Developing Critical Awareness of The Key Issues in Undertaking Research in Work-Based Settings

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Table of Contents

Introduction …… 1

Research Philosophy …… 1

Paradigms and Research Paradigm …… 2

Ontology …… 2

Epistemology …… 3

Axiology …… 3

Methodology …… 4

Research design: Quantitative, Qualitative, and Mixed Methods …… 4

Qualitative …… 4

Quantitative …… 5

Mixed Methods …… 5

Research Methodologies and Methods …… .6

Research Paradigms Examples …… 6

Positivist …… 7

Postpositivist …… 7

Subjectivist …… 7

Interpretivism Or Constructivism …… 8

Transformative …… 8

Pragmatism Paradigm …… 8

Ethics and Insider Research …… 9

Conclusion …… 10

Reference List …… 13

Introduction

As a master's degree student and an emerging research practitioner in vocal pedagogy, I will comprehensively explore various methodological approaches and techniques to identify valuable tools for work-based research. Work-based research is important because it helps improve my decision-making, solve problems, establish credibility, innovate, and keep up with new developments in my industry (Leaders, 2023). I will start with a critical evaluation of the ontology, epistemology, axiology, and methodology of various paradigms, their associated methodological approaches, and potential research designs and methods. This will include a thorough consideration of ethics and insider research. Additionally, I will critically reflect on the suitability of multiple paradigms. This exploration will not only enrich my understanding of how knowledge is constructed in my field but also empower me to make informed decisions about which methodologies best suit my research questions and objectives (Ulz, 2023). Through this journey, I seek to make a meaningful contribution to the progress of vocal pedagogy and further develop as a researcher-practitioner.

Research Philosophy

Avgousti (2013) says that a comprehensive understanding of research philosophy is essential, as it forms the foundation for our research approach. Researchers must 'consider a range of philosophies, concepts, and issues to establish high-quality research' (Avgousti, 2013, p.33). Dudovskiy (2022) defines research philosophy as a 'belief about how data about a phenomenon should be collected, analyzed and used' (para. 4). It is associated with knowledge, assumption, and the study of nature (Saunders, Lewis, and Thornhill, 2009). We should consider this because researchers might have different perspectives on what constitutes truth and knowledge (Alles, 2022). Philosophy can help us understand why they think that way (Dudovskiy, 2022). The development of knowledge involves answering specific questions or addressing problems in your research (Bhatt, 2000). These assumptions include human knowledge (epistemological assumption), the realities encountered in research (ontological assumptions), and the extent and ways in which values influence the research process (axiological assumptions) (Saunders, Lewis, and Thornhill, 2009, p. 124). Later, epistemology, ontology, and axiology will be defined and explained.

Paradigms and Research Paradigm

Building on the research philosophy, paradigms, and research paradigms offer a framework for understanding the underlying assumptions in research (Žukauskas, Vveinhardt, Andriukaitienė, 2018). A paradigm is a conceptual framework or thinking pattern that influences how individuals or groups perceive and address specific phenomena or areas of study (Cambridge Dictionary, 2019). Ulz (2023) explains paradigms influence all aspects of professional practice, from teaching and learning to research and evaluation. It is a set of core beliefs, ways of thinking, and methods generally accepted by scientists in a particular field (Dictionary, 2019a). Because of this, paradigms play a vital role in directing research, solving problems, and making decisions (Kankam, 2019).

A research paradigm is a specific framework that guides the research process within a particular discipline (Ulz, 2023). Abbadia (2022) says the significance of selecting a paradigm for a research project lies in forming the basis for the study's approach and methodologies. This includes beliefs about what constitutes valid knowledge (epistemology), the nature of reality (ontology), and the role of values in research (axiology) (Ahsan, 2024). Research paradigms influence the choice of research methods, the design of studies, and the interpretation of data (Killam, 2013; Pretorius, 2024). While paradigms are a set of beliefs, values, techniques, and assumptions, a research paradigm specifically influences the choice of research methods, design of studies, and interpretation of data (Ahsan, 2024; Pretorius, 2024). The four pillars of a research paradigm are ontology, epistemology, axiology, and methodology (Turin, Chowdhury, and Raihan, 2024).

