

MODULE 2

Evaluating and Analysing Methodological Strategies and Research Designs for Data Collection in Complex Work-Based Environments, Including a Critical Assessment of Ethical Considerations and Insider Research Issues

By Alexander Porter

2319175

(4,000 words)

TABLE OF CONTENTS

Table of Contents	P2
Introduction	P3
Philosophical Foundations	P5
3.1. Ontological Perspectives	
3.2. Epistemological Framework	
3.3. Axiological Considerations	
Research Paradigms	P8
4.1. Overview of Different Research Paradigms	
Methodologies	P10
5.1. Quantitative Methodologies	
5.2. Qualitative Methodologies	
Ethics and Insider Research Considerations	P12
6.1. Ethical Principles in Research	
6.2. Insider Research Challenges and Approaches	
Conclusion	P15
References	P16
Appendix I	P20

INTRODUCTION

This paper critically examines research in work-based settings, particularly Vocal Pedagogy, which integrates biological and social dimensions. It explores how ontological, epistemological, and axiological viewpoints influence research paradigms in this field. The paper evaluates qualitative, quantitative, and mixed-methods approaches for studying trauma and second language acquisition within Vocal Pedagogy, aiming to develop a comprehensive framework for ethical and effective research. It introduces Ethical Objectivism to enhance research practices by focusing on objective assessment tools, minimizing ethical risks, protecting participant autonomy, and preventing re-traumatisation.

Ontology, Epistemology, and Axiology

In this section, I analyse **ontology, epistemology, and axiology** to understand their roles in shaping research paradigms applicable to Vocal Pedagogy.

Ontology is about the nature of reality, typically divided into objective and subjective perspectives (Heron and Reason, 1997). However, confusion often arises due to varying definitions of 'reality' (Walach, 2020; Heidegger, 2013) and 'social reality' (Grix, 2001), potentially overlooking biological aspects. I use 'reality' to encompass both social and biological dimensions, which is crucial for a comprehensive understanding of Vocal Pedagogy.

Vocal Pedagogy exemplifies this integration. While it falls under the educational domain, the term 'vocal' emphasises biological mechanisms. This biological-social connection has been underscored by the trend of aligning Vocal Pedagogy with Voice Science (Callaghan, 2014), thus shifting research further towards objective biological realities. Consequently, I adopt a broad view of 'reality' that includes both biological and social dimensions, reflecting the complex nature of Vocal Pedagogy.

Researchers adopt different ontological positions. **Realism** asserts an objective reality independent of human perception. However, critics argue that Realism fails to account for phenomena such as consciousness (Walach, 2020), and struggles to address the subjective impact of trauma on language learning processes – my area of research. This suggests that incorporating a Constructivist perspective could offer a more nuanced understanding.

Constructivism posits that reality is socially constructed through subjective experiences and

interpretations, emphasising individuals' roles in shaping their realities. Additionally, positions like Relativism offer alternative ontological frameworks that bridge the gap between these perspectives, providing more nuanced approaches to understanding reality in the context of Vocal Pedagogy.

To explain my views, concepts from Cognitive Science are relevant:

Predictive Processing (PP) The brain's ability to generate and update predictions based on sensory input.

Relevance Realisation (RR) The cognitive process of determining the importance of information in a specific context.

Opponent Processing Balancing competing processes to regulate function.

Internal Modelling Integrating sensory information with prior knowledge to guide cognition.

Prediction Errors Discrepancies between predicted and actual sensory input, crucial for updating internal models.

After extensive reflection, I view reality as the interaction between subjective experience and neurobiological mechanisms. Prediction Processing (PP) generates errors and corrections to refine internal mental models, allowing effective navigation of the world. Relevance Realisation (RR) helps the brain focus on salient information, while opponent processing maintains balance between PP and RR. By allowing individuals to either adjust their internal models of external reality or influence external reality to fit their internal models, this interplay updates subjective perception and understanding, granting agency and control over one's environment (Nave *et al.*, 2022). This internal model framework has been pivotal in shaping my ontological view, as it underscores the integration of both neurobiological and subjective elements in understanding reality.

These theoretical insights guiding my perspective are supported by literature. My approach involves training students in metacognitive and affective skills aimed at enhancing self-regulation and addressing trauma-related cognitive interference. Brown *et al.* (2021) validated the metacognitive model of PTSD, showing that beliefs about thinking and memory can perpetuate PTSD symptoms, thus supporting this approach. Ferraro and Panlilio (2020), noted that maladaptive metacognitive processes obstruct PP and RR. Conversely, metacognitive therapy

(MCT) has been shown to reduce PTSD symptoms and improve cognitive processing (Sharma et al., 2022). Simons and Kursawe (2019) found significant MCT benefits for PTSD in younger populations, though future research should include larger, more diverse samples.

Constructivism acknowledges that knowledge is filtered through perception and impressions (Deeba et al., 2020), but it often overlooks the biological processes driving these perceptions, focusing instead on 'lived experience.' In Vocal Pedagogy, ignoring cognitive aspects like concentration and problem-solving when interpreting student behavior or academic progress would be a significant oversight.

