

Understanding research paradigms and methodological choices: A qualitative exploration of VR integration in Chinese College EFL teaching

1. Introduction

Quantitative and qualitative methods are two primary research approaches. In this essay, I will first discuss what these two approaches mean from the perspective of their philosophical foundation. Based on the above discussion, I will justify the research method which I will use for my research topic.

2. Quantitative and qualitative

In academic studies, there are two major categories of research methods. One is the quantitative method, and the other is the qualitative method. To comprehensively understand these two methods, it is necessary to explore their underlying philosophical assumptions, known as paradigms. According to Hennink et al. (2020), the paradigms encompass the discussion of ontology, epistemology, and methodology. Consequently, I will discuss the foundations of research methods from these three perspectives.

2.1 Ontology

Ontology addresses the fundamental inquiry into how individuals perceive the nature of reality (Tisdell & Merriam, 2016). In accordance with Cohen et al. (2007), ontology answers questions like, "Is reality of an objective nature, or the result of individual cognition? Is it a given 'out there' in the world, or is it created by one's own mind?" (p.7). From a quantitative perspective, there is a single reality out there, and it is observable, stable and measurable. In contrast, qualitative researchers believe that there are multiple realities, and they are socially constructed (Tisdell & Merriam, 2016).

2.2 Epistemology

As for epistemology, it concerns the nature of knowledge, addressing questions of how knowledge can be acquired (Hennink et al., 2020). Guided by varying ontological perspectives, researchers will have different epistemological ideas.

In quantitative research, epistemological perspectives such as positivism and post-positivism are dominant (Tisdell & Merriam, 2016). Positivism holds that all genuine knowledge is based on sense experience and can be advanced only using observation and

experiment (Cohen et al., 2007). In science research, positivism plays a significant role in advancing our understanding of natural phenomena. However, the ideal of a pure experimental environment is rarely achievable in social science research since other different factors might influence the results. For example, the researchers themselves will inevitably have subjective influences on the research process. The criticisms of positivism in social science research led to the development of post-positivism, which admits the subjective bias of the quantitative researchers. Post-positivists hold the belief that an objective reality does exist, but the knowledge is only partly acquired due to the researcher's limitation (Cohen et al., 2007).

In qualitative studies, researchers acknowledge the complexity of the world and are guided by epistemological perspectives such as constructionism. This perspective suggests that social properties are created through human interactions rather than existing separately (Robson & McCartan, 2016). Therefore, qualitative researchers aim to make sense of people's experiences and help people have a better comprehension of the world. Constructionism also refers to interpretivism, which focuses on how individuals involved interpret the social world (Robson & McCartan, 2016). Additionally, contemporary qualitative epistemologies are further shaped by critical theory and postmodernism. In critical research, research questions are framed in terms of power. Postmodern research, using descriptive and individually interpreted narratives, does not aim to establish abstract theory and generalised findings (Tisdell & Merriam, 2016).

2.3 Methodology

The methodology is a general construct which not only includes the specific methods employed but also the rationale behind the selection (Hennink et al., 2020). Researchers who possess different epistemological understandings will have different methodological considerations.

2.3.1 Quantitative methods

Quantitative research focuses on the question of what is happening (Tisdell & Merriam, 2016). In quantitative research, surveys, experiments and quasi-experiments are common. Questionnaires can be used to collect information from the respondents. For example, to explore the utilisation of one teaching method by teachers in China, deploying a questionnaire would be effective in reaching a diverse and substantial sample across various regions and backgrounds, including gender and teaching experience. The data obtained from the questionnaire serves not only for descriptive purposes but also for conducting correlation analysis to determine if factor X influences factor Y. When the big data is generated,

researchers can also see the correlation of different factors. In this type of method, researchers should be cautious because only a good sampling strategy can guarantee the data has generalizability.

