For example, where existing theory is sufficient, mixed methods can be used to test and refine theory, while grounded theory is more appropriate when studying novel phenomena with limited theoretical foundations. Similarly, case studies, interviews, and vignette methods may be selected according to the depth of inquiry required and the practical realities of access. By emphasising methodological fit rather than methodological preference, **Figure 2** provides a context sensitive guide for qualitative research design in emerging economies.

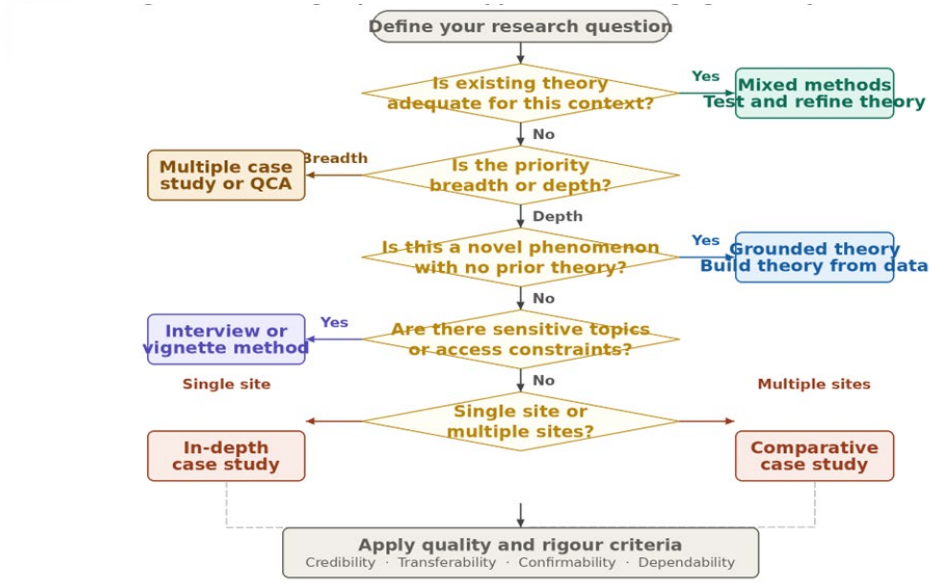


Figure 2: Decision framework for selecting a qualitative approach for emerging economy research (Sections 3.1–3.4). QCA = Qualitative Comparative Analysis

4. Cross-Cultural and Multilingual Research Challenges

4.1 Language, Translation, and Meaning-Making

Language is a major but often overlooked challenge in cross-cultural qualitative research (Couper & Piekkari, 2025). Concepts like “trust” or “entrepreneurial orientation” can mean different things in different cultures, making direct translation difficult. Researchers must decide whether to keep standard tools or adapt them to local contexts. One approach is to code data in the original language first, then translate it for analysis, but this requires strong bilingual skills and clear reporting. Back-translation can check wording accuracy, but it does not ensure the concept has the same meaning. A question may be correctly translated but still fail to measure the same idea. Testing for true conceptual equivalence is rarely done and remains a key gap in the literature.

4.2 Positionality, Ethics, and Power

Insider/outsider researcher status takes distinctive forms in emerging economy contexts. Local researchers possess cultural fluency and community connections but may struggle to maintain critical distance, meaning the ability to step back from personal involvement and cultural familiarity in order to analyse the data objectively and question taken-for-granted assumptions, while external researchers may gain access more easily but risk misunderstanding local contexts (De Klerk & Swart, 2023). Ethical guidelines designed for Western settings may also fail to fit collectivist contexts where community consent matters more than individual consent (Chagwesha et al., 2025). Studies in South African mining and Indonesian social enterprises show that power differences between researchers and participants can affect data quality, as participants may adjust responses strategically (De Klerk & Swart, 2023; Hesse et al., 2019). However, there is currently no validated tool to assess how power relations affect data authenticity in cross-cultural research. Developing such a reflexivity audit tool is therefore an important priority. These challenges highlight the need to examine how quality and rigour are established in the literature, as discussed in Section 5.

5. Quality, Rigour, and Validity

5.1 Trustworthiness in Unstable Contexts

Lincoln and Guba’s (1985) trustworthiness framework, including credibility, transferability, dependability, and confirmability, remains the dominant standard for qualitative quality. However, its application in emerging economies is uneven and often context constrained. Institutional instability can disrupt dependability, while credibility through member checking may be limited in contexts where participants are reluctant to challenge researchers (Chagwesha et al., 2025). Across the 40 studies reviewed, 24 (60%) reported member checking, 14 (35%) described how it was conducted, and only 8 (20%) showed that it influenced analysis. This indicates that member checking is often reported procedurally but rarely integrated into interpretation, reducing transparency and weakening overall rigour. Confirmability is also difficult to establish in cross cultural research due to researcher positionality and interpretive bias (Lincoln & Guba, 1985).

5.2 Saturation and Open Science Dilemmas

Theoretical saturation is often claimed without sufficient justification, particularly in diverse settings where different populations may produce different findings (Mpofu & Mudau, 2026). In such contexts, saturation may reflect limited sampling rather than true theoretical completeness. Triangulation is also constrained by limited availability of documentary data, making participant based triangulation more common. Open science requirements present ethical challenges, as data sharing may expose participants to harm in sensitive political or organisational environments. As a result, detailed audit trails and transparent reporting of methodological decisions are more appropriate than full data sharing (Lincoln & Guba, 1985).

6. Emerging Trends and Future Directions

6.1 Digital Methods and Technology

Mobile technology enables new ways of collecting data in low-resource settings (Alam & Pal, 2024), while AI-assisted qualitative analysis can improve coding consistency and efficiency (Morgan, 2023). However, these digital approaches may exclude marginalised groups without smartphones or reliable internet access, and AI

tools can reflect biases in their training data, often favouring Western and English-language sources. These limitations are balanced by important benefits. Mobile tools with offline functionality can improve access to hard-to-reach populations (Subramaniam & Wuest, 2018). When used as support rather than replacement for researchers, large language models can also help reduce individual bias in qualitative coding (Jalali & Akhavan, 2024). Moreover, concerns about Western bias are increasingly addressed in newer multilingual AI systems. Overall, digital methods should be evaluated contextually rather than viewed as inherently problematic.

6.2 Decolonising Methodologies

The decolonisation agenda questions core assumptions in conventional qualitative research (Meyer, 2014). Approaches grounded in Ubuntu philosophy aim to centre indigenous knowledge systems (Chagwesha et al., 2025), but meaningful decolonisation also requires changing structural inequalities in publishing and funding, not just using indigenous terms in Western formats. However, the debate is not one-sided. Comparative methodology scholars argue that social science should distinguish between universal and context-specific concepts, and that fully replacing Western categories may complicate comparison (Przeworski & Teune, 1970). Others caution that treating "indigenous methodology" as a single system can oversimplify diverse knowledge systems and may reflect Western assumptions (Mir & Mir, 2009). In addition, research using indigenous frameworks can still face publication barriers, limiting its intended impact. Overall, decolonisation debates are complex and should be presented in a balanced way

6.3 Capacity Building and South–South Networks

South–South research networks develop methods based on shared local challenges rather than relying on imported Northern frameworks (Couper & Piekkari, 2025). However, three main gaps remain: agreed standards for evaluating indigenous research quality, stronger systems for collaboration between Southern countries, and better digital research designs for people with limited internet or technology access. Efforts such as regional journals, shared databases, and joint PhD programmes are important, but they need to be based on evidence to avoid past mistakes. The African Economic Research Consortium (AERC) shows that collaboration within the Global South can improve research skills, but it also depends heavily on stable funding (Mkandawire, 2011). Similarly, CLACSO journals have improved regional knowledge sharing, but many are not indexed in major systems like Scopus, which limits their global visibility (Beigel, 2014). Platforms like the Open Science Framework are also not widely used in qualitative research and can lack strong quality control when used informally. Overall, these initiatives can work well, but they often struggle because of funding problems, limited global recognition, and inconsistent research standards.

6.4 Limitations and Reflexivity

The tension between Western methods and emerging economy contexts should be seen as a space for innovation rather than a problem. However, this review has limitations. It included only 40 studies, mainly from English-language sources, which may exclude relevant work in other languages and regions. The 2013–2025 range also leaves out earlier foundational studies, and the focus on issues like quality criteria and digital access meant less attention to oral and participatory methods. The review is also shaped by its own assumptions. As Mingers (2000) notes, research is influenced by the researcher's context. Although it supports decolonising approaches, it is not fully neutral and follows Western academic norms such as English-language publishing and Global North peer review. A clearer positionality statement would improve transparency and rigour (Lincoln & Guba, 1985; Mingers, 2000).

6.5 Implications for Research Methodology in Business and Management Studies

This review shows clear implications for research methodology in business and management studies. Emerging economies require context-sensitive methods rather than simply applying Western frameworks, which affects how methodology is taught, how PhD students are supervised, and how journal reviewers judge rigour. Digital and configurational methods should support, not replace, traditional case studies and interviews, with choices driven by research questions and context rather than trends (Reuber et al., 2022). Quality standards also need to be rethought. Saturation should include cultural as well as conceptual depth, credibility must consider unstable contexts, and member-checking should be treated as an analytical process rather than a routine step, as it influenced outcomes in only 20% of studies reviewed (Lincoln & Guba, 1985; Mpofu & Mudau, 2026).

6.6 Original Contributions to Research Methodology for Business and Management Studies

This review makes four main contributions to business and management research methodology. First, it maps key methodological tensions in qualitative research in emerging economies using a five-dimension framework across 40 studies, offering an evidence-based rather than opinion-based synthesis. Second, it identifies three key gaps: lack of validated indigenous quality standards, limited South–South collaboration, and exclusion of digitally marginalised groups in digital research. Third, it strengthens debates on quality by showing that member-checking influenced analysis in only 20% of studies, providing a clear benchmark for future research. Fourth, it offers a practical framework for choosing qualitative methods based on research goals, context, theory, and access conditions. Overall, these contributions support more rigorous and context-sensitive qualitative research.

6.7 Recommendations for Future Research and Practice

The review leads to three linked recommendations for researchers, methodologists, journal editors, and institutions involved in emerging economy business research.

6.7.1 Recommendation 1: Embrace Methodological Pluralism

Researchers should select methods based on the research question, context, and practical access rather than fixed methodological rules. Methodological choices should be justified by their evidential value and accompanied by clear documentation of contextual influences on research design (Reuber et al., 2022).

6.7.2 Recommendation 2: Reconceptualise Quality Criteria for Emerging Economy Contexts

The field requires context-sensitive quality criteria beyond traditional trustworthiness (Lincoln & Guba, 1985). Saturation, credibility, and member-checking should reflect cultural and contextual complexity, with future research validating quality standards for diverse emerging economy settings (Halme et al., 2024; Plakoyiannaki, Wei & Prashantham, 2019).

6.7.3 Recommendation 3: Pursue Structural Transformation in Publishing and Funding

Decolonising research requires structural change beyond the use of indigenous terminology, including more inclusive editorial boards, funding models that prioritise community benefit, and publishing standards that recognise contextual adaptation as rigorous (Meyer, 2014). It also demands fair authorship practices and equitable data ownership in international collaborations.

7. Conclusions

This critical review demonstrates that qualitative business research in emerging economies is shaped by persistent tensions between established methodological frameworks and context-specific realities. While qualitative approaches such as case studies, grounded theory, and interviews remain dominant, their application often shows limited adaptation to institutional instability, cultural diversity, and resource constraints. The five-dimension framework developed in this study enables a structured synthesis of these challenges and highlights recurring weaknesses in methodological justification, transparency, and quality assurance. A key empirical finding is the inconsistent application of member checking, with only 20% of the reviewed studies demonstrating that participant feedback influenced analytical outcomes. This suggests that procedural compliance with quality criteria does not necessarily translate into analytical rigour. Overall, the review identifies three major gaps: the absence of validated indigenous quality criteria, limited South–South methodological exchange, and the exclusion of digitally marginalised populations from technology-enabled research. These findings support the need for methodological pluralism, context-sensitive quality frameworks, and more inclusive research designs in emerging economy scholarship**.**

AI AND ETHICAL DECLARATIONS

AI tool use
AI tools were used for language and structure support, but all analysis and conclusions were completed by the author.