Ontology

Central to any research paradigm is ontology, which concerns itself with the nature of reality and what can be known about it (Guarino, Oberle, and Staab, 2009). Ontology is a field of philosophy that delves into the fundamental nature of existence or reality (Nasution, 2018). Comunale, Keefe, and Chapel (2023) explain that the ‘word ontology comes from the stem of the Greek word *on* or *ontos*, meaning “being”’ (para. 1). This field looks at what things exist, how they exist, and what they're made of. In other words, ontology studies the basic building blocks of existence, how they're connected, and their relationships (Comunale, Keefe, and Chapel, 2023). Ontology is all about studying and trying to grasp what existence, reality, being, and change truly mean (Smith, 2003). This research paradigm helps researchers understand

how accurately they can describe the nature and existence of the objects they are studying (Moon, and Blackman, 2017) Ontology examines the nature of reality and interacts with epistemology to determine whether reality can be objectively known or is perceived through the limits of consciousness (Winter, 2023).

Epistemology

Closely related to ontology, epistemology explores the nature of knowledge and how we come to know what we know (Al-Ababneh, 2020). ‘Epistemology is the theory of knowledge’ (University of Sheffield, 2020, para. 1). ‘The term is derived from the Greek epistēmē (“knowledge”) and logos (“reason”)’ (Martinich, and Stroll, 2019, para. 1). According to Steup (2020), "epistēmē" translates to “knowledge,” while “logos” means “reason.” More broadly, “epistēmē” can also be interpreted as “understanding” or “acquaintance,” and “logos” can be translated as “account,” “argument,” or “reason” (Steup, 2020). Epistemology deals with the study of knowledge, particularly focusing on how we obtain it, whether it's reliable, and how much we can know (Oxford English Dictionary, 2023). It seeks to identify what sets apart a justified belief from mere opinion (Oxford English Dictionary, 2023). Wagner (2019) gives an example of epistemology: people know the Earth is round based on evidence from satellite images. This knowledge is supported and justified by scientific observations and measurements. Others may believe the Earth is flat based on personal intuition or non-scientific sources. This belief lacks the evidence and rigorous justification provided by science. In this example, epistemology examines why the knowledge that the Earth is round is considered justified, while the belief in a flat Earth is seen as an opinion.

Axiology

Axiology informs our research as it is the philosophical branch that studies the nature of value (Encyclopedia Britannica, 2015; Oxford University Press, 2020). It is a research philosophy focused on understanding the nature of values and values judgments (Smith, and Thomas, 2024). It involves comprehending what is considered valuable and why. This directly influences the objectives and direction of research (Atria University, 2022). In axiology, researchers investigate the principles and standards used to assess what is good, valuable, or desirable, directly influencing the aims and objectives of their studies (Atria University, 2022).

In philosophy, this field is divided into ethics and aesthetics (Farrow, et al., 2020). Ethics is the study of morality, the concept of right and wrong conduct in humans (Farrow *et al.,* 2020; Atria University, 2022). Aesthetics is the study of beauty, judgments, and taste (Farrow *et al.,* 2020;

Atria University, 2022). It is defined scientifically as the reflection on art, nature, and culture (Atria University, 2022). Farrow *et al.* (2020) state that axiology is important because ‘our values focus and motivate our research’ (para. 3). These values might involve a commitment to maintaining scientific rigor or constant dedication to ethical conduct as a researcher (Chang, 2001).

Methodology

Nasution (2020) explains that the term methodology combines "knowledge" and "way," aiming to acquire knowledge through specific methods and approaches. McGregor and Murnane (2010) describe methodology as the study of the basic principles of how new knowledge is created, including the reasoning and philosophical ideas behind studies in the natural, social, or human sciences, whether explicitly stated or not. In essence, methodology concerns how logic, reality, values, and what constitutes knowledge influence research. Abbadia (2022) further asserts that methodology involves general concepts that guide how we investigate the social world and validate the accuracy of the knowledge we gather.

