

Topic: Critique qualitative research methods and quantitative research methods and justify your future choice by referring to your own research interest.

Zhongxi Ye 2218895

University of Wales, Trinity Saint David

1. Introduction

Linguistics, a social science, usually uses empirical methods to answer research questions. Which empirical method to use can generally reflect the change of research perspective or theoretical basis in this field. Corpus-based linguistic research has attracted more and more attention in the academic world, and the debate on linguistic research methods has also attracted more and more attention. Some people think that only quantitative method is the scientific method of linguistic research, and some people think that corpus linguistic research can be done without too much quantitative method. Therefore, it is necessary to further discuss whether quantitative research methods and qualitative research methods are opposite to each other in linguistic research, and how to apply these two methods reasonably in the study of specific linguistic problems. Clarifying this problem is of great significance to the selection of linguistic research methods. Many scholars at home and abroad have combed and analyzed the changes in the use of its research methods and revealed the development trend. At the end of last century, quantitative method and qualitative method in applied linguistics research showed an alternating trend of rising, and finally qualitative method hyper-quantitative method. (Perrino, & Pritzker ,2022) In view of this, this paper analyzes the qualitative research method and the quantitative method at the same time, and analysis the two research methods critically, so as to draw the interest in the quantitative research of linguistics in the field of psychology.

2. Development trend and characteristics of research methods

We group all empirical research methods into three categories: quantitative and qualitative methods. When defining the categories of methods, we refer to the definition of Niglas: "The data of quantitative method are presented in the form of numbers, and statistical methods are adopted for data analysis. For research on corpus

linguistics and discourse analysis, we focus on clues such as author description and data analysis based on the analysis of article content. If we use word frequency analysis and other means, it will be counted as quantitative method. If the subject analysis and text content analysis are the main, it is classified as qualitative method. Table 1 lists typical examples of two types of research methods. (Mallinson,2018)

Classification of research methods	Quantitative research	Qualitative research
Typical Example	Questionnaire, experimental and quasi-experimental research, conclusion Structured interview, structured observation, etc	Case study, ethnographic research, action research, phenomenological research, participatory observation, interview, learning journal, personal narrative, voice thinking, discourse analysis, narrative analysis, conversation analysis, etc

Table1 Typical examples of research methods

Up to 2015, among the 265 empirical research articles in TESOL Quarterly, there were 133 qualitative methods (50.19%), 87 quantitative methods (32.83%) and 45 mixed methods (16.98%). Table 4 divides the 15 years into three periods: 2001-2005, 2006-2010 and 2011-2015. Compared with the previous century, TQ presents the following significant characteristics: first, quantization on the whole presents a significant decline trend from the previous century, from 41% in 1996-2000 to 32.86% in 2001-2005, and from 34.41% and 31.37% respectively in the following two periods. Although there were some fluctuations in the last two periods, in general, the use of quantization method basically showed a steady trend, with an average of 32.83% in the three periods. Second, the qualitative method in the first period

(2001-2005) was 52.86% and the second period(2006-2010) 50.54% and 48.04% for the third period (2011-2015). On the surface, the qualitative method has a slight downward trend, but the overall trend of the qualitative method super-quantization method has not changed, and the percentage mean in 15 years is 50.19%. Third, the proportion of mixed methods has shown a gradual increasing trend, from 14.29% for the first period (2001-2005), 15.05% for the second period (2006-2010) and 20.58% for the third period (2011-2015). (Guetterman, 2020) In view of the fact that the mixed method includes qualitative method and quantitative method, we conducted a secondary analysis of 45 articles on the mixed method. Among them, 16 studies focused on quantitative method, 15 studies focused on qualitative method, and the other 14 studies on quantitative method and qualitative method used equilibrium. We combined these studies with quantitative method and qualitative method. The quantitative method reached 38.87%, the qualitative method reached 55.85%, and the balanced mixing method accounted for 5.28%. This result was not significantly different from the overall trend.(Angouri, 2018)

Throughout the application of applied linguistics research methods since the new century, we can find an obvious trend, quantification method>qualitative method>mixing method, and the difference between the qualitative method and the quantization method within 16% 20%, the difference between the three periods decreases first and then stabilizes (20%→16.13%→16.67%), that is to say, the difference between the quantization method and the qualitative method is gradually stabilizing.(McNabb, 2020)

3. Research methods Comparative analysis

Research has experienced a change from qualitative method to quantitative method, and then there is the recovery and development of qualitative method. With the maturity of research methods, the use of quantitative method and qualitative method is gradually rationalized.Compared with quantitative method, qualitative method is complex and varied. (Jones& Gershon 2022) The qualitative method originates from different disciplines and is influenced by different philosophical trends, theories and

methods, which itself is like a big umbrella covering a wide variety of different methods. The complexity of each approach varies. In addition, the collection of qualitative research data is time-consuming and laborious, and it is difficult to comb out a clear logical context from the massive data.

We believe that there are some reasons that lead to the marginalization of qualitative method: 1) the understanding of quantitative method and qualitative method is biased; 2) The qualitative method itself is complex and varied, and it is difficult to use and teach; 3) At present, few reviewers are familiar with the qualitative method.

