

MODULE TWO
BMPF7005 COHORT L

DOUGLAS VON EDELMANN
2238703

EXPLORING RESEARCH METHODOLOGIES
PILLARS & PERSPECTIVES

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1.1 INTRODUCTION

Researchers employ precise techniques, tools, and strategies to investigate and extract empirical meaning from a philosophy that interfaces with ideas acknowledged by science to be real (Nwaze, 2002; Crotty, 1998). In this paper, I will explore research methodologies to provide a well-reasoned analysis of their benefits and limitations. The merits of four paradigms from classical and pragmatic models will be reviewed, illuminating how their philosophical perspectives impact research choices. Designs and methods, and how they are used to acquire data in an investigation, will illuminate a researcher's relationship with reality (Bryman, 1988). As insider researchers, creating scientific knowledge through systematic explanations compels a discussion about ethics. I will address ethical issues, and provide suggestions for how dilemmas may be circumvented to reinforce positive research outcomes. Due to the extensive scope and space limitation of this topic, I have elaborated on designs and methods, as well as created a hypothetical study to illustrate the relevance of research methodologies, in the appendices.

1.2 ONTOLOGY, EPISTEMOLOGY, AND AXIOLOGY

Before an inquiry begins, researchers acknowledge formative questions that reveal their worldview through three pillars and perspectives of philosophy: Ontology, epistemology, and axiology (Mertens, 2007). To begin a research project, it is important to obtain a clear understanding of a position about reality to strategically plan an effective inquiry (Dummett, 2001).

Ontology addresses the notion of 'being', and is concerned with the perception of what exists in the world by asking 'what' is there to know. (Alharahsheh & Pius, 2020; Scotland, 2012). The presence of knowledge is distinguished through the mind's liaison to reality, manifested through beliefs and values that construct an understanding of truth in the world (Kivunja & Kuyini, 2017). Parsing an ontological perspective supports the emanation of an objective agreement with reality through epistemological assumptions (Mertens, 2010; Miller, 2006).

Epistemology radiates salient elements directed toward knowing 'why' something is said to be true (Lewis, 2001). It harmonizes a researcher's ideas with facts, identifying resolutions

that support a proposition about 'how' a truth came into existence (James, 2001; Oram, 2015). According to Berger & Luckmann (1966) truth is amplified through the objectification of innate mechanisms, radiating its meaning through a corresponding external part. In other words, the internal component of epistemology explains how knowledge is acquired and reality is discerned. Therefore, it makes sense of a notion by extracting correspondence and context as evidence of an ontological truth. (Alharahsheh & Pius, 2020).

Axiology recognizes the philosophical 'value' of knowledge acquired by evaluating how persuasive it is through its transformational effectiveness (Carter & Little, 2007). An axiological valuation reveals ethical standards that should remain consistent throughout an inquiry by manifesting seen and unseen elements in their research objectives (Kivunja & Kuyini, 2017). Thus, principles inherent to a logical value system quell irrational, personal practices in favor of ethically sound standards that justify research approaches (Mertens, 2007).

As researchers, we may fully commit to being truth makers by combining abstract assertions with concrete reality clarified through a physical rendering of truth (Dummett, 2001). A holistic view of reality is reasoned by intrinsic and extrinsic components that explain what and why knowledge exists, disclosing standards of evaluation that reflect how knowledge is acquired (Rasmussen, 2013). These philosophical components inhabit a research goal and are embodied within a research framework (Tornobohm, 1974).

1.3 PARADIGMS

According to Tornobohm (1974) as cited by Costley, Elliott & Gibbs (2012) a paradigm is a model that shapes a research framework, mirroring an inquirer's worldview through structured representations of their decisive truth to meet a research goal. Thomas Kuhn, the founder of paradigms in 1962, introduced their use to interpret data (Kankum, 2019). Paradigms depict how knowing the nature of something, and the evidence of its existence, is constructed from a plan that captures the researchers' intentions and prospects through perceptions derived from academic literature, professional experience, and phronesis (Elliott. & Timulak, 2005). The most imperative aspect of a paradigm is the impact it will have on the inquirer, observers, participants, and the research itself (Morgan (2014). It is important to

note that researchers should consider what type of paradigm is significant to the implications and fulfillment of meeting a research goal.

Inventing new knowledge does not require an impersonal approach to scientific inquiry because the accuracy of truth is predicated on deductive and inductive reasoning (Coccia & Benati, 2023; James, 2001). Researchers should note that inductive methods, unlike deductive, are problematic because they attempt to connect partial details that lead to uncertain inferences (Gray, 2004). Therefore, discoveries depend on clear research intentions channeled through paradigm choices that demonstrate rigor and relevance, resulting in elevated meaning-making and solid inferences (Winter, 2020; Oram, 2015). Positivism, interpretivism, pragmatism, and critical transformative paradigms are four of many models that explain a phenomenon, providing coherent methods of analysis that reveal the habitus of a researcher (Crotty, 1998).

Positivism is concerned with a singular reality where objects exist separately from the researcher to establish an absolute, concrete answer to a research question (Scotland, 2012). Auguste Comte developed positivism as an impartial approach to analyzing data using epistemological tools that make objective sense of truth (Blaikie, 1991). Robust quantitative methods include randomized control trials, manipulation of variables, numerical and statistical data, measurement scaling, sampling, as well as focus groups and interviews to provide a material acknowledgment that something exists (Alharahsheh & Pius, 2020). The rigor of quantitative, deductive analysis provides generalizations determined through transferable data replicability (Kankam, 2019). However, universality does not transfer individual knowledge of actions to the social world, implying that reductionist data results do not resolve the perceptual aspects of reality (Scotland, 2012). It may therefore be argued that positivism's dependence on generalizations is unjustified because it dismisses subjective values that create interpretive bias, limiting a practical understanding of facts where opaque claims are disguised as absolute truth (Ryan, 2015).

Interpretivism, or constructivism, is prepossessed with a core assumption that there are multiple realities where truth is declared relative to the observer (Okesina, 2020). Contrary to positivism's worldview, reality is socially constructed, derived, and dependent on an individual's lived experience, providing a rich understanding of people and social phenomena (Kivunja & Kuyini, 2017). Its truth is epistemologically determined contextually through

interconnected actions and events that establish the meaning of a phenomenon, evidenced by words that describe truth as relative to an individual (James & Mulcahy,1999). Solutions to discover meaning are elicited from qualitative, inductive methods such as interviews, focus groups, textual analysis, case studies, and observation, generating rich concepts and hypotheses from data sets drawn from perceptions of participants living in the same physical world (Guba & Lincoln,1994). It appears that interpretivism accommodates opportunities to explain and understand nuances of a phenomenon, but the process of accumulating and interpreting data is a time-consuming process that is labor intensive (Mackenzie & Knipe, 2006). Another drawback is the contextual nature of inductive analysis because transferability issues create difficulties in formulating universal deductions from comparable data sets (James & Mulcahy,1999).

***Pragmatism and Critical Transformative Paradigm** discussion (See Appendix A).

To summarize, paradigms form a critical framework for scientific knowledge discovery. Their inductive and deductive reasoning contribute to numerical and narrative data set acquisition for transformative development. Through their objective and subjective categorizations, data may fail to capture a complete realization of a phenomenon but enrich the understanding of human behavior. While it may be true that paradigms contribute to the validation and existence of something, their relevance relies on transferability for broad deductions. Oversimplification of multidimensional social phenomena neglects nuances that perpetuate biased interpretations of complex, interdisciplinary data sets, reinforcing dominant hierarchal ideas that marginalize alternative perspectives of individuals. Thus, we should note that paradigm choices have a critical impact on the achievement of significant research conclusions.

1.4 METHODOLOGY

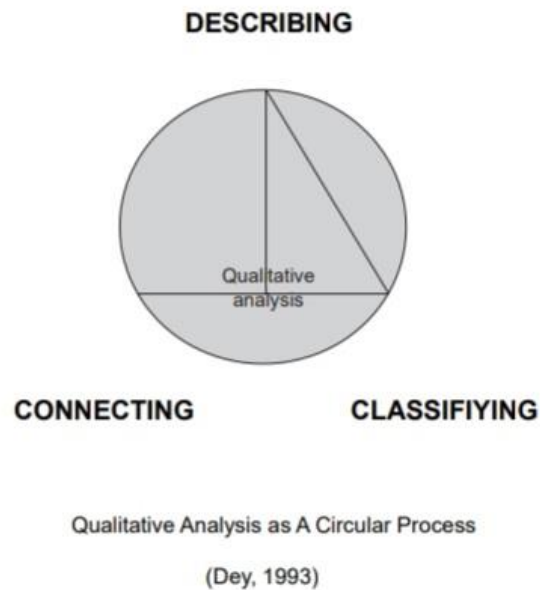
Methodology is a systematic research evaluation process that fulfills a strategic approach to an objective inquiry through its design and methods (Alharahsheh & Pius, 2020). Its purpose is to justify the constitution of knowledge through a philosophical discussion that describes, explains, and interprets data (Van Fraassen, 2004). Castellan (2010) states that

methodologies are not exclusive to paradigm choices, nor do they favor specific method designs. However, each methodology renders results based on its specific strengths and limitations, facilitating the researcher's ability to creatively select methods that critically evaluate the phenomenon being studied (Guba & Lincoln, 1994). A methodological matrix explores assumptions that derive rigorous knowledge from accurate data conclusions (Boucher, 2014; Hudson & Ozanne, 1988). Two main methodological models collect and interpret data: Quantitative (objective) and qualitative (subjective), with a third identified as mixed-method research (MMR) (Rahi, 2017).

Quantitative methodology conveys data sets factually, using deduction to describe a phenomenon through an observational numeric value (Bryman, 1988). It asserts one truth realized through a structured knowledge of facts associated with a positivist paradigm (Davies & Hughes, 2019). It objectively describes data using large samples for replicable critical evaluations represented through tables, figures, measurements, numbers, and statistical/mathematical techniques (Gray, 2004). Data is processed in four ways (See Appendix B). Although quantitative analysis offers numeric values that substantiate conclusions, there are some risks associated with this methodology (Gray, 2004).

Combating risk to increase data validity requires random participant selection, response techniques, and anonymity, combined with researcher self-recognition of bias (Hughes-Scholes & Sharman, 2012). Cognitive bias can never be eliminated due to subjective interpretation, but it can be minimized through a systematically documented inspection of how data is evaluated (Agabegi & Stern, 2008). To remove bias, increased transparency of data numbers can be codified through mathematical formulas and tables (Greenwald et al., 2021). The quantitative analysis does not interpret the subjective context of why something exists (Dey, 1993). What this means is that general numeric figures can be manipulated through human error, and fail to capture the intentions of what drives data, resulting in insider researcher bias in statistical interpretation (Anderson, 2010; Creswell, 2009).

Qualitative methodology transmits research using an inductive process of narrative data acquisition methods (Bryman, 1988). Qualitative research connects with a subject to describe their experience and then encodes it by theme/classification (Dey, 1993). (See Figure).



In contrast to quantitative methods, it views the world through the lens of multiple realities, promoting in-depth discussion through words that describe the motivation of actions (Greene, 2014). The credibility of text is drawn from meanings that are interpreted, often concurrently as they are being analyzed (Cohen, Manion & Morrison, 2007). It substantiates certainty of truth through content-rich analysis, providing reliable data drawn from natural settings that offer highly nuanced information about human experience (Gray, 2004). A drawback is that it contains less universal, predictable data, and requires interdisciplinary analysis and time-consuming coding of a phenomenon (Patton, 1999).

Language/text can be intrinsically nebulous in meaning and difficult to validate (Alsaawi, 2014). In contrast to quantitative methods, sample sizes emphasize a deeper understanding of behaviors, but are less capable of making generalizations or a hypothesis (Fakis et al., 2014). As well, non-probability sampling poses a danger to the presence of bias in data (Gibbs et al., 2007). Although researchers acquire in-depth data by asking 'why' a phenomenon exists, the attitudes and beliefs of respondents are less rigorous and arduous to clarify (Bryman, 1988). To counter these issues, merging research methods to organize data provides more precise and thicker insight (Heale & Forbes, 2013). Comparing data sets from various sources curtails the reduction of validity making triangulation useful for capturing nuanced clues about human experiences (Hammersley, 2008). Overwhelming evidence suggests that data verification through the convergence of combined methods generates more compelling evidence of phenomena (Heale & Forbes, 2013).

Mixed-method research (MMR) benefits research through a design that combines exact numerical data with credible interpretive data revealing dimensions of a phenomenon in a single or sequence of studies ((Ivankova & Creswell, 2009). Two polarized epistemological assumptions espouse deductive with inductive methods of analysis, addressing various assumptions of reality that remove uncertainty, adding interpretive vitality to justify numeric data confirmations (Wolfer, 1993). Therefore, thick descriptions of context-related data sets from MMR and triangulation are critical to the notion of absolute truth (Blakie, 1991). MMR can confirm correlational, cause-effect relationships with participant-enriched context data to derive both meaningful and transferable (Yilmaz, 2013). It is important to note that a criteria debate surrounding MMR requires the evaluation of convergent research designs with data sources to affirm external, valid conclusions (Sandelowski, 1999).

Superior data results depend on rigorous analysis to foster new taxonomies (Yilmaz, 2013). The quantitative assertion of 'one reality' often dominates over the qualitative investigation, which Giddings (2006) refers to as 'positivism dressed in drag'. It may be argued that different methods retain specific values, making data relationships difficult to compare and qualify (Hammersley, 2008). Thus, MMR requires transparency for replicability achieved through purposeful data collection which consolidates inferential/numeric with thematic/narrative data to generate authentic results (Heale & Forbes, 2013).

1.5 RESEARCH DESIGNS

A research design underlines the implicit philosophical assumptions that strategically guide empirical data acquisition, constructions, and context of its interpretation (Davies & Hughes, 2019; Alharahsheh & Pius, 2020). Its fundamental purpose is to collect necessary data that answers a research question through sequential, prioritized methods of quantitative, qualitative, and MMR designs (Creswell et al., 2003).

Quantitative designs benefit research by giving facts an objective reality, determined by a focused research goal realized through a deductive approach, testing theories and hypotheses in advance of data collection with formal instruments (Davies & Hughes, 2019). Executed from a positivist perspective, they identify and reduce variables to a numeric value

by measuring their relationships through rapid, randomized, repeatable, remote, reliable, and anonymous means of large data sets (Davies & Hughes, 2019). Researchers calculate quantitative data from structured, sequential questions that ask 'how many', drawing objective inferences about a broad population through techniques and methods in experimental and non-experimental designs (Asenahabi, 2019).

However, quantitative designs and methods limitations arise after completing research because access for further clarification cannot be implemented (Kankam, 2019). This may affect the general statistical representation of the wider population (Gray, 2004). As well, there may be elevated costs incurred from overemphasized numerical data research, usually executed in artificial research conditions (Creswell et al., 2003). Although the designs provide valuable tools for reliable insights and data that inspire decisions, the practical implications of these methods do not provide a complete explanation of a phenomenon in a research objective (Gray, 2004).

