

THROUGH THE LOOKING
GLASS: A CRITICAL
EVALUATION OF
METHODOLOGICAL
APPROACHES FOR
EDUCATIONAL RESEARCH BY
A NOVICE RESEARCHER

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S2319224

WORD COUNT: 4110

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INTRODUCTION

In this paper, my goal is to explore and apply my understanding of research design to lay a solid foundation for my dissertation. I aim to contribute to musical theatre pedagogy, enhancing my ability to train performers in balancing technical proficiency with singing and dancing. In vocal pedagogy, it is essential to recognise that scientific facts alone are insufficient: Angelakis et al. (2021) states that singing is a multidisciplinary art form, requiring integration of diverse scientific insights into vocal education alongside traditional pedagogy.

According to Welch (2003) in the context of singing research, it is evident that traditional approaches—be it acoustic, scientific, or educational—has adopted specific ontological, epistemological, and methodological stances in structuring its research foundation. As a result, different perspectives lead to distinct strengths and weaknesses in existing research data.

Park et al. (2020) describe scientific research as the systematic pursuit of knowledge through paradigms that include assumptions about the world, guiding ontology, epistemology, axiology, and methodology. However, Cohen et al. (2018) view educational research as an artistic endeavour, marked by repetitive negotiation, practical compromises, and challenges, making it a deliberate yet chaotic process.

EPISTEMOLOGY, ONTOLOGY AND AXIOLOGY

Research philosophy starts with looking at ontology.

Ontology makes up the foundation of our beliefs: What is the nature of reality as well as the reality that surrounds us (Al-Saadi, 2014). Hitchcock and Hughes (1995), define ontology as the arrangement of assumptions: Assumptions about the nature of reality and this in turn gives us clues as to how to measure and communicate the evidence of what we believe.

Epistemology is about looking at the world and trying to find out how to understand it. According to Cohen et al. (2007) it is defining the assumptions that forms the very bases of knowledge – its nature and form, how it can be acquired and how to communicate this to other beings.

Ontology and epistemology are to research what ‘footings’ are to a house: they form the foundations of the whole edifice (Grix, 2004, p.59).

Axiology is the science of values. Values have been an inherent part of existence and understanding the nature of values has been a longstanding challenge (Bahm, 1993). According to Killam (2013) in research, axiology pertains to the researcher's beliefs about

what is valuable and ethical; that fundamental beliefs about ethics are integrated into research paradigms and influence the researcher's decisions.

THE CRITICAL EVALUATION OF RESEARCH PARADIGMS

Cohen et al. (2018) write that educational research has conflicting perspectives, originating from differing understandings of social realities and individual and social behaviour. These perspectives are known as paradigms.

Blaikie and Priest (2017) state that research paradigms are defined by their ontological and epistemological assumptions, which must be clearly articulated. Rather than strictly adhering to one paradigm, researchers should see paradigms as flexible options for investigating problems.

The challenge is choosing a paradigm that effectively answers a research question, whilst considering the associated assumptions. Establishing a research paradigm when exploring new singing pedagogy is essential, as the language used in scientific discourse often differs significantly from that of performing artists or singing teachers (Mitchell et al. 2004).

After considering the many different research paradigms, and given the nature and direction of my research, I will examine three paradigms that best align with my current beliefs and ideals. My aim is to understand these paradigms thoroughly and select one that best suits my research.

Positivism

According to Gergen (2001) a primary goal of positivism is to generate explanatory associations that leads to prediction and control of the phenomena in question. It is the quest for objective truths through scientific experiments.

Tekin and Kotaman (2013) elaborate that a key aspect of positivism is its methodology: The success of positivist research relies on the objectivity of both the researcher and the data collection tools. This allows scientists to distinguish personal values from facts, allowing the clearest and most ideal form of knowledge.

However, Cohen et al. (2018) argue that positivism is ill-suited for studying human behaviour due to its complexity and unpredictability, unlike natural phenomena. This is especially true in classrooms, where teaching and learning challenges complicate positivist research. Tekin and Kotaman (2013) add that positivist research in labs often fails to generalise to real-world classroom settings.

Constructivism

In trying to ascertain this paradigm, I found myself faced with different definitions and interpretations of constructivism, based on the area in which it is applied. The “constructivist stance maintains that learning is a process of constructing meaning; it is how people make sense of their experience” (Merriam and Caffarella, 1999, p. 260), however, there is also a compelling view that there is no universal definition of constructivism. According to Amineh (2015), constructivism is considered as a theory of learning whilst others view it as a theory of knowledge and consider it as a theory of pedagogy.