In practice, a vocal coach might use a standardised psychometric test like the Metacognitive Awareness Inventory (MAI) to assess students' metacognitive skills from a Realist perspective. Administering the MAI before and after a trauma-informed vocal training programme could track changes in metacognitive skills and cognitive functioning. Concurrently, analysing written work from a Constructivist perspective can reveal focus difficulties and underlying cognitive or emotional issues. This combined approach integrates the cognitive model of PP and RR, connecting external reality with subjective perception.

Epistemology defines how knowledge is acquired and validated in research. **Objectivism**, with its Realist orientation, relies on empirical data and rational analysis to assess educational interventions for trauma (Easterby-Smith et al., 2018). This approach uses standardised measures for generalisable results but might overlook personal trauma experiences. Interpretivism, on the other hand, focuses on understanding subjective experiences through qualitative methods, offering rich insights but with potential biases (Hiller, 2016). A mixed-methods approach can integrate both perspectives, balancing objective data with personal narratives to enhance research outcomes and interventions.

However, subjective reality can be complex to interpret and might undermine subject agency during interventions, potentially leading to re-traumatization. Weiss (2021) describes re-traumatisation as the reactivation of traumatic stress through engagement with past trauma narratives.

Although Weiss's (2021) findings support direct research into trauma, I propose 'Ethical Objectivism,' which emphasises objective metacognitive and affective assessments to maintain subject self-regulation. This approach focuses on tasks and inventories rather than personal

narratives, minimising ethical risks while providing valuable insights by indirectly researching participant perceptions.

Axiology addresses the ethics and values guiding a researcher's project objectives, as described by Finnis (1980). It provides a normative framework for assessing and guiding actions based on what is considered valuable, influencing researchers' impartiality. Ethically, it involves maintaining proper conduct during participant recruitment, data collection, and dissemination (Guraya et al., 2023).

Realist axiology emphasises objectivity and researcher neutrality, while Interpretivism, rooted in symbolic interactionism and phenomenology, argues that value-neutral facts do not exist (Junjie & Yingxin, 2022). Combining these approaches offers a comprehensive analysis by balancing empirical data with contextual insights.

In a classroom setting, my Ethical Objectivism approach emphasises teaching universal metacognitive and affective skills, such as self-regulation and emotional management. Teachers can implement reflection and strategy programmes, using fictional case studies to help students explore challenges through empathy without intruding on personal experiences. This approach supports students' 'autopoietic agency'—their ability to self-organize, self-maintain, and self-regulate—by merging valuable insights with empirical data, enabling them to autonomously update a healthier internal model of self.

On a societal level, researchers can effectively deliver metacognitive and affective interventions across society. This stands in contrast to the 'transformatist paradox' that emphasises expert interventions such as Social Prescribing which can inadvertently lead to top-down micro-management. In contrast, I herein propose the concept of 'Distributed Metacognition' (See Appendix I), which can empower individuals and groups to take control of their own destiny and actively contribute to a resilient and dynamic participatory culture.

RESEARCH PARADIGMS

I move now to examine research paradigms to explore how researchers approach problem-solving and knowledge acquisition and carve out my own paradigmatic stance.

Ontology, epistemology, and axiology are foundational in shaping research paradigms, guiding how researchers plan and execute their work. Schwandt (2007) argues that a research paradigm

is a collective perspective encompassing the beliefs and values within a discipline, which directs approaches to problem-solving.

The Realism ontology closely aligns with **Positivism**, which asserts a stable, objective reality independent of subjective perception. Park et al. (2020), explain that Positivism employs the hypothetico-deductive model, involving hypothesis creation and testing through experiments with specific variables and measurements, to advance scientific knowledge. It often uses quantitative methods and large samples to identify relationships or causes, emphasising generalisability, replication, and controlled experiments.

In the 1960s and 1970s, Positivism faced challenges in the social sciences, leading to **Post-Positivism**, which uses deductive reasoning to approximate reality (Walach, 2020; Al-Saadi, 2014). Despite the rise of other paradigms, Positivism remains dominant in some social domains, such as psychology, partly due to advances in neuroimaging and cognitive science (Breen and Darlaston-Jones, 2010) as exemplified by a meta-analysis of childhood trauma by Ireton et al., (2024).

Interpretivism and **Constructivism** focus on understanding subjective meanings and co-constructing knowledge within context. Interpretivism employs qualitative methods to capture nuanced descriptions, emphasizing participant subjectivity and agency (Al-Saadi, 2014; Saunders *et al.*, 2012). Constructivism highlights the social construction of reality through collaboration, gaining insights into social, cultural, and historical contexts with flexibility (Sharma & Bansal, 2017; Adom *et al.*, 2016). Both paradigms emphasise subjective experiences and individual agency in shaping understanding. In work-based settings involving trauma and second language acquisition, these paradigms can explore how learners construct experiences and adapt to challenges. For example, Interpretivism can examine how teachers experience trauma-affected students (Frearson & Duncan, 2024), while Constructivism can aid in creating collaborative strategies by recognizing unique experiences and cultural contexts, ensuring ethical and relevant research in areas such as trauma studies (Brown *et al.*, 2022).