Ethical clearance
No ethical clearance was required because the study used only publicly available literature and no human participants or primary data were involved.

Academic integrity
The review followed standard academic integrity practices, including proper citation and avoidance of plagiarism.

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Systemic Action Learning and Action Research: A Fidelity Analysis of Protocol Delivery

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Abstract: This paper presents Systemic Action Learning and Action Research (SALAR) as a twelve-item sequenced, transferable protocol for ecosystem-level participatory inquiry, and reports its first external application at a clean energy co-design event at an Africa Centre of Excellence at a public university of technology in West Africa. The event convened 230 stakeholders across eight roundtables. The paper introduces implementation fidelity analysis as a standard reporting obligation for participatory methodology, applying a four-component fidelity framework to identify six protocol departures — in instrument versioning, registration pipelines, data capture capacity, session sequencing, roundtable instrumentation, and governance — and the precondition each departure reveals. The central finding is structural: data yield was determined by research apparatus, not participant willingness. The analysis generates five specific protocol revisions, including a mandatory governance pre-agreement for hosted delivery and an explicit data capture capacity requirement. The contribution is methodological: a deployable protocol with an fidelity account provides research teams with both a roadmap and a credible constraint inventory.

Keywords: Systemic Action Learning and Action Research (SALAR), Participatory Co-design, Implementation Fidelity, Inclusive Innovation Ecosystems, Next-generation Solar Manufacturing

1. Introduction

Participatory research methodology sits at the intersection of rigorous knowledge production and inclusive community engagement. As innovation challenges grow increasingly complex through spanning multiple sectors, geographies and stakeholder groups, the capacity to generate reliable evidence with rather than from communities has become a methodological imperative. Systemic Action Learning and Action Research (SALAR) represents one such methodology: a framework that adapts Theory U across five co-creation movements and deploys the SHAPE model to map eight stakeholder categories, enabling authentic engagement and qualitative data generation to occur within a single participatory encounter (Van der Westhuizen, 2018, 2023a, 2023b). This paper presents SALAR as a sequenced, transferable protocol for ecosystem-level inquiry, and examines the conditions that must hold for its design to be realised in delivery.

The significance of this work is located at the intersection of two persistent failures in participatory practice. The first is contextual: expanding renewable energy access across sub-Saharan Africa is no longer principally a technological problem. Next-generation photovoltaic technologies are advancing rapidly, yet whether they will be manufactured, maintained, financed and used locally depends on the innovation ecosystems that surround them — ecosystems that require inquiry conducted with the full range of value chain role players, not on them (Davy, Hansen and Nygaard, 2021). Participatory approaches are widely advocated for precisely this reason (Burns, Howard and Ospina, 2021), yet in practice community engagement and data collection are typically sequenced as separate activities: researchers convene stakeholders, then return to extract data from them. This separation is both methodologically costly and ethically compromised — participants are positioned as sources rather than partners, and the interpretive energy of the encounter dissipates before it can be captured. The second failure is reportorial: participatory methodology is typically reported as designed rather than as delivered (Toomey et al., 2025; Vargas et al., 2025), so the conditions on which a protocol depends remain implicit until they fail. Together, these failures constitute the gap this paper addresses.

Despite its stated systemic and stakeholder-facing orientation, SALAR has been developed and evaluated almost exclusively within university ecosystems, as a means of building individual entrepreneurial orientation among students (Dhliwayo, 2008; Van der Westhuizen, 2023; Nyamunda, 2020). It has not previously been specified as a sequenced protocol for generating data across a heterogeneous external network — manufacturers, technicians, regulators, cooperatives and end-users. A compounding gap compounds the first: no implementation fidelity account of a SALAR deployment exists in the literature, leaving its operational preconditions invisible to any team seeking to replicate it.

This paper addresses both gaps through the following research question: What conditions must hold for co-creation and qualitative data generation to be fused within a single participatory encounter in a complex innovation ecosystem? Three objectives follow. First, to specify SALAR as a sequenced, transferable protocol for ecosystem-level inquiry. Second, to examine its application at a clean energy co-design event at a public university of technology in West Africa, attended by 230 stakeholders across eight roundtables. Third, to derive, from the observed departures between protocol design and delivery, the preconditions that a replicating team must satisfy.

The contribution is twofold. Theoretically, the paper extends SALAR from individual capability development to ecosystem-level knowledge production, and engages the intervention fidelity literature (Trickett, Rasmus and Allen, 2020; Lemire, Rousseau and Dionne, 2023) to argue that embedding data collection within co-creation strengthens both ethical reciprocity and data richness. Practically, it offers research teams a documented twelve-item protocol together with an fidelity analysis — an account rarely available in the participatory literature, where implementation difficulty is more often conceded in a limitations paragraph than analysed as evidence.

The paper proceeds as follows. Section 2 establishes the theoretical foundations and terminology. Section 3 traces the development of the protocol from its doctoral origins. Section 4 presents the twelve-item SALAR protocol. Section 5 reports its application. Section 6 conducts the fidelity analysis and derives the preconditions. Section 7 discusses implications for research teams, funders and host institutions.

2. Theoretical Foundations and Terminology

Action research holds that knowledge is produced through change, by those who live with it (Lewin, 1951; Revans, 1982). Zuber-Skerritt (2002, 2015) integrated these traditions into Participatory Action Learning and Action Research (PALAR), legitimising inquiry conducted with communities. Systemic Action Learning and Action Research (SALAR) extends this to entire ecosystems of diverse actors. It facilitates interactive processes between stakeholders and researchers to observe dynamics at a systemic level, treating participant heterogeneity as a resource (Schweikert et al., 2014; Scharmer et al., 2021).

Co-engagement, as used here, denotes a single participatory encounter in which co-creation and data generation occur simultaneously rather than sequentially. It is distinguished from co-design, co-production and co-creation as those terms are differentiated by Vargas et al. (2022) by this simultaneity, rather than by the degree of participant authority.

SALAR is operationalised through two models, given in Figures 1 and 2. Figure 1 sets out the five movements of the co-creation process, adapted from Scharmer's (2009) Theory U and its recent extension (Scharmer and Pomeroy, 2024), and aligned with design thinking across three phases. Figure 2 sets out the SHAPE model, which maps the ecosystem into eight categories.

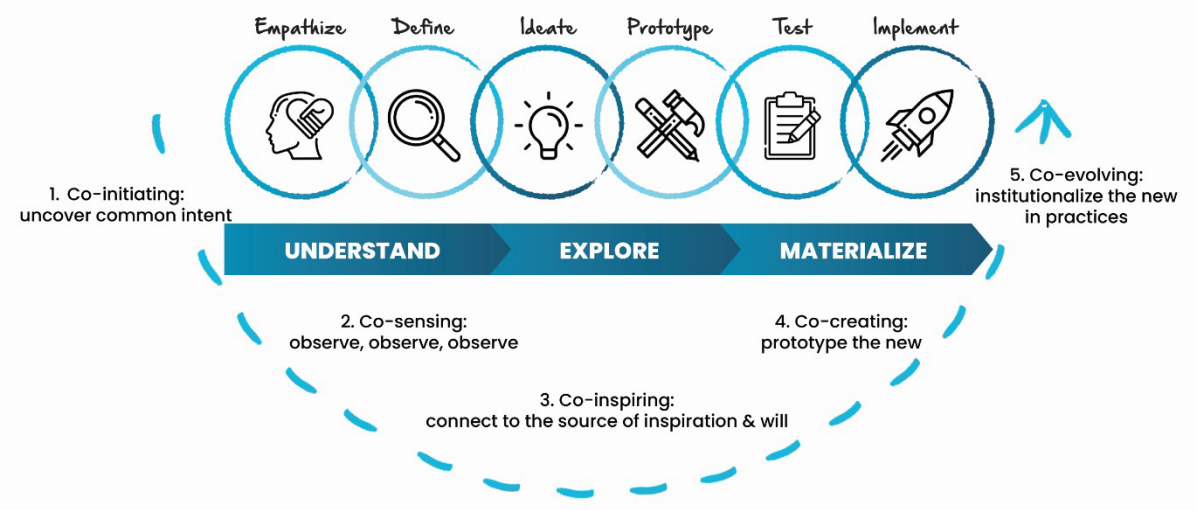


Figure 1: The systemic co-creation (SCC) model for inclusive community engagement



Figure 2: The SHAPE model for inclusive ecosystem co-creation

Six of the eight SHAPE categories denote populations of role players and are the basis on which delegates are allocated. Two — personality traits and internationalisation — are cross-cutting dimensions that bear on every category rather than constituting one; they are applied as lenses in facilitation and observation. The distinction is consequential for delivery and is returned to in Section 6.

3. Development of the Protocol

SALAR emerged from the SHAPE ecosystem strategy (Shifting Hope, Activating Potential Entrepreneurship) at the University of KwaZulu-Natal (Van der Westhuizen, 2016). Initially an eleven-phase programme for student entrepreneurship, it was refined through successive university deployments (Van der Westhuizen, 2023). To adapt SALAR for external multi-sector application, we extended the SHAPE model to eight categories, incorporated design thinking to clarify the co-creation movements, and compressed the temporal architecture into a single encounter protocol. This compression exposes new vulnerabilities: operational dependencies that were manageable in longitudinal cycles become critical failure points in a one-day workshop.

4. The SALAR Protocol

4.1 Scope and Boundaries

The protocol is purpose-built for a specific research task: generating qualitative and quantitative data across a heterogeneous stakeholder ecosystem within a single convened participatory encounter. Three conditions define its operating context. The encounter must run for at least half a day. A stakeholder map must be in place before delegates are allocated. The research team must have confirmed sufficient data capture capacity proportionate to expected attendance — meaning a sufficient number of trained field assistants and digital devices to reach every participant within the available time. These are not incidental requirements. They are the structural foundations on which each successive protocol item depends, and the fidelity analysis in Section 6 demonstrates precisely what occurs when they are treated as negotiable.

The protocol's scope is also deliberately bounded. The SHAPE model is deployed here as an ecosystem mapping instrument for allocating delegates and orienting facilitation. This is distinct from its developmental application in student entrepreneurship programmes, where it functions as a framework for cultivating individual entrepreneurial orientation. Both applications are valid and complementary. They address different units of analysis and should not be conflated.

Achieving high fidelity against this protocol is evidence of methodological rigour in execution. It is not a claim about the broader quality of the research. A study may deliver the protocol with precision and still face limitations in its analytical claims. Equally, a study that departs significantly from the protocol should account for those departures, as this paper does, rather than absorbing them silently into a limitations section.

Finally, the protocol is designed to complement longitudinal research designs rather than replace them. A single encounter can establish a robust baseline and generate rich cross-sectional data across stakeholder categories. It cannot, by design, observe developmental change over time. Research teams whose primary interest is change over time should treat the protocol as a rigorous point-of-entry instrument within a broader longitudinal architecture.

4.2 Protocol Items

The protocol comprises twelve items, set out in Table 1. Its sequence follows the three phases of Figure 1 — understand, explore, materialise — with a final pair of reporting items that fall outside the encounter itself. The ordering is not merely chronological. Each item establishes a condition that later items consume, and the failure modes documented in Section 6 are, without exception, cases in which a later item was attempted on a foundation an earlier item had not laid.

Items 1 to 5 constitute the understand phase and are wholly preparatory. Instrument finalisation (1) precedes mobilisation (2) because an instrument revised after invitation has been issued cannot be assumed to fall within the scope of the ethical approval under which participants agreed to attend; version control is therefore a consent matter before it is an analytical one. Mobilisation is specified as multi-channel and category-targeted because the SHAPE map is only as good as the recruitment that populates it: a channel strategy biased toward institutional email will return an ecosystem biased toward institutions. Registration and baseline capture (3) is placed at the point of registration rather than on the day, since it converts a moment participants must pass through anyway into the quantitative baseline, and consolidates consent into a single pipeline. Enumeration capacity (4) is specified in advance as a ratio of devices and field assistants to expected participants, because it sets the ceiling on how much data the encounter can physically yield. Conceptual levelling (5) closes the phase: where delegates arrive with radically unequal familiarity with the subject matter, deliberation without a shared vocabulary reproduces existing hierarchies of confidence rather than surfacing distributed knowledge.