Kwak (2001) goes even further, breaking down constructivism in a variety of contexts including educational constructivism. Educational constructivism (or psychological constructivism) can be divided into three distinct versions (i.e. individual, radical, and social) depending on unique ontological and epistemological beliefs.

According to Olusegun (2015) constructivism is a teaching and learning approach grounded in the idea that cognition, or learning, results from "mental construction", meaning that students learn by integrating latest information with their existing knowledge and that learning is influenced by the context in which ideas are presented, as well as by students' beliefs and attitudes.

Pragmatism

Cohen et al. (2018) define pragmatism as an approach where research is centred on framing and addressing the research question or problem using a flexible and broad-based design. The methods of data collection and analysis are chosen based on their suitability for the research purpose, incorporating both quantitative and qualitative data as needed to effectively answer the research question or problem.

As my research is education based, but driven by choreography and music, my research design may need to be flexible as it is creatively based. Pragmatism therefore may suite my research paradigm ideally.

CRITICAL EVALUATION OF RESEARCH DESIGN AND METHODOLOGY

Research design is creating an overall strategy that will pull together the different components of what one is studying, so that research is coherent and logical. The design looks at the scope, timeline, limitations, and analysis of your subject field. The methodology is the over-arching framework (Shaw, 1999).

There are three methodologies used for conducting research: Quantitative, qualitative, and mixed methodologies.

Kob et al. (2011) highlight considerable progress in voice-related research over the past few decades, attributing to advancement in tools such as the electroglottograph (EGG) and the importance of scientific developments in voice acoustic modelling. Supporting this, Angelakis et al. (2021) writes that Music Technology hardware and software tools are now used to study, analyse, and understand the voice mechanism. This has enabled quantitative research to complement and enhance what was once a qualitative field.

New concepts in...measurement, and analysis have provided voice care professionals...an extensive vocabulary ...Thanks to scientific advances, we now have the tools we need for rational thought about the human voice.

(Sataloff, 1995, p.215)

Quantitative Research Methodology

Quantitative research uses deductive reasoning: Certainty that dictates logical necessity with a guaranteed conclusion. Sofaer (1999) states that quantitative research methods are vital for detailing intricate phenomena, understanding individual experiences, developing theories, testing hypotheses, and advancing explanations.

Angelakis et al. (2021) writes that within the field of production and performance research, control of the singing voice combines techniques for computational and digital technology allowing the physiological and acoustical study of the vocal instrument. One can then surmise that quantitative research methods are ideally suited in furthering vocal pedagogy research. This approach necessitates the precise formulation of a hypotheses and the operational definition of variables as prerequisites for empirical (quantitative) research. Taherdoost (2022) iterates that it is crucial to ensure that the instruments used in this type of research are well-structured and validated to provide accurate measurements, thereby obtaining reliable quantitative data.

An example of a quantitatively researched vocal study was in 2022. Castillo-Allendes et. al, did a pilot study to measure the Muscle Activity and Aerodynamic Voice Changes at Different Body Postures using technology that included a 3D-capture system as well as surface electromyography (sEMG). The analysed results showed pitch variances in unstable postures. This type of research and use of technology would be ideally suited to my research.

I am drawn to the rigor of quantitative research for its ability to prove or disprove theories with measurable evidence. My research ideals are to measure the physical outputs of performers singing and dancing simultaneously, but I currently lack the technology and expertise, which is frustrating given my positivist beliefs.

However, Qaddo (2019) argues that numerical measurement systems often fail to achieve meaningful reform in fields like education, as they cannot accurately identify the true sources of participants' experiences. Cox (2020) also presents a key argument against using this approach, particularly in social research, such as vocal pedagogy: that understanding social phenomena (the students, the studio, or the educational institution) requires insight into context-specific patterns, structures, and principles unique to particular social patterns.

Given that my research is in arts education, these points have led me to consider that qualitative or mixed methodologies might provide the necessary data while maintaining the rigor of quantitative methods.

Qualitative Research Methodology

Roberts (1992) states that an effective way to bridge the gap between research findings and the teachers who could benefit from it most, is to grant teachers greater ownership of research. Roberts continues that qualitative models offer this chance to conduct research in a contextualised manner while also grasping the lived experience that teacher-researchers contribute to the analysis of the situation.

There are many variants of qualitative approaches (Hitchcock and Hughes, 1995). Marshall and Rossman (2016) identify several classifications of these approaches. They include those which a focus on culture and society (ethnographic approaches); focus on the lived experiences of individuals (phenomenological approaches); focus on texts and talking (sociolinguistic approaches); use grounded theory approaches and the use of case studies.