Experiments and quasi-experiments are also common quantitative research methods. In experiment-style research, there are variables. One can be called an independent variable, and the other can be termed a dependent variable. To assess the influence of an independent variable on a dependent variable, there will be two groups of people. One is called an experiment group, which will receive intervention, while another is called a no-treatment control group. Besides, researchers often use a test to evaluate the effect of the result.

In a laboratory, experiments can be perfectly conducted. However, experiment design is not always available in real-world settings. For example, to see the effectiveness of one teaching intervention on students' learning. Researchers firstly cannot guarantee the two groups of students have identical background. Secondly, there are ethical concerns about withholding instruction from the control group. Thirdly, there are many other factors which might influence the experiment result in social science research. Therefore, a quasi-experiment in social science research is preferable. The typical difference between the experiment and quasi-experiment method is whether there are random assignments to treatment (Tisdell & Merriam, 2016).

In the above quantitative research methods, numbers are an explicit characteristic. To ensure validity and reliability, researchers must have a robust research design. Nonetheless, there are limitations of quantitative methodologies. For example, quasi-experiment in educational research is typically conducted in a short period, which influences the reliability of the research findings when analysing the significance of the data (Song et al., 2023). Furthermore, teachers may complain that quantitative research fails to make specific pedagogical suggestions for their teaching.

2.3.2 Qualitative methods

On the other hand, qualitative research concerns the how and why questions. Qualitative researchers "are interested in how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (Tisdell & Merriam, 2016, p.15).

Qualitative research focuses on meaning and understanding. The primary concern of qualitative research is to understand the phenomenon of interest from the participant's perspective, specifically from an emic or insider's perspective (Hennink et al., 2020). Besides, the researcher is the primary instrument, playing a critical role in data collection and analysis. Rather than eliminating subjectivity, it is important to identify and monitor it to understand its influence on the collection and interpretation of data. The outcome of a qualitative inquiry is typically descriptive, which could include the context, the participant and the activities of interest. Data in the form of quotes from interviews, field notes and documents are commonly seen in reporting qualitative data. Additionally, qualitative research designs tend to be emergent and adaptable. Sample strategies in qualitative research are often not random but purposive and small (Tisdell & Merriam, 2016).

Case study, narrative research, ethnography, phenomenology and grounded theory research are five common research approaches (Creswell, 2013). Case study provide an in-depth description and analysis of a bounded system. Narrative research seeks to comprehend experiences and meaning-making through the stories shared by participants. In ethnography, the research focus would be on interactions between individuals and cultural aspects of society. A phenomenological study attempts to understand the essence and fundamental structure of the phenomenon. A grounded theory study not only seeks understanding but also aims to a substantive theory related to the study (Tisdell & Merriam, 2016, p.15). In qualitative research, interviews and observation are commonly used to collect data.

3. Justification of research method for my research interest

3.1 Research interest

In the field of language education, the use of VR has drawn many researchers' attention. In accordance with Kaplan-Rakowski and Gruber (2019), there are two types of VR, ranging from low immersive VR (LiVR) or desktop VR to highly immersive VR (HiVR). LiVR can be defined as "a computer-generated three-dimensional virtual space experienced through standard audio-visual equipment, such as a desktop computer with a two-dimensional monitor", while HiVR refers to "a computer-generated 360° virtual space that can be perceived as being spatially realistic, due to the high immersion afforded by a head-mounted device" (p.552). In these two concepts of VR, different degrees of immersion can be experienced.

Since VR has become an emerging technology tool in language education, I intend to explore the topic of VR integration in teaching for Chinese College EFL teachers. Specifically, I will answer the following research questions:

Rq1: How do teachers perceive the benefits and challenges of VR integration in EFL education?

Rq2: How could EFL teachers cope with challenges when integrating VR into teaching?

Rq3: What factors influence EFL teachers' integration of VR in the classroom?

3.2 Qualitative approach

In my research project, I am going to explore how Chinese college EFL teachers perceive the use of VR in teaching. More importantly, the study will identify the challenges they face and investigate how teachers could address the challenges. By interpreting the factors that influence teachers' VR integration in teaching, pedagogical suggestions for teachers will be made. To do this, a qualitative approach will be selected. The reasons why a qualitative approach will be employed are stated as follows.