Items 6 to 8 constitute the explore phase, in which the primary qualitative data are generated. Stakeholder-aligned roundtables (6) instantiate the six populated SHAPE categories, each with a trained facilitator and a designated recorder — two roles, not one, because facilitation and recording compete for the same attention. The protected deep-dive session (7) is the segment carrying the heaviest data load and is ring-fenced in the agenda precisely because it is the segment most easily sacrificed when a day runs late. The structured co-design activity (8) closes the phase by requiring each table to produce a tangible artefact, which serves simultaneously as data, as a prioritisation record, and as the reciprocal return participants take away.

Items 9 and 10 materialise the encounter. Systematic observation (9) runs across all categories, since inclusivity can only be evidenced where it was observed. Synthesis and return (10) closes the encounter by reporting back and leaving co-designed outputs in participants' hands.

Items 11 and 12 sit outside the encounter and govern its reporting. Flow reporting (11) and fidelity reporting (12) are treated here as standard obligations rather than optional disclosures, on the argument developed in Section 6.

Table 1: The SALAR co-engagement protocol

Item	Protocol Element	What the Research Team Does	Data Generated	Where Addressed in This Paper
1	Instrument finalisation	Finalise and obtain ethical clearance for all instruments before any invitation is issued. Record the version deployed.	Version-controlled instrument set	Section 5; Table 2, Item 1
2	Multi-channel mobilisation	Invite across email, social media, messaging applications and word-of-mouth, targeting every stakeholder category in the ecosystem map.	Registration record by category	Section 5
3	Registration and baseline capture	Route every registrant through a single consent-and-survey pipeline at the point of registration.	Consent record; quantitative baseline	Section 5; Table 2, Item 2

Item	Protocol Element	What the Research Team Does	Data Generated	Where Addressed in This Paper
4	Data capture capacity	Specify and confirm a minimum ratio of trained field assistants and digital devices to expected participants before the event.	Field assistant and device log	Section 5; Table 2, Item 3
5	Conceptual levelling	Open with a plenary session explaining core concepts in accessible language before any deliberation begins.	Observation of comprehension points	Section 5
6	Stakeholder-aligned roundtables	Pre-assign delegates to tables by populated ecosystem category. Assign a trained facilitator and a designated recorder to each table.	Group interview data; facilitator notes	Section 5; Table 2, Item 4
7	Protected deep-dive session	Ring-fence the primary data-generation segment in the agenda and protect it against schedule compression.	Theme-specific qualitative data	Section 5; Table 2, Item 5
8	Structured co-design activity	Set each table a defined co-design task producing a tangible participant-owned output, followed by a gallery walk.	Co-design artefacts; prioritisation record	Section 5
9	Systematic observation	Deploy structured observation schedules across all categories, recording engagement, participation equality, facilitation and logistics.	Ordinal ratings and field notes	Section 5; Table 2, Item 6
10	Synthesis and return	Close with a plenary synthesis and leave co-designed outputs with participants.	Synthesis record	Section 5
11	Flow reporting	Report participant and data flow from mobilisation to retained data, stating attrition and reasons at each stage.	Participant and data flow diagram (Figure 3)	Figure 3
12	Fidelity reporting	Report departures between protocol as designed and as delivered, and the preconditions each departure reveals.	Fidelity analysis	Section 6; Table 2

4.3 Using the Protocol

The protocol is written to be consulted at the planning stage, not at write-up. Its value lies almost entirely in the first five items, which are executed weeks before the encounter and which determine what the encounter is capable of producing. A team that discovers the protocol while drafting its methods section will find that the items it most needed have already expired.

The final column of Table 1 is intended to be completed as the study proceeds, recording where in the eventual report each item is addressed. Completed prospectively it functions as a planning checklist; completed retrospectively it functions as a reporting index, and the blanks are themselves informative — an item with no corresponding location in the report is an item that was either not delivered or not documented.

Items 11 and 12 warrant particular emphasis. Flow reporting and fidelity reporting are proposed here as standard obligations, on the same footing as reporting a sample size. Neither requires the study to have gone well. A team that reports substantial attrition and multiple departures, with reasons, has produced a more useful methods account.

5. Application

The protocol was applied at a clean energy co-design day convened in June 2026 at the Africa Centre of Excellence of a public university of technology in West Africa. The event formed part of a UKRI-funded international research consortium on next-generation solar module manufacturing, whose remit extends beyond device performance to the question of whether such modules can be manufactured, maintained and financed within the economies that will use them. The co-design day was the consortium's first ecosystem-level engagement, and its purpose was twofold: to convene the local value chain around that question, and to generate the baseline evidence against which subsequent work would be designed.

Delivery is reported here item by item against the protocol in Table 1, with participant and data flow given in Figure 3. Instruments were prepared and submitted for ethical clearance (item 1), but registration

opened before the digital instrument was finalised; a separate host-administered survey was used for registrants in the interim, and the instrument was subsequently revised, so that four versions existed by the day itself. Mobilisation (item 2) was multi-channel, drawing on institutional email, social media, messaging applications and the host's existing networks, and returned registrations across all SHAPE categories. Attendance reached 230 stakeholders, exceeding projections.

Registration and baseline capture (item 3) operated as two parallel streams held by different institutions rather than the single consent-and-survey pipeline the protocol specifies. Enumeration capacity (item 4) was the binding constraint on the day: available devices and field assistants supported 76 completed survey responses from 230 attendees. Conceptual levelling (item 5) was delivered as an opening plenary in accessible language, and the questions raised in that session indicated that the levelling was necessary; several core terms in the consortium's vocabulary were unfamiliar to substantial parts of the room.

Delegates were allocated across eight roundtables corresponding to the eight SHAPE categories (item 6). Under time pressure the survey and group-interview instruments were consolidated into a single digital form, and no recorders were designated, so the dialogic layer the protocol relies on for qualitative depth was not captured in the form the design anticipated. The protected deep-dive session (item 7) was not run as designed once registration volume exceeded projections and the day's schedule compressed. The structured co-design activity (item 8) proceeded, and each table produced a tangible output that remained with participants. Structured observation (item 9) had been designed for three participant types; five of the eight tables were therefore outside its scope, and no completed schedules were returned. The day closed with a plenary synthesis and the co-designed outputs were left with participants (item 10).

The survey findings are reported here descriptively and are subordinate to the methodological argument; they are presented in full elsewhere. Three directions were consistent across respondents. Affordability was the dominant constraint on adoption, named more frequently than availability, reliability or technical performance. Respondents expressed a strong preference for repair to be available locally rather than through return-to-manufacturer arrangements. And there was marked receptiveness to service-based payment models in place of outright purchase.

Read against the protocol, the day delivered its co-creation function and a usable quantitative baseline, but generated substantially less of the qualitative material the design was built to capture. That gap is not incidental to the argument of this paper. It is the evidence on which Section 6 rests.

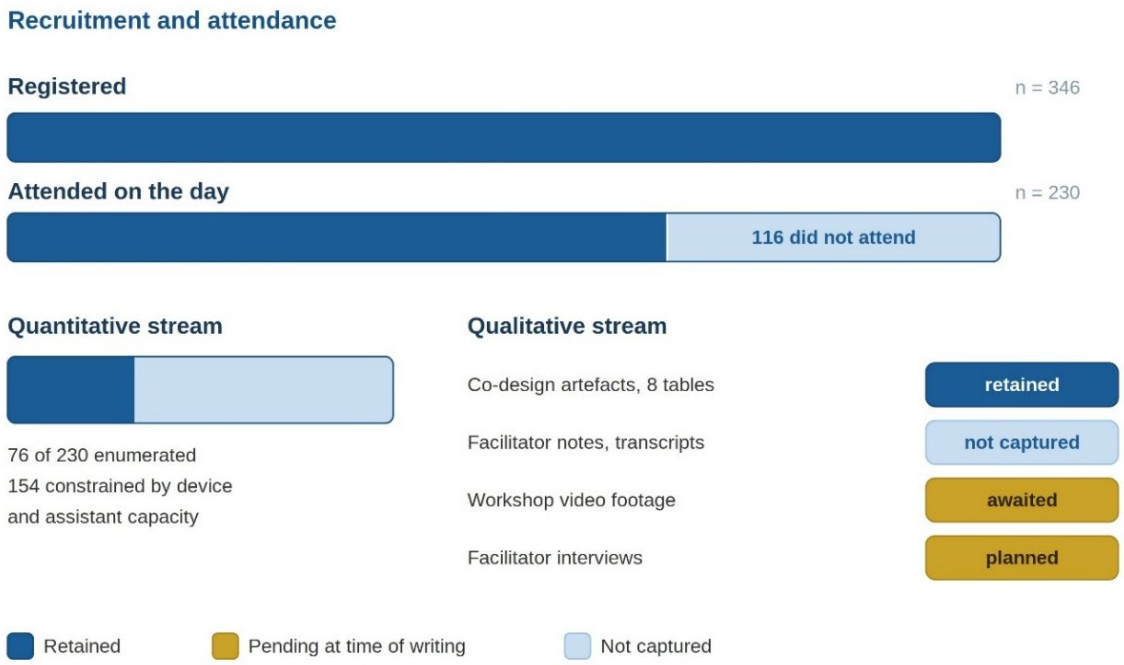


Figure 3: Participant and data flow

6. Implementation Fidelity

Fidelity — the correspondence between an intervention as designed and as delivered — is well established in trial methodology (Ginsburg et al., 2021) and largely absent from participatory reporting. Toomey et al. (2025) find that even where fidelity frameworks exist, consensus on terminology is lacking and the frameworks themselves remain underutilised. Vargas et al. (2025), reviewing 55 co-design studies, report that nearly half offered no definition of co-design at all. The consequence for participatory work is that a protocol's preconditions stay implicit until an application encounters conditions under which they do not hold.

This application encountered such conditions. Table 2 sets out the departures observed between the protocol as designed and as delivered, and the precondition each one reveals. The framing is deliberate: a departure is treated here not as a shortfall to be conceded but as evidence about the protocol, of a kind obtainable only through delivery. Read against the four-component conceptualisation of fidelity proposed by Lemire, Rousseau and Dionne (2023), the departures cluster. Items 1, 3, 6 and 9 are failures of adherence, in which a specified element was replaced by a substitute or not delivered. Item 4 is a failure of dosage: the element was delivered, but to a third of the intended population. Item 7 is a failure of quality of delivery. None concerns participant responsiveness, which was high throughout — a distinction worth stating plainly, since it locates the constraint in the research apparatus rather than in the participants.

Two observations bear on transferability. First, in prior university-ecosystem deployments the protocol held, and the reason is now visible: those deployments ran over months, under the direct operational control of the research team. The doctoral work recorded that dependency explicitly but could not test it. This application is the first delivery in which sequencing was controlled by a partner institution, and the governance departure in Table 2 is the consequence. Second, three distinct eight-category schemes operated simultaneously without reconciliation. The SHAPE model supplied one set; the roundtables were constituted on a second, in which two cross-cutting SHAPE dimensions were replaced with populated substitutes; and the survey routed responses on a third, introducing categories absent from both. No single mapping therefore links a delegate's table to their survey record, and the observation schedules — designed for three participant types — could not span a structure that was never fixed. The substitutions were reasonable field adaptations; their cost was that they went undocumented.

A third observation concerns what happens after the encounter. Contemporaneous qualitative capture failed, but recovery is under way: workshop video footage is awaited and roundtable facilitators are to be interviewed. Recovery of this kind is worth attempting and worth reporting, but it is not equivalent to capture. A facilitator interviewed some weeks afterwards reconstructs rather than records, and the reconstruction is shaped by what has since become salient. The protocol as originally specified made no provision for post-hoc recovery, and in making none it implied a false binary between data captured and data lost. Recovered material occupies a third position, and should be reported and weighted as such.

