

Critically evaluate a range of methodological approaches, research designs, and research methods appropriate to gather data from complex work-based settings, with due consideration to research ethics and issues of insider research.

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Introduction

A research design is a plan that guides research and informs the choice of data collection and data analysis methods used (Crotty, 1998; Creswell, 2008). Without a research design, results will be more difficult to understand and lack credibility as a consequence (Crotty, 1998; Saunders, 2019; Brown & Dueñas, 2020; Darwin Holmes, 2020). Therefore, it is important that all researchers carefully consider and plan their choice of data collection and data analysis techniques before undertaking any research in order to obtain credible results that expand our knowledge.

This is especially relevant to me in my role as practitioner-researcher because I will undertake work-based research in the future, and I may change the way I work in light of the results. Consequently, it is not only the validity of the research that is at stake, but also my professional credibility and the welfare of my students. Therefore, it is essential that I select the most appropriate methods so that my research can have a real positive impact on my practice.

I teach English pronunciation and accent reduction to students of English as a Second Language (ESL). I am particularly interested in researching techniques that can help students to speak English clearly because, in my experience, this is almost completely absent from traditional ESL teacher training, despite it being a common source of communication breakdown. More specifically, I would like to understand how students can produce English sounds accurately, transform sounds in connected speech, speak with English intonation and adopt an English articulatory setting.

The aim of this essay is to identify the most appropriate methodologies to achieve this. Therefore, I will critically evaluate a range of research designs, the philosophical ideas that underpin them and the specific methods used to collect and analyse data, while taking into account issues of ethics and insider research.

Philosophical beliefs

Axiology is the study of value – it seeks to answer the question, what is good for us? (Biedenbach & Jacobsson, 2016; Sol & Heng, 2022). Intrinsic value is objective – it is inherently good and not subject to external conditions (Rønnow-Rasmussen, 2015; Biedenbach & Jacobsson, 2016). For example, speech has intrinsic value because it allows for the complex cognitive and social behaviours which define us as humans (Albessard-Ball & Balzeau, 2018). In contrast, extrinsic value is subjective – it leads to something good and is therefore dependent upon external conditions (Rønnow-Rasmussen, 2015; Biedenbach & Jacobsson, 2016). For example, knowledge of a foreign language may be considered extremely valuable

by a person living in a foreign country, but it may be considered pointless by somebody living in their native country.

Ontology is the study of reality with a variety of different stances forming a broad continuum ranging from objectivism to subjectivism (Mack, 2010; Saunders, 2019; Willig, 2019; Sol & Heng, 2022). At one extreme objectivists believe that reality exists independently of human experience (Niiniluoto, 2003; Saunders, 2019). For example, an objectivist may consider a speech to be a single phenomenon, measurable using audio equipment. In contrast, subjectivists believe that there is no objective reality, but instead multiple realities constructed by each individual's perception and interpretation of the world around them (Saunders, 2019). For example, objectivists may consider a speech to exist as multiple phenomena, interpreted according to each individual's social and linguistic background.

Epistemology is the study of knowledge – it aims to define what knowledge is and what its limits are (Crotty, 1998; Mack, 2010; Saunders, 2019; Sol & Heng, 2022). Objectivists believe knowledge to be facts which are discoverable via observation and measurement and lead to generalisable laws (Saunders, 2019). For example, an objectivist may measure formant frequencies to discover differences in pronunciation between accents. In contrast, subjectivists believe knowledge to change along with each individual's subjective experience of reality and aim to account for this through detailed analysis of interviews, narratives and opinions (Saunders, 2019). For example, a subjectivist may interview people to discover their opinions on how various accents are perceived.

I believe some things have intrinsic value while others have extrinsic value, or both. I also believe reality can be both objective and subjective at the same time – multiple interpretations of a phenomenon can exist within certain limits. Finally, I believe subjective experiences are an acceptable source of knowledge where objective facts are impossible or inappropriate. This combination of axiological, ontological and epistemological beliefs is known as a paradigm, and it shapes our world view and influences our approach to research (Creswell, 2008; Mack, 2010; Maksimović & Evtimov, 2023). In the following paragraphs I will outline three contrasting paradigms and their limitations.

Paradigms

Positivism seeks objective truths by studying the cause and effect of phenomena via empirical measurements (Creswell, 2008). According to positivists, there are laws which govern both natural and social sciences which are waiting to be discovered (Maksimović & Evtimov, 2023). However, critics of positivism argue that it is impossible to apply precise laws to social sciences due to the complexity of the social world and the variety of interpretations that arise from it (Mack, 2010). Postpositivism tries to reconcile these differences by

accepting that a piece of research is affected by multiple provisional theories leading to an ambiguous world with multiple realities (Mackenzie & Knipe, 2006).

