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Journal of Management Science & Engineering Research
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ARTICLE

What are Different Research Approaches? Comprehensive Review of Qualitative, Quantitative, and Mixed Method Research, Their Applications, Types, and Limitations

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ARTICLE INFO

Article history
Received: 17 March 2022
Accepted: 22 April 2022
Published: 24 April 2022

Keywords:
Research methodology
Research approach
Qualitative research
Quantitative research
Mixed methods approach
Research design

ABSTRACT

There are different ways to examine and explain a study and its findings based on using numbers as a measure, a descriptive style, or a mixture of both. These three research approaches are quantitative, qualitative, and mixed methods that are commonly used by researchers in various research studies. However, with many options regarding the research design, it seems challenging for researchers to select the most appropriate approach based on the study and realize differences. This study provides a comprehensive review of qualitative, quantitative, and mixed-method research methods. Each method is clearly defined and specifically discussed based on applications, types, advantages, and limitations to help researchers identify select the most relevant type based on each study and navigate accordingly.

1. Research Approaches

Different types of research are classified based on a range of criteria including the application of study, the objectives of the research, and information sought [1]. These three main groups can be divided into sub-categories which are shown in Figure 1 [2]. However, there are also other types of categories that consider the time factor for the research. This method considers the data collection time and categorizes the research into historical, present, and futuristic types. The focus of this study is on different types of information sought from the research including qualitative and quantitative research approaches [1]. The most important differences between these two methods are:

- The degree of understanding and explanation of the phenomena as the aim of inquiry.
- The differences between impersonal and personal roles of the researchers.
- The differences between the constructed and discovered knowledge [3].

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DOI: https://doi.org/10.30564/jmser.v5i1.4538

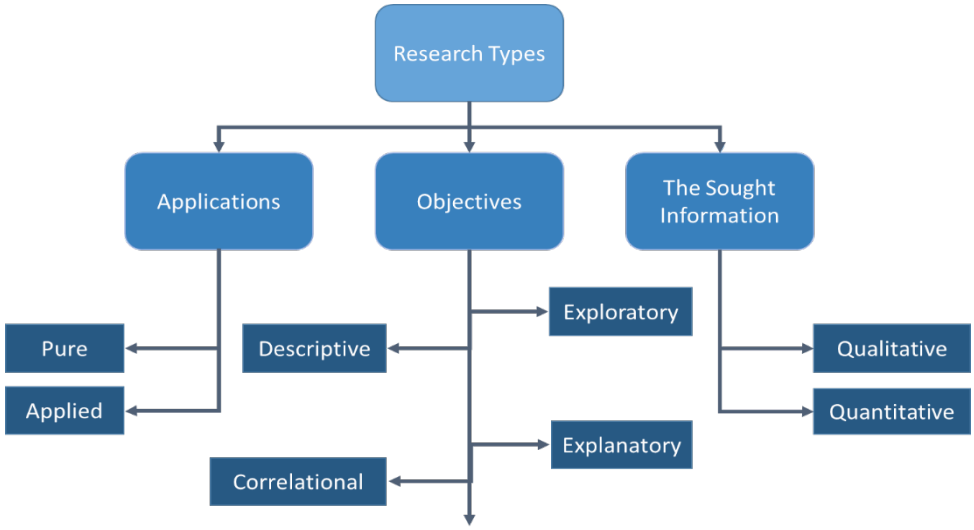

Figure 1. Types of Research [2]

The aim of this paper is to provide a comprehensive study considering the characteristics of each method, both advantages and limitations, and different types and approaches in the quantitative, qualitative, and mixed-method research. For this, the following sections are organized as:

Section 2 provides general descriptions on each of the research types. Section 3 is provided to discuss the qualitative approaches and the process. Section 4 includes the quantitative process and its different methods, and then the advantages and limitations of both methods are discussed in section 5. Finally, section 6 shows different types and important aspects of the mixed-method studies.