Closer to my view is **Deweyan Pragmatism** which acknowledges that individuals dynamically interact with their environment. However, as observed by Higham (2018), Dewey was ontologically agnostic and instead focused on outcomes related to how we reach an understanding and behave with intelligence and in a democratic way. While the aims are admirable, an incoherent ontology – a persistent criticism of pragmatism - could lead to fragmented understanding, inconsistent application, and difficulties in integrating and evaluating

theories and practices, as the lack of a unified framework impedes systematic interpretation and the development of comprehensive models. Higham (2018) sought to fill this ontological gap by positing dialogic theory, drawing on Wegerif (2008), to provide an ontological underpinning for Deweyan Pragmatism. Higham's dialogic case reasons that meaning emerges from gaps between different perspectives, leading to differences that produce reflective and meaningful thought and behavior, resulting in personal growth.

Higham's proposal aligns well with my views on how the mind's internal models interact with external reality to enhance personal agency. The importance of differences and the dynamic interaction of various perspectives in creating meaning and driving growth is critical. Wegerif's concept of 'dialogic space' aligns with my own view of the space where internal models and external reality grip and co-evolve.

Neurophenomenology, which aligns with my views, researches the relationship between subjective experience and neural processes such as that undertaken by Kiverstein et al. (2020), which investigated the link between mood and depression. The approach questions the reliability of our understanding of mind and consciousness and challenges traditional perspectives by highlighting the subjective nature of consciousness and its impact on objective knowledge. However, while neuroimaging provides objective measures, it cannot fully capture subjective states, raising concerns about the accuracy of introspective reports and individual variability. Integrating subjective experiences with objective data can profoundly impact our understanding of reality and consciousness (Shutaleva, 2024). For example, combining neuroimaging studies with phenomenological interviews can offer deeper insights into how trauma affects both neural and subjective experiences, demonstrating the value of Neurophenomenology's mixed methods approach.

In trauma and second language acquisition settings, combining Deweyan Pragmatism with Higham's adjustments and Neurophenomenology provides a more comprehensive approach. Deweyan Pragmatism emphasizes practical outcomes and dialogical methods, like group discussions and reflective activities, to support trauma-affected learners. Neurophenomenology enhances this by integrating neural and subjective data for tailored interventions, addressing both the cognitive and emotional impacts of trauma.

METHODOLOGY

At this juncture, I examine methodologies that guide the choice of research methods based on the researcher's ontological, epistemological, and axiological stances, adapted to the study's domain and information needs. Methodologies typically fall into two categories: Quantitative research and qualitative research. Both utilise inferential logic, blurring traditional boundaries (Grix, 2001).

Quantitative Methodologies

Quantitative methodologies, linked to Realist ontology and Positivism, aim to establish objective truths through numerical data and statistical analysis. The approach involves defining variables, measuring them, and analysing data to test hypotheses. Proponents stress replication, reliability, and objectivity, using random samples to enhance generalisability and maintaining researcher impartiality (Grix, 2001) which can assist in evaluating the efficacy of interventions in Vocal Pedagogy.

Psychometrics uses standardised tests and questionnaires such as those by Morawej *et al.* (2024), who effectively estimated the prevalence of potential traumatic events (PTEs) in Uganda. It measures psychological traits such as metacognitive and affective skills within Vocal Pedagogy. These tools can evaluate the impact of metacognitive interventions on trauma-related educational outcomes before and after interventions, providing detailed analysis over time. While psychometrics can be limited by participant memory lapses and self-report biases, these risks are mitigated by developing and validating tests with large samples to ensure reliability and validity. Psychometric methods are crucial for studying perception, making it possible to accurately understand what individuals think, feel, or believe (Brown & Shao, 2023).

Combining **Biostatistics** with psychometric assessments enhances their effectiveness. In Vocal Pedagogy, integrating biostatistical analysis with neuroimaging methods, such as MRI and fMRI, can link brain connectivity profiles with vocal performance and trauma exposure. In empirical research, especially in public health, integrating biostatistical input throughout study design, data analysis, and reporting is essential for high-quality studies (Lee *et al.*, 2019). However, Heinze *et al.* (2024), criticized current biostatistical methods for lacking rigour, proposing a four-phase framework for methodological evaluation. Wu *et al.* (2021) demonstrated the benefits of merging psychometric data with neuroimaging to advance cognitive neuroscience research. This approach can evaluate trauma's impact on second language acquisition by correlating brain connectivity profiles with language learning and trauma exposure, and assessing metacognitive interventions by linking brain connectivity changes to improvements in metacognitive abilities. It

underscores the need for interdisciplinary collaboration, which may be challenging for practitioner-researchers seeking immediate solutions.

Structural Equation Modeling (SEM) is an advanced statistical methodology that combines statistical methods to analyse complex relationships among variables, such as the interaction between metacognitive skills and vocal performance outcomes. They can help identify hidden patterns and quantify the impact of various factors. An example of this approach is Zhang & Zhang (2022), which established mental health links to second language learning outcomes and which could be extrapolated to vocal training outcomes in a similar manner.

