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Navigating the Research Landscape: A Guide to the Selection of the Right Research Design

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Abstract
Research design, which is a plan or framework for conducting an investigatory study, engrosses the ways for collecting and analyzing data. It is circumspectly planned in advance as it influences the quality and validity of the research outcomes. There are broadly three sorts of research designs, namely quantitative, qualitative and mixed methods research designs. Quantitative research designs involve the collection and analysis of numerical data, qualitative research designs include the collection and analysis of non-numerical data, such as words, images, and observations, and mixed methods research designs embrace both qualitative and quantitative data. There are also certain types of research designs under these major research designs, and a researcher normally has to select one of them to carry out his/ her research study. The key objective of this article is to navigate the research landscape and provide a concise guide to the selection of the right research design. This article based on the secondary qualitative data employs books and journal articles as the sources of data. Based on an analysis of some prominent works in the field of research, this article offers an overview of research designs and discusses its main types. It will provide the researchers with a clear guideline to the selection of the right research design. It will assist research neophytes in particular and other researchers in general.

Keywords: Data, mixed methods, qualitative, quantitative, research design

1. Introduction

Research study has been an indispensable aspect of academic activities. Most of the research studies are carried out with the intention of adding new information or knowledge to the corpus of knowledge along with solving existing problems. It is an intellectual and creative activity (Best & Kahn, 2010), and a search of knowledge (Kothari & Garg, 2014). Students and teachers of university levels are convincingly encouraged to accomplish research studies for

fulfilling their requirements of academic degrees and promotion; therefore, it is necessary for them to retain a sound understanding of research designs prior to the commencement of their research. Research design is the overall plan which provides specific direction for procedures in a research (Creswell, 2014; Kerlinger, 1986). It is a framework or blueprint which gives a structure and a direction to show how all the major parts of the research project work together to address the research question (Malhotra, 2004). Quantitative, qualitative and mixed methods research designs are the three principal research designs. Quantitative research design is the technique and measurement that produces quantifiable/discrete values (Kothari, 2007). Qualitative research proffers an emphasis on exploring and understanding the meaning which a person or a group of people ascribe to a social or human problem (Creswell , 2014). Mixed methods research design is based on the pragmatic worldview (Tashakkori & Teddlie, 2010).There are certain types under these three broad research designs.

Experimental design is used to assess a cause –and-effect relationship; quasi-experimental design is assigned to establish a cause-and-effect-relationship without the randomization of the participants. Quasi-experiments are a subtype of non-experiments, which attempt to mimic randomized, true experiments in rigor and experimental structure but lack random assignment (Cook & Wong, 2008; Kirk, 2009). Survey design is employed to assemble information about the attitudes, beliefs, and behaviors of a particular group through their responses to questions (Check & Schutt, 2012). Correlational design is executed to identify relationships between variables. It is a non-experimental design in which the researcher uses relational statistics to measure and define the level of correlation between variables or sets of scores (Asenahabi, 2019).A descriptive research deals with the characteristics of population or issue under study. All these types come under quantitative research designs.

Case study involves a detailed in-depth examination of a unit or case. It is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program or system in a real life (Simons, 2009). Ethnography deals with the cultural aspects of people, and the strength of ethnography lies in the use of more than one method (Reeves, Kuper, & Hodges, 2008). Grounded theory generates an innovative theory from the secondary data. It is a research method concerned with the generation of theory (Glaser & Strauss, 1967), and it is 'grounded' in data that has been systematically collected and analyzed (Strauss & Corbin, 1994).Narrative analysis includes the analysis of stories or accounts of events or experiences, and the importance of narratives lies in indigenous and other societies as preservers of sacred rituals and knowledge (Kim, 2016). Phenomenology examines the study of people's subjective experiences and perceptions of the world around them. It connects with different qualitative approaches that include ethnography, symbolic interactionism, and hermeneutics (Glaser & Strauss, 2017).Historical design describes and examines events of the past to comprehend the present and anticipate potential future effects. It is, therefore, a method of discovering, from records and accounts, about what happened in the past (Marshall & Rossman, 1998). These are the categories of qualitative research designs.