2. Qualitative, Quantitative, and Mixed Methods Definition

As it was discussed, research can be categorized into qualitative, quantitative approaches considering the type of data sought. Also, a mixture of these methods is known as mixed-method study that covers advantages of both methods. These approaches are defined as the following:

2.1 Qualitative Approach

There are different definitions for qualitative research. In general, these methods aim to address societies' scientific and practical issues and involve naturalistic and interpretative approaches to different subject matters. These methods utilize various empirical materials such as case studies, life experiences, and stories that show the routines and problems that individuals are struggling with in their lives through focusing on their in-depth meaning and motivations which cannot be defined by numbers. Qualitative research discusses two general criteria including [4]:

- The way to do things
- The outcome of tasks

Qualitative research aims to collect primary, first-hand, textual data and analyze it using specific interpretive methods. It is a useful method in studying a phenomenon with limited accessible information as its nature is exploratory. Thus, the qualitative approach can discover new insights, ideas, and generate new theories. It often concentrates on findings of the events in a particular context in a specific time without considering the consequences and results that may happen in the future or other contexts to generalize the results of the study [5].

2.2 Quantitative Approach

Quantitative research is the method of employing numerical values derived from observations to explain and describe the phenomena that the observations can reflect on them. This method employs both empirical statements, as descriptive statements about the meaning of the cases in real words not about the ought of the cases, and methods. It also applies the empirical evaluations intending to determine to which degree a norm or standard is fulfilled in a particular policy or program. Finally, the collected numerical data is analyzed using mathematical methods.

Besides, both qualitative and quantitative research approaches are designed to describe a topic; however, the last part of the definition is the difference which concentrates on different types of analysis methods which is mathematical using statistics in quantitative research. Gathering all these points together, quantitative research aims to define a particular phenomenon by collecting numerical data to address specific questions such as how many and what percentage in different fields including ed-

ucation, psychology, physics, biology, natural sciences, etc.

Furthermore, non-numerical information can also be collected in numerical forms using specifically designed instruments. These methods enable collecting quantitative data even from subjects which are about beliefs and attitudes. In other words, quantitative methods are the ways of determining social reality and employing specific questions to achieve numerical data for these specific purposes [2]. Different types of quantitative methods are discussed in the next section.

2.3 Mixed-method Approach

Mixed-method methods simply employ a combination of both qualitative and quantitative approaches based on the purpose of the study and the nature of the research question aiming to provide a better understanding of the subject. However, the focus can be on both methods equally or on one of the methods considering the selected integration process [5].

Utilizing the integration of both methods can help researchers to address complex research circumstances in different research fields such as social and health research. As these methods cover the advantages of both qualitative and quantitative methods, they can be useful in case that employing one of the approaches is not adequate in a study. Nowadays, in an interdisciplinary research atmosphere, a team of researchers with different methodological choices and interests can also benefit from utilizing mixed methods [6].

Nowadays, mixed methods are utilized in different fields and disciplines ranging from psychology to health and education as well. However, it is not required to necessarily be recognized as mixed-method and can be remained unknown. Therefore, researchers can promote the gained benefits of the applications of the mixed methods if they utilize them with a maximized extent to which they can employ these methods. The taxonomy of the possible designs is discussed in section 6.

3. Qualitative Research

This section provides a summary of qualitative research process and its different approaches. In qualitative data collection procedures, data should be gathered to respond project purpose, and also specific protocols and instruments should be conducted to record information. For address this purpose, you should first identify the sites, participants, documents, and required materials that can help to address under-study problems. Besides, a suitable sampling technique should be used as it is often not possible to collect data from the whole population [7]. Then, the type of data collection should be identified considering the merits and weaknesses that each type can bring to the research project. Data can be gathered through different data collection types such as observations, either semi-structured or unstructured, different materials and documents, conducting interviews, etc. Furthermore, you can also collect data from methods that go beyond the normal types such as examining a compendium of data types using factors during the interviews to evoke comments or utilizing a collection of sounds and tastes.

Next, an appropriate method should be used for recording the information. For example, observational protocols can include different formats such as one-page protocols including two sections known as descriptive and reflective notes. Descriptive notes include the information about dialogs reconstruction, individuals' portraits, the properties of the setting, etc. and the reflective section includes your personal thought as the researcher. The general components of these protocols include heading such as date, place, and identifications of both the participant and the interviewer, instructions, ice-breaker questions, detailed main questions, probes for the main questions and thank-you statements. In addition to the written notes, audio recording or videotaping methods can be utilized to record the information in this step.

