

Why Mixed Methods?

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In research methodology, especially in social science area, two approaches have been more explored: qualitative and quantitative approaches. These two approaches are considered as practical and essential methods in most of surveys.

Qualitative research is an perceptual, explanatory and naturalistic research method to study people, situations, phenomena, social environment and processes in a state of nature, with the purpose of revealing the connection between people and their experiential world in descriptive terms. Qualitative research uses an inductive approach. It is based on a detailed analysis or understanding of object being investigated. Specifically, it is related to the researchers' opinions and experiences. Its purpose is to define problems or problems to deal with, and it is usually used to formulate comprehensive changes in research. Common data collection methods used in qualitative research are participant observation, interview, focus groups, case study, observation, action research and various language-based techniques like conversation and discourse analysis. Besides, it consists of open ended questions. It also gives researchers the opportunity not only to represent the social world under investigation, but also to create a narrative based on the participants in the study and explain it in order to reaffirm its subtleties and intricacies. It will be a big challenge. The task of the report is therefore not simply the act of recording the results of the analysis, but the active construction and representation of the form and nature of the phenomenon being investigated (Alan Bryman, 1992).

Quantitative research can be defined as the use of large amounts of data to explain phenomena. These data are obtained in a mathematical way of analysis, especially statistical methods. Quantitative studies are often used to verify the existence of the theory. Unlike the approach used in qualitative research, quantitative research employs a deductive approach to draw conclusions.

In quantitative research, the problem exists naturally and can be observed.

Variables can be identified and the relationship between variables can be measured. The data collection methods commonly used in quantitative research are experimental research, quasi-experimental research and non-experimental research in questionnaire, mostly with closed questions.

There are three main differences between the two methods, from the source of data, analysis techniques to expression forms of the survey reporting. Firstly, the basis of quantitative research comes from real data, while the basis of qualitative research comes from a large number of historical facts and life experience. Secondly, quantitative research mainly uses methods such as statistical analysis and model building. Qualitative research mainly uses logical reasoning, historical comparison and other methods. Last but not the least, the expression forms of reporting are different. Quantitative research is mainly expressed by data pattern graphics, while qualitative research reporting are mostly written descriptions.

Besides, both methods have pros and cons. One of the main goals of qualitative research is to explore, reveal and explain the complexities of research situations. The information obtained by this method is relatively rich, and another advantage is that it gives researchers a larger interpretation space to make up for the lack of quantitative research.

Qualitative research also has its drawbacks. The first is that the labor cost is relatively high, because the data needs to be collected through direct observation and interviews. Second, because the observed object is usually a characteristic group, and the data collection is based on the personal observation of the researcher, it is difficult to guarantee the objectivity of the conclusion, and it is also difficult to extend it to a wider range of occasions (Jane Ritchie., & Jane Lewis, 2003). Thus, the research duplication is very low.

As for the quantitative research, the results obtained by analyzing data often have the advantages of reliability and validity (Gary Thomas, 2017), and can establish a causal relationship between the research question and the data. It can eliminate people's prejudice and subjective consciousness to a certain extent. If the survey sample is effectively random, then we can generalize the findings to the entire

population.

Its disadvantage is that the data is not as detailed as qualitative research, and the cost of large-scale quantitative research is also very expensive. What's more, since the final result of quantitative research is usually a report containing a large amount of data, if the data is not properly utilized and analyzed, the result of quantitative research can only be a pile of data without any practical guiding significance.

Mixed method research is a kind of research that combine quantitative and qualitative methods or concepts in an independent research to collect or analyze data. In the use of quantitative and qualitative methods, such research often uses one or the other or only emphasizes one of the two types of methods. It is different from the quantitative or qualitative research, from the perspective of methodology, it is a comprehensive research method (John W Creswell, 2022). Compared with quantitative and qualitative studies, mixed methods can solve problems that purely qualitative and quantitative research methods cannot, thus making the investment of time and energy meaningful. Moreover, the researchers integrate the data of quantitative research and the in-depth analysis of qualitative research, so that they can understand the research questions more clearly, explore the views of the participants and the connotations behind these views.

In my future research, to a large extent, I will use mixed methods, because both approaches are valid and support in practical teaching situations. But in the process of implementation, I will carry out carefully and analyze clearly and try to eliminate other interference factors.

Based on my previous researches, most of the time, I used both research methods, but there were some obstacles that were challenging for me. Taking my Master's thesis as an example, I had to cope with a couple of problems related to the mixed methods.

The subjects of this study were 175 students of non-English major in their second grade in Nanchang Teachers' College, China. They were 85 males and 90 females with various academic majors. Two methods were employed in the study—a questionnaire and informal interviews with participants. The questionnaire was

modified based on Horwitz's Foreign Language Classroom Anxiety, which comprises 33 items followed by five alternatives on a 5-point Likert scale ranging from 1 (strong agree) to 5 (strongly disagree) was adapted from the instrument in Horwitz (1986). SPSS version 16.0 was used to analyse the data from the subjects' responses to the questionnaire. To answer the research questions in this study, I employed descriptive analysis, independent sample t-test and correlation analyses respectively. Qualitative data were also gathered to identify the specific instructional features that arouse anxiety in learners. Utilizing this approach, nine students from high-anxious group and nine from low-anxious group were selected as interviewees.