Digital Innovation in Singing for Mental Health could benefit from integrating psychometric data with Voce Vista app metrics (pitch, volume, resonance), enabling practitioner-researchers to analyse vocal quality and psychological factors, such as Musical Performance Anxiety (the nervousness or fear experienced by individuals when performing music.), over time. This approach can support regular, multifaceted, and individualised assessments, potentially driving innovation in Vocal Pedagogy and fostering collaboration with university computer departments for app development. Additionally, such innovations could aid large sample studies by combining data from multiple sources cost-effectively.

Qualitative Methodologies

Qualitative methodologies, aligned with Constructivist and Interpretivist ontologies, focus on understanding subjective, context-dependent human experiences. Researchers use inductive reasoning to identify patterns and construct theories from data in natural settings, incorporating their own perspectives (Grix, 2001). In Vocal Pedagogy, these methods offer deep insights into individual experiences and interpretations of vocal training or language acquisition.

Ethnography researches culture and society through participant observation of day-to-day activities. It is particularly ideal for practitioner-researchers immersed in understanding how participants perceive and interact within their world. In Vocal Pedagogy, this might involve studying vocal coaches and students in their natural settings. While Ethnographic studies such as Hoskins & Kunkel, (2020) offer rich insights into areas such as trauma, complexities can arise relating to participant selection, researcher bias, and their relationship dynamics, perhaps resulting in difficulties capturing the complexities of trauma. Ethical concerns can arise regarding re-traumatisation, limited generalisability, and a focus on understanding rather than providing practical solutions. In a more general study of educational behaviour, Ethnography may well

prove more accessible to a practitioner-researcher. Kian & Beach (2019), found that, due to the significance of Ethnography in yielding first-hand and in-depth results, awareness of its effectiveness in researching educational and health settings should be a priority.

Case Studies, as described by Eisenhardt (1989), can explore dynamics within Vocal Pedagogy such as the effects of childhood trauma on teachers (Bester, 2024). Despite criticisms of subjectivity and limited generalisability (Berg, 2001), Case Studies are valuable for hypothesis formation and pilot studies. In trauma research, Case Studies can be applied by focusing on individual learners or small groups receiving trauma-informed language instruction. For example, tracking students who receive metacognitive skills interventions and documenting their progress in language acquisition, behavior, and emotional resilience could be insightful. Integrating psychometric data and neuroimaging results could enhance generalisability and credibility, making case studies suitable for practitioner-researchers at a micro level.

Grounded Theory involves a rigorous coding process to uncover patterns without preconceptions, such as Brown et al. (2020), who provide insights into teachers dealing with children who experienced complex trauma. However, its practical application often leads to contradictions and uncertainties (Sosa-Díaz & Valverde-Berrocso, 2022). To apply Grounded Theory effectively, I might implement a systematic coding process to analyse qualitative data from trauma-informed language learning sessions, identifying emerging themes related to trauma's impact on language learning. For instance, I might code transcribed interviews or observational notes to identify emerging themes related to trauma's impact on language learning and coping strategies. By integrating Bayesian methods, which update probabilities as new evidence emerges, a researcher could gain a more dynamic understanding of the phenomena, ensuring that the theory remains grounded in empirical evidence.

METHODS

This section outlines various quantitative and qualitative research methods to highlight their applications, advantages, and limitations in the context of Vocal Pedagogy.

Quantitative

Quantitative methods involve the systematic collection and analysis of numerical data to identify patterns, test hypotheses, and establish generalisable facts.

Questionnaires like the Metacognitive Awareness Inventory (MAI) are valuable for assessing metacognitive processes. In Vocal Pedagogy, the MAI can enhance qualitative findings by linking high scores with effective time management among students. Integrating the MAI with qualitative research can help connect metacognitive skills to trauma adaptation and language learning strategies. Similarly, the Adulthood Trauma Inventory (ATI) can assess adult trauma and its impact on language performance (Wittbrodt, 2020), aiding in the development of teaching strategies. However, the ATI presents ethical challenges regarding data handling, while the MAI mitigates such risks by not probing subjective experiences. This comparison underscores the ethical and practical considerations researchers must navigate within Vocal Pedagogy.

Biostatistics analyses biological data using statistical methods to study health outcomes. Within trauma and language acquisition, biostatistics is valuable due to its incorporation of **Neuroimaging** methods like **MRI**, **fMRI**, **PET**, and **EEG**. These methods generate data to explore brain structure, function, and connectivity related to vocal or language production. Indeed, Ireton *et al.* (2024), recently applied biostatistical methods to combine fMRI data in a meta-study to identify common brain patterns associated with trauma, demonstrating how early trauma impacts brain function. This can be relevant for understanding how trauma affects linguistic performance and teaching methods by correlating neural changes with cognitive and emotional functioning. Offering nuanced insights into trauma and interventions, it does, however, require a transdisciplinary approach.