Then, the results should be analyzed and interpreted. The main aim of the data analysis step is to make sense out of the gathered data [8]. For this, data should be initially prepared for analysis, then a suitable analysis method based on the chosen strategy for qualitative research should be employed and consequently an in-depth understanding of data should be achieved. By using different coding methods, themes and descriptions from data can be obtained. Then, the achieved themes or descriptions need to be interrelated and the real meanings of those themes or descriptions as the findings of the study should be represented and interpreted. However, other critical steps should be then considered to prove the validity (accuracy checking), reliability (achieving consistent results in comparison with other researchers or projects), and finally generalizability (utilizing the result for other people, places, etc.) of the research [6,9,10].

The following sub-sections focus on the qualitative methods more and provide different approaches to qualitative research method and its applications. The way to conduct research can overshadow the approach that should be applied during the study. The main methodological approaches that researchers can adopt during a qualitative study are listed in Figure 2.

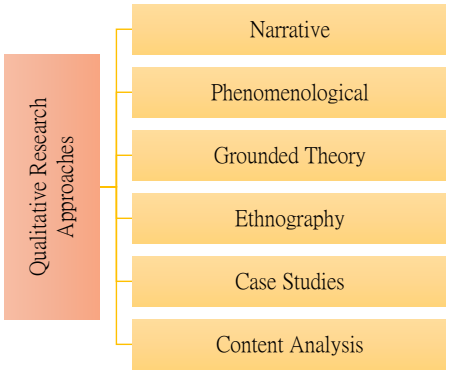

Figure 2. Qualitative Approaches

These types can be categorized based on the strategies of inquiry in the research. Each of these types addresses different demands in research. These demands can be from exploring activities and processes in the case studies and grounded theory approaches to extend the cultural-sharing attitudes of people or groups in ethnographic research approaches [11,12]. These strategies are discussed in the following:

3.1 Narrative

This strategy considers the narrative or stories of individuals about themselves or a series of events. The narrative strategy focuses on discovering the stories sequentially by emphasizing the characters [11]. It simply analyses people's lives based on their stories. People can explore two general questions about themselves:

- Who are they?
- How do their lives change over time?

Therefore, the life experiences are used as data in this inquiry type [5].

3.2 Phenomenological

This strategy employs individuals' viewpoints to perceive an experience and applies inward apprehension and consciousness as well as the outward appearance of the experiences by utilizing different tools such as memory, meaning, and image and emphasizes the consciousness intentionality. The phenomenological strategy aims to answer research questions using the individual's understanding of events by reliance on one to two hours of interview. These interviews that use an appropriate format of questions result in gaining the meaning of the events and experiences [12,13].

3.3 Grounded Theory

Obtaining abstract theories are the result of utilizing a grounded theory approach. These theories are derived from processes, participants' actions, and interactions which are stemmed from their viewpoint. The word grounded, in this approach, stems from the driven data which are collected from the research field not from the literature to develop theories [1]. These methods are used widely in social sciences to study the disciplines in sociology as they investigate both actions and interactions.

This method is also phenomenological and aims to understand the individuals' viewpoints regarding the experiences without considering that it is derived from a verifiable reality. However, this method goes beyond this description as uses these discoveries to develop theories. Therefore, it is mainly focused on emergence. That is to say, the study starts without any initial understanding and ends with the emergence of concepts from the collected data.

Methods of collecting data in this approach can be from on-site observations and interviews to historical reviews of tapes and records [12]. Literature reviews can be also a good contribution in addition to the other data collection methods [11]. Researchers use a set of standard formats including three coding processes (open, axial, and selective coding), and then develop their theories. In the final step, they explain five aspects in their reports as the following [12]:

- Research question description;
- Literature review;
- Methodology description;
- Explanation of the theory derived by the analysis of the data;
- A discussion about the implications.