Constructivism, also known as interpretivism, emerged as a reaction against positivism and starts from the ontological assumption that reality is subjective (Mack, 2010). Constructivists take the epistemological view that multiple meanings exist and cannot be reduced to generalisable laws (Creswell, 2008). Instead, researchers must consider the social and historical context of both the participant and the researcher to understand the complexity of meanings (Mackenzie & Knipe, 2006). However, critics of constructivism say the benefits of constructivist research is limited since the results cannot be verified or generalised (Mack, 2010).

Pragmatism does not subscribe to any particular philosophy (Mackenzie & Knipe, 2006). Consequently, it is difficult to define its axiological, ontological or epistemological positions. Pragmatists are not concerned with the nature of reality, instead they consider any type of knowledge to be of value if it can improve their understanding of a problem, and they employ any method they deem appropriate in order to achieve this (Creswell, 2008). However, this pluralistic approach can make it more difficult for pragmatists to carry out their research in a logical and credible way (Ramanadhan et al., 2021).

When designing a piece of research, it is important that the researcher acknowledges their own personal paradigm and how it has influenced their approach to research because this will give it credibility and make it easier for others to understand (Crotty, 1998; Saunders, 2019; Brown & Dueñas, 2020; Darwin Holmes, 2020). I believe my own personal paradigm lies within the realms of pragmatism – results matter more to me than the methods used to achieve them. In the following sections I will summarise the three broad approaches to research design, their benefits and drawbacks.

Research designs

Quantitative research is preferred by objectivists and employs instruments to measure variables and obtain numerical data which is then used to test a hypothesis (Crotty, 1998; Mackenzie & Knipe, 2006; Creswell, 2008). For example, a researcher may use a microphone and spectrogram to measure formant frequencies before and after foreign language training to test the hypothesis that 'foreign language training improves pronunciation'. The main benefit of quantitative research is its generalisability, which allows the results to be applied in various contexts (Lim, 2024a). However, this generalisability comes at the cost of complex contextual understanding (Lim, 2024a).

Qualitative research is preferred by subjectivists and aims to understand the meaning applied by people to complex social phenomena by studying them in their natural context (Crotty, 1998; Mackenzie & Knipe, 2006; Creswell, 2008). For example, a researcher may interview foreign language students or observe them in class to understand the importance that they ascribe to pronunciation and how it affects their progress in the language.

Qualitative research produces the complex contextual understanding that quantitative research lacks while offering the added benefits of flexibility and participant interaction (Lim, 2024b). However, this limits generalisability and increases the risk of bias (Lim, 2024b).

Mixed methods research is often associated with pragmatists and combines qualitative and quantitative methods in the belief that it will produce better results than either approach on its own (Ivankova et al., 2006; Mackenzie & Knipe, 2006; Creswell, 2008). The perceived legitimacy of numerical information combined with emotive linguistic information make mixed methods research a powerful tool for politicians and activists (Mackenzie & Knipe, 2006; Creswell, 2008). For example, an activist may quote the number of people who have experienced discrimination because of their language or accent, followed by direct quotes from participants obtained during interviews. As with pragmatism more generally, mixed methods researchers must work harder to maintain credibility in the face of possible criticism from both objectivists and subjectivists (Ramanadhan et al., 2021).

In the context of my work-based research, I believe quantitative research is preferable to qualitative research because generalisability is extremely desirable in ESL education. This is because ESL students can come from any linguistic background and teachers require techniques that benefit every student in the class. However, I do not believe that qualitative research is without value in ESL education because our success in education is influenced by our previous subjective experiences learning (Darling-Hammond et al., 2024).

Consequently, qualitative research could be used to support and understand the successful application of quantitative research in ESL education.

In reality, however, all approaches use a combination of quantitative and qualitative methods, and the two approaches should be viewed as ends of a continuum with a piece of research considered more quantitative or qualitative, or explicitly mixed in design (Crotty, 1998; Mackenzie & Knipe, 2006; Creswell, 2008). In fact, Pilcher & Cortazzi (2024) showed that many researchers who consider their research to fall into one of the two binary categories of qualitative or quantitative are actually using mixed methods.

The specific choice of qualitative and quantitative methods is known as a methodology and is used to guide the research and achieve the desired outcome (Crotty, 1998; Creswell, 2008;

Brown & Dueñas, 2020). In the following sections I will summarise three methodologies that correspond to qualitative, quantitative and mixed methods research design.

