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3. Mixed Research Method

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3.1 Introduction:

From the advent of primitive time human beings always have a natural quest to know more about the environment and they always seek answers to their findings or their problems.

This way they became capable to solve the problems or they became able to find the answers of their curious situation, for that they gathered maximum information from different sources.

This creates a beginning in the way of Research. So, Research implies the discovery of truth for which we follow certain scientific methods as research is an intellectual activity undertaken with the ultimate aim of scientific accomplishment and scientific creation or invention.

In the meanwhile different research methods started emerging and each of these methods has their own relative strength and weakness.[1]

On the basis of broad research methodology, there are two approaches of research- Qualitative research and Quantitative research.

3.2 Qualitative Research:

Qualitative Research method has its deep origin in social science and the premise of its origination is to help researcher to study the phenomena from socio-cultural orientation.

It involves the use of qualitative data such as interview, documents, observation, questionnaire and the researcher's impression and perception.

Qualitative research serves one or more purposes (Perskin, 1993)

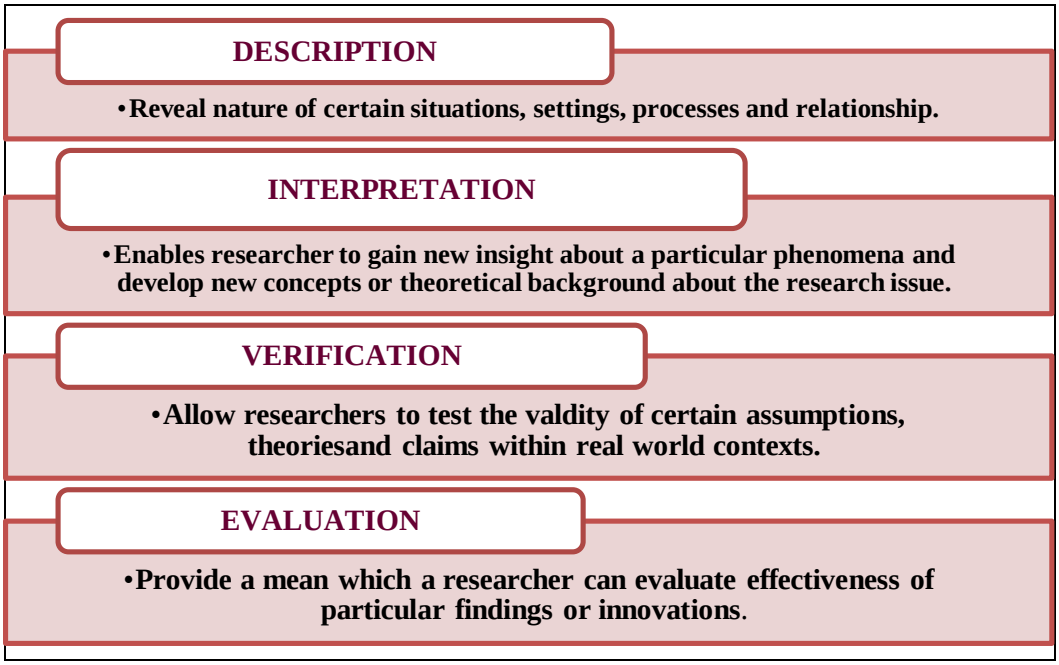

Diagram 3.1: Showing Purpose of Quality Research (Perskin, 1993).