Convergent parallel is a mixed methods research in which both qualitative and quantitative data with equal importance are collected at the same time. Data are separately analyzed and compared at last. In an explanatory sequential design, quantitative data collection and analysis is followed by qualitative data collection and analysis. In an exploratory sequential design, qualitative data collection and analysis tend to be followed by quantitative data collection and analysis. In an embedded design, a researcher collects and analyzes both types of data at the

same time, within a larger quantitative or qualitative design. Transformative mixed methods design uses one of the convergent parallel, explanatory sequential, exploratory sequential and embedded designs (Creswell , 2012), but covers the design within a transformative framework or lenses. Multi-phase mixed design occurs when researchers examine a problem or topic through a series of phases or separate studies. All these types belong to mixed methods research designs.

All the terms related to research designs are the qualitative data which have been taken from web site materials, research books and related journal articles to prepare this article concerning the research designs. The rudimentary aim of this article is to highlight the major sorts of research designs with their strength so that researchers can select an apt design for their research studies.

2. Literature Review

It involves the theoretical reviews regarding the major research designs.

2. 1 Research Designs

Design is fundamentally concerned with the uses, objectives, intentions and plans within the practical restriction of place, time, money and the researcher's accessibility (Hakim, 2000).A research design, an essential part of research, is a plan or framework for conducting research. It outlines the steps and methods that need be used to collect and analyze data in order to answer a research question or test a hypothesis. It can be taken as a plan, structure and strategy of investigation that is adopted with an aim of obtaining answers to research questions with optimal control of variables (Kerlinger, 1986). It provides a structure and a roadmap for the research project. A well-developed research design helps to ensure that the research is rigorous and systematic, and the results obtained are reliable and valid.

2.2 Quantitative Research Designs

Quantitative research designs entail the collection and scrutiny of numerical data. These designs are often executed to test hypotheses and identify relationships between variables. Quantitative research involves the collection of data that can be quantified and subjected to statistical calculation to support or disprove the claims (Creswell , 2003). Quantitative method is taken as the explanation of an issue through amassing data in a numerical form and analyzing the data by using specific statistics (Aliaga & Gunderson, 2002). It starts with a statement of a problem, generation of hypothesis or research question, reviewing of related literature, and a quantitative analysis of data (Williams, 2011).It is the technique and measurements that produce quantifiable/discrete values (Kothari, 2007).

These designs are characterized by their use of numerical data and statistical analysis to test hypotheses and answer research questions. Some key characteristics of quantitative research designs include use of numerical data, hypothesis testing, large sample size, replication, objectivity, standardization, statistical analysis and generalizability.

2.2.1 Experimental Design

Experimental design signifies the process of planning and conducting experiments in order to test hypotheses, evaluate outcomes, and draw conclusions. It provides a higher degree of control in the experiment and produces a higher degree of validity (Campbell & Stanley, 1963). It is based on cause-and-effect relationship on selected subject matter (Jongbo, 2014).

2.2.2 Quasi-experimental Design

A quasi-experimental design is a type of experimental design that does not involve random assignment of participants to treatment or control groups. In this design, the researcher manipulates an independent variable and observes the effect on a dependent variable, but the

participants are not randomly assigned to the treatment and control groups. It lacks the randomization of exposures (Cohen, Manion, & Morrison, 2021).

2.2.3 Survey Design

Survey design is a research method used to collect data from a sample of individuals through self-report measures. It can be administered in various ways, including online, by phone, by mail, or in person. It is defined as a social scientific research that focuses on people, the vital facts about people, and their beliefs, opinions, attitudes, motivations and behavior(Kerlinger , 1973).It is a form of quantitative research which aims at gathering information from the group/population under study, and keeps making an analysis in order to better understand their behaviors/characteristics(Sukamolson, 2007). It is the process of collecting data from a sample group so as to determine the status of that group as per that time with respect to one or more variables (Mugenda & Mugenda, 2003). It is concerned with the present and attempts to determine the status of the phenomena being investigated (Singh, 2006).