Research design: Quantitative, Qualitative, and Mixed Methods

A well-structured research design, according to Creswell and Creswell (2018), defines the overall strategy and ensures the study's methodological integrity. They describe research design as encompassing various types of inquiry within qualitative, quantitative, and mixed methods approaches, providing specific direction for procedures in a research study (examined on page 11).

Before proceeding, it is essential to explain qualitative and quantitative methods, as emphasized by McCombes (2021). Understanding these distinct approaches to collecting, hypothesizing, and analyzing data is crucial, particularly in recognizing the significant differences between quantitative data, which focuses on numerical objectivity and answers questions like "when" or "where," and qualitative data, which delves into subjective phenomena such as how individuals experience grief (Paley, 2000; National University, 2023).

Qualitative Research

Qualitative research aims to comprehend phenomena, groups, or experiences that defy objective measurement or quantification through mathematical methods (National University, 2023). Tenny, Brannan, and Brannan (2021) emphasize that qualitative research investigates real-world issues to uncover deeper insights by gathering participants' experiences,

perceptions, and behaviors, understanding the reasons and processes underlying phenomena instead of merely quantifying amounts or frequencies. Unlike quantitative research, which seeks precise answers or statistics in controlled settings, qualitative research is fundamentally exploratory (Matta, 2021). It draws on diverse data sources such as photographs, journal entries, video footage, interviews, case study, narrative research, focus groups, and observations (Creswell and Creswell, 2018; Tenny, Brannan, and Brannan, 2021; National University, 2023).

Quantitative Research

Rana, Gutierrez, and Oldroyd, (2021) explain that quantitative methods involve collecting and analyzing numerical data to address scientific research inquiries. They are used for summarizing data, identifying patterns, making predictions, testing causal relationships, and generalizing findings to broader populations (Australian Bureau of Statistics, 2023). Additionally, quantitative approaches allow us to measure the size of effects, assess how strongly things are connected, rank priorities, and evaluate how strong the evidence is for effectiveness (Rana, Gutierrez, and Oldroyd, 2021). Examples of research questions that quantitative methods can address include: 'What percentage of the population was born outside the country? How many millimeters of rainfall occurred in the region in 2020?...' (Rana, Gutierrez, and Oldroyd, 2021, para., 2).

Mixed Methods

While quantitative and qualitative methods can be used separately, they can be mixed. This is called a mixed method research design (Creswell, 2012). It is a systematic approach for gathering, analyzing, and integrating both quantitative and qualitative research methods within a single study to explore a research issue (Nakaziba, and Namuguzi, 2024; Creswell, 2012). 'Mixed methods research also triangulates results that offer higher validity and reliability' (National University, 2023). An example of a mixed-method research design is a study conducted by Czajkowski, Greasley, and Allis (2021) on mindfulness for singers. Quantitative data was collected from student participants at both institutions to assess mindfulness levels before and after an intervention. Concurrently, qualitative data was gathered through diaries and interviews to investigate how learning mindfulness potentially influenced participants' experiences in music education and performance contexts. This study aimed to provide insights into both the quantitative effects of mindfulness training and the qualitative aspects of its impact on music learning and performance.

Research Methodologies and Methods

A research design is a plan to answer your research question, and a research method is how you carry out that plan (Creswell and Creswell, 2018). Although different, they are closely related because a good research design helps ensure that the data you collect will answer your research question effectively (Virginia Tech, 2018). Different research methods offer various ways to collect and analyze data, each with its own strengths and limitations (McCombes, and George, 2022). Research methods involve the techniques of data collection, analysis, and interpretation that researchers plan to use in their studies (Creswell and Creswell, 2018). Different research methods include observation, surveys, focus groups, experiments, interviews, and mixed methods (Creswell and Creswell, 2018; Virginia Tech, 2018). The choice of a research method is determined by the specific research objective and the most suitable approach to achieve it (Elsevier, 2023).

Sreekumar (2023) explains that research methods are specific techniques for gathering and analyzing data, while research methodology is a systematic and scientific framework used to collect, analyze, and interpret both quantitative and qualitative data in order to address research questions or test hypotheses. In other words, research methodology serves as a comprehensive plan for conducting research, guiding researchers, and keeping their work focused by defining the scope of the study. It refers to the specific procedures or techniques employed to identify, select, process, and analyze information related to a topic (Heever, 2022). This structured approach ensures the reliability and validity of the research findings, thereby enhancing the credibility of the study (Heever, 2022).