Table 2: Departures between protocol as designed and as delivered

Protocol Item	Departure Observed in Application	Precondition Revealed
1. Instrument finalisation	Registration opened before the digital instrument was finalised; registrants completed a separate host-administered survey, and the instrument was subsequently revised, producing four versions.	Instruments must be fixed and cleared before mobilisation. Version proliferation after clearance creates both analytical and ethical-scope risk.
3. Registration and baseline capture	Two parallel registration and survey streams operated, held by different institutions.	A single consent-and-data pipeline is a design requirement, not an administrative convenience.
4. Enumeration capacity	Insufficient devices and field assistants; 76 responses captured from 230 participants.	Response ceiling is set by enumeration capacity, not participant willingness. Ratios should be specified and confirmed in advance.
6. Roundtable composition	Tables were constituted on categories that departed from the SHAPE map, and the survey routed responses on a third scheme again; the substitutions were undocumented.	Ecosystem map, table allocation and instrument routing must resolve to one reconciled scheme, or delegate-level records cannot be linked.

Protocol Item	Departure Observed in Application	Precondition Revealed
6. Roundtable instrumentation	Survey and group-interview instruments were consolidated into a single digital form under time pressure; no recorders were designated.	Individual-survey and group-interview instruments are not interchangeable. Consolidation collapses the dialogic layer that generates qualitative depth.
7. Protected deep-dive session	The scheduled facilitated interview session was not run as designed once registration volume exceeded projections.	Segments carrying the primary data-generation load must be ring-fenced against schedule compression.
9. Systematic observation	Observation schedules were designed for three participant types and none were returned. Co-design artefacts were retained; footage and facilitator interviews are being sought after the event.	Observation must span all categories. Where contemporaneous capture fails, recovered material is a third category — neither captured nor lost — and must be reported as such.
— Governance	The event was hosted, funded and programmed by the partner institution, with concurrent activities outside the research team's control.	The protocol presupposes researcher control of sequencing. Hosted delivery requires a written pre-agreement specifying which segments are protected and who directs them.

This application produced five specific revisions to the protocol:

1. Item 1 is amended to state that ethical clearance must cover a named, version-controlled instrument set, and that mobilisation may not open until that set is fixed.
2. Item 4 is amended to specify enumeration capacity as an explicit ratio, confirmed in writing before the encounter, rather than as a staffing intention.
3. Item 6 is amended to require that the ecosystem map, the table allocation and the instrument routing resolve to a single reconciled scheme, with any substitution documented before delivery.
4. Item 9 is amended to add a recovery provision: where contemporaneous capture fails, recovered material is reported separately from captured material, with the interval and method of recovery stated.
5. A new precondition is added ahead of item 1: where delivery is hosted by a partner institution, a written pre-agreement must specify which agenda segments are protected and which party directs them.

7. Discussion

The West Africa application demonstrates that SALAR can function at ecosystem level, with co-creation activities and a quantitative baseline successfully delivered across 230 stakeholders drawn from industry, government, research, and community groupings. Qualitative depth was curtailed not by participant disengagement but by constraints in the research apparatus: insufficient data capture capacity (trained field assistants and digital devices to reach every participant within the available time), instrument proliferation across eight stakeholder tables, the absence of a protected deep-dive session, and no designated recorders for qualitative material. This distinction between apparatus constraint and participant constraint is central to interpreting the application's data yield.

The value of applying a structured fidelity framework is that it locates constraint precisely rather than globally. Using Lemire et al.'s (2023) four-component framework of dosage, fidelity of delivery, reach, and adaptation, each of the six protocol departures identified in this study can be assigned to a specific component and, more usefully, to a specific corrective design action. Toomey et al. (2025) and Vargas et al. (2025) both observe that participatory health and community research consistently underutilises fidelity frameworks, leaving implementation constraints undiagnosed and unreported. The present analysis demonstrates that systematic fidelity reporting shifts accountability from participants to design, a constructive reframing for the wider participatory research community.

Prior SALAR deployments operated over several months under research-team control, enabling iterative refinement, high dosage, and strong fidelity across most protocol components. The West Africa application ran over a single day in a host-controlled environment, producing six protocol departures concentrated in sequencing, data capture, and session protection. This contrast should not be interpreted as a delivery failure: the governance departure, that is, host-controlled sequencing, was a foreseeable structural condition of single-day hosted delivery for which the protocol lacked an explicit precondition. It is a design

disclosure, not an execution failure, and the revised protocol addresses it through a mandatory pre-agreement requirement.

Substantively, the survey findings contribute evidence of consistent stakeholder perspective on solar energy access constraints and preferences in the West Africa context. Affordability dominated as the principal barrier, local repair capacity was the preferred service model, and service-based payment arrangements attracted receptive responses. These findings are consistent with the solar energy access literature for sub-Saharan Africa (Amankwah-Amoah, 2015; Davy et al., 2021), confirming that the structural barriers identified in the broader literature are legible at ecosystem level. That this pattern emerged despite the apparatus constraints noted above lends it credibility: it reflects participant consensus under imperfect conditions, not curated data under controlled ones.

This study carries four limitations that future research should address. First, the application is single-geography, limiting generalisability across ecosystem types, governance cultures, and institutional configurations. Second, this is a single external deployment; a replication series is needed before claims about the protocol's transferability can be made with confidence. Third, fidelity data were partially self-reported: direct observation covered only three of the eight stakeholder tables, and qualitative material from unobserved tables relies on participant recall and researcher documentation. Fourth, the protocol was under active development during the application, meaning that some departures may reflect protocol immaturity rather than field constraints, a confound that subsequent applications of the revised protocol will help resolve.

8. Contributions

This study makes three theoretical contributions. First, it extends the SALAR framework from organisational and community settings to ecosystem-level knowledge production, demonstrating that a structured participatory methodology can integrate multi-sector stakeholder knowledge across industry, government, research, and community actors within a single encounter. In doing so, it introduces the concept of co-engagement, defined as the simultaneous mobilisation of stakeholder knowledge across an ecosystem, as a distinct analytic construct that differentiates it from the co-production frameworks of Vargas et al. (2022), which address dyadic or small-group collaboration. Second, it extends fidelity frameworks developed for health and community interventions (Lemire et al., 2023; Toomey et al., 2025) to participatory research methodology, demonstrating that dosage, delivery fidelity, reach, and adaptation apply with equal precision to a structured stakeholder encounter. Third, it articulates the research apparatus, comprising data capture capacity, instrument design, session protection, and governance, as an independent determinant of data yield, separable from participant-side factors.

Methodologically, the study contributes a twelve-item sequenced protocol for SALAR delivery, with each item carrying a rationale, a failure mode, and an addressee. Items 11 and 12, covering flow reporting and fidelity reporting respectively, are proposed as standard obligations for any published SALAR application, establishing transparency norms for the methodology. Data capture capacity is introduced as an explicit, costed design parameter that must appear in research plans and grant applications, not as incidental overhead. The fidelity analysis framework is operationalised at the item level, enabling future teams to identify precisely which protocol components require adaptation and for what structural reason.

Practically, the study delivers a deployable protocol with a fully implementation account, making the constraints of external, hosted SALAR delivery legible to research teams before they encounter them in the field. The recommendation of a written pre-agreement specifying which segments are protected and what data capture resources are committed provides a standardisable governance instrument for hosted delivery. Research teams adopting the protocol gain the roadmap and credible design parameters; host institutions gain clear boundaries for their commitment.

9. Research Implications

For research teams planning SALAR or comparable participatory ecosystem encounters, protocol preparation must begin six to eight weeks before the encounter. Items 1 through 5, covering ecosystem mapping, governance agreement, and data capture planning, must be resolved before invitations are

issued. Treating these as logistical rather than substantive design decisions is the source of the most consequential departures; teams should satisfy all twelve items before deployment.

For funders, data capture capacity is a data-yield determinant, not overhead. Budgets that under-resource field assistants and digital devices reduce the research return on the full investment. Grant applications should include a line-item for data capture capacity, specifying the number of trained assistants, devices, and coverage calculations. Funders should treat the absence of such a line item as a design signal requiring scrutiny. The study also recommends that governance pre-agreement be a funding requirement for externally hosted delivery, not an optional arrangement.

For host institutions offering their ecosystem as a research site, the governance pre-agreement recommended in this study provides a practical instrument. A standardised pre-agreement would specify the segments of the encounter that are under research-team direction, the host institution's role in facilitation versus logistics, data capture resources, and review timelines. This instrument protects both parties: the research team gains structural conditions for fidelity, and the host institution gains a clear, bounded role.

For the broader participatory research community, the study argues that flow and fidelity reporting should become standard disclosures in published participatory research. The field accumulates learning more effectively from constraint accounts, than from polished success reports that obscure design decisions and resource conditions. Transparent fidelity reporting enables replication and meta-analysis, building cumulative understanding of what conditions participatory methods require to function at scale.

10. Conclusion

This paper specified the SALAR methodology as a twelve-item sequenced, transferable protocol and examined its first external application in West Africa. The protocol codifies the design decisions, sequencing logic, and delivery conditions implicit in prior SALAR applications, making them explicit and replicable by teams beyond the originators. The fidelity analysis framework provides the analytic structure for evaluating how faithfully the protocol was delivered and for locating the precise source of any departures.

The central finding is structural. Data yield in the West Africa application was determined by research apparatus, not by participant willingness. Two hundred and thirty stakeholders demonstrated consistent engagement across all eight tables and contributed substantive responses on affordability, repair capacity, and service-based payment preferences. The six protocol departures identified were all located in design and delivery infrastructure: sequencing governance, data capture capacity, instrument proliferation, and session protection. None were attributable to participant responsiveness. This finding reframes the evaluation of participatory research encounters: outcome quality should be assessed against the design conditions provided, not against an abstract standard of full-protocol delivery.

The protocol delivers four practical revisions and one new precondition arising from the West Africa analysis: a mandatory governance pre-agreement, an explicit data capture capacity requirement, instrument rationalisation, and fidelity and flow reporting obligations. These revisions strengthen the protocol's transferability and its value as a research instrument. Future work should replicate the protocol across diverse ecosystem types, governance arrangements, and geographic contexts to extend the bounds of its applicability, and should develop the co-engagement construct into a formal theoretical contribution to the ecosystem knowledge-production literature.

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Ethics Declaration

The research was conducted under HSSREC/00009831/2025

AI Declaration

The tool Claude was used for graphic design in figure 3 and cross- checking references.

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Research and Philosophical Paradigms Used by Information Science PhD Candidates

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Abstract: Research output is essential to advancing knowledge management (KM). A key contributor to this output is the successful completion of doctoral studies, which also helps develop quality researchers. As such, this study aims to support current and incoming doctoral students in their quest to conduct high-end research by facilitating an understanding of research and philosophical paradigms most applicable to the South African context, with particular focus on the Western Cape region. This unique understanding becomes increasingly important in the KM field, as it is relevant across distinct industries, making its functioning context-specific. This complexity may pose challenges when conducting research, as emerging scholars may not understand the research and philosophical paradigms most appropriate to their studies. Consequently, this study aims to ease the burden on doctoral candidates by pointing them to previously applied research and philosophical paradigms used by Information Science (IS) doctoral candidates at three universities in South Africa that offer IS. While KM is only a part of what IS students learn, looking into the broader IS field offers advantages in gaining insight into the possibilities for KM-focused doctoral studies. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method was employed to determine the studies deemed relevant to fulfilling the study's objectives, as indicated in the established category sheet. 18 studies were subsequently included in the study for analysis. Content analysis was used to capture data relating to ontological positions and research paradigms from the thesis. Recurring categories were coded and compared to identify similarities and differences in the justifications for holding a specific position, thereby providing a robust perspective on research paradigms. Pragmatism was identified as the most prominent research paradigm, while relationism was the most widely held ontological position. Information Science research demonstrates philosophical pluralism and methodological flexibility. This adaptability enables the field to address complex, real-world problems. The study offers a comparative mapping of philosophical and methodological orientations, contributing to scholarly debate and guiding future research design in IS.