3.4 Ethnography

Prolong observations are used in this approach to achieve the description and interpretation of the cultural-sharing groups. Ethnography considers both processes and products and instead of focusing on the way that data is gathered, wears the lens of data interpretation. Therefore, it recreates the behaviors, attitudes, knowledge, activities, etc. of a group of individuals to the readers. The main difference between case studies and narrative inquiries is focusing on the cultural parameters of the groups instead of single individuals [5]. This approach has anthropological backgrounds and different cultural parameters such as religious, geographical, social, etc. that can be considered in these approaches. There are different data collection methods that can be utilized in the ethnography approach as the following [11]:

- Interviews: Both formal and informal types are often conducted on different occasions;
- Observation: Both participant and non-participant types.

3.5 Case Studies

The main focus of case studies is to gain an in-depth exploration of about people, processes, events, and programs. This methodological approach can be applied in different fields ranging from political to medical research [1]. The structure of a case study stems from the issues, contexts, problems, and even the learning lessons from the events. These achieved patterns or lessons learned can be associated with specific theories. Researchers apply multiple data collection methods in this approach. For this purpose, the combination of direct observations, archival documents, artifacts, different visual or audio sources, and also interviews can be applied. However, it is important to regard the necessity of employing on-site collection methods which provide a direct interacting opportunity for researchers [12].

3.6 Content Analysis

In the body of materials, content analyses use a detailed examination of the contents systematically to gain patterns, biases, or themes. These materials are different forms of individuals' communications such as books, movies, newspapers, etc. [12,14]. It is also a suitable method for analyzing open-ended questions [11]. By reviewing these forms, researchers achieve specific characteristics from their content. This method is a high-objective approach encompassed a two-step data collection process:

- Putting the mentioned qualities in the specific frequency tables;
- Conducting statistical approaches to quantify the results [12].

Therefore, content analysis stems from quantitative methods, and it is mainly focused to gain frequency and counting patterns [11]. The report adopted from these approaches covers five main sections including material descriptions, under-study qualities, methodology description, frequency tables from statistical analysis, conclusion section which includes patterns, biases, and themes derived from the gathered data [12].

4. Quantitative Research

This section provides different quantitative research approaches as well as the methods of data collection and data analysis in this research method. The quantitative methods are designed to address rational questions which are shaped considering the variables of the study. The main aim is to achieve explanations and predictions which can be generalized to other people, events, and places. This process is initiated by stating the problem and involving the specific hypothesis according to the aim of the study. In the data collection procedure, instruments are used that are designed predetermined to gather quantitative data. There are different strategies to use in the data collection section such as conducting surveys and experimental methods [12]. The important point to consider is that the instruments need to be structured and validated to provide a precise measurement possibility to gain reliable quantitative data [15].

Then, the gathered data should be analyzed statistically using different quantitative analysis techniques such as descriptive analysis, explanatory analysis, and inferential types. The data analysis process, generally, aims to achieve statistical relationships between the variables [8]. Hypotheses and theories can be tested using the findings of the study. Consequently, findings of the research should be described and interpreted. The final reports are statistical, and they include the results significance and a comparison between the meanings [15]. More specifically, the common main steps for experimental methods include:

1) Identifying the participants and variables
2) Identifying the materials and instruments
3) Illustrating the design of the research using figures and appropriate notions

The steps of the process are followed by a validity step which aims to determine the validity of the constructs and statistics [10]. This process aims to identify possible threats to the validity which can be as the following:

- Internal validity threats stem from experimental processes, behaviors, or experiences of individuals that are able to threaten the establishment of correct inferences from gathered data.
- External validity threats can happen when the researcher finds inferences that are not correct from the sample data to other individuals, other situations, other places, etc., or simply generalizes beyond the participants of the experiment [10].

And in surveys, the main stages you need to consider are [6]:

1) Discuss main subjects such as the purpose of your study, population, sampling method and size, design survey instruments and their important items, correlations between variables, research questions, etc.
2) Analyzing data;
3) Interpreting results.