Qualitative designs, in contrast to quantitative, collect data through inductive methods which reveal a pluralistic, socially constructed reality that ends with a hypothesis (Davies & Hughes, 2019). From an interpretive angle, the insider's viewpoint is understood through the subjective interaction of the researcher, as an instrument, with participants (Gray, 2004). A research design permits the acquisition of prosperous data from a 'map', but does not necessarily illuminate the 'terrain' of a phenomenon's assumption, which relies on judicious method choices (Pratt, Sonenschein & Feldman, 2020). Qualitative analysis is processed through the interpretation of meanings organized by theme and description, where interrelated raw information is coded for validation (Davies & Hughes, 2019). Thus, design templates govern the research process, studying the environment to establish what, why, and how selected methods address issues, context, and conclusions that lead to a hypothesis or theory (Costley, Elliott & Gibbs, 2012).

*Additional Critical Analysis of Research Designs (See Appendix C & D).

In summary, the purpose of a research design is to augment a researcher's awareness of a phenomenon by strategically converting the problem into data that is acquired and analyzed through quantitative, qualitative, or MMR methods. A design choice determines what methods and data are required to draw inferences that confirm, deny, or lead to a hypothesis.

Data content is interpreted using deductive and inductive processes, which are extracted, measured, explained, and represented in numeric, narrative, or both forms. Researchers may overcome design limitations and bias through triangulation, cross-substantiation repetition of actions, narrative context clarification, and self-reflection. Interdisciplinary approaches that produce accurate coding, patterns of perspectives and predictability, and diversity of data comparison promote data generalizability, transferability, and replicability.

1.6 RESEARCH METHODS

Quantitative methods are geared toward predicting phenomena through statistical data (Sandelowski, 1999). It uses deductive reasoning to test a hypothesis by using large random samples to establish generalizations about its findings (Davies & Hughes, 2019). Through its use of variables in control groups, correlative, causal, and descriptive data bring meaning to an inquiry (Costley, Elliott & Gibbs, 2012). Researchers benefit from statistical data since it identifies sophisticated relationships of variables that contribute to replicability (Davies & Hughes, 2019). To avoid false conclusions, a realistic representation of frequency (*number of times a value occurs in an interval*) distributions (*pattern of frequency of variable*) in a graphical/tabular format is important to prove a hypothesis in a graphical or tabular format (Rahi, 2017). Confirmation bias justifying an existing hypothesis can be avoided by maintaining transparency of statistical findings between several researchers (Baldwin et al., 2022; Nickerson, R.S. (1998)). Quantifiable methods are limited and lack strength if partial data is collected (Davies & Hughes, 2019). This can be combatted through the planning of data and its statistical analysis, as well as independent and dependent variables (Rahi, 2017)

*Quantitative method discussion (See Appendix E).

Qualitative methods apply a less structured, holistic, non-intervention-based approach to explain a phenomenon (Rahi, 2017). Methods use text drawn from in-depth discussion and observation of human thought, action, and behavior to explore context and meaning from data (Davies & Hughes, 2019). Unlike quantitative methods, categories such as age and gender are less important, focussing on collecting descriptive text to identify data to create theoretical concepts (Frechette, 2022). Researcher bias can be avoided through objectivity and identifying difficulties during an inquiry (Baldwin et al., 2022). Drawbacks occur if structured and non-structured techniques do not code categories correctly, where multiple

themes of data may be organized and interpreted precisely to reflect verifiable evidence (Ahmad, et al., 2019). However, qualitative methods garner deep insights into complex human phenomena.

*Qualitative method discussion (See Appendix F).

In summary, quantitative and qualitative methods enable researchers to determine inferences through objective and subjective means of data analysis. Explanatory methods depict objective variables in causal relationships, in contrast to descriptive methods which make subjective observations about why a phenomenon exists. These methods may be combined in MMR to explain phenomena whose explicit and implicit values require a more comprehensive understanding. Large random samples contain more generalizability and replicability, unlike smaller samples which provide rich nuance and meaning to data. The risk of researcher bias is reduced through the maintenance of transparency and objectivity, accurate coding, and self-reflection through documentation during the research process.

1.7 ETHICS

According to Resnik (2020) research is not insulated from ethical cohesion, where it should benefit the truth, minimize error, and defend standards of mutual agreement and interpretation of moral values. That is to say, research requires subjective integration of moral theory through detailed auditing to ensure its objectives employ guiding principles that respect participants, inquirers, and resources (Showkat & Parveen, 2017). Conduct in quantitative research includes respect for collaborators and respondents, plagiarism and intellectual property laws, data sharing and fabrication policies, and premature exposure of results (Showkat & Parveen, 2017). In qualitative research where the researcher is an instrument to acquire data, issues of autonomy, data falsification, non-maleficence, justice, and informed consent should be respected (Rana, Dilshad & Ahsan, 2021). Inquirers must ensure participants comprehend how data will be collected and used, and are informed about the potential consequences of their outcomes (Resnik, 2020). Participants consent to having the right to their information, or retreat from a study, without being deceived or obliged to partake at any time (Davies & Hughes, 2019). This means that an advanced understanding of ethical risks protects all people and data associated with research (Resnik, 2020).

Avoiding ethical dilemmas in research can be circumvented by observing guidelines that prevent knowledge gaps between researchers and participants (Rana, Dilshad & Ahsan, 2021). This safeguards vulnerable participants with reduced autonomy by treating them as self-governing agents who are guaranteed safety and protection (Awal, 2023). Moreover, distinct lines drawn between a researcher's multiple roles contribute to clear thought processes that lead to ethical decision-making (Showkat & Parveen, 2017). Researchers who consult ethical resources to draft a formal code of conduct that complies with international standards ensure beneficence and non-maleficence practices of participants are adhered to in positivist and interpretivist approaches (Rana, Dilshad & Ahsan, 2021) (See Appendix G). It is important to note that publication companies often require evidence of external approval from an ethics committee that official codes of conduct, accurate data reporting systems, confidentiality, consent rules, and authorship/intellectual property responsibilities are adhered to (Awal, 2023; Fleming, 2018).

Alliance with research habitats and its participants are often decided by gatekeepers of organizations, presenting challenges for researchers where the pros should outweigh the cons (Awal, 2023). Researchers gain access by ensuring that the risk of harm to participants is ensured and that findings will be communicated to organizations that prosper from change-focused research (Marczyk, DeMatteo & Festinger, 2005). In addition, social processes between researchers and companies prevent conflicts of interest for high-competency data protection, reinforcing the integrity of intellectual property and access to research surroundings (Floyd & Arthur, 2012). Research is never ethically neutral since moral principles are evaluated through its subjective evidence where elimination of dangers in research terrains (academic restrictions, limits to population zones, and time/budget assets) may inhibit an inquirer's data collection (Parsell, Ambler & Jacenyik-Trawoger, 2014). This means that researchers are implicitly responsible for ethical decisions since morality is not objectified to substantiate the negative consequences of data acquisition.

1.8 INSIDER RESEARCHER

An insider researcher (IR) is one agent who assumes multiple roles of participant-observer in a continuum of movement, sharing a subjective, emotional setting with participants, who have greater access to data within an organization (Thomson & Gunter, 2011). Unlike an

outside researcher, who objectively collects data from a group but is not an official agent of the organization, IRs embed their ontological position in a research framework where observation and knowledge transfer to participants occur simultaneously (Greene, 2014; Merton, 1972). An IRs positionality contributes to gaining access and trust with participants during an inquiry and offers emotion-related benefits that produce rich data, benefitting organizations to efficiently implement new operational concepts for change (Smith, 2003; Ross, 2017). Ownership and trustful acquisition of intellectual capital rely on one's self-evaluation of ethical principles, ensuring the creation and context of data evaluation results are accurately credited to prevent plagiarism (Showkat & Parveen, 2017).

An IR will positively impact the research process by implementing a solid research design that provides insight into participants and authentic results for organizations (Fleming, 2018). An IRs pluralistic position requires subtle maneuvers of identity so that a power struggle with participants is not deployed (Greene, 2014). Participant limitation from members occurs when a conflict of interest is perceived (Thomson & Gunter, 2011). To counter this issue, collaboration with a third party provides anonymous data collection before making data available, discarding the perceived aspect of altered power as observers and investigators (Merton, 1972). Likewise, researchers who maintain a critical distance and respect participant jurisdictions eliminate potential coercion or conflicts (Liu & Burnett, 2022). IRs should consider how data is collected in the context of their beliefs, acknowledging pre-existing biases related to academic interests that may risk the loss of trust and credibility (Floyd & Arthur, 2012). By identifying reasons for actions, IRs can strategically move fluidly as a participant and observers (Bulk & Collins, 2023).

Many divisions of bias exist, but researcher and participant bias are most common (Awal, 2023) (See Appendix F). Participant bias occurs when respondents perceive a 'right' answer about the researcher's intentions which leads to agreement or disagreement (Editage Insights, 2024). An IRs ontological position permeates an inquiry, prioritizing objectivity during observation (Ross, 2017). Preserving cognitive and emotional awareness of all investigation activities that threaten the context and validity of data acquisition avoids participant bias (McKenzie & Bartunek, 2023). Researcher bias occurs when data that is relevant to a researcher's subconscious interpretation of agreement with a hypothesis is included or unregistered (Editage Insights, 2024). Consequential data sets are underreported in research, advocating that a fully informed truth is substantiated when bias is eliminated,

and reciprocity of confidence between researcher and participants is guaranteed ((Toews et al., 2016).

IRs offer comprehensive insights by retaining objectivity with their research positionality and purpose, applying strategic forethought in a framework permeated with consummate protocols that preserve the integrity of the entire research process (Lahman et al., 2011). Additionally, cognitive phronesis for interactive research inhibits an absence of objectivity and ethical dilemmas, assuring responsible context remains within methods of data acquisition (Walliman, 2001). IRs benefit from critically reflecting on their position, facilitating trust for authentic findings where challenges and risks are navigated with caution and clarity.

1.9 CONCLUSION

Authentic scientific inquiry leads to discoveries that revolutionize the world we live in. A researcher's philosophy positively impacts the research process when a clear ontological position is supported by an epistemology that retains its axiological gravity. As inquirers, it is important to acknowledge the benefits and limitations of paradigm choices, which should symbolize unwavering objectivity toward the fulfillment of a research goal. A rigorous research design reinforces the context in which data is organized, interpreted, and evaluated, providing consequential outcomes that support the relationship of absolute truth to fact. Design choices must weather interrogation, emitting epistemological explanations that, through their methodology and instruments, correlate ideas to reality.

A researcher's goal is achieved when a study design is relevant to answering the research question. Laudable methodological choices provide data sets that are reliable and meaningful. Quantitative analysis corroborates data through replicable inferences portrayed in a numeric figure but can be misleading through human error. Hence, numbers do not convey interpretive meaning, so a statistic is limited to defining why it exists. In contrast, qualitative data uses language/text to determine a perceptual context of an individual's lived experience, supporting the existence of a reliable statistic. However, words that provide meaning to phenomena can be unreliable due to their ambiguous meanings. Thus, MMR and triangulation benefit an inquiry with deductive and inductive methods of data acquisition, illustrating statistical correlational relationships within the context of a meaningful

interpretation. There are pros and cons to methodologies, which, when approached with clarity of intended outcome, can facilitate authentic and reliable results.

Insider researchers are fallible and should ensure that research is reliable and unbiased. A comprehensive understanding and in-depth explanation of research ethics is key to scientific study. Written adherence to ethical standards with formal approval from an ethics committee benefits data-driven researchers in resolving potential dilemmas where the risk of bias and moral compromise contaminates truth. To resolve ethical risks, a written proposal of enhanced ethical applicability and maintaining critical distance impacts the rights and well-being of the researcher, participant, and company to defend codes that protect data reporting systems, consent, confidentiality, and intellectual ownership. Judicious decisions result when social processes remove uncertainty in research, incorporating advanced critical thinking and practical deployment of ethical codes in accessed research environments where trust strengthens collaboration.

Ultimately, methodological rigor and success are calculated by a researcher's informed, creative, strategic, reflexive, and retained objectivity, fostering extensive awareness of a phenomenon.

*Research Design DVE (See Appendix H).

APPENDICES

APPENDIX A

PRAGMATISM & CRITICAL TRANSFORMATIVE PARADIGM

Pragmatism has an ontological perspective that addresses the concept of reality as one in constant change, multidimensional, solving problems through a perpetual process of debate (Winter, 2020). Pragmatists solve problems through an indivisible cycle of interfacing beliefs with human actions, deriving meaning from actions and human experience in a continuum that attempts to explore new possibilities (Morgan, 2014). Through Dewey's transformative notion of practicality, research places innovative solutions at the core of its methods using the best tools to measure and interpret data (Dewey, 1908). Where it may be true that researchers benefit from a philosophical truth that is constantly redefining itself, pragmatists confront discrepancies between sequential data collection and its interpretation from the complex use of quantitative and qualitative methods over an extended time (Kadlec, 2006). We should also consider that Dewey's key concept of 'practicality' for solution development may potentially dismantle long-term objective thinking in favor of immediate problem-solving, imposing probable axiological consequences that impact research negatively (Kadlec, 2006).

The critical Transformative paradigm is committed to determining the intrinsic control influences that oppress the axiological principles of justice in a subjective reality where knowledge is socially constructed (Mertens, 2007). In other words, it seeks to understand communication that is used to oppress people by identifying the importance of 'who' benefits in society, and by what means (Shannon-Baker (2015). Epistemologically, it demonstrates values related to disempowered people who are denied beneficence, engendering discourse and change about how historical realism in previous societies defines present-day social reality populated in politics, culture, and economy (Okesina, 2020). Researchers gain powerful insight into inherited language, which has formed what society considers to be knowledge; a central component of truth that intersects with an individual's life (Scotland, 2012). Positive change is fostered when existing conditions of communication context are debated (Okesina, 2020). However, researchers should note that the admission of values accentuates subjectivity, invariably leading to the questions of whose values and standards are superior to another (Morgan, 2014). This means that the 'who' in the context of a value system directs communication practices, reallocating systems of power and conceptual meaning to new subjective realities where agendas are shaped for the redistribution of dominant ideas (Mertens, 2010; Kadlec, 2006).

APPENDIX B

QUANTITATIVE DATA ANALYSIS

Correlational data is measured to indicate statistical relationships of increase/decrease between two variables.

Descriptive data is organized to precisely describe the statistical characteristics of a sample population.

Causal-comparative data is classified by cause-effect relationships between dependent and independent variables.

Experimental data determines a causal relationship when a variable is altered. These values of data are represented in categorical and quantifiable sets.

(Davies & Hughes, 2019; Tan, 2014; Investopedia, 2024; Questionpro, 2024).

TYPES OF CATEGORICAL AND QUANTIFIABLE DATA



Categorical Data:

Nominal

(Data fits into various categories. Nouns: Country, gender, race, or a group of people)

Ordinal

(Data pertains to a level, ranking, or ordering system of order such as first, second, third.)

Quantifiable Data:

Interval

(Numerical and parametric representation of data. Discrete. A value that operates on an integer.)

Ratio

(Numeric. Measures variables on a continuous scale with equal distance between adjacent values. True zero.)