Source: file:///C:/Users/user1/Downloads/20110021_22_research_methodology.pdf

3.2.1 Types of Qualitative Research:

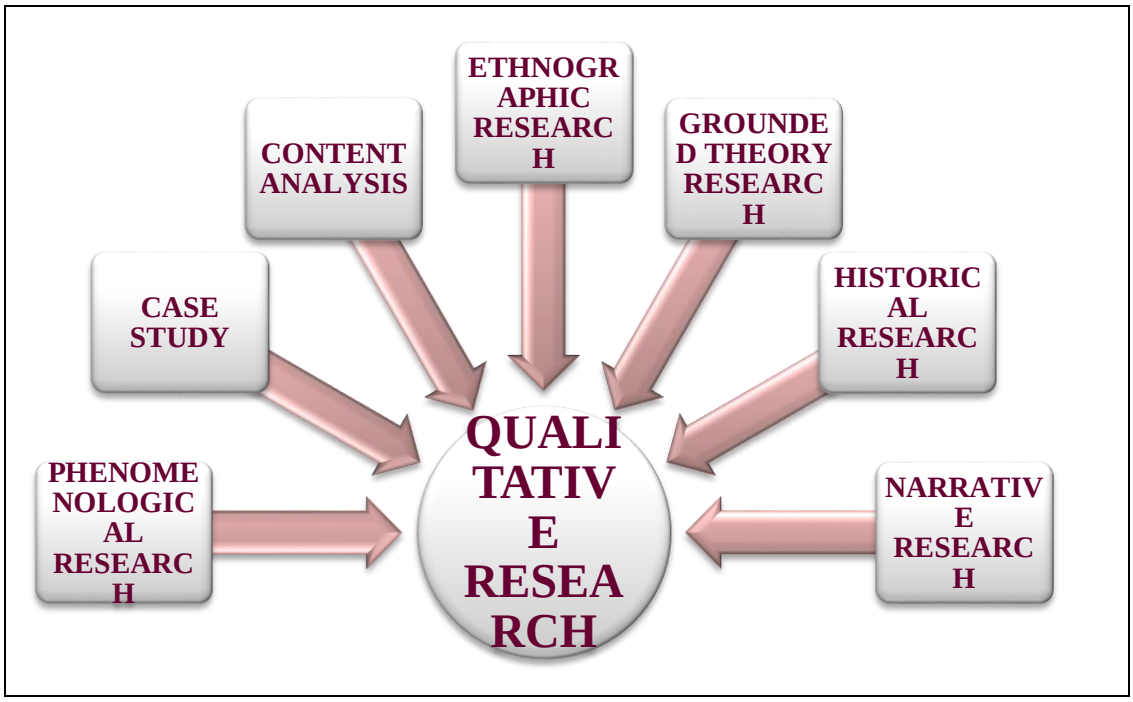

Diagram 3.2: Showing Types of Qualitative Research.

Source: https://www.slideshare.net/kerbala2013/types-of-qualitative-research

3.2.2 Quantitative Research:

Quantitative Research refers to a systematic investigation of phenomena by gathering numerical data and performing statistical, mathematical, or computational techniques.

Here researchers deploy mathematical frameworks and theories that pertain to the quantity under question.[3]

It relies on collection and analysis of numerical data to describe, explain and predict to control variables and phenomena of interest. (**Gay, Mills and Airasian, 2009**).

There are certain purposes of quantitative research which are given below:

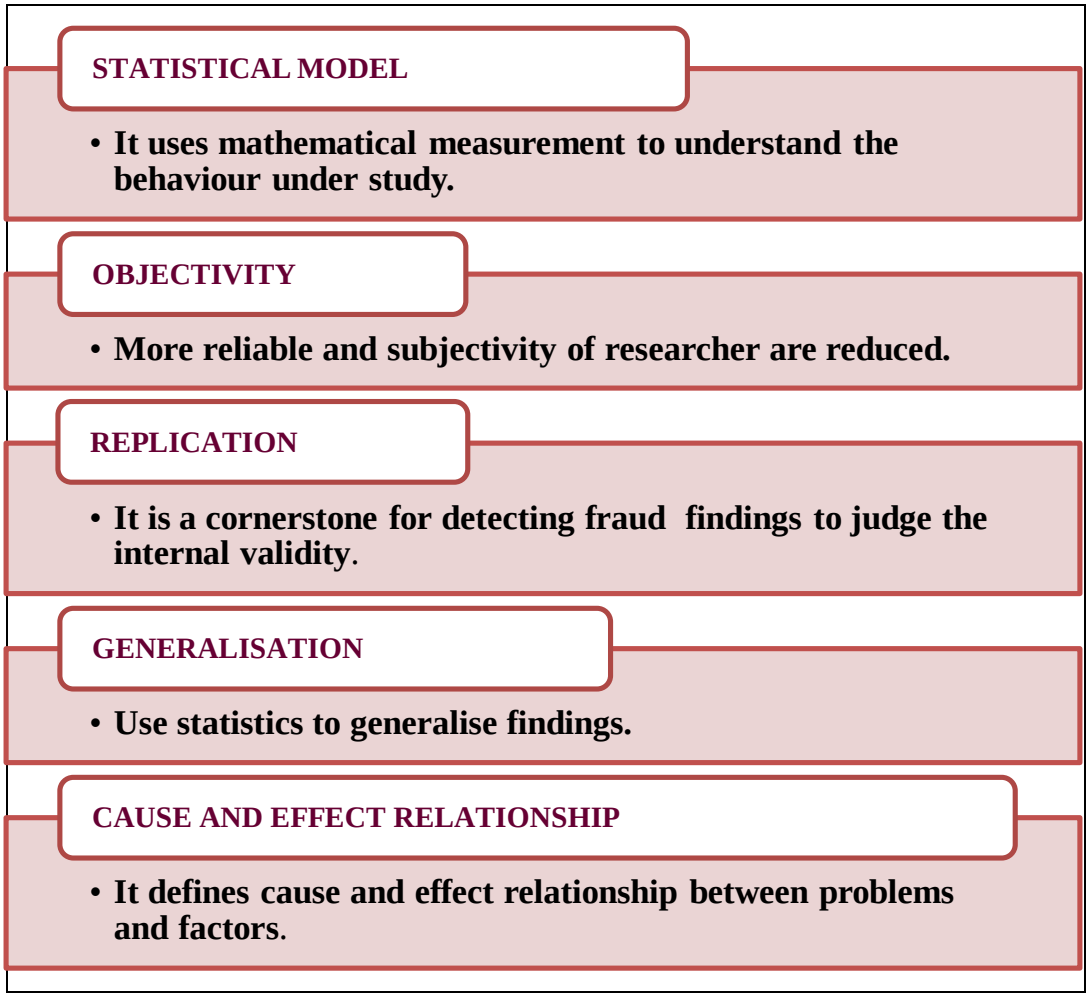

Diagram 2: Showing the Purposes of Quantitative Research.