As discussed in the qualitative section, quantitative research can also be categorized into different approaches. Different strategies of qualitative research are listed in Figure 3. These approaches are described as the following:

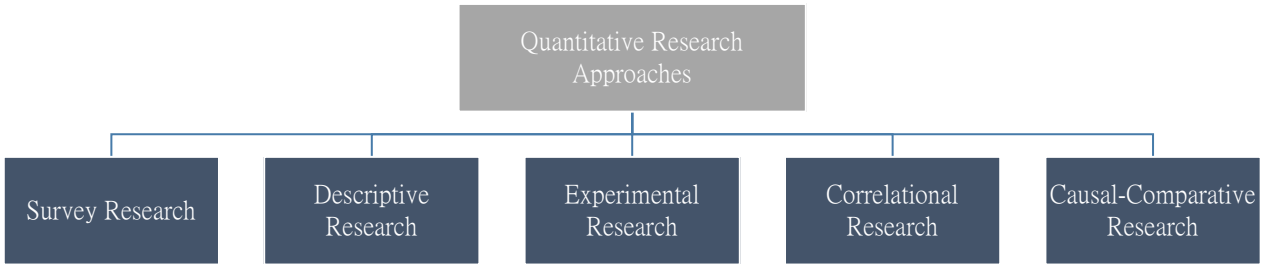

Figure 3. Quantitative Approaches

4.1 Survey Research

According to a dictionary named Merriam-Webster survey is derived from "surveer" (Angola-French Word) and means "to look over"; and it is the act of collecting data about a group or an area by questioning people [15]. This method is one of the most frequently used qualitative approaches [16]. This approach aims to measure the qualities of a specific target population considering a part of that population named sample by using a designed instruction recognized as a questionnaire and adopting statistical methods [7]. This method can study an individual's attitudes, beliefs, etc. using an appropriate sampling method. The data are gathered from the sample, and then the result is generalized to the target population [17]. Thus, this section of the population represents the beliefs, viewpoints, and opinions of the whole population. The most important aspects in surveys are gaining a suitable [2]:

- Sampling process;
- Questionnaire design;
- Administration of the questionnaire;
- Data analysis process.

4.2 Descriptive Research

This approach is a basic method to explain events and situations exactly during their current status. By providing systematic research about phenomena, it aims to either explore the correlation between the phenomena using observations or define their attitudes [12].

4.3 Experimental Research

The treatment of an intervention can be investigated through an experimental research approach to achieve the result of the treatment on the under-study group. These approaches include three types of designs:

- Pre-experimental design: a non-random selected control group or an independent variable that does not vary
- True experimental design: high control possibility on the system and highly valid results
- Quasi-experimental design: limited and low control, low validity, and not randomly selected samples [12,15].

4.4 Correlational Research

Correlational strategies as the exploratory methods aim to measure two general aspects regarding the relationships between two or more variables in the sample or the whole population [18,19]:

- Whether the connections exist or not;
- The degrees of the existent relationships.

A specific coefficient recognized as a correlation coefficient with values ranging from +1.00 to –1.00 is employed to determine and examine the extent of relationships. The values closer to the maximum and minimum have demonstrated relationships and strong correlations. The negative values show the inverse relationship between the variables as one goes up the other goes down [15].

4.5 Causal-comparative Research

This method examines the cause-effect relationships by determining how the independent variables can overshadow the dependent ones. Therefore, this helps researchers to discover the interaction of independent variables between themselves and their impact on dependent variables [12].

This method is also known as "Ex post facto" which means "from after the fact" as the researcher aims to study the problems using the variables which are in retrospect. The dependent variables are immediately observable, and the important point is to discover the antecedents that lead to the consequence. There are two types of casual-comparative approaches:

- First, retrospective type that concentrates to determine whether a variable has prejudiced another variable or not; and consider if the effects of the precise issue have already happened as a necessary point. This type is a commonly used technique.
- Second, the prospective type that researcher starts with causes to explore the effects of an issue [15].

5. Advantages and Limitations of Quantitative and Qualitative Research Methods

After providing information about the strategies of inquiry, data collection, and analysis in both methods, this section aims to discuss the merits and demerits of both techniques.

This can be specifically helpful in the next section to discover the requirement to employ mixed methods when these limits can overshadow the result of the study negatively and to define if the advantage of one method can save the research by employing an integrated method. Important advantages and disadvantages of different types of research are provided in Table 1.