Methodologies

Experimental research is associated with quantitative design and investigates cause and effect relationships by manipulating variables (Creswell, 2008). True experimental design achieves a high level of scientific credibility by randomly assigning participants and manipulating some variables while controlling others (Thompson & Panacek, 2006). However, true experimental designs are expensive, and some may be unethical, making them unviable in some situations (Leatherdale, 2019). For example, any research that is likely to harm people or animals is likely to face resistance. Consequently, experimental research may not always be appropriate. Quasi-experimental and nonexperimental designs lack manipulation, randomisation and control to varying degrees, but the loss of scientific credibility is compensated by more realistic experiment conditions (Lim, 2024a).

Even where true experimental designs are viable, small samples sizes and limited stimuli may undermine generalisability of the results. For example, Sakai & Moorman (2018) performed a meta-analysis of 30 studies into perception- vs production-based pronunciation practice and noted an average sample size of only 11.61 participants, while 10 of the studies used the phonemes /l/ and /r/ as the stimuli.

Grounded theory is associated with qualitative design and uses an iterative process of data collection, coding and comparison to inductively generate theories (Creswell, 2008; Hussein et al., 2014; Lim, 2024b). For example, a researcher may identify words and phrases from an interview related to 'accents', then collect related words and phrases into categories before combining them into a theory about how accents are perceived. The systematic nature of grounded theory increases its credibility making it a popular choice in social science research (Hussein et al., 2014; Lim, 2024b). However, the risk of bias cannot be completely eliminated, and the high level of flexibility and complexity can lead to inconsistent and erroneous results among inexperienced researchers (Hussein et al., 2014; Lim, 2024b).

A mixed methods research methodology can be sequential – qualitative research follows and is used to expand on the results of quantitative research (or vice versa) (Creswell, 2008). For example, a researcher may conduct a survey about accent discrimination and interview a handful of participants afterwards (or vice versa). Alternatively, a mixed methods methodology may be concurrent – both qualitative and quantitative research is performed at the same time and their results integrated (Creswell, 2008). For example, a survey about accent discrimination may be integrated with a questionnaire so that quantitative and qualitative data is collected from each participant simultaneously. Both sequential and

concurrent methodologies benefit from the improved understanding and credibility that come from integrating qualitative and quantitative research (Fetters et al., 2013). However, it can be difficult to know how much priority should be given to qualitative and quantitative research in sequential methodologies, and at what stage the results should be integrated (Ivankova et al., 2006).

In the context of my work-based research, I believe experimental research is preferred to grounded theory because a high level of scientific credibility is desirable in ESL education. This is because teachers' reputations and students' welfare depend on the techniques used in class and the results they produce. However, there may be a place for grounded theory as part of a sequential mixed methods design to support quasi-experimental or nonexperimental research where true experimental research is unviable.

In the following paragraphs I will summarise three specific ways of collecting data associated with these methodologies.

Research methods

Experimental research data is collected via instruments which may be adopted, adapted, or newly created, and validated during a pretest and pilot study (Lim, 2024a). For example, a researcher investigating formant frequencies in English accents may record a small group of participants saying the same set of words as a previous study, a slightly modified set of words, or a completely new set of words according to input from phoneticians before recording a larger sample of the population. Standard instruments can be scaled quickly allowing large amounts of data to be collected which improves generalisability, but this comes at a high cost and limited flexibility (Lim, 2024a).

Interview is a qualitative research method which involves the interviewer asking generally open-ended questions in order to obtain information from the interviewee (Creswell, 2008; Moser & Korstjens, 2018; Lim, 2024a). For example, a researcher may ask questions about a participant's experience learning a foreign language. The main advantage of interviews is their flexibility, which allows interviewers to adapt in real-time to the interviewee's responses to uncover deep contextualised meanings (Lim, 2024b). However, this flexibility may be undermined by participants who are unwilling to engage, unable to express themselves clearly, or say what they think the interviewer wants to hear (Moser & Korstjens, 2018; Lim, 2024b).

In mixed methods research, data collected from quantitative research may be used to provide samples for qualitative research, inform the type of qualitative research used, or compare data collected from qualitative research (or vice versa) (Fetters et al., 2013). For

example, a researcher may use respondents to a survey as subjects for interviews or decide to use a Likert scale instead based on their responses. Likert scales are scales which measure and quantify opinions about a specific topic (Bishop & Herron, 2015). Alternatively, the researcher may collect and compare numerical data using surveys and Likert scales concurrently. In this way, data collected using quantitative and qualitative methods is used to complement each other and improve analysis (Ivankova et al., 2006). In reality, however, the exact method of integration is often determined by time and concurrent methods may be used instead of sequential methods if time is limited (Creswell, 2008).

In the context of my work-based research, I believe experimental research instruments are preferable to interviews because participants are likely to be non-native speakers of English. Consequently, their limited proficiency of English may produce inarticulate responses which undermine the complex contextual understanding for which interviews are valued (Moser & Korstjens, 2018; Lim, 2024b).