Firstly, the majority of studies examining the effectiveness of VR in language education have predominantly employed quantitative methodologies. Quantitative research contributes to the field of VR in language education by showcasing the effective learning outcomes of the students. However, quantitative data could not provide specific pedagogical implications for teachers who want to integrate VR into their teaching. In contrast, qualitative research, from the perspective of teachers, is scarce. Especially the subjective experience of teachers who play an important role in successful VR implementation is neglected. This gap highlights the importance of exploring teachers' views and experiences to provide a more holistic understanding of how VR can effectively enhance students' language learning. For teachers, it is essential for them to address the "5W-H questions (who, what, when, where, why, and how) when planning to introduce VR into their teaching" (Lan, 2020, p.9). A qualitative approach, therefore, is well-suited to address this gap by offering a deeper and more nuanced understanding of teachers' experiences.

Secondly, a qualitative approach seeks to understand people's lived experiences from the perspective of people themselves, emphasising the subjective meanings they attach to those experiences (Hennink et al., 2020; Tisdell & Merriam, 2016). Therefore, by using qualitative methods, I can thoroughly explore teachers' lived experiences, capturing their detailed insights, reflections, and subjective understandings. This approach enables an exploration of how teachers make sense of and navigate VR integration in teaching, revealing valuable insights into their meaning-making processes and practices.

Thirdly, qualitative research acknowledges the complexity of social phenomena and recognises that reality is socially constructed. Therefore, qualitative research aims to understand how individuals' experiences and behaviours are influenced by the various contexts of their lives, including social, economic, cultural, and physical environments (Hennink et al., 2020). In this study, the integration of VR into teaching is a multifaceted process, influenced by a range of contextual and situational factors, including institutional support, technical challenges, teacher confidence, and student engagement. By adopting a qualitative approach, the study can unveil the interplay of these factors, offering a comprehensive understanding of the context-specific challenges and opportunities associated with VR integration.

3.3 A multiple case study

A case study is a typical method of qualitative research (Tisdell & Merriam, 2016). In this study, a multiple qualitative case study will be conducted. Several reasons justify the adoption of this approach for the study.

In accordance with (Yin, 2014), by employing a case study approach, the research can effectively answer “how” and “why” questions. A case study can provide an in-depth description and analysis of a bounded system, making it suitable for capturing the complexity of social phenomena (Tisdell & Merriam, 2016). As mentioned before, the study aims to explore how Chinese College EFL teachers use VR in their teaching. One of the research focuses of this study is to see the exact process of using VR in teaching and how teachers cope with the challenges of VR integration. The case study approach facilitates analysis of EFL teachers (cases) through thick descriptions and exploration of teachers' experiences. By retelling teachers' experiences, the study aims to understand how the participants navigate and overcome challenges that can be achieved.

Besides, a case study approach is adopted to gain an understanding of the situation and meaning for those involved and has proved useful in exploring educational innovations and practices that have not been well studied (Merriam, 1998). According to Duff (2020), “by analysing and presenting one or a small number of very concrete instances of a phenomenon, within a relevant theoretical framework and research design, researchers can make visible some of the complex dimensions of people's language-related and social engagements in events that resonate with others”. (p.144). The studies of using VR in language education from the perspective of teachers are limited. Therefore, by employing a case study, this research

can provide valuable insights into the nuances of teachers' interactions with VR technology in teaching and identify the underlying factors which influence teachers' VR integration.

Finally, this study will adopt a multi-case design rather than a single-case design. By including multiple cases, maximum diversity of the participants can be achieved, such as EFL teachers with varying gender identities, educational backgrounds, and work experiences. Based on this, the study can provide comparative insights among participants. This comparative element will enrich the analysis of the findings within the context of Chinese college EFL teaching using VR.

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