Another quantitative method is **Experimental Design**, which involves manipulating variables to establish cause-and-effect relationships under controlled conditions. It is used to test hypotheses by isolating specific factors and observing their effects (Lewis, 2020). In Vocal Pedagogy, experimental design can be used to assess the effectiveness of different teaching techniques on linguistic performance and skill development. **Correlational Research** examines relationships between variables without direct manipulation. It identifies associations and patterns using statistical techniques like correlation analysis (Devi *et al.*, 2023). This can be applied to singing studios to explore the relationship between metacognitive skills and vocal performance.

Qualitative

In-depth **Interviews**, though flexible and useful for gathering participants' perspectives, face methodological, analytical, and ethical challenges, particularly for inexperienced researchers. In the context of Vocal Pedagogy, interviews can provide valuable insights into students' and teachers' experiences with vocal training, language learning, and trauma, but they must be

carefully managed to avoid biases and ensure reliability (Knott *et al.*, 2022). Due to these issues, and given that they interfere with subjective experiences, this method does not strike me as suitable for trauma research in classrooms.

Focus groups efficiently evaluate dispositions, attitudes, and experiences, offering timely insights into trauma and second language acquisition. They can collect feedback on teaching methods and their effects on linguistic performance. However, issues such as groupthink may suppress individual nuances and affect research accuracy (Luke & Goodrich, 2019). By integrating fictional or empathy tasks to improve individual participation and minimise group pressure, my Ethical Objectivism approach can mitigate these risks, increasing their effectiveness for practitioner-researchers.

Participant Observation Participant observation is a qualitative research method where the researcher observes and interacts with participants in a passive role, aiming to document specific behaviors or outcomes. In Vocal Pedagogy, participant observation can provide detailed insights into language learning lessons, revealing how various teaching techniques impact student engagement. While it provides in-depth, naturalistic insights, it faces challenges such as potential bias and difficulties in maintaining complete objectivity (Qaddo, 2019). Integrating psychometric data to guide qualitative research could resolve the limitations of this method, making it more effective for practitioner-researchers.

ETHICS

This section addresses the ethical principles guiding research, emphasising transparency and accountability through an Ethical Objectivism approach to ensure participant welfare and research integrity.

Research ethics includes principles like informed consent, beneficence, justice, and respect for participants. Informed consent ensures participants understand the research process. Beneficence seeks to maximise benefits and minimise harm. Justice ensures a fair distribution of research impacts. Respect for people acknowledges autonomy and dignity. Researchers uphold public trust through transparency, integrity, and avoiding conflicts of interest (Varkey, 2021).

My employer lacks formal ethical guidelines and professional oversight. However, there is a duty of care to conduct research in an ethical manner and avoid harm to participants (Bell & Waters, 2018), therefore, I will adopt the Ethical Objectivism approach that I propose. This framework

avoids direct interference with participants' subjective experiences and uses hypothetical or empathy activities to reduce feelings of abnormality or hopelessness, respecting participants' privacy and autonomy. This approach is combined with research into universal metacognitive and affective skills, ensuring ethical and comprehensive research. Transparency about methods, intentions, and potential impacts will promote trust and allow scrutiny of the research, prioritizing participant welfare and maintaining research integrity.

Insider Researcher

At this stage, I explore the ethical and practical challenges faced by practitioner-researchers studying their own practice, highlighting how insider knowledge can both benefit and bias research, and suggesting ways to balance objectivity and subjectivity.

Insider research in qualitative approaches poses important challenges for practitioner-researchers—those who conduct research into their own practice (Costly & Gibbs, 2006). For a teacher researching trauma and its impact on second language acquisition, the ethical complexities are heightened due to their intimate familiarity with the sample group. Critics argue that insider research may be overly subjective, leading to biased interpretations and potential breaches of confidentiality (Lawrence & Murray, 2000). According to Braun and Clark (2013), reflexivity is crucial for recognising and managing unintentional biases that could influence our research. Indeed, familiarity with the research setting might create blind spots where certain issues are overlooked. On the other hand, Muasya (2023) highlights that insider researchers, with due care and attention, benefit from their ability to accurately assess data, access the research site, define their role, and collect reliable data.

To address potential biases and uphold ethical standards, I plan to anonymise data to protect participant identities and reduce personal biases in interpretation. I will maintain separate record-keeping to ensure that data handling remains independent of personal involvement, further minimizing bias. Additionally, I will invite third-party reviews to involve external experts in evaluating my research methods and findings, enhancing credibility. These practices, aligned with Ethical Objectivism, instigate reflexivity as a mechanism for ensuring impartiality and integrity in research, unlike paradigms such as Constructivism, which may lack robust bias mitigation strategies.

Conclusion

In conclusion, this paper established a research paradigm by addressing ontology, epistemology, and axiology, integrating objective neurobiological mechanisms with subjective experiences to underpin the research philosophy. It evaluated both quantitative and qualitative methodologies, emphasizing their combined use in Vocal Pedagogy. Ethical practices were prioritised to ensure research integrity and respect for participants. Applying these principles, I explored trauma and second language acquisition within Vocal Pedagogy advocating a mixed-methods strategy. Quantitative methods provided measurable outcomes, while qualitative methods offered in-depth insights. I proposed Ethical Objectivism and Distributed Metacognition to enhance research practices in Vocal Pedagogy, with ethical considerations and insider research supporting comprehensive findings and careful management of biases.