Research Paradigms Examples:

Research methods, as explained by Mertens (2012), are the practical ways researchers use to apply their chosen research paradigm, ensuring they match its underlying beliefs and principles. Research paradigms provide the foundational beliefs and principles that guide the selection and application of research methods, shaping both the process and outcomes of research endeavors. To illustrate the diversity of research paradigms, this section examines examples such as positivism, post-positivism, subjectivist, interpretivism or constructivism, transformative, and pragmatism (Mertens, 2012). Each of these paradigms offers distinct perspectives on reality and knowledge, influencing the researcher's approach to study design, data collection, and analysis (Mertens, 2012).

Positivist

‘Positivist is a paradigm that relies on measurement and reason, that knowledge is revealed from a neutral and measurable (quantifiable) observation of activity, action or reaction’ (University of Nottingham, 2023, para. 1). Positivists believe that reality is unchanging and can be objectively observed and described (City University of Hong Kong, 2020). This philosophy is linked to genuine inquiry (Abbadia, 2022) and employs rigorous, quantitative methods to study data (Park, Konge, and Artino, 2020). The benefits of positivist research include clear, measurable methods that facilitate repeatability, trend prediction, generalization, and theory testing, leading to reliable scientific knowledge (Shirazi, 2015). However, its limitations include oversimplifying complex phenomena, ignoring context and subjective experiences, inflexibility, ethical concerns, and potentially incomplete findings (Shirazi, 2015).

Postpositivist

Postpositivists argue that a researcher's ideas and identity influence their observations and conclusions, suggesting that research is not value-free but is shaped by the values and subjectivity of both researchers and participants (E-International Relations, 2021; McGregor and Murnane, 2010). This approach acknowledges the importance of these viewpoints in research and aims for objective answers by addressing these biases when developing theories and knowledge. Panhwar, Ansari, and Shah (2017) note that postpositivism recognizes the limitations of positivism but still values empirical evidence and scientific methods. It highlights the importance of thorough research methods and acknowledges the role of values, beliefs, and theoretical frameworks in research. Their approach seeks to balance objectivity with personal perspectives, enhancing our understanding of complex phenomena.

Subjectivist

Subjective research, often referred to as phenomenological (experiential) research, focuses on investigating individual experiences and emphasizes the significance of personal perspectives and interpretations (Open University, 2024). The subjective paradigm in research focuses on individual perspectives, personal experiences, and interpretations to understand reality (Ziv and Omer, 2010). A subjective view of knowledge says that what we know is shaped by our own experiences, beliefs, culture, and personal views (Gendler and Hawthorne, 2015). It values the uniqueness of personal viewpoints over universal and objective truths typically sought in

traditional research approaches (Ziv and Omer, 2010). This focus aims to achieve a deeper, more empathetic, and contextually relevant understanding of human experiences, ultimately enriching the body of knowledge and informing more effective practices and policies (The Open University, 2024).

Interpretivism or Constructivism

The interpretivism or constructivism paradigm focuses on understanding the subjective meanings individuals attach to their experiences, emphasizing the influence of social context, language, and culture (Skadis, 2021). It rejects a single objective reality, proposing that knowledge is constructed through interactions and that reality is socially constructed (Skadis, 2021). This paradigm uses qualitative methods like interviews, observations, and textual analysis to explore subjective perspectives (University of South Australia, 2024). Similarly, constructivism emphasizes that individuals actively build their understanding and knowledge of the world through experiences and interactions (Fosnot, 2013).

Transformative

The transformative paradigm integrates a social justice perspective to address inequality and injustice, amplifying the voices of marginalized communities (Jackson et al., 2018; Mertens, 2007). It employs culturally aware, mixed-method research strategies to explore power dynamics and promote social transformation (Mertens, 2007). This paradigm values diverse viewpoints, aiming for research that is academically rigorous, socially meaningful, and influential (Jackson *et al.,* 2018). By combining qualitative and quantitative methods, the transformative paradigm underscores the advantages of a comprehensive research approach (Mertens, 2007).