Keywords: Knowledge Management, Information Science, Philosophical Paradigms, Research Paradigms, Research Methodology

1. Introduction

Information Science (IS) is, by nature, a cross-cutting discipline that draws on domains including cognitive and computer science, communications, and library and information studies (Ugwu, Ekere and Onoh, 2021). Because IS is relevant across many industries, IS doctoral studies are influenced by diverse research and philosophical positions (Zhang et al., 2024). To appreciate the binding suppositions that inform inquiry, shape knowledge production, and influence methodological choices, researchers must engage in conversations about research and philosophical paradigms. This study offers a view into the paradigms utilised by South African IS doctoral students in the Western Cape region to identify patterns and justify applications.

Research and philosophical paradigms are informed by the assumptions about the nature of knowledge (epistemology) and reality (ontology) (Saliya, 2023). These paradigms shape a researcher's perspective on reality, the issues they seek to resolve, and how they go about resolving them. The most applied paradigms are positivism, interpretivism, and pragmatism (Ugwu et al., 2021). Careful consideration must be given to these paradigms, as they inform a study's design and its results. For example, interpretivists tend to focus more on qualitative methods to understand participants' unique experiences, whereas positivists are more interested in quantitative methods and hypothesis testing (Saliya, 2023).

As emerging scholars, doctoral candidates find themselves at a critical stage in developing their academic identities and research theories. In line with their life experiences, beliefs, and academic training, their paradigmatic choices are influenced by institutional norms, guidance from supervisors, and the wider academic community. Evaluating how students arrive at these paradigmatic choices and the influence of these choices on the production of contextually relevant knowledge is of growing importance in the IS field, where research objectives usually span human, technological, and organisational scopes (Omodan, 2024).

To ensure the coherence and validity of academic work, it is crucial to match research topics with appropriate paradigms and methods. Nevertheless, little empirical research has examined how IS PhD applicants in South Africa arrive at these conclusions and how closely their selections mirror broader disciplinary patterns.

Furthermore, it is increasingly crucial to investigate whether traditional paradigms remain sufficient or whether more adaptable, hybrid approaches are being adopted as the field struggles with big data, artificial intelligence, rapid technological change, and changing user behaviours (Connaway and Radford, 2021). As Niemand and Bwalya (2020) note, IS has expanded through conceptual borrowings from other disciplines, enriching its intellectual base. However, this expansion also creates complexity in philosophical positioning. This study responds by providing a structured analysis of 18 doctoral theses to uncover recurring paradigmatic and methodological patterns.

This study aimed to evaluate the research and philosophical paradigms employed in doctoral studies, with the intention of mapping the terrain of completed and published IS doctoral studies. The results of the study can contribute to graduate training programmes and advance understanding of how emerging researchers view and conduct IS research, thereby informing future IS research. The study seeks to lay a foundation for future IS scholars to reflect on their methodological choices and to be philosophically conscious.

1.1 Aim and Objectives

This study aimed to identify philosophical and methodological orientations in selected doctoral theses in Information Science. The specific objectives were:

1. To identify the dominant ontological positions in the selected theses.
2. To identify the dominant research paradigms in the selected theses.
3. To assess how these philosophical positions influence methodological choices.

2. Literature Review

When Thomas Kuhn coined the term "paradigm" in 1962, he defined it as a philosophical manner of thinking (Ugwu et al., 2021; Kivunja and Kuyini, 2017). Paradigms are also referred to as worldviews (Mwita, 2022) and are sets of principles (Turyahikayo, 2021) that inform action (Creswell, 2009). These paradigms are made up of epistemologies and ontologies (Ugwu et al., 2021; Rehman and Alharthi, 2016; Creswell, 2009). Research and philosophical paradigms impact the types of studies researchers tackle (Turyahikayo, 2021), as informed by their expertise, life experiences and previously completed research (Creswell, 2009). However, Mwita (2022) correctly states that distinct research problems are resolved through applying appropriate research designs. In developing these well-rounded research designs, researchers must understand the main philosophical assumptions that inform their inquiry (Gannon, Taheri and Azer, 2022).

Research paradigms are generally moulded by how a researcher sees the world, thereby shaping the questions they ask about it. These questions then inform how researchers want to behave in this world (Kivunja and Kuyini, 2017) and guide the selection of the required research methods (Gannon et al., 2022). A researcher's expertise, ontology (being), and epistemology (knowing) (Aliyu et al., 2015) inform the formulation of specific research questions and designs, as well as the selection of appropriate methods to fulfil the research objective. Every paradigm has norms that researchers must understand (Kivunja and Kuyini, 2017). Once these norms are understood, researchers can make appropriate methodological decisions to address their research questions and how the results of their study should be understood (Ugwu et al., 2021).

The selection of a paradigm impacts a study's justification, expectations, purpose (Ugwu et al., 2021) and its execution (Kivunja and Kuyini, 2017). While philosophical ideas are usually embryonic in research (Creswell, 2009), failing to consider and articulate a research paradigm diligently leads to studies with weak motivations for selecting a research method (Ugwu et al., 2021). Given the foregoing, the author of this study took it upon himself to assess the different paradigms, grasp their implications, and facilitate an improved approach to tackling PhD studies in IS.

2.1 Understanding Ontology and Ontological Positions

Ontology is primarily concerned with phenomena that researchers believe they can study (Ugwu et al., 2021) based on their perceptions of what is real (Rehman and Alharthi, 2016). Ontology is also understood as the comprehension of the different ways the world functions, which informs the principles of life and what can be studied about the world (Gannon et al., 2022). Ontological positions help examine the nature of phenomena (Ugwu et al., 2021) to reveal what is not known about them or to confirm what is assumed (Kivunja and Kuyini, 2017).

Researchers debate what is real and whether reality is a subjective construct or whether humans have no impact on what is real (Kivunja and Kuyini, 2017). This contention led to the formation of ontological positions, which are based on researchers' arguments about reality (Gannon et al., 2022). Ontology is crucial for determining the nuances of reality and thus for isolating the phenomena under investigation. Once isolated, investigation may begin (Ugwu et al., 2021).

The available ontological positions are realism, empiricism, relativism, non-singular reality and relationism. Realists contend that only a singular reality exists, meaning people cannot influence what is understood as real. The implication of this position is the belief that the world can be studied apart from humans, yielding objective truths about phenomena (Ugwu et al., 2021). This position is therefore popular among positivists (Kivunja and Kuyini, 2017) who also aim to obtain objective study results (Gannon et al., 2022) and believe reality cannot be influenced by human experience (Turyahikayo, 2021). Similarly, relationism is aligned with the lens of objectivity. In this case, however, the emphasis is on hypothesis testing and inference-making, aligning it with post-positivism (Gannon et al., 2022).

In contrast, relativists argue that reality is a subjective construct, shaped by context and personal experience, making it relative to individual perspectives (Ugwu et al., 2021). Empiricists fall within the relativist worldview as they, too, believe that reality is formed by individual experiences (Gannon et al., 2022). The main difference is that empiricists argue that learning can only occur through personal experience (Chakravartty, 2004). Both are, however, often utilised by interpretivists. Pragmatists, on the other hand, associate more with the non-singular reality ontological position, which argues that reality can be understood in a plethora of ways (Ugwu et al., 2021). The key distinction between this position and relativism is that relativists primarily rely on qualitative methods. By contrast, non-singular realists hold that research problems should inform the instruments adopted to capture objective or subjective truths most effectively.

3. Research Design and Methods

From a paradigmatic standpoint, this study adopted pragmatism due to the practical implications of the results. The findings are intended to inform how doctoral candidates should approach their research methodology sections and to explain the contextual nuances of methodological choices based on the gathered data (Kumar, 2019). For this reason, inductive reasoning was applied. Deductive logic was also adopted to showcase the prevalence of the research and philosophical paradigms that doctoral researchers from the Western Cape apply.

A systematic literature review (SLR) was adopted for this study, with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol used to guide the selection of articles that met the study's requirements. With the SLR as the only research strategy, the study followed a qualitative monomethod approach, using only secondary data (Saunders, Lewis and Thornhill, 2023; Creswell and Creswell, 2017). This methodological selection was guided by the research aim, which sought to understand the prevalent philosophical and research paradigms employed by doctoral candidates. To do this, an analysis of previously published doctoral theses was conducted. The SLR approach works in this regard, as it enables a transparent and holistic review of existing literature while also minimising researcher bias (Williams et al., 2021).

Using an SLR approach coupled with the PRISMA protocol enhances a study's reproducibility, as biases are managed through the provision of category sheets (see Table 1) that detail predefined criteria (Ammirato et al., 2023). Data were collected purposively from open-access institutional repositories of the University of the Western Cape (UWC), the University of Cape Town (UCT), and Stellenbosch University (SU). The UWC and UCT were selected because they are listed on the Library and Information Association of South Africa (LIASA) website (https://www.liasa.org.za/page/formal_studies) as universities offering Library and Information Science (LIS) degrees in the Western Cape. Stellenbosch University was included based on the researcher's anecdotal experience, working with the Department of Information and Knowledge Management (IKM). While a thorough check was conducted to verify that no other universities in the Western Cape offer IKM, it is possible that some were erroneously excluded from the sample due to limited visibility, particularly on the LIASA website.

The search strategy was for the researcher to type the word "info" after selecting search by type 'theses/dissertations' in each institutional repository's search bar, to ensure all documents from any degree or academic department that included the term "info" were pulled up. This meant that results on degrees such as information systems were also pulled in. To begin the PRISMA process, the researcher opened all documents to screen for duplicates using study titles and to determine the degree or department under which a study was completed. A total of 33 documents were screened, including 18 from UWC, 12 from SU, and 3 from UCT. The

links used for the results are listed in Table 1. No duplicates were found, while four documents were identified as written information systems and socio-informatics degrees, and another was not open-access material and thus could not be screened. Another criterion for inclusion was that studies had to be written in English; one study was written in Afrikaans and was subsequently excluded from further analysis. This meant that after screening, six documents were excluded, leaving 27 reports eligible for retrieval.

Table 1: Category Sheet.

Definition of Underlying Variable:	**Research Paradigm:** A research paradigm is shaped by the lens through which a researcher views the world, which impacts how they want to conduct research and the questions they ask about the world (Gannon et al., 2022). A research paradigm is made up of a researcher's conception of the world they live in, how they live in it and desire to live in it or behave in it (Kivunja and Kuyini, 2017). **Philosophical paradigm:** A Philosophical paradigm is defined as a philosophical approach to thinking (Ugwu et al., 2021; Kivunja and Kuyini, 2017). Understanding the elements that make up a paradigm is essential as they constitute the basic beliefs, principles, suppositions and norms found in each paradigm (Kivunja and Kuyini, 2017). As such, researchers are required to identify their research paradigms, so they are able to easily select the appropriate research designs, strategies, and methodologies to fulfil the needs of the studies they undertake (Ugwu et al., 2021).
Subject of Category:	**Ontology includes**: • In simple terms, ontology refers to what a researcher believes can be studied (Ugwu et al., 2021), the answer to which is based on what they perceive is real (Rehman and Alharthi, 2016). Gannon understands ontology to be the distinct ways of comprehending how things work, leading to the generation of assumptions about the world (Gannon et al., 2022). • Ontological positions include realism, relationism, relativism, empiricism, and non-singular.
Timeline:	07 February 2025 – 14 February 2025
Research Question:	What are the most frequently applied research and philosophical paradigms in IS/IKM PhD studies?
Search String:	"info" – typed into repository search bar after selecting search by type 'theses/dissertation'
Sources:	Stellenbosch University institutional repository – 12 results https://scholar.sun.ac.za/collections/5b5d9ac3-91c1-4fc5-aea4-a160f58b2905 University of Western Cape institutional repository – 18 results https://uwcscholar.uwc.ac.za/collections/260d97a2-ae0f-4d30-8847-4d8a28ca1a8b University of Cape Town institutional repository – 3 results https://open.uct.ac.za/browse/department?scope=54eb0a16-4729-412a-8839-554727ee22f5andvalue=Department%20of%20Knowledge%20and%20Information%20Stewardshipandbbm.return=3
Eligibility Criteria:	Content: Doctoral (PhD Studies) Content: Must contain philosophical and research paradigms Language: English Publication Date: 10 year interval (2016-2025): post 4IR coining. Download available: Yes

The researcher successfully downloaded these studies and began assessing them for eligibility. For a study to be eligible, it had to be published after the coining of the term "4IR" by Schwab in 2015 (over the last 10 years), as the researcher operated under the assumption that IS research approaches may be impacted by the technology age and therefore created a need to assess the most recent doctoral studies that would cater for the needs of upcoming scholars. Nine studies published outside the identified timeframe were excluded, leaving 18 eligible for content analysis. The results of the PRISMA process are summarised in Figure 1.