(Gray, 2004)

APPENDIX C

CRITICAL ANALYSIS OF RESEARCH DESIGNS

Hermeneutic Phenomenology aspires to unearth truths, motivations, and actions aligned Husserl's concept of 'erlebnis', or the subjective lived experience; achieved by removing researcher presuppositions, conventions, limitations, or bracketing of themes that inhibit new insight into unique, complex phenomenon (Costley, Elliott & Gibbs, 2012; Kafle, 2011). Research is conducted through non-numerical, empirical (collection of experiences), and reflective (analysis of their meanings) activities that describe personal experiences through social actions where reality is not deemed exclusive (Minhat, 2015; Dilthey & Jameson, 1972; Frechette et al., 2022). Heidegger's philosophical design has a holistic approach that places the perceptions and views of participants at the center of discussion (Farin, I. & Malpas, 2016). Methods are problematic because data analysis is time-consuming, lacking consistency and legitimacy of interpretation, since words, and their symbols, are relative to cultural context (Van Manen & Van Manen, 2021). Farin & Malpas (2016) state that validation of data is difficult and prone to bias, especially if words fail with participants who cannot articulate themselves with precision. Participants would benefit from an interpreter who could identify and clarify exactly what they think or feel (Kafle, 2011). In addition, thematic content analysis can reap low conclusions, beckoning triangulation as a useful design for combatting this problem (Mueller & Segal, 2015).

Triangulation amasses data from various methods to determine what sources contribute to reliable assumptions, and reduce the danger of invalid conclusions (Hammersley, 2008). Essentially, two or more methods can be used to produce an understanding of a phenomenon, examining contradictions or inconsistencies that may lead to false conclusions (Mueller & Segal, 2015). Philosophically, deeper understanding is produced from this knowledge procurement design, but may be compromised by an individual's notion of what is considered to be 'true' (Hammersley, 2008). Triangulation uses several deductive and inductive means to measure the same phenomenon to create validity, which is not equivalent to reliability and its implications of replicability (Winter, 2000). Therefore, it intends to use commensurable methods that exteriorize data agreement which rationally and rigorously represents a phenomenon through its descriptive and explanatory characteristics (Hammersley, 2008).

Case Studies can be used as both a design and a method, examining a phenomenon for its value and relevance through qualitative methods (coded numerically for quantitative and MMR results) that describe, explain, and explore the 'lived experience' (Gerring, 2007). Its purpose is to uncover detailed insight about a general population or event through individuals or small groups over an extended period; providing a narrative understanding of why a problem exists, and how its findings may be applied on a wider scale (Gerring & McDermott, 2007). Experiments, unstructured interviews, observation, document analysis, and highly structured surveys provide data sources that can also achieve greater validity from triangulation (Gerring, 2007). Case studies are advantageous because they are inexpensive and reveal causal relationships that contribute to the implementation of change (Davies & Hughes, 2019). Still, to avoid bias, researchers should describe how and why a non-random, diverse selection of participants is established, enabling stronger data comparisons and elimination of preconceived assumptions of their outcome (Njie & Asimiran, 2014; Starman, 2013). In addition, inquiry inferences from cross-case study investigations demonstrate greater endorsement when method applications illuminate counterfactual comparative evidence (Gerring, 2007).

Action Research is a four-step cyclical design incorporating collaborative, critical action and reflection that enables democratic change by empowering participants through a 'plan-do-study-act' practice (Costley, Elliott & Gibbs, 2012). Researchers are members of the practice and focus on acquiring data about the learning processes and operational conditions to improve the lives of participants (Kemmnis, 2009). This design benefits both inquirer and practitioner since it is cooperative-based practice-developing-practice, fostering practical expertise that leads to possibilities of theoretical knowledge that transforms the way people think, communicate, and relate to each other in practice (Burns, 2015). Observation, survey, questionnaire, and narrative beyond numeric methods including individual interviews and focus groups acquire qualitative data which may also generate quantitative results (Kemmnis, 2009). A potential drawback depends on the researcher's ability to produce general, replicable inferences that could be ratified through triangulation, and cross-substantiated with previous repetitions of the action research (Burns, 2015).

Ethnography permits researchers to be true 'insiders' as full or partial participants who examine people's perspectives through their actions and words (Costley, Elliott & Gibbs, 2012). This may create tension with participants who perceive their cycles of action and words to mean something other than what the researcher understands to be true, recognizing that patterns of perspectives change over time (Hammersley, M. (2006). Ethnography exposes skeletal meaning and context of social actions that unveil the intentions of people in a community Herbert, S. (2000). Researcher awareness of the impact of their presence has on themselves and others in the field leads to an egalitarian setting where dialogue of experiences can transform conflict into constructive solutions ((Davies & Hughes, 2019; Silverman, 2012). Access to settings, as well trust of participants, enable researchers to focus on what influences their actions and words, and how their presence impacts them (Hammersley, M. (2006). Implications include participant reactivity, which researchers can combat with self-reflection, stimulating critical, democratic discourse about misunderstandings that may occur (Silverman, 2012). A narrative account of micro and macro context observations and interviews endorse holistic data that overthrows premature research assumptions (Jones & Smith, 2017).

Grounded Theory requires researchers to allow theory to emerge from data acquisition and analysis simultaneously, whilst remaining void of preconceived ideas to discover new shared meaning (Costley, Elliott & Gibbs, 2012). Theory is created from ongoing comparative data that continuously arises, or not, from observation, interview, and document analysis, instead of empirical testing of a theory (Khan, 2014). Data replication is arduous, limited, and prone to bias because the phenomenon perceptual, not physical in nature, requiring systematic and sequential audit of corresponding data (Corbin & Strauss, 1990). Moreover, danger exists if researchers focus on deductive reasoning based on literature interpretations, underlining the significance of inductive data acquisition (Heath & Cowley, 2004). Solutions to these issues require accuracy of formal coding through interrelated categorical modes of transcription, sensitivity to explanations of participants being studied, and ongoing theory-observation verification as new data emerges (Charmaz, 2008). Generalizability results when comparative relationships depict exact patterns from variables that produce predictable outcomes for an evolving, meaningful theory (Heath & Cowley, 2004).

Bricolage is a rich ‘meaning-maker’ that synergistically merges relevant design methods and perspectives with multiple tasks at various stages of research, creating order and linearity to data collection (Altglas, 2014). It’s post-positivist epistemology extinguishes the void between quantitative and qualitative data to strategically solve research problems through formulas that mold the methods (Pratt, Sonenschein & Feldman, 2020). As a powerful tool to remove constraints of one methodology, it challenges researchers to resolve complex issues with an interdisciplinary, interactive technical approach that eclipses data limitations (Denzin, 2017). Also, it addresses contradictions of an objective truth incapable of appropriating the richness of a subjective lived experience, inviting multidimensional perspectives to spawn meaning derived from the autobiographical distinctions of an individual (Rogers, 2012). Useful to MMR, bricolage declares that a ubiquitous, dichotomous approach to inquiry is unnecessary, and that applying different methods as they unfold at various stages of inquiry is unnecessary (Sharp, 2019.) Criticized for being ephemeral, attenuation can be minimized through strategic interpretations, observations, integration, and deconstruction of data before nascent innovations are deployed (Altglas, 2014).

APPENDIX D

CASE STUDY

Examines an identifiable problem using qualitative 'how' and 'why' questions, but may also use quantitative methods to understand a phenomenon.

Illustrative

Illustrative case studies are the main type of case study. It investigates a definite event or phenomenon. It illustrates the nature of a case by descriptively using one or two instances. It does not establish any causality or test a hypothesis but rather tries to understand the purpose of something. Surveys and interviews are commonly used. It offers a detailed analysis that is applied to influence strategic change and development.

Exploratory

Exploratory case studies are used as a preliminary form of understanding a phenomenon. This comprehensive study investigates real life to understand the context of a problem that influences methodological choices for an actual research project. It essentially targets what needs to be explored in a study. Focus groups, observation, and interviews are commonly used to collect information to build an understanding of the pros and cons, as well as characteristics that would contribute to developing a new hypothesis and research question.

Cumulative

Cumulative case studies are often used to acquire data from various sources at different times. It is economically affordable to use and requires little time investment. It summarizes investigations of other cases, interpreting its data to acquire details about a phenomenon. Therefore, it reveals a more universal concept about a phenomenon through multiple cases, instead of relying on one case only.

Critical Instance

Critical instance case studies analyze one or more sources to uncover the cause and effect of a phenomenon. It may also draw evidence to challenge and pivot existing claims by revealing new data that illuminates a phenomenon more comprehensively. Interview and document analysis are some methods that reveal aspects that produce consequential results influencing companies.

Intrinsic

Intrinsic case studies focus on a singular phenomenon that contains recognizable values and traits. It investigates its environment and influences of its past, avoiding generalization in favor of developing a deeper comprehension of the interior features of a phenomenon. It is Useful for understanding the implications of a phenomenon and its impact on other people. Interviews, document analysis, and small focus groups are useful methods for data collection.

Descriptive

Descriptive case studies are used when a hypothesis is established, which connects the subject material with a theoretical framework. Quantitative data acquisition will first describe how more in-depth analysis will be undertaken, using observations to explain a phenomenon. Interviews with experts in the field assist in acquiring a deeper assessment and context of a Phenomenon through a description that does not make generalizations.

Case studies investigate and require subjects:

- Person: Individual or a subject.
- Group: Several people – colleagues, friends, and family.
- Location: A place illuminates how and why individuals use a space.
- Organization: Company, organization, colleagues, and employees.
- Event: Cultural or societal event and its contextual implications on its setting.

***Note:** An explanatory case study often assists in understanding which subjects should be used in an investigation.

***Purpose:** To understand a phenomenon, event, or individual through its real-life context. They are useful for identifying causal, pattern, and relationship elements, providing data that may lead to a hypothesis, as well as provide solutions for issues inherent to a subject.

***Methods:** Observation, interviews, focus groups, document/artifact analysis, records (physical objects, reports, photographs), questionnaires, and surveys. Diversity and relevance are obtained when triangulation or several methods are used together to observe a phenomenon.

(Gerring & McDermott, 2007; Gerring, 2007; Davies & Hughes, 2019; Njie & Asimiran, 2014; Starman, 2013).

APPENDIX E

QUANTITATIVE RESEARCH METHODS

Experimental:

True experiment uses a randomly assigned variable and a researcher-adapted variable. Using two groups, control and experimental, a cause-effect relationship will be confirmed, or not (Jongbo, 2014).

Quasi-experimental does not use a random assigned variable, it determines the cause of a research intervention and its outcome. (Gribbons & Herman, 1997)

Non-Experimental:

Survey questionnaires/interviews are either descriptive or comparative and can be executed online, via post, focus groups, paper, in-person, or telephone (Walliman, 2001).

Descriptive employs anonymous, objective questions to obtain information that links a variable to a quantity (Walliman, 2001).

Comparative defines differences between two or more groups, with a stable variable (Thomas & Zubkov, 2023)

Probability Sampling enables randomized member selection through established statistical operations that usually have repeatable survey results (Davies & Hughes, 2019).

Causal-comparative explains consequences/causes/comparison of differences between dependent and independent (influential) non-probable variables (Lawrence, 2023).

Correlational research employs two or more variables within a single group of subjects that calculate, without manipulation, similarities between variables and their covariance (instrument to determine changes between two variables) with naturally occurring variables (Asamoah, 2014).

Focus Groups resemble interviews, involving descriptive questions that garner impartial responses (Walliman, 2001).

APPENDIX E CONTINUED

QUANTITATIVE RESEARCH METHODS

EXPERIMENT:

The experiment draws inferences from the relationship between two variables: One is independent and the other is dependent. A quantitative method that allows for the acquisition of data through statistical analysis. Professional and amateur singers could be used to differentiate how and what makes emotion in expressive singing accessible. Auditory information can be assessed from various arias and songs to evaluate what meanings can be drawn from the uni-modal acoustic parameters, as well as other multi-modal features such as the implementation of gesture, facial expression, and other motivating factors that contribute to a multisensory evaluation. The perceptual reactions can also be observed from audio information, which would contribute to the perceptual expressions of emotion in the human voice. Comprehensive methods of inquiry are executed with a control group, and another set of singers who manipulate their voices to affect change, noting causation in emotional expression.

(Lange, E., Fuenderich, J. & Grimm, H. 2021; Coccia & Benati, 2023)

SAMPLING:

Sampling addresses larger populations, offering reliability and an opportunity to use a mixed-method research approach. There are several ways to sample a phenomenon to obtain answers to the problem or question. The depth of data that can be gathered is easy to access and generally provides evidence for understanding a phenomenon. This analysis is not without risk since it requires subjects who are equipped to provide specific answers, as well as an appropriate number of samplings, which could be challenging given the time frame and nature of the research. An interdisciplinary inquiry such as mine requires a high level of specific observation to be done with each individual involved in the study.

(Cohen, Manion & Morrison, 2007)

APPENDIX E CONTINUED

FOUR TYPES OF SAMPLING:

Probability (random/chance)

Quantitative. Efficient and inexpensive manner of gathering data.

Probability Sample: Random selection of participants produces replicability of results.

Random Sample: Every member of the 'population' has an equal chance of being selected, as well as every possible combination of individuals.

Cluster Sample: Random process not with names, but geographical locations, streets, etc.

Stratified Random Sample: Combines random with the researcher's awareness of different subgroups within a population where beliefs, characteristics, or attitudes differ.

Convenience Sample: (Accidental Sample) Takes what is possible and most easily accessible.

Quota Sample: The researcher identifies key variables and distribution which is known for the relevant population. The sample is then selected to reflect the same proportionate breakdown. Quotas are arranged in age, gender, ethnicity, residence, education level, and social class.

Purposive Sample: The researcher identifies and targets individuals who are believed to be 'typical' of the population being studied or all individuals with a subpopulation deemed typical.

Survey Questionnaire: The researcher is present with the participant to provide communication and obtain accurate reflections of the phenomenon to increase the validity and meaning of data.

Survey Interview: Structured to guide the interviewee through the discussion. Analog scales are used to code numeric variables and mode/median/mean measures for analysis.

(Davies & Hughes, 2019; Mueller & Segal, 2015; Sandelowski, 1999; Rahi, 2017; Costley, Elliott & Gibbs, 2012;).

APPENDIX E CONTINUED

QUANTITATIVE RESEARCH METHODS

INTERVIEW:



Researchers view the reliability factor as quite low with interviews because they may influence the acquired data. Insider researchers should remain as neutral as possible, not allowing previous knowledge or concepts to intentionally or unintentionally interfere with the context of the interview process. How an inquirer responds to the data has ethical implications, and may affect the validity of interview data results. Confidentiality and anonymity are important to maintain, as well as informing participants about the subject matter before the interview. In singing, this method offers a means of acquiring intimate sensory details about impressions, perceptions, and descriptors that contribute to how emotion in expressive singing is perceived, as well as understanding how intention-based singing can be fomented and framed. Attention to ethics is important for encoding knowledge presented in the interview. Asymmetrical power relationships should be avoided. The interview process should retain integrity and dignity.

(Alsaawi, 2014; Minhat, 2015; Costley, Elliott & Gibbs, 2010)

Researcher as Moderator: Conducting Interviews Face to face (direct) or Online/Telephone (indirect). Directs the interviews from a neutral position, ensuring the process remains focussed, and that ideas and opinions are produced freely without imposition or judgment.

Structured: Concrete questions. Useful for quantifying data. Closed in nature. Themes, sub-themes, categories. Quantitative.

Semi-Structured/In-Depth: Sensitive questions. Semi-open in nature, but retains some structure. Participants are free to elaborate on the subject matter to an extent. Quantitative/Qualitative.