Sociolinguistic approaches assist qualitative methods in linguistics and anthropology, as well as methodology courses in the humanities and social sciences that emphasise the role of language in research (Heller, Pietikainen & Pujolar, 2017). Included in this is narrative research. Taherdoost (2022) states that narrative qualitative research involves exploring individuals' stories about themselves or specific events. This approach emphasises uncovering these stories in sequence, and highlighting the roles and development of the characters involved.

Grounded theory is a methodology that aims to recognise cognitive, developmental, social activities and processes.

Grounded theory is the best methodological choice for developing theories about psychological and social processes, narrative inquiry has also been used to theorize psychosocial processes.

(Lul and Suto, 2012, p.5).

Ethnography

Ethnography, according to Garfinkel (1967) focuses on the world of everyday life, specifically emphasising the participants' thoughts, events, and circumstances.

According to Cox and Forbes (2022) the focused nature of ethnography leverages on a researcher's insider status to quickly establish trust with participants. This insider knowledge of the specific cultural group serves as an analytical tool, allowing for quicker insights than might otherwise be possible. However, according to Dwyer and Buckle (2009) it should be noted that although being an insider-researcher has its benefits in ethnographic research, it is not mandatory.

For each of the ways that being an insider researcher enhances the depth and breadth of understanding a population that may not be accessible to a nonnative scientist, questions about objectivity, reflexivity, and authenticity of a research project are raised because perhaps one knows too much or is too close to the project and may be too similar to those being studied.

(Kanuha, 2000, p. 444)

In the case of my research, as the trainer and tutor I have this insider knowledge of my students, which may positively serve my research. In a Cox and Forbes (2022) singing study, applying a focused ethnographic approach across multiple sites enhanced the research effort by identifying connections, commonalities, and differences within the specific cultural group.

Phenomenology

Phenomenology is a theoretical perspective that emphasises studying direct experience as it is perceived, suggesting that behaviour is influenced by these experiences rather than by external, objective, and physically defined reality (English and English, 1958).

Randles (2012) states that phenomenology is a highly effective qualitative research method for vocal pedagogical research: It has proven invaluable in the field of music research by enhancing understanding of specific phenomena and helping participants articulate and process their experiences. Randles continues that the strength of phenomenology lies in its ability to provide immediate, accessible insights for both scholars and practitioners. Unlike quantitative methods, which maintain a separation between the researcher and the research, qualitative methods like phenomenology embrace this connection, leveraging it to enrich the meaning and applicability of the findings.

According to Connelly (2010), phenomenology can be divided into two types, differing in their approach to bracketing. Qualitative researchers aim to recognise any preconceived

ideas they might hold about the phenomenon before starting their study. Descriptive phenomenologists attempt to set aside these assumptions or biases (bracketing) to prevent them from influencing the research. In contrast, interpretive phenomenologists argue that these presuppositions cannot be fully set aside because they are inherent to the person. Instead, researchers should be aware of them and consider their impact on the study.

Matua and Van Der Wal (2015) state that an interpretive phenomenal approach can be used to analyse the circumstances and holistic aspects of an experience in relation to factors like culture, employment, or the well-being of individuals or groups experiencing the phenomenon. This method enables researchers to gain a deeper understanding of the experience, providing the necessary knowledge to assess the needs of their subjects.

As a practitioner and tutor in musical theatre, my firsthand experience with the physical challenges students face when singing and dancing enhances my understanding of these issues. Using an interpretive phenomenological approach I will enrich my research, providing deeper insights without compromising validity. Both ethnography and phenomenology are well-suited for the educational environment in which I will conduct my research; as it falls under arts education, in a culturally rich environment of young adults coming diverse backgrounds and training. However, I still believe that incorporating quantitative research is essential to add critical validity to my study, given my preferred positivist paradigm.

Mixed Methodology

Mixed methods facilitates research that is not exclusively quantitative or qualitative but rather includes both methods. It not only relates to data collection but concerns philosophical bases of research and assumptions which inform the design and conduct of one's research.

Its central premise is that the use of quantitative and qualitative approaches, in combination, provides a better understanding of research problems and questions that either approach on its own.

(Cohen et al., 2018, p.32)

Hesse-Biber and Johnson (2013) propose that Mixed Methods Research (MMR) is applicable across different paradigms, value systems, levels of analysis, and diverse research cultures and practices. However, it is crucial to understand that the research question is fundamental and central to MMR design. Cohen et al. (2018) surmises that there are no predefined guidelines for conducting Mixed Methods Research (MMR); each study is distinct, requiring the researcher to tailor the design and implementation according to the specific purposes, focus, merits, and characteristics of the research. However, on the other hand, Taherdoost (2022) states there are four aspects of mixed method research that helps create the approach of MMR design. These are:

Timing: What the time factors are in data collection, and if the data is collected during various stages of research or are collected simultaneously.