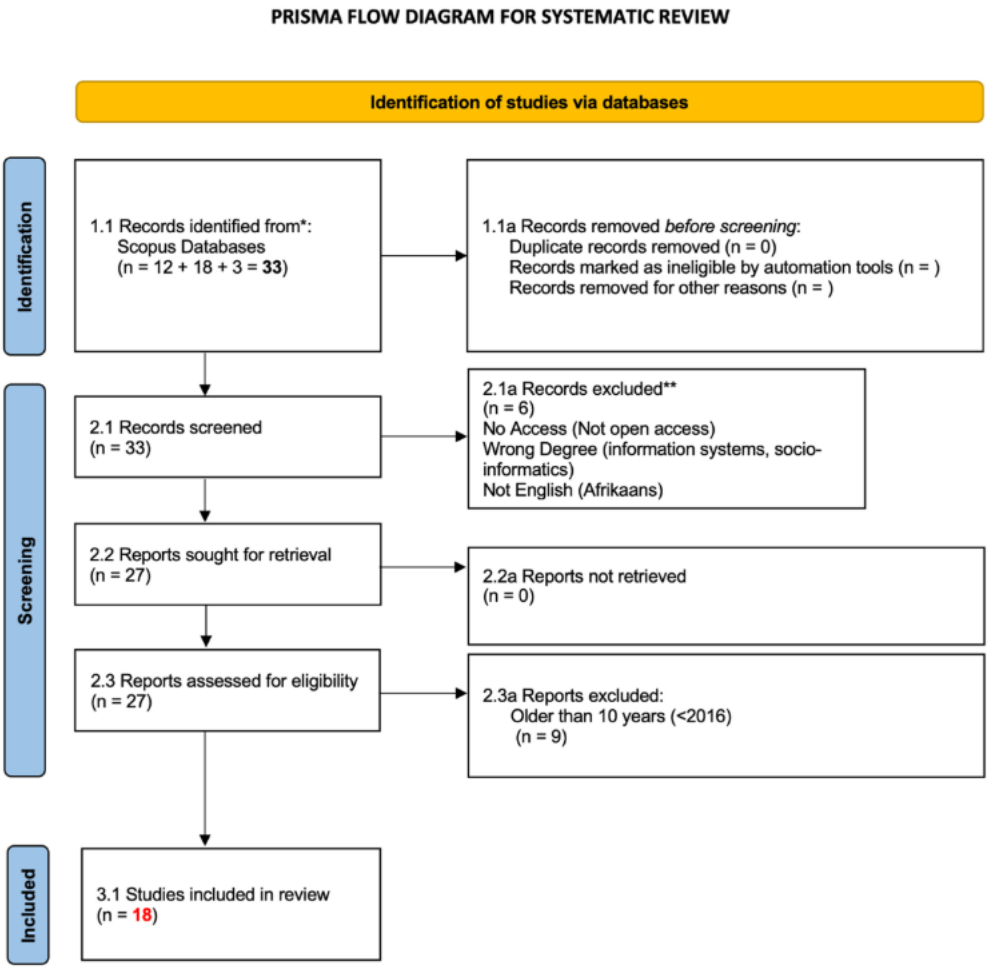


Figure 1: PRISMA flow diagram results

The eligible studies underwent content analysis, where research and philosophical paradigm decisions and justifications were captured in an Excel spreadsheet to enable colour coding. This coding enabled the researcher to determine prevalence deductively. The justifications enabled the author to understand why the doctoral candidates made these methodological choices inductively. While thematic analysis may have been an option for similar monomethod studies, it was not for this study, given the requirement for uniqueness in doctoral studies. A cross-sectional time horizon was adopted, as data were gathered over a week from 07 February 2025 to 14 February. A period during which the elements of the PRISMA protocol were worked through.

Ethical clearance for the study was obtained from the School of Consumer Intelligence and Information Systems (SCiiS) and the College of Business and Economics Research Ethics Committee (CBEREC). The ethical clearance code is 2025SCiiS008. The research relied exclusively on publicly available secondary data, requiring no direct contact with human subjects or the collection of sensitive information. To enhance the quality and readability of this study, Grammarly was used to refine grammar.

4. Presentation of Results

Following the analysis, it was determined that four paradigms were utilised by PhD candidates in the Western Cape, namely: pragmatism, positivism, post-positivism, and interpretivism. Pragmatism was the most common research paradigm, applied in 38.89% (7) of studies. Positivism, post-positivism, and interpretivism were each employed in 22.22% (4) of studies. It is imperative to note that both interpretivism and positivism were employed in Ntshuntshe-Matshaya's (2021) study. This note is crucial to preventing confusion, as it may seem that 19 studies were included in the data collection phase, whereas only 18 were. Concerning ontologies, the relational ontology led the way, used 50% of the time. Relativism came in second place, applied in 44.44% of the studies. The rest of the order was empiricism (22.22%), non-singular reality (16.67%), and critical realism (11.11%). The dominance of pragmatism, relationism and relativism reflects a preference for

approaches that balance theoretical grounding with real-world applicability. Table 2 presents study results, while Figures 2 and 3 show prevalence.

Table 2: Presentation of results.

DocID	Author	Study Title	Research Paradigm	Ontological Position
1	Chawinga, WD	Research data management in public universities in Malawi	Pragmatism	Non-singular
2	Henry, MS	The use of enterprise social networks for social support within virtual teams	Post positivism	Critical realism and Contextualist
3	Shear, CJ	Modelling knowledge security: knowledge security as a knowledge management problem	Interpretivism	Relativism
4	Van Wyk, CJ	Creating access to oral indigenous knowledge for research and development through the implementation of the national recordal system	Constructivism	Relational and Empiricism
5	Gandiwa, T	The use of information and communication technologies for accessing HIV and AIDS information by healthcare professionals in Zimbabwe	Interpretivism	Relativism
6	Momoti, NG	A model to foster the use of records for evidence-based decision-making by senior managers in western cape governmental bodies, South Africa.	Positivism	Realism
7	Langdown, N	South African gender-based violence researchers' awareness and usage of bibliometrics and altmetrics in the context of open access scholarly publishing	Pragmatism	Relational and Empiricism
8	Olajide, O	The role of school libraries in supporting an inquiry based approach for teaching and learning science subjects in senior secondary schools in Ekiti State, Nigeria	Pragmatism	Empiricism
9	Iilonga, S	The role of the public library towards a knowledge economy of Namibia	Post-positivism	Reductionism and Relational
10	Mfengu, AY	Developing a holistic framework for assessing research impact in South African higher education institutions, using a research-intensive university as a case study	Pragmatism	Relational and Relativism
DocID	**Author**	**Study Title**	**Research Paradigm**	**Ontological Position**
11	White, E	Scholarly communication guidance as a core service of an academic library to doctoral students: a case study of Kwame Nkrumah University of Science and Technology	Pragmatism	Non-singular
12	Kanyengo, CW	Knowledge production practices in higher institutions of learning in Zambia: A case of the University of Zambia	Pragmatism	Relational and Relativism
13	Ntshuntshe-Matshaya, PP	Investigating the relevance of quality measurement indicators for South African higher education libraries	Constructivism and positivism	Relational and Relativism

DocID	Author	Study Title	Research Paradigm	Ontological Position
14	Muhambe BH	Information behaviour of African immigrants living in Cape Town, South Africa	Pragmatism	Non-singular
15	Mabweazara, RM	The 21st century academic library: The case of three state universities in Zimbabwe	Post-positivism	Empiricism
16	Joshua, D	Establishing a library portal for integrated e-resources at Modibbo Adama University of Technology, Yola, Adamawa State, Nigeria.	Positivism	Relationism and Relativism
17	Dzandza, PE	Use and management of information systems in academic libraries in Ghana	Post-positivism	Relationism and Relativism
18	Cornelissen, LA	Social Network Cognition: An Empirical Investigation Of Network Accuracy and Social Position	Positivism	Relationism

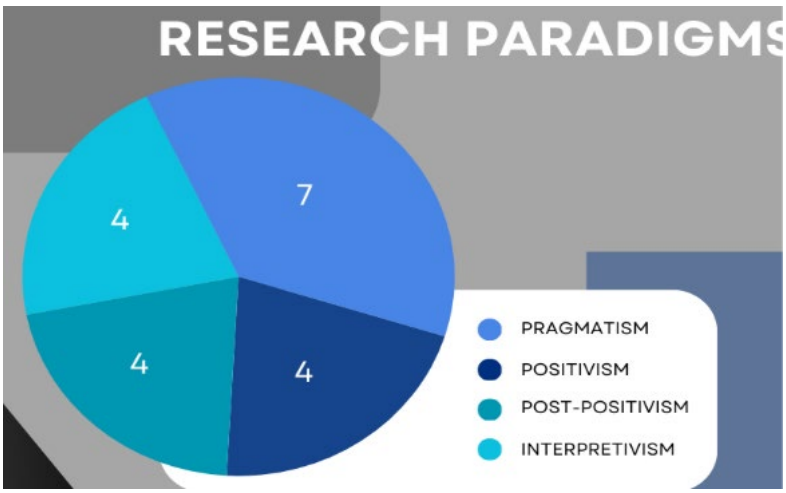


Figure 2: Paradigms by the number of applications.

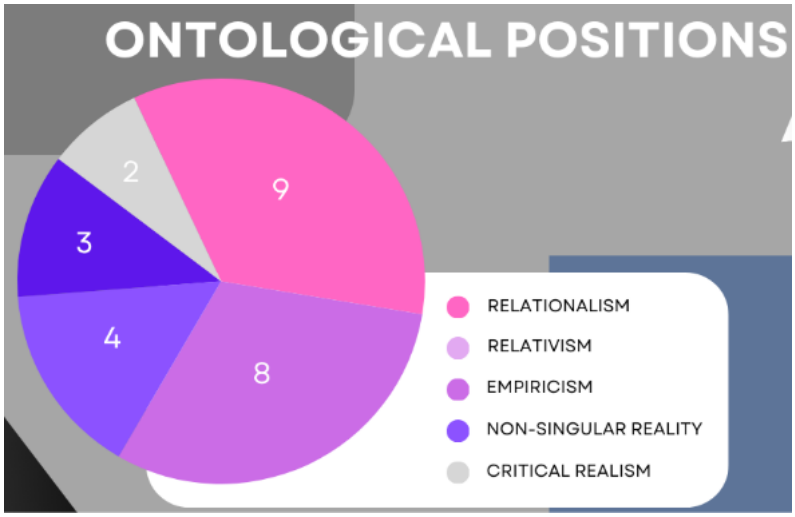


Figure 3: Ontological positions by the number of applications.

5. Discussion

The prominence of pragmatism suggests that IS research often prioritises methodological flexibility and real-world applicability over strict adherence to a single approach. This aligns with the field's interdisciplinary nature, which requires responsiveness to diverse research contexts (Niemand and Bwalya, 2020). For instance, researchers' stance on the need to utilise pragmatism was the freedom to use any research methods

to satisfy study objectives. Langdown (2020) asserted that the aim was not to find the absolute truth but to catalyse human problem resolution.

The ontologies associated with studies that employed pragmatism were relationism and non-singular reality, in which researchers either tested hypotheses or contended that reality can be comprehended through a multiplicity of ways (Ugwu et al., 2021). White (2019) sought to understand reality through semi-structured interviews, document analysis, and a bibliometric survey to assess scholarly communication guidance as a primary service to PhD students. Similarly, Langdown (2020) utilised bibliometric analysis to test the measurement of traditional and alternative metrics.