2.2.4 Correlation Research Design

The correlation research design is a type of study that is used to assess the relationship between two or more variables. In a correlation study, researchers do not manipulate any variables and do not attempt to establish causality. Instead, they simply observe the relationship between the variables and try to examine the patterns that emerge. It deals with creating relationship amid two or more variables in the same population (Leedy & Ormrod, 2001). It is a non-experimental quantitative design in which the researcher applies correlational statistics to measure and describe the degree of association among variables or sets of scores (Creswell , 2012). The purpose of a correlational study is to establish whether two or more variables are related or not (Bold, 2001). It is defined as a statistical test to establish patterns for two variables (Creswell, 2002).

2.2.5 Descriptive Research Design

Descriptive research design is a method of collecting and analyzing data in order to describe the characteristics of a population or a phenomenon. It is usually defined as a type of quantitative research, though qualitative research can also be used for descriptive purposes (McCombes, 2022).Which design is to select for the study undoubtedly depends on the subject matter and the objectives of the research study.

2.3 Qualitative Research Designs

Qualitative research designs are characterized by their focus on collecting and analyzing non-numerical data, such as words, images, and sounds. These designs lay stress on exploring and discerning the meaning which a person or a group of people assign to a social or human problem (Creswell, 2014). Some key characteristics of qualitative research designs include focus on understanding meaning, use of non-numerical data, inductive analysis, subjectivity, small sample size, flexibility, rich detailed data and emphasis on context.

2.3.1 Case Study

A case study is a research method that involves a detailed examination of a single individual, group or community. Its goal is to provide a detailed and in-depth understanding of the subject (Creswell, 2003) and examine the factors that may contribute to the behavior or characteristics of the subject. It involves collecting data from a variety of sources, including observations, interviews, documents, and other records. The data are analyzed in order to identify patterns, themes, and trends that can help to explain the subject's behavior or characteristics.

It is an inquiry that focuses on describing, understanding, predicting, and/or controlling the unit under study (Woodside, 2010), and it gives a thorough knowledge about the phenomena that is not generalizable (Singh, 2006). Moreover, it proffers a rigorous understanding of how and why certain phenomena occur by revealing the mechanism by which a causal relationship occurs (Wabwoba & Ikoha, 2011).

2.3.2 Ethnography

Ethnography is a research design that involves conducting a detailed and in-depth study of a culture or a group of people. Its goal is to recognize the culture from the perspective of the people who are a part of it, and provide a rich and nuanced understanding of their experiences, beliefs, values, and behaviors. It is a design of inquiry coming from anthropology and sociology in which the researcher studies the shared patterns of behaviors, language, and actions of an intact cultural group in a normal setting over an extended period of time. Data collection often involves observations and interviews (Creswell, 2014). It engrosses a rigorous description of the setting or individuals which is afterwards followed by analysis of the data for themes or issues (Wolcott, 1994). In this research, the researcher studies an intact cultural group in a natural setting over an extended period of time by accumulating, primarily, observational data (Creswell, 2003). Agar (1986) describes ethnography as encountering unfamiliar worlds and creating sense of them. He further asserts that ethnographers attempt to show how proceedings in one world make meanings from the point of outlook of another world. Cameron (1990) clarifies ethnography as learning from people. It can be defined as the orderly process of observing, detailing, relating, documenting, and analyzing the lifeways or particular patterns of a culture or sub-culture to grip the ways of life or patterns of the people in their common environment (Leininger, 1985).

2.3.3 Grounded Theory

Grounded theory is a research design that involves collecting and analyzing data in order to develop a theory that explains a phenomenon. Its goal is to generate a theory that is grounded in the data and reflects the experiences, behaviors, and perspectives of the people being studied. It involves collecting data from a variety of sources, including observations, interviews, documents, and other records. The data are analyzed in an iterative process, with the goal of developing a theory that explains the phenomenon being studied.