Weighting: The amount of qualitative versus quantitative methods used in the research.

Mixing: Integrating data, research questions, philosophy, and interpretation where there are two main considerations: “when to mix and how to mix.”

Theorising: What guidance to follow for the design of a mixed method study. Theories can be derived from social sciences, as well as from broad theoretical perspectives like participatory lenses that consider age, gender, and class factors.

Taherdoost goes on to say that once the aspects of MMR are clarified, the next step is to go into mixed method types: Sequential Designs or Concurrent Designs, as can be seen below.

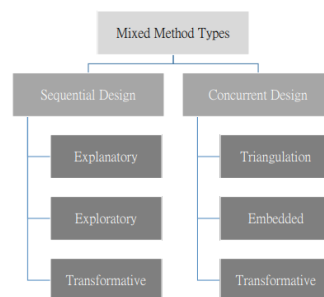


Figure 1: Mixed Method Types (Taherdoost, 2022: 60)



Figure 5. Sequential Explanatory Process



Figure 2: A Breakdown of a Sequential Design (Taherdoost, 2022: 61)

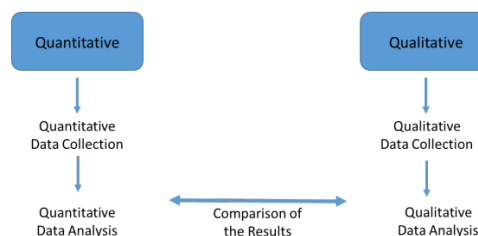


Figure 3: A Breakdown of a Concurrent Design (Taherdoost, 2022: 61)

Sequential design allows flexibility in balancing quantitative and qualitative phases, supporting the researcher’s theoretical perspective. This method enables researchers to deeply understand changes in events and phenomena, give voice to diverse perspectives,

and better advocate for participants. This approach is ideal for novice researchers such as myself as it offers structured yet adaptable phases, accommodating different research strengths and learning opportunities.

Reflecting on my future research design, a mixed methods approach (MMR) will enable me to determine the appropriate weight of quantitative research, aligning with my positivist ideals; that despite the lack of scientific equipment in my current environment, the broad applicability of qualitative research makes MMR the optimal choice. However, before committing to a specific methodology, I need to first develop a precise and focused research question, followed by formulating the appropriate methodological approaches.

RESEARCH METHODS

In this section, I will examine two methods that are currently accessible to me, allowing for immediate data collection with minimal limitations.

Interviews

The interview as a method of qualitative data collection involves people discussing a specific human or social issue. "Using interview techniques, the researcher commonly aims to obtain the perspective of the interviewee by interpreting the meaning of the described phenomena." (Kvale, 1996, p. 6). Interviews can be structured, semi-structured, and unstructured.

In a structured interview, the researcher must ask all participants the exact same questions. In contrast, a semi-structured interview permits the researcher to modify the pre-planned questions as needed, either by adding or omitting parts. Semi-structured interviews typically include several key questions that outline the areas of exploration, allowing the interviewee to elaborate on specific issues (Dörnyei, 2007). On the other hand, unstructured interviews do not require a question guide at all.

According to Alamri (2019) the flexible nature of interviews help the participants to reveal more about themselves which, in turn serves to enrich the qualitative data. The interviewer can delve into the motivations and ideas behind the responses in a manner that other methods do not permit.

The drawbacks include the time-intensive process of conducting interviews, particularly when they are recorded and require full transcription (Bryman, 2012). Alamri (2019) continues that respondents might prioritise social norms over their individual opinions or feelings, leading to responses and data that may not be entirely trustworthy. This in turn can impact the reliability of the study's results.

When conducting interviews in an educational setting where the interviewer is the student's tutor, Tuckman (1972) cautions that question formulation should consider the following factors: The potential for questions to influence respondents to present themselves positively; the possibility that questions might lead respondents to try to anticipate what the interviewer wants to hear, and the likelihood that respondents might not know or be uncertain about the information being asked. He continues that as a tutor conducting these interviews, it is important to be aware that students might adapt or alter their answers to fit the student-teacher dynamic.