As for the quantitative research, I used questionnaires. In order to make the questionnaire suit the present situation of Chinese students, the English version were slightly modified. Some words or sentences in the questionnaire were explained in Chinese so as to avoid participants' misunderstanding or confusion of the questions and therefore to ensure the validity of the study. Besides, my group members and I made great effort to dispatch and collect the data. Finally, we find something unsatisfying: it was difficult for the investigators to know whether the investigators were serious about filling out the form or perfunctory. Furthermore, it is so easy to answer the questionnaire that some respondents either ticked boxes or circled them arbitrarily, or filled in the answers according to the mainstream consciousness of the society driven by the "herd mentality", which made the survey lose its authenticity. Lastly, the response rate and effective rate are low, and it is difficult to study non-respondents.

As for the qualitative research, I conducted the interviews and also encountered some difficulties. The main questions answered in the interview: "How do I know what the researcher is thinking?" The methodology of interview has more flexibility and room for interpretation than the questionnaire, and compared with the observation method, it can help me understand the thoughts and emotional reactions of the interviewees. However, the interview method also has certain limitations. For example, it is a challenge for me to propose valuable questions and find the clue to ask the following question naturally and smoothly, some questions are not suitable for

interviews, time-consuming and labor-intensive, and the data is not easy to quantify.

In addition, in this study I only adopted questionnaire and interview to investigate the language anxiety among vocational students, which are not abundant enough. If time permits, I will do well to use more methods such as classroom observations to test the feasibility of these suggested strategies and even find out more effective ways to relieve anxiety.

However, every coin has two sides. As a main method of qualitative research, observation may not necessarily be able to obtain real materials. Sometimes, seeing is not believing. When making observations, researchers should believe in personal feelings, and rely on feelings to try to explain the observed objects. So where do the personal feelings come from? Generally, there are three main sources: life experience of the researcher, personal values of the researcher, cultural literacy of the researcher. Among them, personal values and cultural literacy are derived from the accumulation of life experience. But, whether one feels objectively or not is a question. To some extent, researchers should distinguish between academic observations and general observations. Academic observation requires theoretical support from researchers. In observation, there are three purposes of the theory: to determine the observation, to constantly modify the observation method (reduce, enrich or change the method) during observation, to clarify whether the result of observation is quantitative data or qualitative data. So researchers should make full preparation before observing.

Until now, after a couple of years of teaching, I prefer to choose action research as a qualitative method to implement. Action research involves teachers directly participating in and carrying out investigation and research on the problems in their own teaching. Action research needs to be completed in a series of steps. Its purpose is to continuously improve their teaching so that the teaching can achieve the best effect, and at the same time improve understanding and recognition in the teaching process (Rachel Eperjesi & Colin Forster, 2021). The implementation process of action research includes observation, analysis, planning, implementation, and evaluation. Most importantly, reflection and data collection and analysis run through it. Language educators generally believe that action research is one of the effective

ways to promote the professional development of English teachers. The two characteristics of action research are particularly suitable for teachers' professional development. First, it can directly produce clear results that are closely related to teachers' practice. Second, it does not emphasize the generalization of experimental results like traditional research. Thus, the methods used in research can be more free and diverse. Nunan (1992) pointed out that action research gives teachers the opportunity to focus on the teaching problems they encounter and naturally connect theory with reality. In action research, teachers need to observe and reflect on their own teaching, and put forward research hypotheses, using classroom observation, teaching logs, interviews to collect research data, analyze these data and finally solve problems. In the process, Nunan (1998) mentioned that teachers can improve their teaching attitude, teaching awareness, professional skills and finally achieve self-reconstruction. Therefore, action research can effectively promote teachers' professional development. Certainly, part of the data in the research process is quantitative data, mainly from tests and questionnaires.

It can be suggested that experimental research can also help teachers to discover effective foreign language teaching methods, develop and test foreign language teaching theories. However, the experimental process contains many variables and complex interrelationships, so the experimental method alone may not be able to solve the problem. Only by combining with other research methods can the law be truly revealed. What's more, the research object is human and the research results can not be completely repeated. Furthermore, manipulating independent variables and human intervention are limited by ethics and public opinion, and need to be carefully arranged and considered. It will definitely need high requirements for the researchers. Besides, experiment is only a natural scientific method (Colin Robson, 2002), and many aspects of human beings, such as inner truth, goodness, beauty, ugliness and hope cannot be measured and explained by scientific methods. All in all, proper use of scientific methods will "get twice the result with half the effort", and poor use will lead to misleading.

And so I would say, in summary, that whether it is qualitative research,

quantitative research or mixed research, researchers should have relatively rich knowledge of psychology, sociology, pedagogy and even philosophy, and use scientific theories to guide research. More importantly, researchers should respect the wishes of the subjects and treat the subjects with equality, enthusiasm and trust. Whether the collected data is correct, comprehensive and systematic largely determines whether the case study is true, scientific, reliable and effective. Last but not least, reporting is a continuation of the data interpretation and classification process, requiring continued examination of the data, further investigation of patterns and associations, and more detailed interpretation.

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