The researcher attempts to make a general, intangible theory of a process, action, or interface grounded in the visions of participants in a study (Creswell , 2003). Leedy and Ormrod (2001) elucidate that this design initiates with data that builds up into a theory. It is a design of inquiry from sociology in which the researcher derives a general, abstract theory of a process, action, or interaction grounded in the views of participants. This process engrosses using multiple phases of data collection and the modification and interrelationship of types of information (Charmaz, 2006; Corbin & Strauss, 2007). It is a qualitative research approach developed by two sociologists Glaser and Strauss (1967). It studies data collection and analysis and then a theory is developed on the basis of the data. Field and Morse (1985) assert that constructs and concepts are grounded in the data and hypotheses are tested as they arise from the research. Jacelon and O'Dell (2005) maintain that the grounded theory is an excellent method for understanding the processes through which patients learn to manage new or chronic health problems.

2.3.4 Phenomenology

Phenomenology is a research design that embraces the systematic study of people's subjective experiences and perspectives. Its goal is to identify with how people experience and perceive the world, and provide a rich and detailed understanding of their experiences. It involves collecting data from a variety of sources, including interviews, observations, and written accounts. The data are analyzed in order to identify patterns, themes, and trends that can help to explain the subjective experiences of the people being studied.

It is a design of inquiry which originates from philosophy and psychology where the researcher describes the lived experiences of individuals about a phenomenon as described by the participants. It has strong philosophical underpinnings, and it typically takes on conducting interviews (Giorgi, 2009). It examines human understandings through the descriptions supplied by the people involved. These experiences are called lived experiences. It describes the meaning that experiences hold for every subject. This sort of research is applied to the study areas about which people retain a little knowledge (Donalek, 2004).It deals with the comprehension of the experiences from the participants 'point of view (Leedy & Ormrod, 2001). Its focus lies on the participants 'insights of the incident or situation, and the study endeavors to answer the query of the experience. Creswell(1998) points out that the spirit of this study is the search for the fundamental underlying sense of the experience and emphasizes the intentionality of perception where experiences enclose both the outward facade and inward consciousness based on the reminiscence, image, and meaning.

2.3.5 Narrative Analysis

Narrative analysis is a research method that deals with the interpretation and analysis of narratives, which are stories or accounts of events or experiences. Its goal is to identify how people make sense of their experiences and how they construct meaning through the use of language and communication. It involves collecting data from a variety of sources, including interviews, written accounts and other documents. The data are analyzed in order to identify patterns, themes, and trends that can help to explain the meaning and significance of the narratives. It is a design of inquiry from the humanities where by the researcher studies the life styles of individuals and asks them to provide stories about their lives (Riessman, 2008). The narrative mingles views from the participant’s existence with those of the researcher’s life in a joint narrative (Clandinin & Connelly, 2000).

2.3.6 Historical Research Design

Historical research design is a research method that includes the study of the past in order to understand the present and inform the future. Its aim is to recognize how events, people, and cultures have changed over time and how they have influenced the present.

It deals with collecting data from a variety of sources, including documents, artifacts, and other records. The data are analyzed in order to identify patterns, themes, and trends that can help to explain the history of the subject being studied. It is tremendously crucial for researchers to appraise their sources with great concern, or even get confirmation from experts to make sure that sources are genuine, and these sources avoid frauds, tricks and forgeries (Lundy, 2008; Berg, 2001).