APPENDIX E CONTINUED

Focus Group Interview: Generates a full discussion. Participants may likely have trait and interests in common. The moderator must ensure that all participants can respond freely, and that passive/dominant participants sense an equal opportunity to respond.

(Fakis et al., 2014)

QUESTIONNAIRE:

The questionnaire should have the objective of acquiring information based on the methodological choice of inquiry. The sample size is determined easily and controlled to estimate the time required to analyze the data collected. Larger groups and data can be collected both efficiently and anonymously.

CLOSED QUESTIONS

Quantitative

Precise, specific answers are sought through the choices provided.

Closed questions differentiate between:

NOMINAL DATA

Numeric data, counting things, and classifying/categorizing.

ORDINAL DATA

Specific data categories

Likert Scale – comparing responses of participants.

A Likert scale – measures opinions, attitudes, and behaviors. Statement/Question design that contains a five or seven-answer statement. Respondents choose the option that best corresponds with how they feel about the statement or question.

S/N	Survey Question	% Strongly Agree	% Agree	% Unsure	% Disagree	% Strongly Disagree
1	Help understanding/comprehension	26.3	73.7	0	0	0
2	Fostered Exchange of Knowledge, Information and Experience	42.1	57.9	0	0	0
3	Made problem-solving easier	26.3	57.9	15.8	0	0
4	Stimulated critical thinking	31.6	57.9	10.5	0	0
5	More relaxed Atmosphere	26.3	36.8	31.6	5.3	0
6	Received useful/helpful feedback	21.1	47.4	26.3	5.3	0
7	Gave me fresh insight	26.3	68.4	5.3	0	0
8	Focused on collective efforts rather than individual effort	31.6	63.2	0	5.3	0
9	Gave me greater Responsibility for myself and the group	15.8	52.6	31.6	0	0
10	Enabled learners to help weaker learners in the group	36.8	47.4	15.8	0	0
11	Enhanced communication skills	36.8	52.6	31.6	0	0
12	Improved performance	21.1	73.7	5.3	0	0
13	Helped learners actively participate in the teaching/learning process	31.6	57.9	10.5	0	0
14	It is fun	31.6	47.4	15.8	5.3	0
15	Made new friends	57.9	36.8	5.3	0	0
16	Fostered team spirit	57.9	42.1	0	0	0
17	Waste of time explaining things to others	0	10.5	21.1	31.6	36.8
18	Difficulty getting members to actively participate in tasks	0	26.3	21.1	31.6	21.1
19	Pair/group work should be encourage/continued	78.9	21.1	0	0	0
20	Maximum group size should be four	31.6	31.6	31.6	0	5.3

(Cohen, Manion & Morrison, 2007)

APPENDIX F

QUALITATIVE RESEARCH METHODS

Non-probability sampling: Non-random selections are made using a small sample made up of people, individuals, or groups containing different elements.

Core sample: A pivotal target group that reflects varying beliefs, attitudes, and social positions.

One-on-One Interview: Uses open-ended questions where participants describe their experiences without researcher interference or preconceived ideas to inhibit conversation.

Semi-structured Interview: Have a set of preselected questions, but permit elaborate, unique responses from interviewees.

Unstructured Interview: Face-to-face interviews where the researcher and interviewee agree upon a broad theme that is discussed with mutual influence. Reveals deep insights, but is time-intensive to do and analyze.

Focus Group: In-person/online conversation with small groups of people to listen to their views on a topic where the researcher must ensure that both passive and dominant members of the conversation participate equally.

Observation: Observing participant behavior and understanding reasons for their actions and interactions.

Journal/Diary/Notes: Benefit a researcher by recording details about a developing inquiry, narrative observations, and their reactions and reflections.

Case study: Involves observation of a researcher who has little control on events of one or more participants to develop in-depth awareness of a phenomenon.

Survey: Open-ended survey questions let respondents express their thoughts on a subject freely. Tick boxes contribute to quantizing data.

Questionnaire: Gather data on the experiences of people. They should appeal to respondents, or a low response rate will occur.

(Davies & Hughes, 2019; Mueller & Segal, 2015; Sandelowski, 1999; Rahi, 2017; Costley, Elliott & Gibbs, 2012;).

APPENDIX F CONTINUED

SAMPLING:

Sampling addresses larger populations, offering reliability and an opportunity to use a mixed-method research approach. There are several ways to sample a phenomenon to obtain answers to the problem or question. The depth of data that can be gathered is easy to access and generally provides evidence for understanding a phenomenon. This analysis is not without risk since it requires subjects who are equipped to provide specific answers, as well as an appropriate number of samplings, which could be challenging given the time frame and nature of the research. An interdisciplinary inquiry such as mine requires a high level of specific observation to be done with each individual involved in the study.

FOUR TYPES OF SAMPLING:

Non-probability (not random)

Quantitative. Efficient and inexpensive manner of gathering data.

Mixed Methods

A creative manner of addressing a research question.

It produces evidence and understanding of a phenomenon for the researcher.

Purposive – On Purpose

Non-probability sampling technique where singers are selected to perform a specific task.

Convenience

Non-probability method. People/singers/listeners are accessed easily due to proximity, availability, and their willingness to participate.

(Cohen, Manion & Morrison, 2007)

APPENDIX F CONTINUED

INTERVIEW:



Researchers view the reliability factor as quite low with interviews because they may influence the acquired data. Insider researchers should remain as neutral as possible, not allowing previous knowledge or concepts to intentionally or unintentionally interfere with the context of the interview process. How an inquirer responds to the data has ethical implications, and may affect the validity of interview data results. Confidentiality and anonymity are important to maintain, as well as informing participants about the subject matter before the interview. In singing, this method offers a means of acquiring intimate sensory details about impressions, perceptions, and descriptors that contribute to how emotion in expressive singing is perceived, as well as understanding how intention-based singing can be fomented and framed. Attention to ethics is important for encoding knowledge presented in the interview. Asymmetrical power relationships should be avoided. The interview process should retain integrity and dignity.

(Alsaawi, 2014; Minhath, 2015; Costley, Elliott & Gibbs, 2010)

Researcher as Moderator: Conducting Interviews Face to face (direct) or Online/Telephone (indirect). Directs the interviews from a neutral position, ensuring the process remains focussed, and that ideas and opinions are produced freely without imposition or judgment.

Semi-Structured/In-Depth: Sensitive questions. Semi-open in nature, but retains some structure. Participants are free to elaborate on the subject matter to an extent. Quantitative/Qualitative

Unstructured/In-Depth: Open-ended/abstract questions require details, and can offer a rich palette of data. Very open & informal. Participants are in free flow, able to transmit their ideas openly. Qualitative.

Focus Group Interview: Generates a full discussion. Participants may likely have traits and interests in common. The moderator must ensure that all participants can respond freely, and that passive/dominant participants sense an equal opportunity to respond.

(Fakis et al., 2014)

APPENDIX F CONTINUED

OBSERVATION:

Tips: Observation is a direct way of engaging with research in a non-experimental manner. It is a qualitative method that requires time to acquire data and is a fine alternative to experimental research. Analysis of a transcribed interview requires full concentration and creative skill, a kind of observation. Observing yourself in communication with another person. Focus on the words, and responses of an interviewee, paying attention to your performance and its impact on the situation.

OBSERVATION PROCESS:

1. Observe & Reflect
2. Document
3. Acquire Evidence
4. Act & Plan
5. Assess for inferences

EVALUATION: Types of Observations

Type	Strength	Weaknesses
Controlled	All scientific methods – control over variable – internal validity	Low ecological validity
Natural	High ecological validity	No control of variables which limits the internal validity
Participant	Natural setting so no demand characteristics	Unethical May become biased
Unstructured	Collect rich data - validity	Observer bias – may see what they want to/what supports
Structured	Easy to analyse data	May exclude behaviours not listed
Time Sampling	Info about frequency of behaviour Doesn't involve continual monitoring	May miss behaviours that occur outside time frame – may not be rep of situation
Event Sampling	Able to record all behaviours of interest – whole picture	May miss behaviours due to sheer volume
Overt Sampling	Ethically sound. No deception	Demand characteristics
Covert Sampling	No demand characteristics	Unethical – deception

APPENDIX F CONTINUED

QUESTIONNAIRE:

- Questionnaire should have an objective to acquire information based upon the methodological choice of inquiry. The sample size is determined easily and controlled to estimate the time required to analyze the data collected. Larger groups and data can be collected both efficiently and anonymously.

OPEN QUESTIONS

Qualitative

Individual views provide more data with written responses in detail.

ORDINAL DATA

Specific data categories

Likert Scale – comparing responses of participants.

CASE STUDY:

QUALITATIVE:

A qualitative use of case study exists to discover more subtle information, designed to explain how, what, and why emotion is transmitted from a conceptual and descriptive perspective. This method generates a comprehensive view of multifaceted research issues. What is unique about a case study is that it draws data in the context of a real situation. This natural setting is conducive to creating an environment where participants feel at ease, revealing their social truths without appearing to be 'analyzed'. A case study draws data from the perspective of the participant, granting them an opportunity to voice their viewpoint without a sense of confrontation or conflict. Differences are met with openness and contribute to the dynamic of discovery. Another positive aspect of case study research is that it is a multi-purpose method as it offers a source of knowledge capital for both the researcher and participant alike. A self-development method originates in activity and contributes to it at the same time. Interpretation of case study data is immediate, meaning that analysis and interpretation lead to a process of formative evaluation. Insights may provide a basis for spontaneous and immediate change, contributing to the implementation of new standards and changes within a work-based setting.

APPENDIX F CONTINUED

CASE STUDY TYPES:

Illustrative.

Portrays one or more circumstances of an event to explain the situation.

Describe a situation/phenomenon.

Assesses what and why the phenomenon is happening.

Descriptive.

The event attempts to explain a situation.

Describes a situation or a phenomenon.

Exploratory.

Explores a situation/intervention that is being evaluated that has no precise outcome.

Describes the phenomenon in the context of how why, what, with whom, and where it occurs.

Cumulative.

Acquisition of data is used to create generalizations of phenomena.

Critical Instance.

Applies to more unique situations with a general purpose.

Usually used as a preliminary project for designing a future project greater in size.

The purpose is to identify research questions and approaches.

APPENDIX F CONTINUED

BRICOLAGE:

“Meaning Maker”

This is a very rich method of drawing inferences from a qualitative point of view. It permits appropriate methods for various tasks to be executed at various stages of research. The process of gathering data to explain how expressive singing can be ameliorated through emotional input requires interdisciplinary understanding that should include quantitative and qualitative methodology. Bricolage enables researchers to extinguish the gap between quantitative and qualitative data, merging various research designs that give order and linearity to data collection.

(Altglass, 2014)

Reflexivity showcases the position of various participants that influences the processes of research. The phenomenon is open to multiple interpretations founded on various perspectives, adding layers to the process of inspection. Plurality, or diversity of meaning/perspective, delineates the intertextuality of a phenomenon.

(Cohen, Manion & Morrison, 2007)

A critical qualitative approach to inquiry. It offers multiple perspectives, theories, concepts, and methodological approaches. There are set processes in place that include specific instruments, or methods, to accommodate a pluralistic and flexible practice. It facilitates the development of new designs, promoting the emergence of new ideas and innovation. Participants offer a variety of beliefs, contributing to an understanding of a phenomenon. Constructive development of alternative approaches and practices that contribute to discovery. Meaning is shared through textual and verbal communication, explaining the interconnectedness of the phenomenon.

(Rogers, 2012)

APPENDIX G

NUREMBERG CODE

DIRECTIVES FOR HUMAN EXPERIMENTATION

The Nuremberg Military Tribunal's decision in the case of the United States v Karl Brandt et al. includes what is now called the Nuremberg Code, a ten-point statement delimiting permissible medical experimentation on human subjects. According to this statement, humane experimentation is justified only if its results benefit society and it is carried out by basic principles that "satisfy moral, ethical, and legal concepts." To some extent, the Nuremberg Code has been superseded by the Declaration of Helsinki as a guide for human experimentation.

--"Permissible Medical Experiments." Trials of War Criminals before the Nuremberg Military Tribunals under Control Council Law No. 10. Nuremberg October 1946 - April 1949, Washington. U.S. Government Printing Office (n.d.), vol. 2., pp. 181-182.

- 1. The voluntary consent of the human subject is essential. This means that the person involved should have the legal capacity to give consent; and should be situated as to be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, over-reaching, or other ulterior form of constraint or coercion, and should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision. This latter element requires that before the acceptance of an affirmative decision by the experimental subject, there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconveniences and hazards reasonably to be expected; and the effects upon his health or person which may come from his participation in the experiment.

The duty and responsibility for ascertaining the quality of the consent rests upon each individual who initiates, directs, or engages in the experiment. It is a personal duty and responsibility which may not be delegated to another with impunity.

- 2. The experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods or means of study, and not random and unnecessary.
- 3. The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problem under study that the anticipated results will justify the performance of the experiment.

APPENDIX G CONTINUED
NUREMBERG CODE

- . The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.
- 5. No experiment should be conducted where there is an a priori reason to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.
- 6. The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the experiment.
- 7. Proper preparations should be made and adequate facilities provided to protect the experimental subject against even remotepossibilities of injury disability or death.
- 8. The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required through all stages of the experiment of those who conductor engage in the experiment.
- 9. During the experiment the human subject should be at liberty to bring the experiment to an end if he has reached thephysical or mental state where continuation of the experiment seems to him to be impossible.
- 10. During the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill and careful judgment required by him that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.

APPENDIX H

BIAS IN RESEARCH

BIAS TYPES:

Participant bias responding to questions based on what they perceive as the 'right' answer., or if they have preconceived opinions about the interviewer leading to agreement or disagreement.

Social desirability/acceptability bias occurs when participants deliberately respond inaccurately to personal or contentious questions.

Acquiescence bias (friendliness) results when the participant consciously chooses to agree with the moderator.

Habituation bias is evident when participants respond with the same answers to similarly worded questions.

Sponsor bias occurs when the participant is influenced by the position of a patron.

Researcher

Researcher bias when the data is included to be relevant to the researcher's subconscious interpretation of agreement with a hypothesis. Order and leading of questions prompt specific responses to a

Confirmation bias is when the researcher interprets data. Omitting data to support their hypothesis.

Question order bias occurs when participants use subsequent questions to influence their responses.

Leading question bias occurs when questions prompt responses from participants to favor a probable outcome.

(Editage Insights, 2024).

APPENDIX H CONTINUED

BIAS IN RESEARCH

Avoid bias by...

Threats to the beneficence of data acquisition and reliable conclusions can be avoided through the acquisition of accurate, representative constructive, piloted questions that are carefully worded from general to sensitive, preventing participants from responding with a specific assumption in mind (Editage Insights, 2024). Researchers benefit by using open-ended questions to guide a credible answer, which may appear misleading at times, promoting a reframing of the questions that offer more options for potential answers other than no or yes.

Let participants know that all responses are acceptable. Indirect questions ask what a third party would do in a particular situation. Be neutral to avoid influencing participants, without admitting what the goal of the research is about. Researchers can re-evaluate responses, ensuring pre-existing assumptions are excluded.

Combat Issues:

Follow informed consent rules. Institute a formal code of conduct and reporting system.