REFERENCES

- Adom, D., Yeboah, A., Ankrah, A. K. (2016). Constructivism Philosophical Paradigm: Implication for Research, Teaching and Learning', *Global Journal of Arts, Humanities and Social Sciences*, 4(10), pp. 1-9. European Centre for Research Training and Development UK., October.
- Al-Saadi, H. (2014) Demystifying Ontology and Epistemology in research methods.
- Badil, D., Dildar Muhammad, D.D.M., Zeenaf Aslam, Z.A., Kashif Khan, K.K., Anny Ashiq, A.A. and Uzma Bibi, U.B., (2023). The phenomenology qualitative research inquiry: A review paper. *Pakistan Journal of Health Sciences*, 4(03).
- Bell, J. and Waters, S. (2018). *Doing Your Research Project: A Guide for First-time Researchers*. 7th ed. Maidenhead: Open University Press.
- Berg, B. (2001) *Qualitative Research Methods for the Social Sciences*. Allyn & Bacon, Boston.
- Bester, M., 2024. Transmuting childhood trauma: A case study exploring the impact of childhood trauma on the career choice and teaching experiences of special education teachers. *Electronic Theses and Dissertations*, 3523
- Braun, V. and Clarke, V., (2013). *Successful qualitative research: A practical guide for beginners*. London: Sage.
- Breen, L. J., & Darlaston-Jones, D. (2010). Moving beyond the enduring dominance of positivism in psychological research: Implications for psychology in Australia. *Australian Psychologist*, March.
- Brown, G. T. L. & Zhao, A. (2023). In defence of psychometric measurement: a systematic review of contemporary self-report feedback inventories. *Educational Psychologist*, 58(3), pp. 178–192.
- Brown, M., Howard, J. and Walsh, K., (2022). Building trauma informed teachers: A constructivist grounded theory study of remote primary school teachers' experiences with children living with the effects of complex childhood trauma. *Frontiers in Education*,
- Brown, R.L., Wood, A., Carter, J.D. and Kannis-Dymand, L. (2022) 'The metacognitive model of post-traumatic stress disorder and metacognitive therapy for post-traumatic stress disorder: A systematic review,' *Clinical Psychology & Psychotherapy*, 29(1), pp. 131-146.
- Callaghan, J. (2014). *Singing and Science: Body, Brain and Voice*. Black & White. May.
- Costley, C., & Gibbs, P. (2006). Researching others: care as an ethic for practitioner researchers. *Studies in Higher Education*, 31(1), 89–98.

- Deeba, F., Saleem, A., and Kausar, H. (2020). Social Constructivism: A New Paradigm in Teaching and Learning Environment. *Journal of Education and Practice*, 11(1), pp.22-31
- Devi, B., Lepcha, M. & Basnet, S. (2023) 'Application of correlational research design in nursing and medical research', Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban)/*Journal of Xi'an Shiyou University*, 65, pp. 60-69
- Easterby-Smith, M., Thorpe, R., Jackson, P. R. & Jaspersen, L. J. (2018). *Management and Business Research*. SAGE.
- Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, 14(4), 532–550. <https://doi.org/10.2307/258557>
- Erro-Garcés, A., & Alfaro-Tanco, J. A. (2020). Action Research as a Meta-Methodology in the Management Field. *International Journal of Qualitative Methods*, 19.
- Ferrara, A. M., Panlilo, C. C. (2020) The role of metacognition in explaining the relationship between early adversity and reading comprehension. May.
- Finnis, J. (1980). Natural Law and Natural Rights. *Oxford: Clarendon Press*.
- Frearson, A. and Duncan, M., (2024). An Interpretive Phenomenological Analysis of Teachers' Lived Experiences of Working with Traumatized Children in the Classroom. *Journal of Child and Adolescent Trauma*, 17(2), pp.555-570.
- Gray, D. E. (2004). Doing Research in the Real World. SAGE. Available at: https://repository.dinus.ac.id/docs/ajar/Gray_-_Doing_Research_in_the_Real_World_-_2004.pdf (Accessed: 24 July 2024).
- Grix, J. (2001). Demystifying Postgraduate Research: From MA to PhD. *Birmingham University Press*.
- Gül, Y. (2023) 'A theoretical perspective on survey method from quantitative research methods', *Universum*, 4, pp. 64-68.
- Guraya, S. S., Harkin, D. W., Yusoff, M. S. B. & Guraya, S. Y. (2023). Paradigms unfolded - developing, validating, and evaluating the Medical Education e-Professionalism framework from a philosophical perspective. *Frontiers in Medicine*, 10, 1230620
- Hampson, T., & McKinley, J. (2023). Problems posing as solutions: Criticising pragmatism as a paradigm for mixed research. *Research in Education*, 116(1), 124-138.
- Hannes, N., (2018). The Nature and Elements of Research Paradigms: Empiricism.
- Heinze G, Boulesteix AL, Kammer M, Morris TP, White IR; Simulation Panel of the STRATOS initiative. Phases of methodological research in biostatistics-Building the evidence base for new methods. *Biom J*. 2024 Jan;66(1):e2200222.
- Higham, R., (2018). 'To Be Is To Respond': Realising a Dialogic Ontology For Deweyan Pragmatism. *Journal of Philosophy of Education*, 52(2), pp. 345-358.
- Heidegger, M. (2013). Being and Time. Stellar Books.