First of all, many people equate empirical research with quantitative research. It seems that as long as there are numbers, as long as statistical software is used, the research has quality. This blind worship of quantification stems from the lack of sufficient understanding of the philosophical basis of quantification and qualitative research. From the ontological point of view, quantitative research believes that the world exists objectively, and research should get rid of subjective views to understand the world. From the perspective of epistemology, quantitative research believes that true knowledge comes from experience, research is to confirm the cause-effect relation system, research conclusion should be universal and generalized. Qualitative studies say there is no pure objective thing in the world. The study of anything is influenced by the social culture and historical environment in which the researcher lives. In essence, the knowledge and opinions of the researchers themselves are part of the research tools. In practice, it is difficult to achieve absolute objectivity and justice. Therefore, qualitative research pays more attention to the in-depth description and interpretation of the research object, so as to understand the process and change trajectory of the event. Compared with quantitative research, qualitative research emphasizes authenticity and credibility rather than universality and generalization (Denscombe 2014). Therefore, quantitative and qualitative methods are used to understand different aspects of things, so that people have a more comprehensive and profound understanding of the world. However, given that quantitative research is based on objectivism, people tend to think that quantitative research is more objective, while qualitative research focuses on people's feelings, so it is often misinterpreted as

strong subjectivity (Silverman 2004; Patton 2015). In fact, at the operational level of quantitative method, there is also human intervention. Researchers achieve the research purpose by selecting variables and controlling variables. Therefore, it is absolutely considered that quantification is unscientific compared with qualitative science. In addition, the collection of qualitative research data is time-consuming and laborious, and it is even more difficult to sort out a clear logical context from the massive data. The writing norms are lack of unified format, so it usually takes longer time to complete a qualitative research and greater efforts to write a paper. These complexities pose a number of difficulties for the pedagogical approach. Effective qualitative method teaching needs to adopt experiential style, that is, "do while learning, learn by doing, learn while doing, and do while learning". However, the teaching time of research methods course is limited, so it is difficult to realize this effective measure. In addition, some teachers themselves have not received systematic training of qualitative method, do not fully understand the function of qualitative method, are not familiar with its operation process, and lack their own experience to carry out qualitative research, so it is difficult to provide in-depth guidance to students. The number of existing qualitative method teaching materials in China is very limited, and high quality teaching materials are rare. Some textbooks lay stress on theory, with few cases and weak operability; Some are difficult, not targeted enough, beyond the students' current knowledge level.

The research history has changed from qualitative method to quantitative method, and then there is the recovery and development of qualitative method. With the maturity of research methods, the use of quantitative method and qualitative method is gradually rationalized. Early scholars also followed the example of natural science research, pursuing objectivity and systematicness of research, designing experiments and using statistical methods to understand the world. Since the 1960s, researchers have gradually realized that the objects of social science research are people and things in the social environment. (Gao, Pham, & Polio, 2022) It is difficult to reveal their complexity, dynamics and uncertainty only by relying on quantitative method. Qualitative method can make up for the deficiencies of quantitative method

(Flick 2014; Taylor et al.2016). Therefore, people's understanding of the function of qualitative method is deepening, and its application scope is expanding. In the late 1970s and early 1980s, many works on qualitative method appeared. For example, Spradley(1979,1980) successively published Ethnographic Interview and Participatory Observation Method, which promoted the application of qualitative method to some extent.

4. Future Outlook

Quantitative research emphasizes the operation and control of the natural environment, and intervenes the subjects, so as to understand the relationship between different variables. The purpose of quantitative research is to explore the essence of things by measuring the facts and analyzing the quantitative characteristics and changes of the research object, so as to grasp the quantitative regularity of things. In the future field of linguistic research, scholars can develop better research methods to better promote the development of the psychological field of linguistics. The main research field of psycholinguistics is to explore the neuropsychological mechanism in the process of language processing by analyzing the relationship between the brain and language. Psycholinguistics is now in a period of interdisciplinary development, integrating psychology, sociolinguistics, computer science and other related disciplines, and its research methods have also made some innovations.(Osgood,2021) The emphasis of psycholinguistics on the psychological mechanism of individual language provides more biological basis for the development of linguistics. At the same time, the application object of linguistics will inevitably return to human beings, and with the development of society, human ideology and psychological thinking will inevitably change and progress constantly. Therefore, the research content of psycholinguistics starts from and focuses on human beings, which itself is a kind of tracing back to the source, and also provides a focus and foothold for the application and promotion of linguistics.

From the perspective of research methods, quantitative research is very suitable for the use of psycholinguistics, which mainly uses quantitative research methods. The

first is the research method based on big data statistics. Psycholinguistics tends to collect a large number of samples for the judgment process of language phenomena, and make descriptive statistics on the average orientation reflected in this study, so as to objectively describe the psychological processing mechanism of the investigated group for certain language phenomena.(Hamrick, 2022) On this basis, psycholinguistics will also use the mathematical statistics method of inference research to analyze the trend of the psychological processing mechanism of the sample in descriptive statistics, in order to infer the overall psychological mechanism of the group represented by the research sample. Secondly, it is the experimental research method based on strict control variables. In the study of psycholinguistics, experimental research is often used to explore the influence of one or several factors on the psychological mechanism of language processing. In experimental research, independent variables and dependent variables are defined operationally, irrelevant variables are strictly controlled, and the level of independent variables is constantly adjusted to compare and study the changes of dependent variables. (Ramscar, 2022) Experimental research is also a typical quantitative research idea. The above two points reflect the quantitative research orientation of psycholinguistics in research methods.

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