Punish and reward accordingly.

Threats to the beneficence of data acquisition and reliable conclusions can be avoided through (Toews, et al., 2016) argues that researchers publish results that underreport specific findings:

“The extent to which qualitative researchers also systematically underreport or fail to publish certain types of research findings, and the impact this may have, has received little attention”.

(Editage Insights, 2024; Toews, et al., 2016)

What drives emotional accuracy in expressive singing has fascinated me for years. Although emotion encoding in the singing voice is a topic that has expanded, there still exists a gap in scientific knowledge concerning physiological aspects associated with the acoustic expression of emotions in singing. Neurophysiological changes accompany an emotion expressed, influencing motor actions of different mechanisms involved in voice production (Respiration, phonation, and articulation) that result in acoustic and sound characteristic changes (Sundberg, Salomao & Scherer, 2024). Therefore, I am deeply interested in researching this problem to discover practical solutions that will contribute to change in my work-based practice and field in general. I believe this topic has great relevance and would contribute to a more comprehensive understanding of the subject matter, invigorating this branch of vocal pedagogy and performance.

INVESTIGATE PHYSIOLOGICAL AND ACOUSTIC ASPECTS THAT CONTRIBUTE TO THE AMELIORATION OF EMOTION IN EXPRESSIVE SINGING.

RESEARCH OBJECTIVES:

S . Specific: To determine the physiological, acoustic, perceptual, and cognitive relationships that ameliorate emotion in expressive singing.

M . Measurable: To utilize technical instruments (spectrographic analysis, glottogram) and academic literature/studies to resolve and encode physiological, perceptual, acoustic, emotional, and cognitive implications for expressive singing.

A . Achievable: To form an assumption through the critical identification, analysis, and evaluation of quantitative and qualitative data.

R . Relevant: To actuate, examine, and encode the interdisciplinary constituents that foster a scholarly pathway toward the development of optimal vocal artistry through expressive singing.

T . Time-bound: To complete a research proposal within a realistic time frame, applying feasible research methods that are achievable.

RESEARCH DESIGN:

How to ameliorate emotion in expressive singing requires an interdisciplinary understanding of this complex phenomenon. I suggest an interdisciplinary approach to this problem using both an interpretivist and pragmatist paradigm since it captures my ontological position (see below). I believe a research design that combines hermeneutic phenomenology with bricolage and triangulation in an MMR approach will be appropriate for data acquisition. Investigating neurophysiological, acoustic, and emotional parameters requires objective and subjective methods of data analysis. This interdisciplinary topic will enable me to incorporate both numerical and narrative-based data sets to resolve questions where contradictions between quantitative (explicit) and qualitative (implicit) perspectives are dissolved through rigorous analysis and interpretation.

Subtle nuances of emotion in expressive singing require comprehensive observation, which underlines the strength of pragmatism as a vehicle for regular speculation. Pragmatism is focused

on a practical means to an end; therefore, I can envision applying it in my interdisciplinary research. It offers a platform for constant revision and enhancement within a work-based setting.

I am certain that MMR is a viable solution to research the nature of how to ameliorate emotion in expressive singing. This inquiry demands contextualization of human content for the discovery of meaningful answers to how emotion is radiated from the vocal source and expressed in spectrographic analysis. To link practice through the lens of a mindful methodology, I plan to investigate how a 'live instrument' (voice) produces objective, measurable acoustic properties that correlate with implicit, contextual emotive material conceived within the construction site of our minds. I believe the implicit 'who' that creates an object in question matters equally to the explicit 'what' is defined as scientifically 'real'. I intend to examine how intrinsic perceptual resources of human emotion can be manifested through multidimensional cognitive and physiological training/discipline, articulated through highly nuanced, intention-based expressive singing.

PARADIGM SELECTION:

Interpretive and pragmatic paradigms will be considered because there are singular (universal) and multiple (individual) realities that exist in the domain of emotion and expressive singing. This research framework serves to resolve issues inherent to my belief that multiple realities exist. My truth is based on a system of values and beliefs where cause and effect/correlative experiments reveal and justify the phenomenon of emotion in expressive singing. There are both objective and subjective aspects to this topic that present opportunities for both deductive and inductive methods of research. Using comparable data sets in acoustic analysis to produce universal, general, transferable, and repeatable data will be useful in supporting inferences about the existence of emotion in expressive singing. Emotion in expressive singing is currently dominated by conjectures about suggested acoustic and emotion theories, with a need to discover more of the motor activity or neurophysiological aspects in phonation and articulation. An individual's subjective lived experience is primarily attuned to a socially constructed reality where meaning is elicited from the interpretation of an experience.

RESEARCH PHILOSOPHICAL POSITION:

ONTOLOGY:

Assertion:	There are things to know and discover about the existence and nature of human emotion, and how its constitutional representations, both explicit and implicit, contribute to what is agreed to be the language and lexicons attributed to abstract concepts of expression in the singing voice.
Knowledge Domain:	Existence lies in the realm of the mind-body connection of a material living person whose physical capacity to create, transfer, and cause a perceptual, cognitive & physiological correlative reaction from another living being.
Terms of existence:	Vocal expression is an abstract axiom that reveals its knowledge and truth through the observable actions of singers who produce and clarify the existence of emotion through concrete, physical renderings that are acknowledged and agreed to prevail. This is corroborated by a singer's interdisciplinary actions and causal relationship with a listener's counteractions.
Classes Concepts & Hierarchy: (Objects/Kind or Mode/Attribute)	<i>Substantial entities</i> (Objects/Kinds) include processes that occur in the mind-body of a singer who produces intention-based sung sounds using interdisciplinary methods. <i>Non-substantial entities</i> (Mode/Attributes) include qualities of sound produced by a singer.
Properties/Attributes of Classes:	The focus of the domain is a collection of objects, singers, and listeners, who interface with one another in concrete reality.
Properties/Attributes of Classes:	The focus of the domain is a collection of objects, singers, and listeners, who interface with one another in concrete reality.

Facets:	The singer is a corporeal being who experiences various dimensions that are intertwined within relationships with entities in the world. They are contingent upon other parts that aid in its worldly understanding of what comprises and defines emotion in expressive singing.
Instances/Objects:	Singers. Listeners.

EPISTEMOLOGY:

I know what I perceive to know, and realize that I can be a knower because my truth is relative to the beliefs that harmonize with experiential events that occur in my everyday life. The acquisition of immaterial knowledge is evaluated by its efficaciousness for transformation in the physical domain of the world that I correspond with daily.

AXIOLOGY:

The representation of my truth is derived from a broad cultural context, where my values and beliefs for an equitable existence infuse my epistemological perspective. The assumptions I make are expansive, ensuring that my reality connects with, and exhibits universal meaning.

METHODOLOGY:

The MMR approach is essential for me to arrive at authentic conclusions in my research. A quantitative & qualitative approach for methodological analysis will be endorsed.

RESEARCH INSTRUMENTS & DETAILS:

- . Compare spectral characteristics of recorded performances.
- . Listeners identify emotions and rate their perceived emotional valence of utterances.
- . Glottal source and formant frequency analysis related to vocal expression of emotion.
- . Investigate the effect of emotional/neutral expression on spectral energy distribution.
- . Identify high harmonic energy characteristics of various emotions.
- . Comparative analysis of acoustic parameters in musical scales, phrases, and songs sung by different voice types portraying different emotions.
- . Analysis of phonatory and resonatory voice properties: Sound pressure level (SPL) sub-glottal pressure (PSub), Fundamental frequency (f0), First formant (F1) analysis.
- . Glottogram – waveform of the glottal flow and glottal adduction/resistance behaviour.
- . Long-term Average Spectrum (LTAS) parameters: Relationships between voice source and LTAS/timbre, spectral information, and emotion families.
- . Discover how parameters relate to emotion dimensions of power, arousal, and valence.
- . Physiological parameters for voice control: Cognitive and Motor control systems.
- . Emotion identification/recognition/coding
- . TEEP Model – perception and execution of communication responses.
- . Emotion Wheel – Refining emotional descriptives – taxonomy development.
- . Causation and consequence of interdisciplinary aspects of emotion in expressive singing.
- . Recognize vocal qualities associated with emotion through analysis and synthesis of disciplines.
- . Deal and work with instruments that calculate numeric values that correlate the relationships between spectral analysis and emotion.
- . Deliberate the influences of the spectral energy distribution of emotional expression.
- . Study the linear and non-linear relationships among the dimensions representing the cognitive structures of emotion.
- . Devise vocal exercises and technical applications that correlate acoustic features with effects of emotion dimensions based on physiological vocal source and tonal quality analysis.
- . Contemplate the perceptions and definitions of emotional meaning.
- . Design techniques for devising musical control of emotional expression in singing.
- . Speculate and construct narrative descriptors that communicate accurate definitions and descriptions that influence detailed expression originating from various emotion families.
- . Observe neurophysiological changes accompanying emotional change in expressive singing.
- . Ethical and insider researcher issues related to codes and committees of ethics.

RESEARCH DESIGN & METHODS:

<i>Hermeneutic Phenomenology</i> Using an MMR research approach, I would like to investigate suppositions drawn from individuals from a broad range of cultural backgrounds. The method procedures will include structured and semi-structured interviews that will attempt to accumulate data sets that may be quantitatively analyzed by featuring universal themes.	Identify truth, motivation, and actions that define a subjective lived experience. Holistic. The perceptions and views of participants are the focus. No limitations or bracketing of themes that would inhibit new insight into physiological training, emotion recognition, and analysis of experiences. Activities, reflections, non-numerical data. Collect and analyze meanings of expressive singing experiences. Increase conclusive evidence through triangulation.
<i>Triangulation</i> Deductive and inductive means to measure the same phenomenon to create validity. methods that exteriorize data agreement that rationally and rigorously represents a phenomenon through its descriptive and explanatory characteristics (Hammersley, 2008).	Amasses data from various methods to determine what sources contribute to reliable assumptions and reduce the danger of invalid conclusions Two or more methods to produce an understanding of a phenomenon, examining contradictions or inconsistencies to avoid false conclusions.
<i>Case Study</i> Format for a Case Study: s Synopsis/Topic Summary Task Introduction & Summary Identify Leading Problems Written Summary Concluding Statements Recommendations References	To fully comprehend the interdisciplinary nature of emotion in expressive singing, a rich understanding is needed to formulate methods that are contextualized in an actual live setting where emotion in expressive singing can be researched. To fully comprehend the interdisciplinary nature of emotion in expressive singing, a rich understanding is needed to formulate methods that are contextualized in an actual live setting

Illustrative. Study one or more circumstances of an event to explain the situation. Describe the situation/phenomenon. Assesses what and why the phenomenon is happening. Descriptive. Explain a situation. Describe the situation/phenomenon. Cumulative. Acquisition of data is used to create generalizations of phenomena. Quantitative data acquisition: Several individual participants would participate in an acoustic parameter analysis study that aligns with intention-based emotions in singing, analyzing spectrographic analysis. Madde and Voce Vista are some available instruments to measure statistical data.	where emotion in expressive singing can be researched. The figure below outlines how case studies can be documented succinctly, unbiasedly, and accurately by an insider researcher. Physiological and acoustic analysis (fundamental frequency, frequency perturbation, and Harmonics to Noise Ratio (HNR) analysis. Emotional methods of analysis depend on emotion theory analysis and multi-modal objective measurements such as physiological changes, brain activity (EEG, fMRI), pulmonary system analysis (Lung pressure changes, Heart rate (ECG, fMRI), facial expression. Case studies can be documented succinctly, unbiasedly, and accurately by an insider researcher. I would like to develop techniques drawn from interdisciplinary studies through the inspection, observation, and interaction with participants in a vocal studio setting. Through acute phronesis, observation, and interpretation, I intend to use inductive analysis to explain the ‘why’ and ‘how’ meaning is derived from emotion in expressive singing. Using description and narrative text, I would like to index emotions, and their various subcategories to provide clarity in an area of this research that is relatively unexplored.
Experiment	Professional and amateur singers could be used to differentiate how and what makes emotion in expressive singing accessible. Auditory

Correlational data is measured to indicate statistical relationships of increase/decrease between two variables. Descriptive data is organized to precisely describe the statistical characteristics of a sample population. Causal-comparative data is classified by cause-effect relationships between dependent and independent variables. Experimental data determines a causal relationship when a variable is altered. These values of data are represented in categorical and quantifiable sets. Statistical Analysis: The experiment draws inferences from the relationship between two variables: One is independent and the other is dependent. I would like to develop techniques drawn from interdisciplinary studies through the inspection, observation, and interaction with participants in a vocal studio setting. Through acute phonesis, observation, and interpretation, I intend to use inductive analysis to explain the 'why' and 'how' meaning is derived from emotion in expressive singing. Using description and narrative text, I would like to index emotions, and their various subcategories to provide clarity in an area of this research that is relatively unexplored.	information can be assessed from various arias and songs to evaluate what meanings can be drawn from the uni-modal acoustic parameters, as well as other multi-modal features such as the implementation of gesture, facial expression, and other motivating factors that contribute to a multisensory evaluation. The perceptual reactions can also be observed from audio information, which would contribute to the perceptual expressions of emotion in the human voice. Comprehensive methods of inquiry are executed with a control group, and another set of singers who manipulate their voices to affect change, noting causation in emotional expression. I plan to investigate the correlations between acoustic analysis (drawn from spectrographic energy distribution) and emotional expression (derived from emotional meaning) using technological instruments to measure acoustic parameters and their relationship to structures that measure dimensions of emotional and cognitive functions. Correlational, causal, and descriptive/diagnostic research is executed through various methods. This will involve experimentation.
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Sampling Requires subjects' & specific answers. Appropriate number of samplings. A high level of specific observation is to be done with each individual involved in the study. Sampling - larger populations.	Probability (random/chance) Qualitative. Non-probability (not random) Quantitative. Purposive – 'On Purpose' Non-probability sampling technique where singers are selected to perform a specific task. Convenience Non-probability method. People/singers/listeners are accessed easily due to proximity, availability, and their willingness to participate.
Interview Quantitative & Qualitative Focus Group Full discussion with a moderator. Researchers view the reliability factor as quite low with interviews because they may influence the acquired data. Insider researchers should remain as neutral as possible, not allowing previous knowledge or concepts to intentionally or unintentionally interfere with the context of the interview process. In singing, this method offers a means of acquiring intimate sensory details about impressions, perceptions, and descriptors that contribute to how emotion in expressive singing is perceived, as well as understanding how intention-based singing can be fomented and framed. Attention to ethics is important for encoding knowledge presented in the interview. Asymmetrical power relationships should be avoided. The interview process should retain integrity and dignity.	Researcher as Moderator: Conducting Interviews Face to face (direct) or Online/Telephone (indirect). Structured: Concrete questions. Useful for quantifying data. Closed in nature. Themes, sub-themes, categories. Quantitative. Semi-Structured/In-Depth: Sensitive questions. Semi-open in nature, but retains some structure. Participants are free to elaborate on the subject matter to an extent. Quantitative/Qualitative. Unstructured/In-Depth: Open-ended/abstract questions require details, and can offer a rich palette of data. Very open & informal. Participants are in free flow, and able to transmit their ideas openly. Qualitative.