Table 1. Advantages and Disadvantages of Qualitative and Quantitative Methods [9,12]

Type of Research	Advantages	Disadvantages
Qualitative	• The possibility of achieving in-detail and in-depth information regarding feelings, events, etc. • Obtaining the real meanings of the actions. • Discovering individuals' experiences in different situations historically. • Ideographic research. • The possibility of interacting with the participants during the data collection procedures. • Addressing complex issues due to the flexible structures and giving freedom to the participants.	• Lack of concentration on contextual sensitivities concentrated more on experiences and meanings. • Being based on phenomenological methods. • Low credibility is an important limit in some fields such as policy makers. • Findings are not generalizable since sample sizes are small. • Difficult interpretation and analysis processes. • Time-consuming data analysis processes.
Quantitative	• The possibility of generalizing results. • The findings represent the population due to the large sample sizes. • The possibility of sharing and replicating the documentation of methods and frameworks. • The possibility of replicating the study over time due to the standardized methods. • Being time efficient.	• Limits in providing hidden reasons in individuals' feelings, acts, etc. • Time-consuming sampling processes. • Facing limits of deep and in-detail explanation. • Failing to describe the way social realities are shaped. • Taking snapshots of phenomena and obtaining data using objective methods.

6. Mixed Method Research

The aim of employing mixed methods has been discussed before and main six types of mixed methods will be discussed in this section. However, the components of the mixed method procedures and four important aspects which are the basis of the shaping of integration processes will be explained. We also add a helpful checklist for the strategy of choosing a suitable mixed-method process. Finally, the data collection and analysis in these methods are discussed.

6.1 Important Aspects of the Mixed Method Research

Four important aspects of mixed methods are provided that are the basis of shaping different typologies in this research method. These important aspects are explained in Table 2.

6.2 Mixed Method Types

After discussing the important aspects of designing mixed-method studies, different types of mixed methods including six main categories are listed in Figure 4 as discussed in this section.

6.2.1 Sequential Design

Sequential Explanatory: Quantitative data are collected and analyzed in the first stage of this type. Then, in the second phase, the same processes are managed for qualitative data. The weighting on the quantitative data is more and the mixing process is based on the connection of both types of data but in the separated forms. It occurs when the results of quantitative as the initial type inform the data collection in the second type is qualitative. This method is employed when it is aimed to employ qualitative data as the follow-up for the initial quantitative results of method. This process is simply shown in Figure 5.

Sequential Exploratory: This strategy encompasses two different phases. The first phase involves qualitative data collection and analysis that is followed by quantitative data collection and analysis based on the result of the primary phase. In this case, weight is on the quantitative phase, and the mixing data are based on the connection of analysis of the first phase and the data collection of the second phase. The aim of this strategy is to use quantitative data to support the qualitative results' interpretation process. This method is shown in Figure 6.

Table 2. Aspects of Mixed Method Research [6]

Aspect	Types	Explanations
Timing	Time factor in data collection: 1. In different phases or sequentially 2. Gathered at the same time or concurrently	In the first type, either quantitative or qualitative data can be collected based on the initial intent. In case of collecting qualitative information first, exploring the subject using the participants in the setting would be the intent. In the second phase, the researcher's perception will be expanded based on a large sample. In the second type, the implementation is simultaneous. As it is more rational to collect both kinds of data at the same time in many research fields.
Weighting	1. Equal 2. Emphasizing the qualitative 3. Emphasizing the quantitative	This factor aims to define the priority given to the methods and is depends on three following factors: • Researcher's interests • Audiences including associations, faculty committees, etc. • The factor that the investigation aims to emphasize on it. For example, the priority is a deductive approach like testing a theory or an inductive one like generating a theme
Mixing	Stages of mixing are as the following: • Data collection • Data analysis • Interpretation of data • All together Mixing methods include: • Merging on one end of the continuum • Keeping separate on the other end of the continuum • Combing in a way between these two extremes. Mixing scenarios include: Connecting, Integrating, and Embedding More information.	The integration of data, research question, the philosophy of the research, and interpretation is considered, and two main factors are as the following: • When to mix? • How to mix? 1- Connecting both kinds of data during the phase including a mixing of the quantitative and qualitative methods that is connected between the data collection and data analysis in the first and second phases of the research; respectively. 2- Integrating or merging two databases by transforming qualitative ones to counts. 3- Using one of the secondary databases as the supporter for the primary one. Here, the secondary database is embedded into the larger study with a different type of data that is known as primary.
Theorizing	Guidance for the design of the mixed-method study.	Theories can be derived from: • Social sciences including leadership, attribution, and adoption theories • Broad theoretical lenses such as advocacy or participatory lens which considers race, gender, and class factors. Theories can be both explicit or implicit.