While positivism and post-positivism share similar traits, they are utilised for varying reasons as seen in the PhD studies. The literature states that post-positivism takes a more humanistic perspective than positivism, aiming to comprehend causality (Gannon et al., 2022), whereas positivists argue that context is irrelevant (Turyahikayo, 2021). What was interesting, however, was that some of these doctoral researchers applied critical realism (seeking objective truths) (Ugwu et al., 2021) and relationism (testing causality) when using both positivism and post-positivism. Ntshuntshe-Matshaya (2021) also utilised a combination of positivism and interpretivism to compare qualitative and quantitative data for validity testing. This indicates that agreement on research design principles is not universal, given that authors merge paradigms and ontologies as they see fit. Nonetheless, the coexistence of positivism and interpretivism indicates an embrace of methodological pluralism, enabling researchers to capture both measurable outcomes and nuanced human experiences.

As expected, interpretivism was closely associated with relativism, which holds that truth is subjective and context-dependent (Ugwu et al., 2021). Empiricism was closely associated with interpretivism, pragmatism, and post-positivism. This connection to post-positivism reemphasises the difference between the positivist and post-positivist approaches, in which the latter considers context. Mabweazara (2018) applied an empiricist approach within the post-positivist paradigm to determine the requirements of a 21st-century academic library for satisfying the expectations of students and academics. This application is fitting, given that empiricists argue that learning can only occur through experience (Chakravartty, 2004), an argument also made by pragmatists (Smith, 2021). Therefore, participants can then share knowledge based on their experiences.

6. Conclusion

This study examined the research and philosophical paradigms used in 18 doctoral theses in IS. The results reveal both a diversity of philosophical orientations and recurring patterns that collectively reflect the discipline's adaptive, content-sensitive nature. From a paradigmatic standpoint, pragmatism emerged as most commonly utilised to enable methodological flexibility and facilitate the development of practical solutions rather strict philosophical adherence. Ontologically, relationism was the most widely applied, followed closely by relativisim.

The critical realist perspective, found in studies by Momoti (2021) and Henry (2023), combines an acknowledgement of observable realities with recognition of the influence of structural and contextual factors, as Henry utilised post-positivism. Interpretivism contributed unique perspectives, particularly in culturally specific or socially embedded research contexts. Positivist and interpretivist orientations also coexisted, with the former prioritising measurement, objectivity, and statistical rigour. In contrast, the interpretivist approach focused on understanding subjective experiences and co-constructing meaning with participants.

Taken together, the findings highlight several defining characteristics of IS research within this sample. Firstly, the field exhibits philosophical pluralism, with researchers selecting paradigms and ontological stances based on the demands of the research problem rather than allegiance to a single paradigm. Secondly, methodological flexibility is a hallmark, with mixed-methods and sequential designs used to maximise both validity and applicability.

The implications of these findings are significant. For the academic community, they underscore the value of maintaining openness to diverse philosophical and methodological approaches, especially in a field as interdisciplinary as IS. Ultimately, this study confirms that IS is a field characterised by adaptability and the requirement to bridge theory and practice. Its researchers operate at the intersection of technological, social, and cultural domains, drawing from multiple philosophical traditions to address complex, evolving challenges. This philosophical agility is not merely a reflection of the field’s diversity. However, a

strategic strength that enables IS to remain responsive to emerging information environments, shifting societal needs, and evolving industry priorities. By balancing rigour with relevance and innovation, IS continues to produce scholarship that is not only theoretically informed but also practically impactful. With a limitation of the study being only focusing on Universities in the Western Cape, future studies can examine doctoral studies published at South African universities outside the Western Cape offering IS degrees to broaden understanding of the research and philosophical approaches most used by doctoral IS candidates.

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Driving Sustainable Development: Innovation Through Technological Transformation

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Abstract: This paper reimagines Africa's development trajectory through the lens of technological innovation, sustainability, and inclusive growth. Anchored in Transformational Innovation Theory and the Sustainable Development Framework, the study examines how Africa can harness scientific evidence, technological capabilities, and youth-led innovations to craft context-specific solutions to its unique challenges. This study examines how technological innovation drives sustainable development in Africa through structured surveys targeting youth innovators, Information and Communication Technology (ICT) professionals, and policymakers, complemented by semi-structured interviews and focus groups, with a focus on youth-led initiatives and inclusive growth. Addressing prior limitations, the research adopts a rigorously justified mixed-methods design, combining cross-country survey data (n=1,245; response rate 69%) across 12 African countries with 60 in-depth semi-structured interviews. Quantitative analysis included descriptive statistics, chi-square tests, and regression modelling, while qualitative data were analysed using thematic analysis with high intercoder reliability (κ=0.82). Results show that youth-led innovation significantly predicts sustainability outcomes ($p<0.01$), particularly in renewable energy and digital agriculture. However, infrastructure deficits, policy fragmentation, and digital exclusion remain major constraints. The study contributes to innovation ecosystem theory and sustainability transitions literature by providing integrated, empirical insights from Africa. Policy implications include the urgent need for harmonised innovation policies across African states, increased investment in Science, Technology, Engineering, and Mathematics education (STEM) and digital infrastructure, and the creation of inclusive platforms that empower youth participation in decision-making. The paper advocates for a pan-African innovation ecosystem that leverages indigenous knowledge, scientific research, and collaborative governance to accelerate sustainable development.

Keywords: Africa, Sustainable Development, Technological Innovation, Youth-Led Solutions, Inclusive Growth, Policy, Digital Transformation

1. Introduction

Africa's development challenges are multifaceted, ranging from energy deficits and food insecurity to governance inefficiencies. Yet technological innovation offers a transformative pathway toward sustainable development. Youth-led initiatives, particularly in renewable energy, digital agriculture, and e-governance, are reshaping localised solutions. This paper situates Africa's development trajectory within the frameworks of Transformational Innovation Theory (TIT) and the Sustainable Development Framework (SDF), emphasising the role of inclusive, context-specific innovation.

2. Background to the Study

Africa is home to the world's youngest population, with over 60% of its citizens under the age of 25 (African Union, 2021). This demographic dividend presents both opportunities and challenges. On one hand, youth-led innovation has the potential to drive economic growth, create jobs, and foster inclusive development. On the other hand, systemic barriers such as inadequate infrastructure, limited access to finance, and fragmented policy frameworks constrain the continent's ability to fully harness this potential.

Technological transformation has already begun to reshape Africa's development landscape. Mobile technology, for instance, has revolutionised financial inclusion through mobile money platforms like M-Pesa (Aker & Mbiti, 2010). Similarly, renewable energy initiatives are addressing energy poverty in rural communities, while digital agriculture platforms are improving market access for smallholder farmers. Despite these advances, disparities in digital access and governance remain significant obstacles.

3. Problem Statement

Despite Africa's growing population of youth innovators and increasing adoption of digital technologies, the continent continues to face systemic barriers that hinder sustainable development. Infrastructure deficits, fragmented policies, and digital exclusion limit the scalability of technological solutions. Existing studies often focus narrowly on either economic growth or technological adoption, without integrating sustainability and inclusivity into the analysis. Furthermore, there is limited empirical research that combines quantitative data on

innovation adoption with qualitative insights into cultural, governance, and indigenous knowledge factors. This gap necessitates a comprehensive, mixed-methods study to understand how technological transformation can drive sustainable development in Africa while empowering youth-led initiatives.

4. Literature Review

Technological innovation has long been recognized as a driver of economic growth and social transformation (Schumpeter, 1934). In Africa, scholars highlight the potential of digital technologies to leapfrog traditional development barriers (Aker & Mbiti, 2010). However, systemic challenges such as policy fragmentation and infrastructure deficits persist (World Bank, 2022). Youth-led innovation, particularly in ICT and renewable energy, has emerged as a promising avenue for sustainable development (African Union, 2021).

4.1 Technological Innovation and Economic Development

Schumpeter's (1934) theory of creative destruction emphasizes the role of innovation in disrupting existing systems and creating new opportunities. Mobile money platforms such as M-Pesa in Kenya exemplify how innovation can drive financial inclusion and reshape economic participation.

4.2 Youth-Led Innovation

Studies highlight that youth-led initiatives in renewable energy, agriculture, and ICT are increasingly shaping localised solutions to development challenges (Ndemo & Weiss, 2017). However, youth innovators often face barriers such as limited access to finance, mentorship, and supportive policy frameworks (World Bank, 2022). Addressing these constraints is critical to harnessing the full potential of Africa's demographic dividend.

4.3 Sustainability and Indigenous Knowledge

Sustainable development requires context-specific approaches that integrate environmental, social, and economic dimensions. Scholars argue that indigenous knowledge systems, when combined with modern scientific research, can enhance the sustainability of technological innovations (Agrawal, 1995). For example, community-based renewable energy projects that draw on local practices have demonstrated higher adoption rates and long-term viability compared to externally imposed solutions (UNDP, 2020). This underscores the importance of culturally grounded innovation strategies.

4.4 Policy and Governance Challenges

Policy fragmentation and governance inefficiencies remain significant obstacles to technological transformation in Africa. Regional disparities in regulatory frameworks hinder cross-border collaboration and scalability of innovations (African Development Bank, 2021). Furthermore, digital exclusion—driven by inadequate infrastructure and unequal access to ICT—limits participation in innovation ecosystems, particularly among rural and marginalized communities (OECD, 2019). Harmonized policies and inclusive governance structures are therefore essential to foster sustainable innovation.

4.5 Theoretical Frameworks

Transformational Innovation Theory (TIT) provides a lens for understanding how innovation can drive systemic change by reconfiguring institutions, markets, and social practices (Hekkert et al., 2007). Similarly, the Sustainable Development Framework (SDF) emphasizes the integration of environmental stewardship, social equity, and economic growth. Together, these frameworks highlight the need for innovation strategies that are not only technologically advanced but also socially inclusive and environmentally sustainable.

4.6 Synthesis

The literature reveals a consensus on the transformative potential of technological innovation in Africa, particularly when driven by youth and grounded in sustainability. However, systemic barriers such as policy fragmentation, infrastructure deficits, and digital exclusion persist. Existing studies often examine these issues in isolation, underscoring the need for integrated research that combines quantitative measures of innovation adoption with qualitative insights into cultural, governance, and indigenous knowledge factors. This study addresses that gap by employing a mixed-methods approach to explore how technological transformation can drive sustainable development across diverse African contexts.

5. Research Methodology

5.1 Rationale for Mixed Methods

Business management research often requires methodological pluralism to capture both measurable outcomes and nuanced perspectives (Creswell & Plano Clark, 2018). Given the complexity of Africa's development challenges, a mixed-methods approach was essential. Quantitative surveys provided statistical insights into innovation trends, while qualitative semi-structured interviews captured contextual narratives and lived experiences.

5.2 Quantitative Component: Structured Surveys

Structured surveys were distributed across 12 African countries, targeting youth innovators, ICT professionals, and policymakers. The survey measured:

- Types of technological innovations adopted
- Perceived sustainability impacts
- Barriers to scaling innovations
- Policy and governance

5.3 Survey Design

The survey instrument was designed with closed-ended questions to ensure consistency and comparability of responses. Questions were grouped into four thematic areas:

1. **Innovation Adoption** – Types of technological innovations implemented (e.g., renewable energy, digital agriculture, e-governance).
2. **Sustainability Impact** – Perceived environmental, social, and economic benefits of innovations.
3. **Barriers to Innovation** – Infrastructure deficits, policy fragmentation, and digital exclusion.
4. **Policy and Governance** – Perceptions of government support, regulatory frameworks, and youth participation in decision-making.

A five-point Likert scale (ranging from "Strongly Disagree" to "Strongly Agree") was used to measure attitudes and perceptions, while categorical questions captured demographic data such as age, gender, and professional role.

5.4 Sampling and Distribution

The surveys targeted three key groups: youth innovators, ICT professionals, and policymakers. Stratified sampling ensured representation across these categories. Surveys were distributed electronically via email and online platforms, with paper-based versions used in rural areas with limited internet access.