Observation Observation - non-experimental manner. It is a qualitative method that requires time to acquire data and is a fine alternative to experimental research. Analysis of a transcribed interview requires full concentration and creative skill, a kind of observation. Observing yourself in communication with another person. Focus on the words, and responses of an interviewee, paying attention to your performance and its impact on the situation.	1. Observe & Reflect 2. Document 3. Acquire Evidence 4. Act & Plan 5. Assess for inferences
Questionnaire Objective to acquire information based upon the inquiry. The sample size is determined easily and controlled to estimate the time required to analyze the data collected. Larger groups and data can be collected both efficiently and anonymously. OPEN QUESTIONS Qualitative Individual views provide more data with written responses in detail.	CLOSED QUESTIONS Quantitative Precise, specific answers are sought through the choices provided. Closed questions differentiate between: NOMINAL DATA Numeric data, counting things, and classifying/categorizing. ORDINAL DATA Specific data categories Likert Scale – comparing responses of participants.



(Douglas Von Edelman, 2024)

EXAMPLES OF DATA COLLECTION AND CODING:

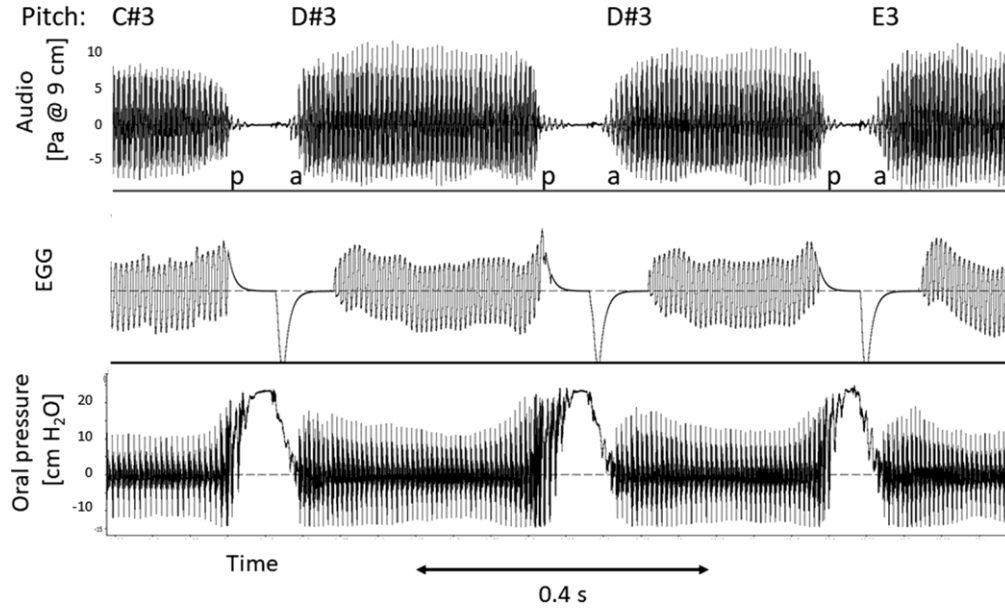


FIG. Cross-plotting of mean z-scores of glottal resistances for the two singers, plotted as a function of P_{Sub} for the emotion families anger, con- tempt (upper case), joy, love, pride (bold italics), calm, tender, neutral (gray), and fear, sad (bold). Circles and open diamonds refer to Singer 1 and Singer 2, respectively (see Sundberg *et al.*, 2021).

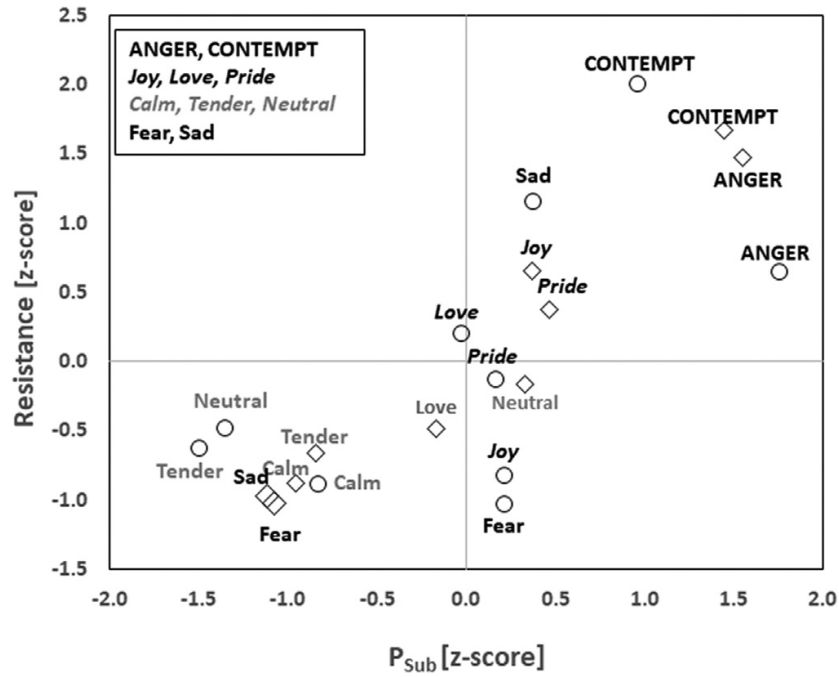


FIG. Example of a recording of Singer 1, showing, from top to bottom, audio, EGG, and oral pressure. Interestingly, the EGG signal shows that the initial vocal fold vibrations were produced without vocal fold contact. (Sundberg, Salomao & Scherer, 2024)

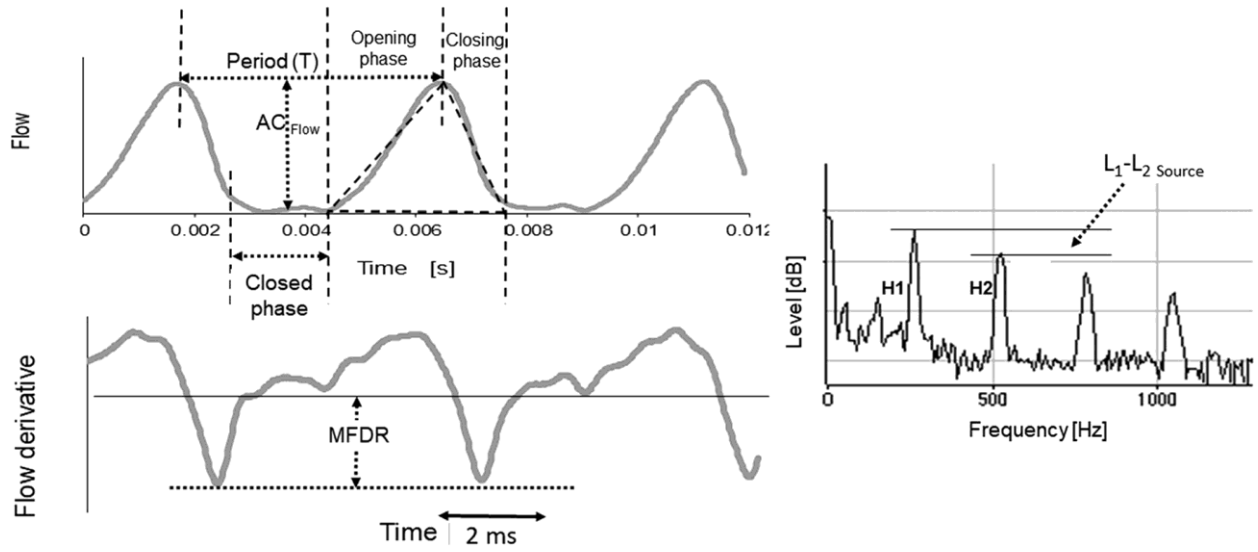


FIG. Example of a flow glottogram and its derivative (upper and lower left panels) and its spectrum (right panel). The dashed triangle in the middle period shows a triangle approximation used for estimating flow.

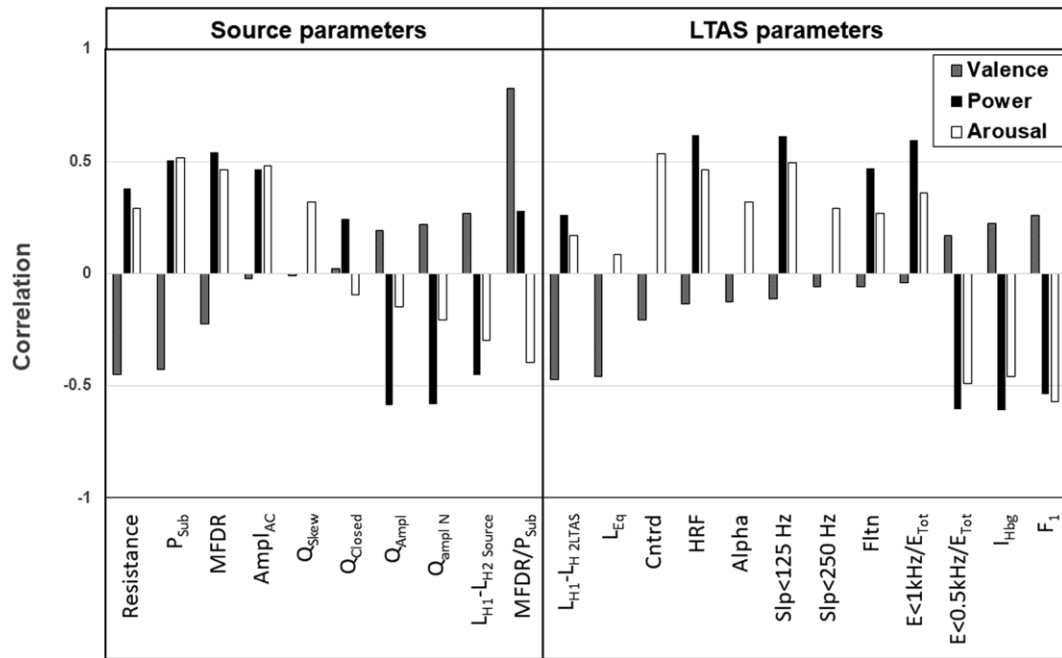


FIG. Correlations between major emotion dimensions and the source (left) and LTAS (right) parameters, rank ordered according to the correlation with valence.

(Sundberg, Salomao & Scherer, 2024)

TABLE . Analyzed parameters ($T^{1/4} 1/f_o$, period duration in

seconds).Physiological	
P_{Sub}	Oral pressure during /p/-occlusion (cmH ₂ O)
Mean glottal flow multiplied with f_o Resistance (cmH ₂ O/L*s ⁻¹) Parameters derived from inverse filtering	Area of a triangle approximation of the flow pulse, Ratio between P_{Sub} and mean glottal flow
AC_{Flow}	AC flow amplitude (L/s)
MFDR	Maximum negative amplitude of the voice source derivative (L/s ²)
Q_{Ampl}	$AC_{Flow}/MFDR$ (ms)
$Q_{Ampl N}$	$f_o * Q_{Ampl}$
$L_{H1}-L_{H2}$ Source	Level difference between voice source spectrum partials 1 and 2 (dB)
Q_{Closed}	Duration of closed phase/T
Q_{Skew}	Duration ratio between the rising and falling parts of the flow
glottogram pulseMFDR/ P_{Sub}	Ratio related to vocal economy
F_1	Frequency of the first formant (Hz)
From LTAS	
L_{Eq}	Equivalent sound level
Alpha	Ratio between spectrum energy above and below 1000 Hz
I_{Hbg}	Hammarberg Index; the level difference between the highest peaks between 0 and 2 kHz and 2 and 5 kHz
$E < 0.5 \text{ kHz}/E_{Tot}$	Proportion of spectrum energy below 0.5 kHz to total spectrum energy up to 5 kHz
$E < 1 \text{ kHz}/E_{Tot}$	Proportion of spectrum energy below 1 kHz to total spectrum energy up to 5 kHz
Fltn	Spectrum flatness: log of the ratio between the geometric and the arithmetic means of the power spectrum over the frequency range 0.125–5 kHz
Cntrd	Frequency, above and below which the spectrum energy is equal
$Slp > 125 \text{ Hz}$	Slope of the regression line of the LTAS spectrum in the 0.125–5 kHz range
$Slp > 250 \text{ Hz}$	Slope of the regression line of the LTAS spectrum in the 0.25–5 kHz range
$L_{H1}-L_{H2}$ LTAS	Difference between the mean LTAS level of the first and second spectrum partials
HRF	Harmonic richness factor: the ratio between the summed amplitudes of all overtones below 5 kHz and of the amplitude of the fundamental (Childers and Lee, 1991)

TABLE . The singers' parameter variation ranges in terms of the highest and lowest values among the ten emotions.

(Sundberg, Salomao & Scherer, 2024)

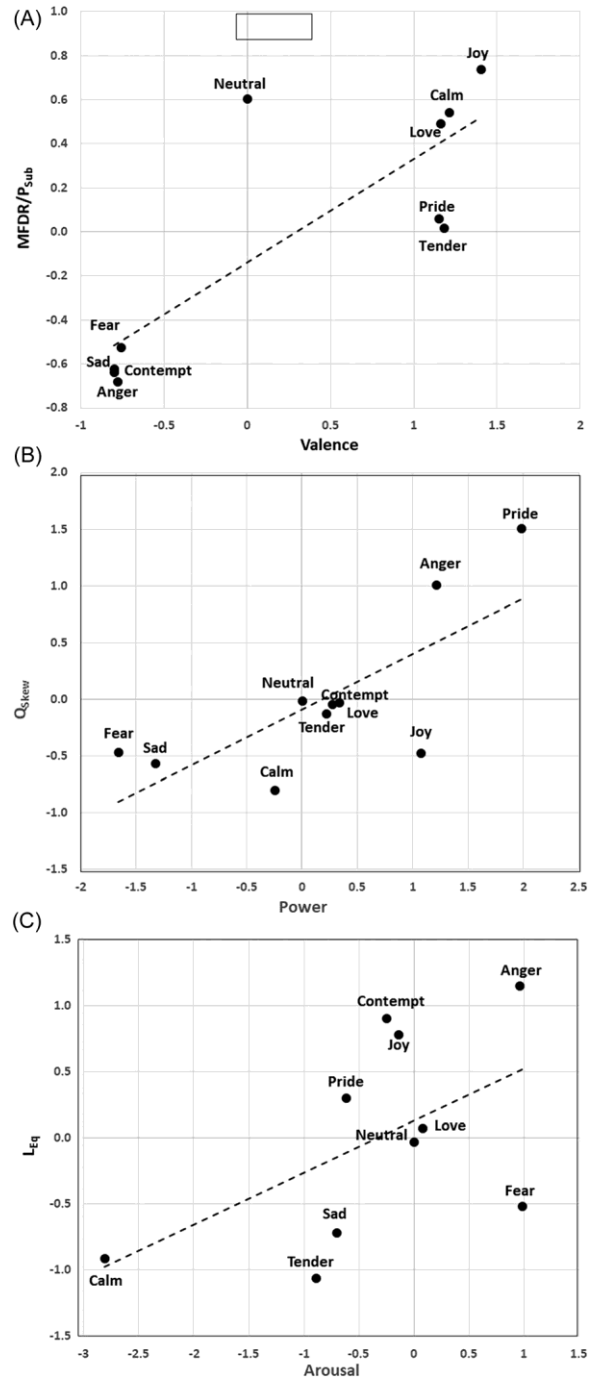


FIG. Distribution of the two singers' mean z-scores of the indicated parameters as functions of the emotion dimension values for valence, power, and arousal (top, middle, and bottom panels).