2.4 Mixed Methods Research Design

Mixed methods research designs encompass the combination of qualitative and quantitative research methods in a single study. It has been called ‘quantitative and qualitative

methods' (Fielding & Fielding, 1986). It acknowledges the approach that is actually a combination of methods. It is termed 'hybrid research' (Ragin, Nagel, & White, 2004), 'combined research' (Creswell, 1994) or 'methodological triangulation' (Morse, 1991). They all recognize the convergence of quantitative and qualitative data. This design allows researchers to triangulate their findings, providing a more comprehensive understanding of the research problem. Mixed methods research may be the right choice when the research process indicates that quantitative or qualitative data alone cannot adequately answer the research question. It takes on a two-phase project in which the researcher first collects qualitative data and then follows up or builds on this record with a second quantitative data gathering and analysis (Creswell, 2014).Mixed-method designs offer many advantages for approaching complex research questions because they integrate both post-positivist and interpretivist philosophical frameworks (Fetters, 2016).It also provides a logical foundation, methodological flexibility, and a deep understanding of small cases(Maxwell, 2016). The use of mixed methods enables researchers to answer research questions with sufficient depth and breadth (Enosh, Tzafrir, & Stolovy, 2014) and helps generalize findings and implications of the researched issues to the whole population.

In this design, a researcher accumulates both quantitative and qualitative data, analyzes them individually, and afterward compares the outcomes to see if the findings verify or disconfirm each other (Creswell , 2014). It is an amalgamation of the qualitative and quantitative research data in the research study. Mixed methods research design is based on pragmatic worldview (Tashakkori & Teddlie, 2010).

This approach leads to a greater degree of understanding being formulated unlike if a single approach is adapted to a specific study (Creswell & Clark, 2011). Johnson, Onwuegbuzie and Turner (2004) affirm that the mixed methods approach to research provides researchers with an alternative to realizing that the quantitative and qualitative research approaches are irreconcilable and, in turn, their related methods cannot and should not be merged. Some characteristics of mixed methods research designs enwrap integration of qualitative and quantitative data, flexibility, triangulation, complementary strengths and challenges.

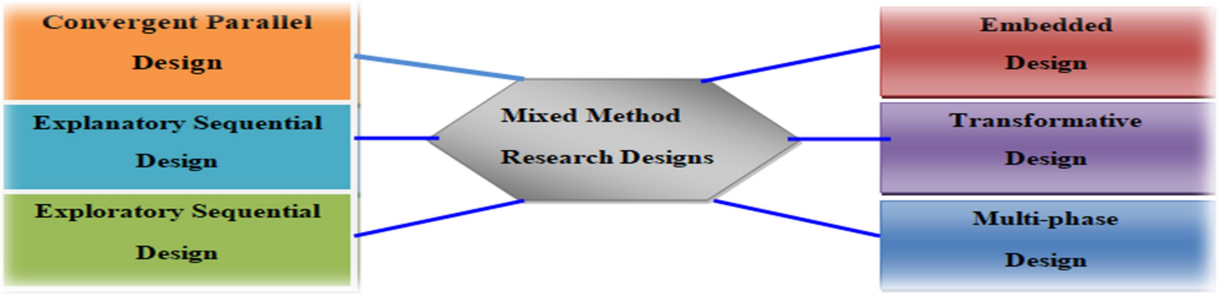

Figure 1: **Types of mixed methods research design**

2.4.1 Convergent Parallel Design

A convergent parallel mixed methods design merges both the quantitative and qualitative data to provide a complete analysis of the research problem. This design is recognized by many names, including simultaneous triangulation(Morse, 1991); parallel study(Tashakkori & Teddlie, 1998); convergence model (Creswell , 1999) and concurrent triangulation(Creswell, 2003).Creswell (2014) outlines that convergent is a mixed methods strategy in which a researcher collects both quantitative and qualitative data, analyzes them separately, and then

compares the results to make out if the findings substantiate or disconfirm each other. The intent of the convergent design is to obtain different but complementary data on the same topic (Morse, 1991) in order to best understand the research problem.