Heron, J., & Reason, P. (1997). A participatory inquiry paradigm. *Qualitative Inquiry*, 33, 274-294.

Hiller, J., (2016). Epistemological foundations of objectivist and interpretivist research. Books and Book Chapters by University of Dayton Faculty, 52. Available at: <https://ecommons.udayton.edu/books/52>

Hoskins, N. & Kunkel, A., 2020. "I Don't Even Deserve a Chance": An ethnographic study of adverse childhood experiences among male perpetrators of intimate partner violence. *The Qualitative Report*, 25(4), pp.1009-1037.

Ireton, R., Hughes, A., & Klabunde, M. (2024). A Functional Magnetic Resonance Imaging Meta-Analysis of Childhood Trauma. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 9(6), 561-570.

Junjie, M. and Yingxin, M. (2022). The discussions of positivism and interpretivism. *Global Academic Journal of Humanities and Social Sciences*.

Kaye-Tzadok, A. & Icekson, T., (2022). A phenomenological exploration of work-related post-traumatic growth among high-functioning adults maltreated as children. *Frontiers in Psychology*. Dec.

Kian, M. and Beach, D. (2019) 'Implications of Ethnography Research Method in Educational and Health Studies', *Social Behavior Research & Health (SBRH)*, 3(2), pp. 419-427.

Kiverstein, J., Miller, M. and Rietveld, E., (2020). How mood tunes prediction: a neurophenomenological account of mood and its disturbance in major depression. *Neuroscience of Consciousness*, 2020(1), pp.niaa003.

Knott, E., Rao, A.H., Summers, K., et al. (2022) 'Interviews in the social sciences', *Nature Reviews Methods Primers*, 2, p. 73.

Lawrence, B., & Murray, L. (2000). Practitioner-Based Enquiry: Principles and Practices for Postgraduate Research (1st ed.). Routledge.

Lee, K.J., Moreno-Betancur, M., Kasza, J., Marschner, I.C., Barnett, A.G., and Carlin, J.B., 2019. Biostatistics: a fundamental discipline at the core of modern health data science. *Medical Journal of Australia*, 211(10), pp.444–446.e1.

Lewis, J. (2020). Experimental Design. In: Iphofen, R. (eds) Handbook of Research Ethics and Scientific Integrity. Springer, Cham.

Luke, M. and Goodrich, K.M. (2019) 'Focus group research: An intentional strategy for applied group research?', *The Journal for Specialists in Group Work*, 44(2), pp. 77–81.

Mateus, S. and Sarkar, S. (2024) 'Bricolage – a systematic review, conceptualization, and research agenda', *Entrepreneurship & Regional Development*, 36(7–8), pp. 833–854.

McCaffrey, G., Wilson, E., Jonatansdottir, S., Zimmer, L., Zimmer, P., Graham, I., Snadden, D., & MacLeod, M. (2022). But is It Hermeneutic Enough?: Reading for Methodological Salience in a

Scoping Review of Hermeneutics and Implementation Science. *International Journal of Qualitative Methods*, 21.

Morawej, Z., Misra, S., Ametaj, A.A., Stevenson, A., Kyebuzibwa, J., Gelaye, B., et al., (2024). Experiences of trauma and psychometric properties of the Life Events Checklist among adults in Uganda.

Nave, K., Deane, G., Miller, M. & Clark, A., (2022). Expecting some action: Predictive Processing and the construction of conscious experience. June.

Park, Y., Konge, L. & Artino, A.R., (2020). The Positivism Paradigm of Research. *Academic Medicine: Journal of the Association of American Medical Colleges*, 95(5)

Qaddo, M. (2019) 'Participant observation as research methodology: Assessing the validity of qualitative observational data as research tools'

Saunders, M., Lewis, P. and Thornhill, A. (2012). Research Methods for Business Students. 6th ed. England: Pearson Education Limited.

Sharma, S. & Bansal, D., (2017). *International Journal of Physical Education, Sports and Health*, 4(5), pp. 209-212. Available at: <https://www.kheljournal.com/archives/2017/vol4issue5/PartD/4-5-41-636.pdf>

Sharma, V., Sagar, R., Kaloiya, G. and Mehta, M. (2022) 'The scope of metacognitive therapy in the treatment of psychiatric disorders,' *Cureus*, 14(3), pp. e23424.

Shutaleva, A., (2024). Epistemic challenges in neurophenomenology: Exploring the reliability of knowledge and its ontological implications. May.