(Sundberg, Salomao & Scherer, 2024)

REFERENCES

- Agabegi, S.S. & Stern, P.J. (2008) Bias in Research. *American Journal of Orthopedics*. 37 (5), 242-248. URL: <https://cdn.mdedge.com/files/s3fs-public/Document/September-2017/037050242.pdf>
- Ahmad, S., Wasim, S., Irfan S., Gogoi, S. Srivastava, A. & Farheen, Z. (2019) Qualitative versus Quantitative Research - A Summarized Review. *Journal of Evidence Based Medical Health*. 6 (43), 2828-2832. DOI: 10.18410/jebmh/2019/587
- Alharahsheh, H.H. & Pius, A. (2020) A Review of Key Paradigms: Positivism VS Interpretivism. *Global Academy J Humanity Social Science*. 2 (3), 39-43. DOI: 10.36348/gajhss.2020.v02i03.001
- Alsaawi, A. (2014) A Critical Review of Qualitative Interviews. *European Journal of Business and Social Sciences*. 3 (4), 149-156. URL: <http://www.ejbis.com/recent.aspx>
- Altglas, V. (2014) Bricolage: Reclaiming A Conceptual Tool. *Culture and Religion: An Interdisciplinary Journal*. 15 (4), 474-493. DOI: 10.1080/14755610.2014.984235
- Anderson, C. (2010) Presenting and Evaluating Research. *American Journal of Pharmaceutical Education*. 74 (8), 1-7.
- Asamoah, M.K. (2014) Re-examination of the Limitations with Correlational Research. *Journal of Educational Research and Reviews*. 2 (4), 45-52.
- Asenahabi, B.M. (2019) Basics of Research Design: A Guide to Selecting Appropriate Research Design. *International Journal of Contemporary Applied Researches*. 6 (5), 76-89.
- Awal, A. (2023) Ethics in Research: A Comparative Study of Benefits and Limitations International *Journal of Academic and Applied Research*. 7 (8), 10-14.
- Baldwin, J.R., Pingault, J.B., Schoeler, T., Sallis, H.M. & Munafo, M.R. (2022) Protecting Against Researcher Bias in Secondary Data Analysis: Challenges and Potential Solutions. *European Journal of Epidemiology*. 37, 1-10. DOI:10.1007/s10654-021-00839-0

Berger, P.L. & Luckmann, T. (1966) *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. London, Penguin Putnam Inc.

Blaikie, N.W.H. (1991) A Critique of the Use of Triangulation in Social Research. *Quality & Quantity*. 23, 115-136.

Bogdan, R.C. & Biklen, S.K. (1998) *Qualitative Research for Education: An Introduction to Theory and Methods*. Syracuse, Allyn and Bacon Pub.

Bonner, A. & Tolhurst, G. (2002) Insider/Outsider Perspective of Participant observation. *Nurse Researcher*. 9 (4), 7-19. DOI: 10.7748/nr2002.07.9.4.7.c6194 . source : PubMed

Boucher, S.C. (2014) What is a philosophical stance? Paradigms, Policies and Perspectives. *Synthese*. 191, 2315-2332. DOI: 10.1007/s11229-014-0400-y

Bryman, A. (1988) *Quantity and Quality in Social Research*. New York, Routledge.

Bulk, Y. & Collins, B. (2023) Blurry Lines: Reflections on “Insider” Research. *Qualitative Inquiry*. 9 (1), 1-9. DOI:10.1177/10778004231188048

Burns, A. (2015) Action Research. In: Brown, J.D. & Coombe, C. (eds.) *The Cambridge Guide to Research in Language Teaching and Learning*. Cambridge, Cambridge University Press, pp. 187-204.

Cain, T. (2008) The Characteristics of Action Research in Music Education. *British Journal of Music Education*. 25 (3), 283-313. DOI: 10.1017/S0265051708008115

Callaghan, C.W. (2016) Critical Theory and Contemporary Paradigm Differentiation. *Acta Commer*. 16 (2), 59-99

Carter, N., Bryant-Lukusius, D., DiCenso, A., Blythe, J. & Neville, A.J. (2014) The Use of Triangulation in Qualitative Research. *Oncology Nursing Forum (ONF)*. 41 (5), 545-547. DOI: 10.1188/14.ONF.545-547

Carter, S.M. & Little, M. (2007) Justifying Knowledge, Justifying Method, Taking Action: Epistemologies, Methodologies, and Methods in Qualitative Research. *Qualitative Health Research*. 17 (10), 1316-1328. DOI:10.1177/1049732307306927

Cassell, C. (2019) *Conducting Research Interviews for Business and Management Students*. Thousand Oaks, Sage Publications Ltd. DOI: <https://doi.org/10.4135/9781529716726>

Castellan, C.M. (2010) Quantitative and Qualitative Research: A View for Clarity. *International Journal of Education*. 2 (2), 1-14.

Charmaz, K. (2017) Continuities, Contradictions, and Critical Inquiry in Grounded Theory. *International Journal of Qualitative Methods*. 16, 1-8. DOI: 10.1177/1609406917719350

Charmaz, K. (2008) Grounded Theory as an Emergent Method. In: Hesse-Biber, S. & Leavy, P. (eds.) *Handbook of Emergent Methods*. New York, The Guilford Press, pp. 155-172.

Cheng, R., Zhang, J., Hu, P.C. (2020) Document-Level Emotion Detection using Graph-Based Margin Regularization. *Neurocomputing*. 398, 55-63. URL: <https://doi.org/10.1016/j.neucom.2020.01.059>

Coccia, M. & Benati, I. (2023) Comparative Models of Inquiry, In: Coccia, M. & Benati, I. (eds.) *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Torino, National Research Council of Italy, pp. 2112-2118. DOI: 10.1007/978-3-030-66252-3_1199

Coghlan, D. & Rami-Shani, A.B. (2005) Roles, Politics, and Ethics in Action Research Design. *Systemic Practice and Action Research*. 18 (6), 533-546. DOI: 10.1007/s11213-005-9465-3

Cohen, L., Manion, L. & Morrison, K. (2007) *Research Methods in Education*. 6th ed. New York, Routledge.

Corbin, J. & Strauss, A. (1990) Grounded Theory Research: Procedures, Canons, and Evaluative Criteria. *Qualitative Sociology*. 13 (1), 3-21.

Costley, C., Elliott, G. & Gibbs, P. (2012) *Doing Work Based Research, Approaches to Enquiry for Insider-Researchers*. London, Sage.

Creswell, J.W. (2009) Mapping the Field of Mixed Methods Research. *Journal of Mixed Methods Research*. 3 (2), 95-108. DOI:10.1177/1558689808330883

Creswell, J.D. & Creswell, J.W. (2005) Mixed Methods Research: Developments, Debates, and Dilemmas. In: Swanson, R.A. & Holton, E.F. (eds.) *Research in Organizations*. San Francisco, Berrett-Koehler Publishing Inc., pp.315-326.

Creswell, J.W., Plano Clark, V.L., Gutmann, M.L. & Hanson, W.E. (2003) An Expanded Typology for Classifying Mixed Methods Research into Designs. In: Taskakori, A. & Tddlie, C. (eds.) *Advanced Mixed Methods Research Designs*. Thousand Oaks, Sage, pp. 209-240.

Crotty, M.J. (1998) *The Foundations of Social Research*. London, Sage.

Davies, M., & Hughes, N. (2019) *Doing A Successful Research Project Using Qualitative or Quantitative Method*. London, Bloomsbury Academic.

Denzin, N.K. (2017) Critical Qualitative Inquiry. *Qualitative Inquiry*. 23 (1), 8-16. DOI: 10.1177/1077800416681864

Dewey, J. (1908) What Does Pragmatism Mean by Practical? *The Journal of Philosophy, Psychology and Scientific Methods*. 5 (4), 85-99. URL: <https://www.jstor.org/stable/2011894>

Dey, I. (1993) *Qualitative Data Analysis: A User-Friendly Guide for Social Scientists*. London, Routledge. URL: https://cursa.ihmc.us/rid=1MM2ZZG0Y-1332XGL-2YSY/Qualitative_data_analysis.pdf

Dilthey, W. & Jameson, F. (1972) The Rise of Hermeneutics. *New Literary History*. 3 (2), 229-244. URL: <https://www.jstor.org/stable/468313>

Dummett, M. (2001) Truth., In: Lynch, M.P. (ed.) *The Nature of Truth Classic and Contemporary Perspectives*. Cambridge, MIT Press, pp. 229-250.

Editage Insights. (2024). URL: <https://www.editage.com/insights/7-biases-to-avoid-in-qualitative-research>.

Elliott, R. & Timulak, L. (2005) Descriptive and Interpretive Approaches to Qualitative Research, In: Miles, J. & Gilbert, P. (eds.) *A Handbook of Research Methods for Clinical and Health Psychology*. Oxford, Oxford University Press, pp. 147-159.

Engle, E. (2000) *Post-Positivism*. Boston, Rowman & Littlefield Publishers, Inc.

Farin, I. & Malpas, J. (eds.) (2016) *Reading Heidegger's Black Notebooks 1931-1941*. Cambridge, MIT Press.

Fakis, A., Hilliam, R., Stoneley, H. & Townend, M. (2014) Quantitative Analysis of Qualitative Information from Interviews: A Systematic Literature Review. *Journal of Mixed Methods Research*. 8 (2), 139-161. DOI: 10.1177/1558689813495111

Fine, K. (2011) What is Metaphysics? In: Tahko, T.E. (ed.) *Contemporary Aristotelian Metaphysics*. Cambridge, Cambridge University Press, pp. 8-25.

Floyd, A. & Arthur, L. (2012) Researching from Within: External and Internal Ethical Engagement. International. *Journal of Research and Method in Education*. 35 (2), 171-180. DOI:10.1080/1743727X.2012.670481

Frechette, J., Bitzas, V., Aubry, M., Kilpatrik, K. & Lavoie-Tremblay, M. (2022) Capturing Lived Experience: Methodological Considerations for Interpretive Phenomenological Inquiry. *Organization Research Methods*. 25 (2), 211-238. DOI: 10.1177/109442812092746

Gallagher, S. & Sørensen, J.B. (2006) Experimenting with Phenomenology. *Consciousness and Cognition*. 15, 119-134. DOI: 10.1016/j.concog.2005.03.002

Gerring, J. (2007) *Case Study Research: Principles and Practices*. Boston, Cambridge University Press. pp. 282-283. DOI:10.1017/S0022381607080243

Gerring, J. & McDermott, R. (2007) An Experimental Template for Case Study Research. *American Journal of Political Science*. 51 (3), 688-701.

Gibbs, P., Costley, C., Armsby, P. & Trakakis, A. (2007) Developing the Ethics of Worker-Researchers Through Phronesis. *Teaching in Higher Education*. 12 (3), 365-375. DOI: 10.1080/13562510701278716

Giddings, L.S. (2006) Mixed-Methods Research Positivism Dressed in Drag? *Journal of Research in Nursing*. 11 (3), 195-203. DOI: 10.1177/ 1744987106064635

Glaser, B.G., & Strauss, A.L. (1999) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. London, Routledge.

Gray, D. E. (2004) *Doing Research in the Real World*. London, Sage.

Greene, M.M. (2014) On the Inside Looking In: Methodological Insights and Challenges in Conducting Qualitative Insider Research. *The Qualitative Report*. 9 (29), 1-13. URL:<http://nsuworks.nova.edu/tqr/vol19/iss29/3>

Greenwald, A.G., Brendl, M., Huajian, C., Cvencek, D., Dovidio, J.F., Frieze, M., Hahn, A., Hehman, E., Hofmann, W., Hughes, S., Hussey, I., Jordan, C., Kirby, T.A., Lai, C.K., Lang, J.W.B., Lindgren, K.P., Maison, D., Ostafin, B.D., Rae, J.R., Ratliff, K.A., & Wiers, R.W. (2021) Best Research Practices for Using the Implicit Association Test. *Behavior Research Methods*. 5. URL: <https://doi.org/10.3758/s13428-021-01624-3>

Gribbons, B. & Herman, J. (1997) True and Quasi-Experimental Designs. *Eric/AE Digest*. 9, 1-7.

Groenewald, T. (2004) A Phenomenological Research Design Illustrated. *International Journal of Qualitative Methods*. 3 (1), 42-55. URL: <http://creativecommons.org/licenses/by/2.0>

Guba, E. G. & Lincoln, Y. S. (1994). 'Competing paradigms in qualitative research', In Denzin, N.K. & Lincoln, Y.S. (eds.), *Handbook of qualitative research*. Thousand Oaks: Sage Publications, Inc., pp. 105–117.

Habermas, G.R. (1989) Paradigm Shift: A Challenge to Naturalism. *SOR Faculty Publications and Presentations*. 8, 437-450. https://digitalcommons.liberty.edu/sor_fac_pubs/8

Halai, A. (2006) Ethics in Qualitative Research: Issues and Challenges. *EdQual. Qualitative Research in Developing Countries*. 4, 1-4. URL: <https://www.edqual.org>

Hammersley, M. (2018) What is Ethnography? Can it Survive? Should it? *Ethnography and Education*. 13 (1), 1-17. DOI: 10.1080/17457823.2017.1298458

Hammersley, M. (2008) Troubles with Triangulation. In: Bergman, M.M. (ed.) *Advances in Mixed Methods Research*. London, Sage, pp. 22-36.

Hammersley, M. (2006) Ethnography: Problems and Prospects. *Ethnography and Education*. 1 (1), 2-14. DOI:10.1080/17457820500512697

Heale, R. & D. (2013) Understanding Triangulation in Research. *Research Made Simple*. 16 (4), Forbes 98. URL: <https://t. http://ebn.bmj.com/>

Heath, H. & Cowley, S. (2004) Developing a Grounded Theory Approach: A Comparison of Glaser and Strauss. *International Journal of Nursing Studies*. 41, 141-150. DOI:10.1016/S0020-7489(03)00113-5

Herbert, S. (2000) For Ethnography. *Progress in Human Geography*. 24 (4), 550-568.

Huang, H.B. (2010) What is Good Action Research? Why the Resurgent Interest? *Action Research*. 8 (1), 93-109. DOI: 10.1177/1476750310362435

Hudson, L.A. & Ozanne, J.L. (1988) Alternative Ways of Seeking Knowledge in Consumer Research. *The Journal of Consumer Research*. 14 (4), 508-521. URL: <http://www.jstor.org/stable/2489157>

Hughes-Scholes, C.H. & Sharman, S.J. (2012) Skill in Interviewing Reduces Confirmation Bias. *Journal of Investigative Psychology and Offender Profiling*. 9, 126-134. DOI: 10.1002/jip.1357

Investopedia. (2024) *Descriptive Data*.
https://www.investopedia.com/terms/d/descriptive_statistics.asp

Ivankova, V. & Creswell, J.W. (2009) Mixed Methods. In: Heigham, J. & Croker, R.A. (eds.) *Qualitative Research in Applied Linguistics: A Practical Introduction*. London, Palgrave Macmillan, pp. 135-164.

