

Understanding Mixed Methodology in Research

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ABSTRACT

Mixed methods research involves both collecting and analyzing quantitative and qualitative data. Quantitative data includes closed-ended information such as that found on attitude, behavior, and performance instruments. Qualitative data consist of open-ended information that the researcher gathers information through interviews with participants. Mixed method research is a research design with philosophical assumptions as well as a method of inquiry. Quantitative researchers believe that quantitative data can play an important role in quantitative research. Qualitative researchers realize that reporting only qualitative participants' views of a few individuals may not permit generalizing the findings. In recent years many authors have begun to advocate for mixed methods research as a separate methodology or design

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INTRODUCTION

What is a mixed methodology?

Some mixed methodology writers consider this form of research a methodology and focus on the philosophical assumption. Unquestionably, all research approaches have underlying philosophical assumptions that guide the inquirer. To call mixed methods research “a clean and concise method resonates with many researchers. Mixed method research is a research design with philosophical assumptions as well as a method of inquiry. As a methodology, it involves the philosophical assumption that guides the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process.”¹

Based on the above definition the major elements of this definition are as shown in Figure 1.

The Name: During the last 50 years writers have used different names that might relate to mixed-method research. It has been called multi-trait or multimethod research, which recognizes the collection of several quantitative methods in a single investigation integrated or combined.² In the sense that two forms of data blended, that is a qualitative and quantitative method. Which acknowledges that the approach is a combination of methods? It has been called methodological triangulation. Today the most frequently used name is mixed method research.³

Quantitative and Qualitative data: mixed methods research involves both collecting and analyzing Quantitative and Qualitative data. Quantitative data includes closed-ended information such as that found on attitude, behavior, and performance instruments. The analysis consists of statistically



Figure 1: Major elements based on mixed methodology

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analyzing scores collected on instruments, checklists or public documents to answer the research question to test the hypothesis. In contrast, qualitative data consist of open-ended information that the researcher gathers information through interviews with participants. Also, qualitative data may be collected by observing participants or sites of research and gathering documents from a public or private source.⁴

Mixing the data: the mixing of the data is a unique aspect by mixing the datasets, the researcher provides a better understanding of the problem. There are 3 ways in which mixing occurs,

Merging the two datasets by actually *brining* them together
Connecting the two datasets by having one build on the other
Embedding one dataset within the other.⁵

Single or Multiple studies: this element of the definition also suggests that mixed studies methods may involve collecting and analyzing quantitative and qualitative data in the first phase, qualitative data in the second phase, and quantitative data in the third phase. Finally, each project is reported separately as a distinct study but overall, the research inquiry can be called mixed method research.⁶

The central premise of the definition is that the combination of quantitative and qualitative approaches provides a better understanding of the problems than either approach alone.⁷

Importance of Mixed Methodology

Several factors have contributed to the evolution of mixed methods research

- The complexity of the research problem answered
- A combination of both forms of data can provide the most complete analysis of a problem
- Researchers can situate numbers in the contexts and words of participants
- The researcher can frame the words of participants with numbers, trends and statistical results
- Quantitative researchers believe that quantitative data can play an important role in quantitative research⁸
- Qualitative researchers in turn realize that reporting only qualitative participants' views of a few individuals may not permit generalizing the findings
- In recent years many authors have begun to advocate for mixed methods research as a separate methodology or design
- Authors Tashakkori and Teddlie called mixed methods to research the third methodological movement⁹

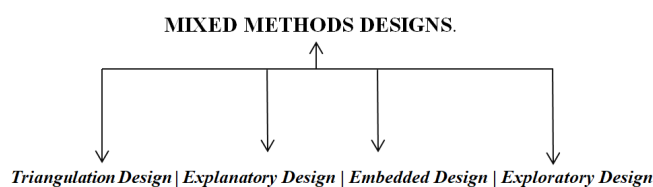
A brief history – development of mixed methods research

a sketch of the history of mixed methods research can be found in Tashakkori and Teddlie (1998). This history organize into 4 often overlapping periods they are

- Formative period. Begun in the 1950s and continued up until the 1980s. This period saw the initial interest in a study¹⁰
- Paradigm debate period: during the 1970s and 1980s the paradigm debate was whether or not qualitative and quantitative data could be combined¹¹
- Procedural development: paradigms provide a foundation for mixed methods research during 1980 began to shift towards the methods or procedures for designing a mixed methods study.
- Advocacy: advocating for mixed methods research as a separate design in its own right.¹²

Choosing a mixed methods design

Once a researcher has selected a mixed methods approach for a study, the next step is to decide on the specific design that best addresses the research problem. Mixed methods researchers need to be acquainted with the major types of mixed methods design and the common designs know the intent, the procedures and the strengths and challenges associated with each design.