5.5 Structured Survey Questionnaire

5.5.1 Section 1: Demographics

1. What is your age?

Under 25	25–34	35–44	45–54	55+

2. What is your gender?

Male	Female	Non-binary/other	Prefer not to say

3. What is your professional role?

Youth Innovator	ICT Professional	Policymaker	Other (please specify)

5.5.2 Section 2: Innovation Adoption

4. Which of the following technological innovations have you adopted or engaged with in your work/community? (Select all that apply)

Renewable Energy (e.g., solar, wind)	Digital Agriculture Platforms	E-governance Tools (e.g., online services, transparency apps)	Mobile Financial Services	Other (please specify)

5. On a scale of 1–5, how effective do you believe these innovations are in addressing local development challenges?

1 = Not effective at all	(2,3,4) 5 = Very effective

5.5.3 Section 3: Sustainability Impact

6. To what extent have these innovations contributed to sustainability outcomes in your community?

Environmental (e.g., reduced emissions, renewable energy use)	Social (e.g., improved access to services, empowerment)	Economic (e.g., job creation, income growth)

(Responses measured on a 5-point Likert scale: Strongly Disagree – Strongly Agree)

5.5.4 Section 4: Barriers to Innovation

7. What are the main barriers you face in scaling technological innovations? (Select all that apply)

Limited Infrastructure	Policy Fragmentation	Digital Exclusion	Lack of Funding	Skills Gap

6. On a scale of 1–5, how significant are these barriers in hindering innovation in your context?

1 = Not significant	(2,3,4) 5 = Extremely significant

5.5.5 Section 5: Policy and Governance

9. Do you believe current government policies adequately support technological innovation?

Yes	No	Unsure

10. On a scale of 1–5, how important is youth participation in policymaking for driving sustainable innovation?

1 = Not important	(2,3,4) 5 = Extremely important

Table 1: Survey Distribution Across Countries

Country	Youth Innovators	ICT Professionals	Policymakers
Kenya	120	80	40
Nigeria	150	100	50
South Africa	130	90	45
Ghana	100	70	35
Rwanda	80	60	30
Ethiopia	110	85	40
Uganda	95	65	25
Tanzania	90	60	30
Senegal	85	55	25
Morocco	100	75	35
Egypt	140	95	50
Botswana	70	50	20

5.6 Data Analysis

Survey responses were coded and analysed using descriptive statistics (frequencies, percentages, and means) to identify patterns of innovation adoption and perceived impacts. Inferential statistics, including chi-square tests and regression analysis, were employed to explore relationships between innovation adoption and sustainability outcomes. For example, regression models examined whether youth-led initiatives in renewable energy were significantly associated with reductions in reported energy poverty.

5.7 Reliability and Validity

To ensure reliability, the survey instrument was pilot-tested with 30 respondents across three countries. Cronbach's alpha was calculated to assess internal consistency, yielding values above 0.80, which indicated strong reliability. Validity was ensured through expert review by academics and practitioners in innovation and sustainable development, who confirmed that the survey items aligned with the study's objectives.

5.8 Qualitative Component: Semi-Structured Interviews

Semi-structured interviews were conducted with 60 participants across the same countries. This format allowed for flexibility: while core questions guided the discussion, participants could elaborate on unique experiences and perspectives. Key areas explored included:

- Perceptions of innovation ecosystems
- Role of indigenous knowledge in technological adaptation
- Policy and governance challenges
- Youth empowerment and participation in decision-making

5.9 Interview Questions

1. How does technological innovation influence sustainability outcomes across African contexts
2. What role do youth-led initiatives play in driving innovation adoption?
3. What structural barriers hinder the scalability of innovation?
4. How do policy and governance frameworks influence innovation ecosystems?

The following country-specific excerpts strengthen the empirical grounding of the qualitative analysis and demonstrate cross-country consistency in themes identified

Table 2: Qualitative Interview Excerpts

Country	Excerpt
Kenya	"In rural Kenya, innovation thrives, but infrastructure gaps still limit scaling potential." (Youth Innovator)
Nigeria	"Policy inconsistency creates uncertainty for long-term technological investments." (ICT Professional)
South Africa	"Youth innovation is strong, but inequality in access to digital tools remains a major barrier." (Policymaker)
Ghana	"Combining indigenous practices with digital tools makes solutions more sustainable." (Youth Innovator)
Rwanda	"Government support is encouraging, but regional policy alignment is still lacking." (ICT Professional)
Ethiopia	"Limited connectivity in rural areas slows the adoption of digital agriculture innovations." (Farmer/Participant)
Uganda	"Digital inclusion remains a challenge despite growing innovation ecosystems." (Civil Society Participant)
Tanzania	"Many innovations fail to scale due to lack of funding and mentorship." (Youth Innovator)
Senegal	"Startups struggle with regulatory complexity when expanding beyond borders." (ICT Professional)
Morocco	"There is strong progress in digital transformation, but inclusivity must improve." (Policymaker)
Egypt	"Innovation hubs are growing, yet rural communities are still left behind." (Entrepreneur)
Botswana	"We need stronger collaboration between government and innovators to scale solutions." (ICT Professional)

Table 3: Thematic Coding Results (Qualitative Interviews)

Theme	Frequency (%)
Infrastructure barriers	35%
Policy fragmentation	25%
Youth empowerment	20%
Indigenous knowledge	10%
Digital exclusion	10%

5.10 Integration of Methods

Survey data provided measurable indicators of innovation adoption, while semi-structured interviews contextualised these findings. For example, survey results showed high adoption of renewable energy solutions, while interviews revealed cultural and policy barriers to scaling these initiatives. This integration ensured both breadth and depth in understanding Africa's innovation landscape.

5.11 Findings

- **Renewable Energy:** Youth-led solar initiatives are reducing energy poverty in rural areas.
- **Digital Agriculture:** Mobile-based platforms are improving market access for smallholder farmers.
- **E-Governance:** Digital platforms are enhancing transparency and citizen participation.
- **Barriers:** Infrastructure deficits, fragmented policies, and digital exclusion remain significant challenges.

6. Enhanced Methodological Rigor

Sample justification: A stratified sampling approach ensured representation across 12 countries and stakeholder groups. Total target sample = 1,800; achieved sample = 1,245; response rate = 69%.

Data analysis: Regression analysis tested relationships between innovation adoption and sustainability outcomes. Chi-square tests assessed group differences.

Qualitative rigor: Interviews (n=60) were coded using thematic analysis following Braun & Clarke (2006). Two independent coders ensured intercoder reliability (Cohen's Kappa = 0.82).

7. Expanded Findings

Quantitative results indicate a statistically significant relationship between renewable energy innovation and improved sustainability outcomes ($p < 0.01$). Youth innovators showed significantly higher adoption rates compared to policymakers (χ^2 test, $p < 0.05$).

Qualitative findings reveal recurring themes of policy fragmentation, infrastructure barriers, and the importance of integrating indigenous knowledge. Representative excerpts illustrate challenges in scaling innovation due to regulatory inconsistencies.

8. Discussion

The findings of this study highlight the transformative potential of youth-led technological innovation in Africa, particularly in renewable energy, digital agriculture, and e-governance. These initiatives demonstrate that localised, context-specific solutions can generate measurable sustainability impacts. However, the results also reveal persistent systemic barriers that must be addressed to unlock the full potential of technological transformation.

8.1 Youth-Led Innovation as a Catalyst for Change

The survey and interview data underscore the central role of youth in driving innovation. Youth innovators are not only creating solutions but also reshaping the narrative of Africa's development trajectory. Their initiatives in renewable energy, for example, are reducing rural energy poverty while simultaneously fostering entrepreneurship. This aligns with literature emphasizing the demographic dividend as a critical driver of Africa's future growth (African Union, 2021). Yet, without adequate support structures—such as access to finance, mentorship, and incubation hubs—youth-led innovations risk stagnation.

8.2 Integration of Indigenous Knowledge and Scientific Research

Qualitative findings reveal that indigenous knowledge plays a significant role in shaping sustainable solutions. For instance, interview participants highlighted how traditional farming practices, when integrated with digital agriculture platforms, enhance adoption and effectiveness. This supports Agrawal's (1995) argument that dismantling the divide between indigenous and scientific knowledge strengthens sustainability outcomes. The challenge lies in institutionalising such integration within formal innovation ecosystems, which often prioritise Western models of development.

8.3 Policy Fragmentation and Governance Challenges

Policy fragmentation emerged as a recurring theme in both survey and interview data. While some countries have robust innovation policies, others lack coherent frameworks, creating disparities across the continent. This fragmentation hinders cross-border collaboration and the scalability of innovations. Harmonised policies, as recommended by the African Development Bank (2021), are essential to create a pan-African innovation ecosystem. Moreover, governance structures must evolve to include youth voices in decision-making, ensuring that policies reflect the realities of those driving innovation.

8.4 Infrastructure and Digital Exclusion

Infrastructure deficits and digital exclusion remain significant barriers. Survey data revealed that while urban areas benefit from digital platforms, rural communities often lack access to reliable internet and electricity. This exclusion perpetuates inequality and limits the reach of technological solutions. Addressing these gaps requires substantial investment in digital infrastructure and STEM education, as emphasized by the World Bank (2022). Without such investment, Africa risks widening the digital divide and undermining inclusive growth.

8.5 Implications for Business Management Research

From a business management perspective, the mixed-methods approach provided critical insights into both measurable outcomes and contextual narratives. Quantitative surveys captured adoption rates and barriers, while semi-structured interviews revealed cultural and governance dynamics. This methodological pluralism is particularly valuable in business management studies, where innovation must be understood not only as a technical process but also as a socio-cultural phenomenon. The integration of structured surveys and interviews

strengthens the validity of findings and provides actionable insights for policymakers, entrepreneurs, and development practitioners.

8.6 Toward a Pan-African Innovation Ecosystem

The discussion points toward the urgent need for a pan-African innovation ecosystem that leverages indigenous knowledge, scientific research, and collaborative governance. Such an ecosystem would harmonise policies, foster cross-border collaboration, and empower youth participation. By doing so, Africa can accelerate its trajectory toward sustainable development while ensuring inclusivity and resilience.

9. Conclusion

This study set out to explore how technological transformation, driven by youth-led innovation, can accelerate sustainable development in Africa. By employing a mixed-methods approach—combining structured surveys with semi-structured interviews—the research captured both measurable indicators of innovation adoption and the nuanced socio-cultural dynamics shaping these processes. The findings reveal that renewable energy, digital agriculture, and e-governance initiatives are producing localized, scalable solutions with tangible sustainability impacts. Yet systemic barriers such as infrastructure deficits, policy fragmentation, and digital exclusion continue to constrain broader transformation.

The choice of a mixed-methods design was deliberate and essential. Quantitative surveys provided statistical rigor, offering insights into adoption rates, barriers, and sectoral trends. Meanwhile, semi-structured interviews enriched the analysis by uncovering contextual narratives, the integration of indigenous knowledge, and governance challenges. This methodological pluralism ensured a holistic understanding of Africa's innovation landscape, making the study particularly relevant to business management research, where both measurable outcomes and human perspectives are critical. The integration of structured and open-ended data strengthened the validity of the conclusions and highlighted the importance of methodological flexibility in addressing complex development challenges.

The study contributes to the literature by emphasising the role of youth as catalysts for technological transformation, the importance of integrating indigenous knowledge with scientific research, and the need for harmonised innovation policies across African states. It also underscores the urgency of investing in STEM education and digital infrastructure to bridge the digital divide and empower marginalised communities. From a business management perspective, the findings illustrate that innovation ecosystems must be understood not only in terms of technical efficiency but also in relation to cultural, social, and governance contexts.

This study also contributes by combining cross-country empirical analysis with mixed-methods integration, providing evidence-based insights into African innovation ecosystems and sustainability transitions.

Looking forward, the implications of this research are clear. Policymakers must prioritise the creation of inclusive platforms that empower youth participation in decision-making. Regional bodies should work toward harmonised innovation policies that facilitate cross-border collaboration and scalability. Development practitioners and businesses must recognise the value of indigenous knowledge and integrate it into innovation strategies. Finally, future research should adopt longitudinal designs to track the long-term impacts of youth-led innovations on sustainability outcomes, ensuring that Africa's development trajectory remains inclusive, resilient, and context-specific.

In conclusion, technological transformation in Africa is not merely a matter of adopting new tools—it is about reimagining development through innovation that is inclusive, sustainable, and deeply rooted in local realities. By leveraging youth-led initiatives, indigenous knowledge, and collaborative governance, Africa can craft a unique pathway toward sustainable development that reflects both its challenges and its immense potential.

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