James, W. (2001) Pragmatism's Conception of Truth., In: Lynch, M.P. (ed.) *The Nature of Truth Classic and Contemporary Perspectives*. Cambridge, MIT Press, pp. 211-228.

Jones, J. & Smith, J. (2017) Ethnography: Challenges and Opportunities. *Evidence Based Nursing*. 20 (4), 98-100. DOI: 10.1136/eb-2017-102786

Jongbo, O.C. (2014) The Role of Research Design in a Purpose Driven Enquiry. *Review of Public Administration and Management*. 3 (6), 87-94.

Kadlec, A. (2006) The Philosophy of Critical Pragmatism. *Northeastern Political Science Association*. 38 (4), 521-542. URL: <https://www.palgrave-journals.com/polity>

Kafle, N.P. (2011) Hermeneutic Phenomenological research Method Simplified. *Bodhi: An Interdisciplinary Journal*. 5, 181-200.

Kankum, K. (2019) The Use of Paradigms in Information Research. *Library & Information Science Research*. 41 (2), 85-92. DOI:doi.org/10.1016/j.lisr.2019.04.003

Kemmnis, S. (2009) Action Research as a Practice-Based Practice. *Educational Action Research*. 17 (3). 463-474. DOI:10.1080/09650790903093284

Khan, S.N. (2014) Qualitative Research Method: Grounded Theory. *International Journal of Business and Management*. 9 (11), 224-233. DOI: 10.5539/ijbm.v9n11p224

Kincheloe, J. (2005) On to the Next Level: Continuing the Conceptualization of the Bricolage. *Qualitative Inquiry*. 11 (3), 323-350. DOI:10.1177/1077800405275056

Kivunja, C. & Kuyini, A.B. (2017) Understanding and Applying Paradigms in Educational Contexts. *International Journal of Higher Education*. 6 (5), 26-41. URL:<http://ijhe.sciedupress.com>

Lahman, M.K.E., Geist, M.R., Rodriguez, K.L., Graglia, P. & DeRoche, K.K. (2011) Culturally Responsive Relational Reflexive Ethics in Research: The Three R's. *Springer Science and Business Media - Qual Quant*. 45, 1397-1414. DOI:10.1007/s11135-010-9347-3

Lawrence, F.P. (2023) Causal-Comparative Research. *Research Methodology Group UOPX Research Community*. URL:
<https://www.phoenix.edu/content/dam/edu/research/doc/2023/causal-comparative-research.pdf>

Lewis, D. (2001) Forget about the 'correspondence theory of truth'. *Analysis*. 61 (4), 275-280.

Lincoln, Y.S. & Guba, E.G. (1985) *Naturalistic Inquiry*. London, Sage Publications.

Liu, X. & Burnett, D. (2022) Insider-Outsider: Methodological Reflections on Collaborative Intercultural Research. *Humanities and Social Sciences Communications*. 9, 1-8. URL:<https://doi.org/10.1057/s41599-022-01336-9>

Mackenzie, N. & Kipe, S. (2006) Research Dilemmas: Paradigms, Methods, and Methodology. *Issues in Educational Research*. 16, 1-11. URL: <http://www.iier.org.au/iier16/mackenzie.html>

Marczyk, G., DeMatteo, D. & Festinger, D. (2005) *Essentials of Research Design and Methodology*. Hoboken, John Wiley & Sons, Inc.

- Maxsimovic, J. & Evtimov, J. (2023) Positivism and Post-Positivism as the basis of Quantitative Research in Pedagogy. *Research in Pedagogy*. 13 (1), 208-218. DOI:5937/IstrPed2301208M
- McKenzie, J. & Bartunek, J. (2023) Mirror, Mirror Outside my Wall: Reflexive Impacts of Inside/Outsider Collaborative Inquiry on the Insider Researcher. *The Journal of Applied Behavioral Science*. 59 (4), 714-739. DOI:10.1177/00218863231177486
- Mertens, D. (2010) Philosophy in Mixed Methods Teaching: The Transformative Paradigm as Illustration. *International Journal of Multiple Research Approaches*. 4, 9-18. DOI: 10.5172/mra.2010.4.1.009
- Mertens, D.M., (2007) Transformative Paradigm: Mixed Methods and Social Justice. *Journal of Mixed Methods Research*. 1, 212-225. DOI: 10.1177/1558689807302811
- Merton, R.K. (1972) Insiders and Outsiders: A Chapter in the Sociology of Knowledge. *American Journal of Sociology*. 78 (1), 9-47. URL:<http://links.jstor.org/sici=0002-9602%28197207%2978%3A1%3C9%3E2.0.CO%3B2-F>
- Miller, A. (2006) Russell, Multiple Relations, and the Correspondence Theory of Truth. *The Monist*. 89, 1-18.
- Minhat, H.S. (2015) An Overview on the Methods of Interview in Qualitative Research. *International Journal of Public Health and Clinical Sciences*. 2 (1), 210-214.
- Morgan, D.L. (2014) Pragmatism as a Paradigm for Social Research. *Qualitative Inquiry*. 20 (8) 1045-1053. DOI: 10.1177/1077800413513733
- Morgan, D.L. (2007) Paradigms Lost and Pragmatism Regained: Methodological Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research*. 1 (1), 48-76. DOI: 10.1177/2345678906292462
- Mueller, A.E. & Segal, D.L. (2015) Structured versus Semi-Structured versus Unstructured Interviews. In: Cautin, R.L. & Lilienfeld. S.O. (eds.) *The Encyclopedia of Clinical Psychology*. Colorado, John Wiley & Sons, Inc., pp. 1-7. DOI: 10.1002/9781118625392.wbecp069
- Newman, A. (2002) *The Correspondence Theory of Truth: An Essay on the Metaphysics of Predication*. Cambridge, Cambridge University Press.
- Nickerson, R.S. (1998) Confirmation Bias: A Ubiquitous Phenomenon in Many Guises. *Review of General Psychology*. 2 (2), 175-220.

Njie, B. & Asimiran, S. (2014) Case Study as a Choice in Qualitative Methodology. *IOSR Journal of Research & Method in Education*. 4 (3), 35-40. URL: www.iosrjournals.org 35

Nwaze, E. (2002) *A Practical Guide to Research in the Field of Health and Biostatistics*. Nigeria, Guzan Publishers.

Okesina, M. (2020) A Critical Review of the Relationship between Paradigm, Methodology, Design and Method in Research. *Journal of Research & Method in Education*. 10 (3), 57-68. DOI: 10.9790/7388-1003015768

Oram, D. (2015) Research and Practice in Voice Studies: Searching for a Methodology. *Voice and Speech Review*. 9 (1), 15-27. DOI: [10.1080/23268263.2015.1059674](https://doi.org/10.1080/23268263.2015.1059674).

Parsell, M., Ambler, T. & Jacenyik-Trawoger, C. (2014) Ethics in Higher Educational Research. *Studies in Higher Education*. 39 (1), 166-179. DOI:10.1080/03075079.2011.647766

Patton, M.Q. (1999) Enhancing the Quality of Credibility of Qualitative Analysis. *Health Services Research*. 34 (5), 1189-1208. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089059/pdf/hsresearch00022-0112.pdf>

Petroski, K. (2011) Is Post-Positivism Possible? *German Law Journal*. 12 (2), 663-692. DOI: 10.1017/S2071832200017053 Published online b

Pittaway, E., Bartolomei, L. & Hugman, R. (2010) Stop Stealing Our Stories: The Ethics of Research and Vulnerable Groups. *Journal of Human Rights Practice*. 2 (2), 230-251. <http://www.crr.unsw.edu.au>

Pratt, G., Sonenschein, S. & Feldman, M.S. (2020) Moving Beyond Templates: A Bricolage Approach to Conducting Trustworthy Qualitative Research. *Organizational Research Methods*. 25 (2), 211-238. DOI: 10.1177/1094428120927466

Questionpro. (2024) *Causal-Comparative Research*. URL: <https://www.questionpro.com/blog/causal-comparative-research>

Rahi, S. (2017) Research Design and Methods: A Systematic Review of Research Paradigms, Sampling Issues and Instruments Development. *International Journal of Economic and Management Sciences*. 6 (2), 403-408. DOI: 10.4172/2162-6359.1000403

Rasmussen, J.L. (2013) How Truth Relates to Reality. *American Philosophical Quarterly*. 50 (2), 167-180. <https://www.researchgate.net/publication/289159918>

Rana, J. Dilshad, S. & Ahsan, A. (2021) Ethical Issues in Research. In: *Ethics and why is it Important?* URL: <https://www.niehs.nih.gov/research/resources/bioethics/whatis>

Resnik, D.B. (2020) What is Ethics in Research. In: *Ethics and Why is it Important?* URL: <https://www.niehs.nih.gov/research/resources/bioethics/whatis>

Rogers, M. (2012) Contextualizing Theories and Practices of Bricolage. *The Qualitative Report*. 17, 1-17. <http://www.nova.edu/ssss/QR/QR17/rogers.pdf>

Ross, L.E. (2017) An Account from the Inside: Examining the Emotional Impact of Qualitative Research Through the Lens of “Insider” Research. *Qualitative Psychology*. 4 (3), 326-337. URL:<http://dx.doi.org/10.1037/qup0000064>

Ryan, P. (2015) Positivism: Paradigm or Culture? *Policy Studies*. 36 (4), 417-433. DOI:10.1080/01442872.2015.1073246

Ryan, A.B. (2006) Post-Positivist Approaches to Research. In: *Researching and writing your thesis: A Guide for Postgraduate Students*. Ireland, Mace: Maynooth Adult and Community Education, pp. 12-26.

Sandelowski, M. (1999) Focus on Research Methods Combining Qualitative and Quantitative Sampling, Data Collection, and Analysis Techniques in Mixed-Method Studies. *Research in Nursing and Health*. 23, 246-255

Scotland, J. (2012) Exploring the Philosophical Underpinnings of Research: Relating Ontology and Epistemology to the Methodology and Methods of the Scientific, Interpretive, and Critical Research Paradigms. *English Language Teaching*. 5 (9), 9-16. DOI: 10.5539/elt.v5n9p

Shannon-Baker, P. (2015) Making Paradigms Meaningful in Mixed Methods Research. *Journal of Mixed Methods Research*. 3, 1-16. DOI: 10.1177/1558689815575861 mmr.sagepub.com

Sharp, H. (2019) Bricolage Research in History Education as a Scholarly Mixed-Methods Design. *History Research Journal*. 16 (1), 50-62. DOI:10.18546/HERJ.16.1.05

Showkat, N. & Parveen, H. (2017) Preventing Plagiarism. *School of Open Learning*. University of Delhi, e-PG Pathshala, pp. 2-11. URL: https://www.researchgate.net/publication/319183096_Preventing_Plagiarism

Showkat, N. & Parveen, H. (2017) Content Analysis. *School of Open Learning*. Aligarh Muslim University. URL: <https://epathshala.nic.in/>

Showkat, N. & Parveen, H. (2017) Research Ethics. *School of Open Learning*. University of Delhi. Department of English. URL: https://www.researchgate.net/publication/318912804_Research_Ethics

Showkat, N. & Parveen, H. (2017) Preventing Plagiarism. *School of Open Learning*. New Delhi: University of Delhi. URL: <https://epathshala.nic.in/>

Silverman, M. (2012) *A Critical Ethnography of Democratic Music Listening*. Cambridge, Cambridge University Press. DOI:10.1017/S0265051712000423

Smith, D. (2003) Five Principles for Research Ethics: Cover your Bases with these Ethical Strategies. *American Psychological Association*. 34 (1), 56-62. URL: <https://www.apa.org/monitor/jan03/principles>

Starman, A.B. (2013) The Case Study as a Type of Qualitative Research. *Journal of Contemporary Educational Studies*. 1, 28-43.

Stebbing, L.S. (1932) The Method of Analysis in Metaphysics. *Proceedings of the Aristotelian Society*. 33, 65-94. URL: <https://www.jstor.org/stable/4544216>

Stephenson, H., Giles, D. & Bissaker, K. (2018) The Power of Hermeneutic Phenomenology in Restoring the Centrality of Experiences in Work-Integrated learning. *International Journal of Work-Integrated Learning*. 19 (3), 261-271.

Tan, L. (2014) Correlational Study. In: Thompson, W.F. (ed.) *Music in the Social and Behavioral Sciences: An Encyclopedia*. Thousand Oaks, Sage, pp. 269-271. URL: <https://us.sagepub.com/enus/nam/music-in-the-social-and-behavioral-sciences/book240878>.

Thomas, D. & Zubkov, P. (2023) Quantitative Research Designs. In: Wa-Mbaleka, S., Zubkov, P., Cincala, P. & Penno, D. (eds.) *Quantitative Research in Practical Theology*. Berrien Springs, Andrews University, pp. 103-114.

Thomson, P. & Gunter, H. (2011) Inside, Outside, Upside Down: The Fluidity of Academic Researcher 'Identity' in Working With/In School. *International Journal of Research and Methods in Education*. 34 (1), 17-30. DOI:10.1080/1743727X.2011.552309

Toews, I., Glenton, C., Lewin S., Berg, R.C., Noyes, J., Booth, A., Marusic, A., Malicki, M., Munthe-Kaas, H.M. & Meerpohl, J.J. (2016) Extent, Awareness and Perception of Dissemination Bias in Qualitative Research: An Explorative Survey. 11 (8), 1-16. DOI: 10.1371/journal.pone.0159290

Tornobohm, H. (1974) *Paradigm in the World of Science and the Theory of Science*. Goteborg, Goteborg University.

Van Fraassen, B.C. (2004) Replies in Mixed Methods Teaching: The Transformative Paradigm as Illustration. *International Journal of Multiple Research Approaches*. 4, 9-18. DOI:10.5172/mra.2010.4.1.009

Van Manen, M. & Van Manen, M. (2021) Doing Phenomenological Research and Writing. *Qualitative Health Research*. 31 (6), 1069-1082. DOI: 10.1177/10497323211003058

Walliman, N. (2001) *Your Research Project: A step-by-step guide for the first-time researcher*. London, Sage.

Williams, C. (2007) Research Methods. *Journal of Business and Economic Research*. 5 (3), 65-72.

Williams, J. P. (2008) Emergent themes. In: Given, L.M. (Ed.), *The Sage encyclopedia of qualitative research methods*. Los Angeles, Sage Publications, pp. 248-249. DOI: 10.13140/RG.2.1.1479.4723

Winter, D. (2020) Voicing a Practitioner Research Methodology: Further Framing the Conversation, Voice and Speech Review. <https://doi.org/10.1080/23268263.2020.1843270>

Winter, G. (2000) A Comparative Discussion of the Notion of 'Validity' in Qualitative and Quantitative Research. *The Qualitative Report*. 4 (3), 1-14.
URL:<http://nsuworks.nova.edu/tqr/vol4/iss3/4>

Wolfer, J. (1993) Aspects of "Reality" and Ways of Knowing in Nursing: In Search of an Integrating Paradigm. *Journal of Nursing Scholarship*. 25 (2), 141-146.

Yeasmin, S. & Rahman, K.F. (2012) Triangulation Research Method as a Tool of Social Science Research. *BUP Journal*. 1 (1), 154-163.

Yilmaz, K. (2013) Comparison of Quantitative and Qualitative Research Traditions: Epistemological, Theoretical, and Methodological differences. *European Journal of Education*. 48 (2), 311-325.