Observations

O'Connor (2005, p.5) describes this methodology as "immersing yourself in the study of people you're not too different from." Uwamusi and Ajisebiyawo (2023) explain that observational research involves passively engaging with the sample population, focusing on interactions, and recording specific behaviours. Clark et al. (2009) highlight that observation as a primary research method can generate more authentic and valid data than hypothetical approaches, providing sound contextual information and documenting verbal, non-verbal, and physical aspects of what is being studied.

My research aims to improve training by enhancing the physical coordination of voice and choreography when performed simultaneously. Observation, if conducted with a phenomenological approach, could help me identify where the biggest co-ordinational issues lie.

However, a notable disadvantage of this method is the potential for researcher bias.

Emergence of bias within the research process, an outcome that will not only skew the overall results but may in fact be embedded so deeply within the researcher's experiences that he or she is not even aware of how these biases influence the collection of data or the analysis of same.

(Uwamusi and Adekunle Ajisebiyawo, 2023, p.8)

To maintain the integrity of my research, I need to implement actions that will contain my bias and protect my data. I will do this through an ethical review.

ETHICS

Ethics refers to a branch of philosophy concerned with how people should act, judgements about those actions (e.g., right versus wrong, good versus bad), and develop rules for justifying actions.

(Aguinis and Henle, 2004, p.34; Kitchener, 2000)

In the context of research, ethical considerations dictate what researchers should and should not do in their conduct and practices (Cohen, 2018).

Ethical issues are rarely as straightforward as rule following would suggest, and it is for individuals to take responsibility for the decisions that they take on ethical matters and the actions connected with those decisions.

(Brooks et al., 2014, p.153)

Ethical decisions are influenced by social, political, cultural, and personal contexts, with each research project posing unique challenges (Brooks et al., 2014). Ethics vary globally, shaped by diverse societal norms and values (Schwartz, 2004). Cohen et al. (2018) state that ethical considerations persist throughout the research process. In my educational research setting—a singing studio—ethical challenges will arise, particularly during group singing classes where data collection occurs.

Carey and Grant (2015) note that research in a singing-specific setting involves challenges like gaining access to the studio, the researcher's insider or outsider status, and the impact of their presence on data collection. In singing lessons, which typically occur "behind closed doors," ensuring student comfort can be difficult and may compromise data quality (Berwell, 2005; Davidson and Jordan, 2007). At my institution where my research occur, we maintain an "open-door", relaxed environment where students are encouraged and supported in a protected environment. Student experience is at the core of the institutions ethos where comfortability is paramount. This makes the environment well suited for data collection with minimal disruption.

The private nature of singing studios poses methodological and ethical challenges, such as gaining access and shifting from a teacher-student to a researcher-participant dynamic (Carey and Grant, 2015; Gaunt, 2008, 2011). This shift may cause students to alter their responses. In the case of my research, I must ensure clear communication about the research's purpose, with appropriate ethical considerations to protect my student's participant status and my status as the researcher and tutor. However, I am aware that this adds further ethical dilemmas as I am now considered an insider-researcher.

INSIDER RESEARCH

Insider research studies are frequently conducted in work-integrated learning environments. According to Fleming (2018) the primary advantage is the researcher's unique insight into the history and culture of their program, allowing for a profound level of understanding and interpretation. However, Fleming continues that key challenges include minimising the risk of assumed influence of participants, recognising the desire for favourable outcomes, ensuring that implicit patterns and regularities are not overlooked, and being aware of potential conflicts arising from the dual roles of being the academic and the researcher within the same setting.

Ezzy (2002) emphasises that the individual experiences of the researcher are a fundamental part of the research process, highlighting the notion that claiming objectivity is misleading.

Gaunt's (2008, 2010, 2011) studies on one-to-one pedagogy showcase insider research, leveraging her background as a performer, teacher, and employee. Benefits include easier access, greater trust, and linking research to professional development. However, Cox and Forbes (2020) note drawbacks like potential bias, participants' fear of judgment, concerns about negative outcomes, and possible adverse effects on professional relationships.

Researchers such as myself must be mindful of the impact of the research on both the participants and themselves, the potential reduction of the positivist paradigm, and the heightened awareness of the research's purposes and effects.

CONCLUSION

My research journey for this essay has been intriguing: challenging my positivist mindset and leading me to explore new research paradigms. By embracing methods like interviews and observations, I must recognise my ethical biases and their potential impact on my work. However, approaching this conscientiously, I believe my research can offer new insights into musical theatre pedagogy.

Educational researchers cannot simply “read off” the planning and conduct of research as though one were reading a recipe for baking a cake...Rather, it is to some degree an art, an iterative...often negotiated process and one in which there are typically trade-offs between what one would like to do and what is basically possible.

(Cohen et al., 2018, p.3)

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