Flow chart 1: Mixed design methods



Figure 2: Triangulation design

The 4 major types of mixed methods designs are as shown in flow chart 1.⁵

Triangulation Design:

The most common and well-known approach to mixing methods is the triangulation design (Figure 2). The purpose of this design is to obtain different but complementary data on the same topic to best understand the research problem. The intent is using this design is to bring together the different strengths and non-overlapping weaknesses of quantitative methods with those qualitative methods. This design is used when a researcher wants to directly compare and contrast quantitative statistical results with qualitative findings or to validate or expand quantitative results with qualitative data.¹³

Embedded Design

Is a mixed methods design in which one data set provides a supportive, secondary role in a study based on a single data set is not sufficient that different questions need to be answered and that each type of question requires a different type of data (Figure 3). Researcher uses this design when they need to include qualitative or quantitative study. This design is particularly useful when a researcher needs to embed a qualitative component within a quantitative design as in the case of an experimental or correlational design.⁵

Explanatory Design

Is a two-phase design, the overall purpose of this design is that qualitative data helps to explain or build upon initial quantitative results (Figure 4). This design is well suited to a study where a researcher needs qualitative data to explain significant, Outliers, or surprising results. This design can also be used when a researcher wants to form a group based on quantitative results and follow up with the group through subsequent qualitative research.³

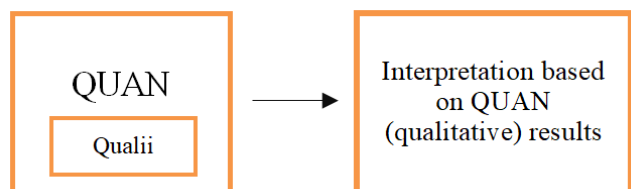


Figure 3: Embedded design

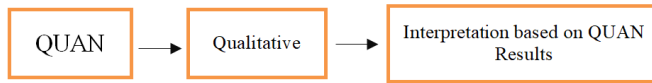


Figure 4: Explanatory design

Exploratory Design

As with the explanatory design, the 2 phases of exploratory design intend that the results of the first method (qualitative) can help develop or inform the second method (quantitative). This design is based on the premise that an explanation is needed for one of several reasons (Figure 5).

This design is particularly useful when a researcher needs to develop and test an instrument because one is not available or identify important variables to study quantitatively when the variables are unknown it is also appropriate when a researcher wants to generalize results to different groups to test aspects of an emergent theory or classification to explore a phenomenon in depth and measure its prevalence.¹²

Selecting a Type of Mixed Methods Design

The key factors the researcher should consider when choosing a mixed methods design for their studies and researcher wanting to use more than one of the four major designs in a study or to blend different that of designs together here, the researcher carefully selects a single design that best matches the research problem. Following factors to be considered,

- The design should match the research problem.
- They should evaluate their expertise and consider the quantitative and qualitative skills that they process.
- They should consider working in a team
- The available resources such as the length of time available to complete the study funding resource for work in a team.
- The choice of a research design relates to these 3 decisions

The timing decision: the timing of the use of collected data, when selecting a mixed methods approach researcher must answer the question. Timing refers to the temporal relationship between the quantitative and qualitative components within a study; however, most importantly, it describes the order in which the researcher uses the data within a study timing is often discussed concerning the time the data sets are collected. Timing within a mixed methods design is classified in one of two ways.¹⁴

Concurrent timing occurs when the researcher implements both quantitative and qualitative methods. During a single phase of the research study, this means that the quantitative and qualitative data are collected, analyzed and interpreted at the same time.

Sequential timing: occurs when the researcher implements the methods in 2 distinct phases, quantitative first, and a researcher



Figure 5: Exploratory design

may choose to start by collecting and analyzing quantitative data and may then subsequently collect and analyze qualitative data. The reverse is also possible qualitative data are collected and analyzed first, then quantitative data are collected and analyzed.⁵

The weighing decision: the relative weight of the quantitative and qualitative approach, the researcher also needs to consider the relative weighting (emphasis) of the 2 approaches in the study.

Weighting refers to the relative importance or priority of the quantitative and qualitative methods in answering the study's questions. These are two possible weighting options for a mixed plan an important role in addressing the research problem.

The mixing decision: here, how the quantitative and qualitative methods will be mixed. Mixing is the explicit relating of the two data sets. A study that includes both quantitative and qualitative without explicitly mixing the data divide from each is simply a collection of multiple methods. Conceptually, there are 3 overall strategies for mixing quantitative and qualitative data. The data type can be merged, one can be embedded within the other or they can be connected.⁵

Merging data sets: the data are merged when the researcher takes the 2 sets of data and explicitly brings them together or integrates them. The researcher can merge the 2 data sets during the interpretation i.e. by analysing them separately in a results section and then merging the 2 sets of results during the interpretation or discussion phase.⁵

Embedding data at the design level: the researcher could decide to embed data of one type within the design of the other type. Connecting from data analysis to data collection: a researcher could choose to connect the 2 data types connecting the data occurs when analysing one type of data leads to the need for the other type of data.⁵

DISCUSSION

As a methodology, it involves theoretical acceptance that guides the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases of the research process. To call mixed methods research "a clean and concise method resonates with many researchers. Mixed method research is a research design with philosophical assumptions as well as a method of enquiry.¹

SUMMARY

Mixed method research is a research design with a methodology and methods. As a methodology, it involves collecting, analyzing and mixing qualitative and quantitative approaches at many phases in the research processes from the initial philosophical assumptions to the drawing of conclusions. As a method, it focuses on collecting, analyzing and mixing quantitative and qualitative approaches in combination, providing a better understanding of research problems than either approach alone



CONCLUSION

Mixed methods puffers strengths that offset the weaknesses of separately applied quantitative and qualitative research methods. It also encourages the collection of more comprehensive evidence for study problems and helps answer questions

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