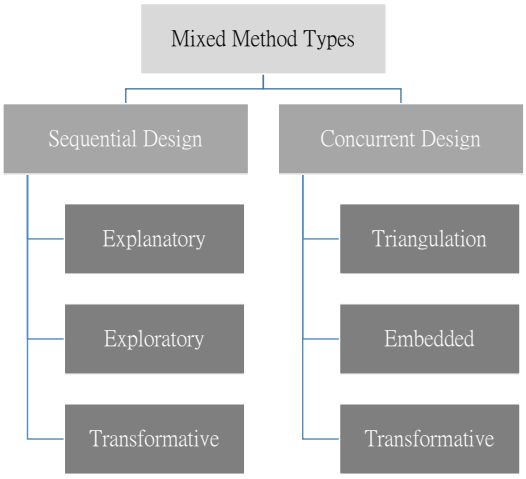

Figure 4. Mixed Method Types

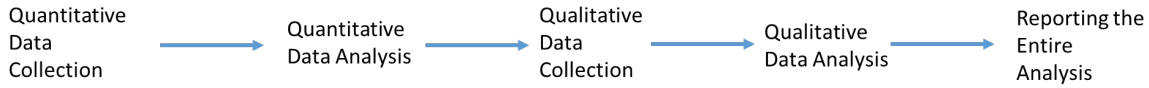

Figure 5. Sequential Explanatory Process

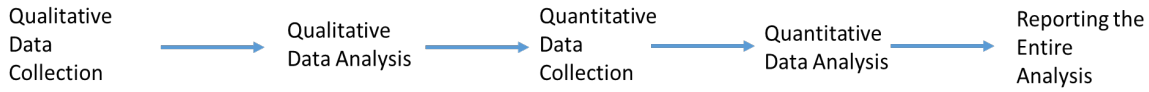

Figure 6. Sequential Exploratory Process

Sequential Transformative: It involves a two-phase process with a theoretical lens considering race, gender, and social sciences theories. The aim of the theoretical lens which is placed in the introduction section is to explore an issue. This problem can be in different fields such as social issues like injustice and inequality and the first phase can be qualitative or quantitative. The second phase which is based on the initial one can also be one of the two methods. The steps are shown in Figure 7. The weight can be given to quantitative and qualitative phases or equally can be distributed between both of them. Serving the theoretical perspective of the researcher in the best way is the purpose of employing this approach. Therefore, researchers are able to respond to the following points:

- Perceiving the changes in events and phenomena due to the studied results deeply;
- Giving a voice to different perspectives;
- Advocating for the participated individuals better.

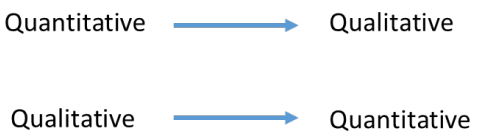

Figure 7. Sequential Transformative Process

6.2.2 Concurrent Design

Concurrent Triangulation: Data from qualitative and quantitative methods are gathered at one phase and concurrently. Next, the provided databases are examined to find differences, convergences, and possible combinations. The main aim of this method is either to cover the demerits of one of the single methods with the strengthening of the other one or to add the strengths of the methods to each other. Equal weighting is a priority in this type; however, sometimes the weight can be just given to one side. Finally, data is merged or integrated into the mixing process which happens commonly in the discussion or interpretation section as it is shown in Figure 8.