Pragmatism paradigm

Pragmatism uses effective methods and integrates various data sources to address real-life issues, valuing practical usefulness over theoretical qualities (Allemang, Sitter, and Dimitropoulos, 2021; Armstead and Boyd, 2023). It utilizes qualitative methods to investigate real-world problems and phenomena (Kelly and Cordeiro, 2020). Its principles include actionable knowledge, the link between experience and action, and experiential inquiry (Kelly and Cordeiro, 2020). While pragmatism offers flexibility and practical relevance, it may struggle with theoretical depth, generalizability, and biases due to its focus on practical solutions (Kaushik and Walsh, 2019; Dictionary, 2019b; Collins, 2024).

Ethics and Insider Research

Ethics and insider research play a critical role in ensuring the integrity and credibility of the research process, particularly when dealing with sensitive topics (Costley, Elliot, and Gibbs, 2010). Ethics refers to a set of moral principles or values that govern what is considered right and wrong conduct in a particular context, often guiding decisions and behaviors to ensure fairness, honesty, and respect for individuals and communities (Dewey, and Tufts, 2022). It helps protect the rights and well-being of research participants (Seigle, 2023). Insider research, where researchers study their own community or organization, must be done carefully to avoid bias and maintain trust (Costley, Elliot, and Gibbs, 2010).

Resnik (2020) states that ethical standards support research objectives and apply to those conducting studies or participating in scholarly activities. Ethics support research objectives and participants in scholarly activities by ensuring the integrity, credibility, and societal value of the research while protecting the rights and welfare of participants (Barrow, Khandhar, and Brannan, 2022; Resnik 2020). There are several reasons why adhering to ethical standards in research is important. Firstly, these standards support the goals of research, including the pursuit of knowledge, truth, and the prevention of mistakes. For instance, prohibitions against plagiarism help ensure originality and integrity in research work (UWE Bristol, 2022). Secondly, because research frequently requires collaboration and coordination among individuals from diverse fields and institutions, ethical standards like those against plagiarism encourage essential values for teamwork, such as trust, responsibility, mutual respect, and fairness (Soundararajan et al., 2022; Resnik, 2020). Lastly, many research standards uphold a range of significant moral and social values, including social responsibility, human rights, animal welfare, legal compliance, and public health and safety. Ethical breaches in research, such as data fabrication, can cause considerable harm to human and animal subjects, students, and the public by falsifying data (Kroll, 2020). Ethics in work-based voice research involves protecting participants' privacy, obtaining informed consent, and safeguarding their welfare while ensuring the research's integrity and accuracy (Scott, 2022). Additionally, researchers must avoid plagiarism and properly attribute all sources and contributions (Scott, 2022).

Insider research can be defined as research carried out by individuals who are already part of the organization or community they are studying due to their education, employment, social connections, or political involvement (Humphrey, 2012). Investigating professional education

from the perspective of an insider educator-researcher can be a delicate endeavor, especially considering that the audience for such research may include potential and current students, colleagues within one's institution and beyond, as well as regulators in professional organizations and governmental spheres (Humphrey, 2012). The risk of insider research includes potential biases, compromised objectivity, confidentiality breaches, conflicts of interest, and strained organizational relationships (Fleming, 2018). This risk can be mitigated by maintaining strict confidentiality, seeking external peer reviews, and clearly separating research roles from professional duties (Fleming, 2018). It is argued that insider researchers typically possess a strong passion for the topics they study, which motivates them to remain committed to their research despite encountering obstacles (Saidin, 2017).