Schwandt, T.A. (2007). The Sage Dictionary of Qualitative Inquiry (3rd ed.). Thousand Oaks: Sage.

Sosa-Díaz, M.-J., & Valverde-Berrocso, J. (2022). Grounded Theory as a Research Methodology in Educational Technology. *International Journal of Qualitative Methods*, 21.

Simons, M. and Kursawe A. (2019, February). Metacognitive Therapy for Posttraumatic Stress Disorder in Youth: A Feasibility Study

Varkey, B., (2021). Principles of clinical ethics and their application to practice. *Med Princ Pract*, 30(1), pp.17-28.

Walach, H., (2020). Inner experience - Direct access to reality: A complementarist ontology and dual aspect monism support a broader epistemology. *Frontiers in Psychology*, 11, pp. 640. April.

Wegerif, R. (2008), Dialogic or dialectic? The significance of ontological assumptions in research on educational dialogue. *British Educational Research Journal*, 34: 347-361. <https://doi.org/10.1080/01411920701532228>

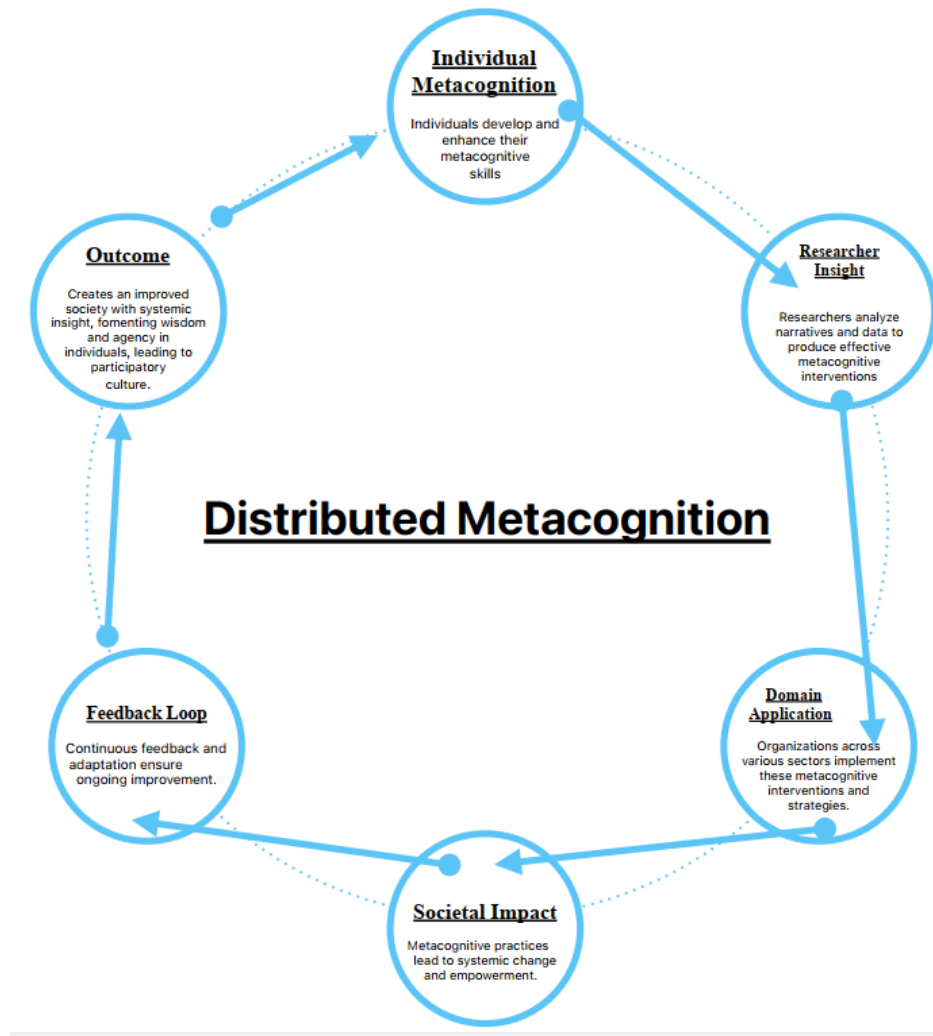
Weiss, A., (2024). Beyond retraumatization: Trauma-informed political science research. Available at: [Beyond_Retraumatization_WeissAmanda \(1\).pdf](#)

Wittbrodt, M. T., Vaccarino, V., Shah, A. J., Mayer, E. A., & Bremner, J. D. (2020). Psychometric properties of the Adulthood Trauma Inventory. *Health Psychology*, 39(8), 679–688.

Wu, J., Eickhoff, S.B., Hoffstaedter, F., Patil, K.R., Schwender, H., Yeo, B.T.T. and Genon, S., (2021). A connectivity-based psychometric prediction framework for brain–behavior relationship studies. *Cerebral Cortex*, 31(8), pp.3732–3751.

Zhang, C., & Zhang, W. (2022). The impact of mental disturbance on second language learning psychology among Chinese undergraduate students: A structural equation modeling analysis. December.

Appendix I



Picture 1; The Distributed Metacognition loop