Concurrent Embedded: The main role of primary method in this case is to guide the project and the secondary one is the supportive database. The qualitative and quantitative data are gathered simultaneously during one phase for data collection and a theoretical perspective can be used to inform the first phase explicitly. The mixing process employs integration scenarios and then compares the data sources with each other. Researchers can benefit from this method in the following cases:

- The initial and secondary phases aim to address diverse questions;

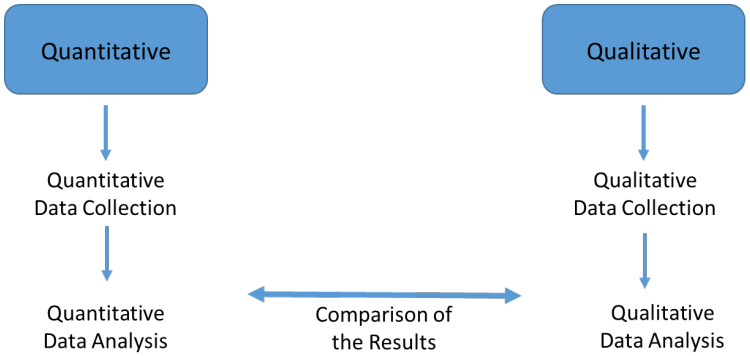

Figure 8. Concurrent Triangulation Process

- The phases aim to seek information from different analysis levels.

This method gives a broader perspective to the researcher due to employment of different methods instead of utilizing a single predominant one. Figure 9 demonstrates the method simply.

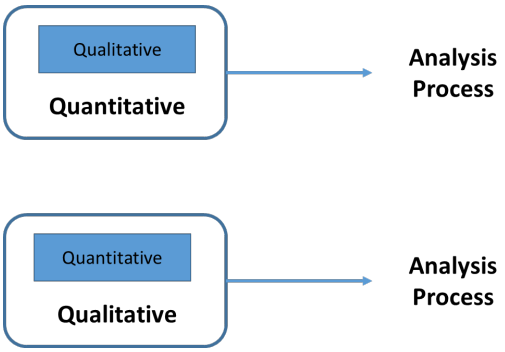

Figure 9. Concurrent Embedded Process

Concurrent Transformative: Both qualitative and quantitative methods are collected concurrently together using this method with a particular theoretical perspective. This perspective is based on ideologies and overshadows the aim and research questions of the project including different aspects of the methodology such as the chosen design, the identification of the data sources, interpretation and reporting processes, and analysis. Figure 10 shows the structure of this method.

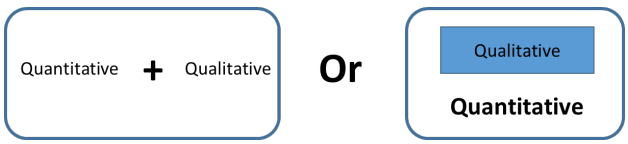

Figure 10. Concurrent Transformative Process

6.3 Tips for Choosing a Mixed Method

In the previous section, explanations for each of the types of mixed method were provided. In this section, some important tips are provided that help the researcher to choose the appropriate mixed method for the study as the following [6]:

- Consider the explanations provided in Table 2 and six approaches in mixed methods to gain a primary design.
- Estimate the available time for the data collection process considering concurrent processes are more time-consuming processes.
- Use embedded models in case the time factor is a limitation.
- Use an explanatory sequential model if there is limited experience in qualitative research and the required background in quantitative studies is substantial.
- Review published sources that are based on different methods in studies to determine the most appropriate approach.
- Finally, use an article using the same mixed method with your study as your advisor helping you to make your study feasible to other members such as audiences and committees [20].

7. Conclusions

A comprehensive review of the qualitative, quantitative, and mixed-method research methods is provided in this study. The methods and their applications are defined, and different approaches of quantitative and qualitative methods are reviewed together with a brief description of their process steps. Survey research, descriptive research, experimental research, correlational research, and causal-comparative research methods for quantitative studies are also reviewed. In terms of qualitative approaches, narrative, phenomenological, grounded theory, ethnography, case studies, content analysis were discussed. Then, the advantages and demerits of the qualitative and quantitative methods were compared. Consequently, the important aspects of mixing processes are provided, and six major strategies are described in this method. Finally, the points that need to be considered to choose an appropriate mixed method strategy are listed.

Conflict of Interest

There is no conflict of interest.

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