In the following paragraphs I will consider the ethical implications of these research methods.

Ethics

Ethics is a philosophical discipline which examines human behaviour from a moral perspective (i.e. what is right and wrong) (Vanclay et al., 2013). Consequences of unethical research range from credibility being undermined to significant emotional distress for both participant and researcher (Drolet et al., 2023; Kiernan & Mc.Mahon, 2024). To avoid this, Vanclay et al. (2013) suggest researchers abide by the following principles identified in a meta-analysis of ethics literature:

1. Respect for participants
2. Informed consent
3. Specific permission required for audio- or video-recording
4. Voluntary participation and no coercion
5. Right to withdraw
6. Full disclosure of funding sources
7. No harm to participants
8. Avoidance of undue intrusion
9. No use of deception
10. Presumption and preservation of anonymity
11. Right to check and modify a transcript
12. Confidentiality of personal matters
13. Data protection
14. Enabling participation

15. Ethical governance
16. Grievance procedure
17. Appropriateness of research methodology
18. Full reporting of methods

However, these principles may be met with resistance when forced upon researchers since ethics is intimately linked with axiology (Vanclay et al., 2013). Objectivists are more likely to subscribe to deontological ethics, which considers an action to be inherently wrong, whereas subjectivists are more likely to subscribe to consequentialist ethics, which only judges the outcome of an action to be right or wrong (Megías et al., 2023). For example, should a study into a potentially life-saving treatment be postponed because funding sources have not been disclosed?

In the context of work-based research, the risk that one of these principles will be breached will depend on the methodology I choose. For example, there is a higher risk of undue intrusion in an interview but a higher risk of physical harm in experimental research. In any case, I am likely to record my participants' pronunciation, so it is essential I obtain permission first.

Insider research

Insider research is when a group is researched by one of its members (Mercer, 2007). Since members tend to have more knowledge and authority than non-members, they can extract and interpret information from the group in a way that leads to a better understanding, although this comes at the risk of bias (Chavez, 2015). To mitigate this risk, Darwin Holmes (2020) recommends the use of a positionality statement and reflexivity, which is when the research paradigm is made explicit and is continuously reassessed in order to determine its influence on the research. However, this approach is criticised by objectivists who believe that the only way to avoid bias is to have the research conducted by outsiders (Chavez, 2015). In reality, the insider/outsider relationship is more of a continuum with some features of a researcher's identity fixing them to one end of the continuum, such as ethnicity, while other more flexible features draw them away, such as personality (Mercer, 2007).

In the context of my work-based research I am simultaneously an insider and an outsider. I am a learner of foreign languages, just like ESL students. Consequently, I have first-hand experience of the challenges that they face. However, I am also an outsider because I am a native English speaker, whereas my students are learning English as a foreign language. Therefore, I will have to continually reassess the paradigm in any research I do to understand how my biases influence the results.

Conclusion

It is essential that researchers outline their philosophical beliefs and reflect reflexively on them throughout the research process in order to obtain credible and ethical results (Vanclay et al., 2013; Brown & Dueñas, 2020; Darwin Holmes, 2020). As a result of my personal philosophical beliefs, I am drawn towards pragmatism, which cares more about results than the methods used to obtain them (Mackenzie & Knipe, 2006; Creswell, 2008). This paradigm is usually associated with mixed methods research, which combines qualitative and quantitative methods in an attempt to obtain better results than either approach on its own (Ivankova et al., 2006; Mackenzie & Knipe, 2006; Creswell, 2008). However, qualitative research methodologies may be inappropriate for my work-based research for several reasons.

Firstly, qualitative research lacks generalisability (Lim, 2024b), and generalisability will likely be a key aim of any work-based research I perform in the future because I require techniques that benefit every student.

Secondly, although grounded theory achieves a high level of credibility, this may be undermined by potential bias, and inconsistent or erroneous results (Hussein et al., 2014; Lim, 2024b). Since I will likely apply the results of my research in practice, it is important that the results achieve the highest levels of credibility possible in order to protect my professional reputation and the welfare of my students.

Thirdly, the success of interviews depends partly on the participants' ability to articulate their thoughts clearly (Moser & Korstjens, 2018; Lim, 2024b). Since my research will likely involve non-native speakers of English, interviews may produce less than satisfactory results.

Finally, adopting one of these qualitative methods where a quantitative method is more appropriate could potentially breach ethics principle number 17 – appropriateness of research methodology (Vanclay et al., 2013).

In conclusion, although my personal paradigm lies with pragmatism, it is likely that I will have to adopt a more postpositivist paradigm in future work-based research. This is because quantitative methods and methodologies are more likely to produce the credible and generalisable results which are necessary in ESL education and are less likely to lead to an ethics breach.

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