2.4.2 Explanatory Sequential Design

Explanatory sequential design, at first, involves conducting quantitative research, analyzing the results and then building on the results to elucidate them in more detail with qualitative research. Writings regarding mixed methods designs have highlighted sequential approaches, using design name such as a sequential model(Tashakkori & Teddlie, 1998), a sequential triangulation (Morse, 1991), a qualitative follow-up tactics (Morgan, 1988), and an iteration design (Greene, 2007). Creswell (2014) asserts that explanatory is a mixed methods strategy that involves a two-phase project in which the researcher collects quantitative data in the first stage, analyzes the outcomes, and then uses the outcomes to plan or construct into the second qualitative stage.

2.4.3 Exploratory Sequential Design

Exploratory sequential design is also termed 'a two stage design' which engrossed the qualitative data being employed as a basis to construct and explicate quantitative data amassing process. It is the reverse sequence from the explanatory sequential design. In this design, the researcher first start with a qualitative research stage and explores the opinions of participants. Firstly, the qualitative data are gathered and analyzed, and later quantitative data are collected and tested (Schoonenboom & Johnson, 2017; Shorten & Smith, 2017). Quantitative measures or instruments are built up after the qualitative findings (Terrell, 2012; Wisdom & Creswell, 2013). Creswell (2014) explains that this is a mixed methods strategy that involves a two-phase project in which the researcher first collects qualitative data and then follows up or builds on this record with a second numerical data gathering and analysis. Its intent is that the results of the first, qualitative method can help develop or inform the second quantitative method (Greene, Caracelli, & Graham, 1989). Some thoughts need to be specified to the relationship between the initial qualitative outcomes and the design of the middle quantitative stage, whether this stage takes on developing or amending a tool or survey (Clark, Shahrouri, Halasa, Khalaf, Spencer, &Rose, 2012); keeps on generating new variables (Haber, 2012), consists of typologies, or conceptual models(Watkins, Wharton, Mitchell, Matusko, & Kales, 2015),specifies activities for an intervention(Püschel & Thompson, 2011); or involves crafting a website, an app, or a virtual reality program for testing(Ruffin, Creswell, Jimbo, & Fetters, 2009).

2.4.4 Embedded Design

In an embedded design, one technique of enquiry is employed in a supportive secondary function which facilitates researchers and readers to construct a sense of the study in its sum. It seeks expansion, supporting, enrichment, illustration and elucidation of the results from one method using the outcomes from the other approach. This design holds its strength to merge the advantages of both the quantitative data and the qualitative data (Creswell , 2012).

2.4.5 Transformative Mixed methods Design

Transformative mixed methods design is a research design that mantles collecting and analyzing data using both qualitative and quantitative methods, with the goal of achieving a transformative understanding of the research question. It is based on the idea that the research process itself can be transformative, and that the research findings can have a transformative effect on the individuals or communities being studied. The strength of this design is that it is value-based and ideological (Greene, 2007).

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2.4.6 Multi-phase Mixed Design

Multi-phase mixed design is a research design that takes on collecting and analyzing data using both qualitative and quantitative methods in multiple phases. Its goal is to provide a more complete and accurate understanding of the research question by collecting and analyzing data from both qualitative and quantitative sources in multiple phases. It is to address a set of incremental research questions that all advance one programmatic research object (Creswell & Clark, 2011).

3. Method and Materials

This article exploits words and phrases as secondary qualitative data gathered from journal articles and books that were related to the research designs. Different sorts of designs work used as materials for the study.

4. Appropriate Use of Research Designs

Research design, which refers to the plan or strategy for conducting research, includes the methods and procedures that a researcher intends to use to collect and analyze the data. There are different research designs that can be used, and the appropriate design depends on the research question being addressed and the goals of the study.

A researcher can exploit anyone of the following designs if the data are quantitative.