Saidin (2017) mentioned the argument Bonner and Tolhurst (2002) had that being an insider researcher offers three advantages to the research process. Firstly, insiders typically possess a deeper understanding of the issue at hand. Secondly, they are less likely to disturb natural social interactions. Finally, insiders can often obtain more genuine data from participants due to their ability to relate closely to them. Sadin (2017) says that an insider's familiarity with an organization's cultural and political dynamics can expedite the process of understanding the research topic, leveraging existing knowledge to save time and effort. It also mentions the disadvantages of insider research. One disadvantage is the potential for insiders to disclose sensitive information in their research is a recognized concern. Insiders often possess unrestricted access to information, which may lead them to underestimate the confidentiality and sensitivity of the data. Moreover, insider researchers might overlook certain issues that external observers would consider significant. Their familiarity with the organization could result in a lack of vigilance and awareness regarding the importance of certain information or issues compared to external perspectives. To mitigate the risk of insider researchers being less vigilant, involve external reviewers, use structured protocols, encourage self-reflection, and seek diverse input (Sadin, 2017; Hunker, Llc, Probst, 2011). Ethics must guide the research to ensure it is conducted without bias (Bonner, and Tolhurst, 2002; Saidin, 2017; Fleming, 2018).

Conclusion

In conclusion, having a solid grasp of research philosophy, paradigms, methods, ethics, and insider research is crucial for carrying out reliable and meaningful studies (Wolgemuth et al., 2015). Research paradigms provide the framework within which researchers operate, encompassing the beliefs and assumptions that guide their work (Killam, 2013). These

paradigms shape the way researchers approach their questions, influencing the methodologies they choose and the interpretations they make (Pretorius, 2024).

In vocal research, selecting the appropriate research methodology is crucial for obtaining reliable and insightful results (Elsevier, 2023). Quantitative methods can be used to analyze vocal patterns, pitch, and frequency through statistical measures, providing objective data (Cesari, Lengo, and Apisa, 2012). Qualitative methods, on the other hand, allow for an in-depth exploration of vocal expressions, emotions, and subjective experiences (Cesari, Lengo, and Apisa, 2012). By combining both approaches through mixed methods, researchers can gain a more comprehensive understanding of vocal phenomena, integrating numerical data with rich, descriptive insights into vocal behavior and communication (Cesari, Lengo, and Apisa, 2012).

In vocal research and pedagogy, research philosophy greatly affects the design and execution of studies (Osuamkpe, 2024). For example, a positivist paradigm, which believes in an objective reality, might utilize quantitative methods to assess vocal performance metrics like pitch accuracy and breath control (Park, Konge, and Artino, 2020; Proustkova, 2019). This method yields measurable data that can be statistically analyzed to evaluate vocal techniques (Proustkova, 2019). In contrast, an interpretivist paradigm, which views reality as socially constructed, might use qualitative methods to investigate singers' personal experiences and perceptions of vocal training (University of South Australia, 2024; Van Zyl, 2020). This approach offers in-depth insights into how individuals understand and experience their training, leading to more tailored pedagogical strategies (Van Zyl, 2020).

Ethics in research is crucial. Ethical standards ensure that research is conducted responsibly, protecting participants' rights and well-being (Yip, Han, and Sng, 2016). These standards uphold the integrity and trustworthiness of research findings. Researchers must ensure confidentiality, obtain informed consent, and avoid causing harm to participants. In vocal research, ethical considerations include respecting participants' privacy, particularly when dealing with sensitive vocal recordings or personal performance experiences. Researchers must navigate issues of consent, especially when dealing with minors or individuals in vulnerable situations, and must handle data with care to avoid misuse or unauthorized disclosure. In insider vocal research, maintaining objectivity and safeguarding against bias is critical, as is being vigilant about protecting the confidentiality of sensitive or potentially damaging information (Reijers et al., 2018).

In sum, understanding research paradigms, ethics, methods, and philosophy is essential for conducting effective vocal research. Researchers must be aware of their beliefs, adhere to ethical standards, choose appropriate methods, and manage biases to ensure credible and reliable results. However, it is illogical to decide which methods to blend before settling on my research topic. In general, my epistemological position on a day-to-day basis is pragmatic, constructivist, and subjectivist. Pragmatic because I focus on practical solutions and outcomes. Constructivist because I believe knowledge and understanding are constructed through experiences and interactions. Subjectivist because I recognize that knowledge and truth are influenced by personal perspectives and interpretations. Depending on my future research topic, this position may change.

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