Table 1 *Quantitative research designs*

Type of data	Data collection tools	Key Intent	Appropriate research design
Quantitative data	Performance tests , standard tests, experiment	To determine the cause –and- effect relationship With the randomization of participants	Experimental
	Performance tests, standard tests, experiment	To measure the cause –and- effect relationship Without the randomization of participants	Quasi-experimental
	Closed-ended questionnaire / Likert Scale questionnaire	To gather beliefs, opinions, attitudes, motivations and behavior of people	Survey
	Test items, Scores	To compute the relationship between two or more variables.	Correlation
	Closed- ended questionnaire, structured observation, checklist, structured interview etc.	To make the description of population or phenomenon, object	Descriptive

Following designs can be employed if the data are with the qualitative nature.

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Table 2: Qualitative research designs

Type of data	Data collection tools	Key Intent	Appropriate research design
Qualitative data	Unstructured interview, unstructured observation, documents and other records	To study in-depth investigation of a case	Case study
	Unstructured observations and interviews	To investigate cultural aspects	Ethnography
	Previous literature on the related topics	To generate a new theory	Grounded theory
	Unstructured interviews, unstructured observations, and written accounts	To study people's subjective experiences and perspectives of an event, situation etc.	Phenomenology
	Unstructured interviews, written accounts, and other documents	To examine sense of the people's experiences and how they construct meaning through the use of language and communication	Narrative analysis
	Documents, research papers, History books	To identify how events, people, and cultures have changed over time and how they have influenced the present.	Historical design

If researchers intend to use both the quantitative and qualitative data in their research studies, the following mixed methods research designs can be put into operation.

Table 3 *Mixed methods research designs*

Type of data	Data collection process	Priority	Key intent	Appropriate research design
Use of both quantitative & qualitative data in a research design	Quantitative and qualitative data are taken at the same time.	Equal priority to both quantitative and qualitative data	To obtain different but complementary data on the same topic to solve the problem	Convergent parallel design
	Quantitative data collection and analysis are followed by qualitative data collection and analysis	Quantitative data	To assess outcome of analysis of quantitative data to be supported by the Outcome of analysis of qualitative data	Explanatory sequential design
	Qualitative data collection and analysis are followed by Quantitative data collection and analysis	Qualitative data	To examine outcome of analysis of qualitative data to be supported by the Outcome of analysis of quantitative data	Exploratory sequential design
	Any data (Quantitative or qualitative) can play a main role or supportive role	The major form of data is assisted by supportive data	To clarify the results from one method using the results from the other method.	Embedded design
	Use of either a convergent, explanatory, exploratory or embedded design	The basic design provides the corner stone for the transformative design which goes beyond the use of basic design.	To achieve a transformative understanding of the research question	Transformative design
	Use of either a convergent, explanatory, exploratory or embedded design in multiple places.	These multiple phases are interrelated so that they tie together to address a common research objective.	To investigate the outcome through collecting and analyzing data using both qualitative and quantitative methods in multiple phases	Multi-phase design

The selection of an appropriate research design is an important consideration in conducting a research as it can impact the validity and reliability of the research findings. It involves determining the type of study that is most suitable for answering the research questions and hypotheses. A well-designed study allows researchers to draw accurate and meaningful conclusions about the relationships between variables and the phenomena being studied.

5. Conclusion

Research designs, which are plans and procedures for conducting research studies, furnish a framework for garnering and analyzing data in order to answer research questions or test hypotheses. There are several sorts of research designs for accomplishing diverse research projects depending on the nature of data and research topics. Experimental, quasi-experimental, survey and correlational research designs belong to the quantitative research. Case study, ethnography, narrative analysis, historical research, phenomenology and grounded theory come under the qualitative research, whereas convergent parallel, explanatory sequential, exploratory sequential, embedded, transformative and multiphase are included in the mixed methods research design. There are several challenges that can arise when using research designs. The challenges of using research designs exist in selecting an appropriate design, ensuring the validity and reliability of the study, controlling for confounding variables, and ensuring ethical conduct. This article deals with some major types of research designs recurrently used in research studies. It is necessary for the researchers to have a thorough understanding of research designs as these designs provide a systematic and objective plan for collecting and analyzing the data, help ensure the reliability and validity of the research and ultimately confer the trustworthiness of the results.

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