Source: https://www.le.ac.uk/oerresources/lill/fdmvco/module9/page_45.htm

3.2.3 Types of Quantitative Research:

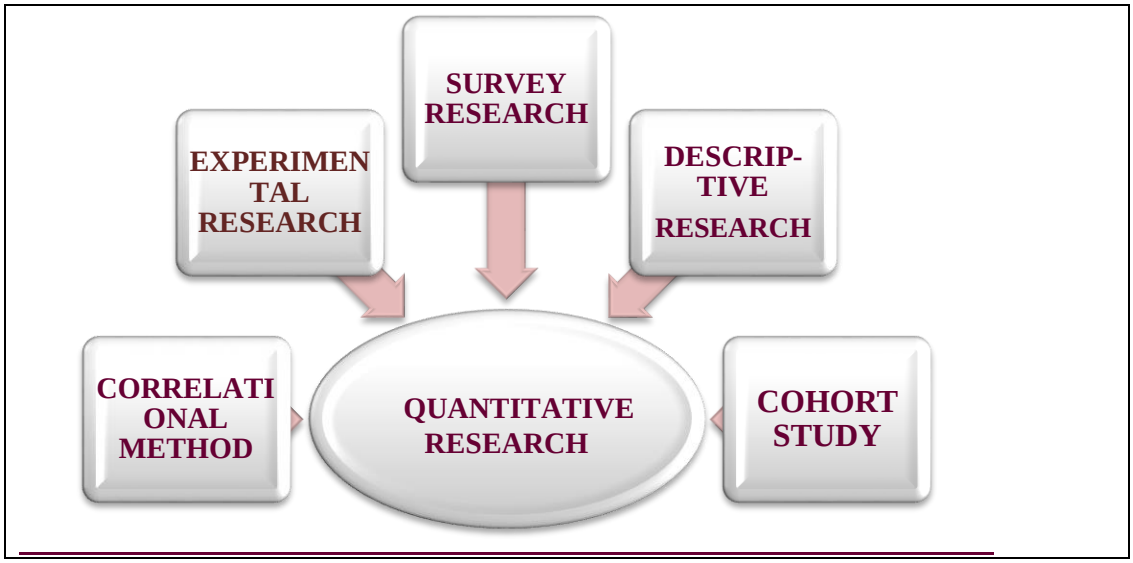

Diagram 3.3: Showing Types of Quantitative Research

Source: Investigator's Self Made:

Both quantitative and qualitative researches have their characteristics, assumptions and purposes. Both qualitative and quantitative research methodologies have weaknesses when used alone. By involving both the methodologies researcher gain expanded knowledge about the research problem. Recently in research field investigators were interested in combining the both the methodologies (quantitative and qualitative) provide broad range of perspective on the problem of research.

3.3 History of Mixed Research Methodology:

The history of Mixed Research Methodology can be traced back from to the 18th century. It was **Creswell and Plano Clark (2011)** date the beginnings of mixed-methods research back to the mid- to late 1980s. Methodology experts and writers from all around the world seemed to have been simultaneously working on similar ideas regarding the combination of quantitative and qualitative methods. Up to this point in time, many qualitative researchers and quantitative researchers did not see the legitimacy in the other approach to doing research. However, members of both research camps began to realize, on a deeper level, the value of the alternate approach.

For example, quantitative researchers began to see that qualitative data could play an important role in quantitative research; similarly, qualitative researchers began to see that reporting only qualitative views of the world – and of a few individuals – would not permit generalization of the findings to many other individuals and audiences **(Creswell & Plano Clark, 2011).** Over the past decade or more, interest in the use of mixed-methods research as a means for studying educational topics and phenomenon has grown substantially. Reported by

Again, **Hesse- Biber reported (2010**) that both the paradigm of qualitative and quantitative approaches were used to study the poverty of Europe in the year 1850 **(Le, Play 1855**). Again, **W.E.B. DuBois (1899**), both statistical and observational data and applied in the study of

The ***Philadelphia Negro.*** **Camphell and Fiske (1859**) in order to strengthen the validity of research conclusion as well as to measure several traits mixed method was used in the study. So, during the period of 1970s and 1980s was the argument that the epistemological differences between the qualitative and quantitative paradigms made them fundamentally incompatible. This 'incommensurability thesis' created a dilemma for researchers who used methods of both qualitative and quantitative orientation in their studies. In order to justify use of multiple methods, the notion of triangulation as a superior approach was brought to the fore. Here, mixed methodologists had an 'edge' in being able to capitalize on the strengths of each paradigm whilst offsetting their weaknesses. Thus, a central premise of mixed methods became that "the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone" **(Creswell and Plano Clark 2007:5).** This is based on the logic that "one cannot separate methods from the larger process of research of which it is a part" **(Tashakkori and Creswell 2007:304).**[4]

3.3.1 Meaning of Mixed Method Research:

A **Mixed method** refers to an innovative methodology of research that progresses the systematic integration or mixing of quantitative and qualitative data within a single investigation or sustained programme of inquiry. The basic assumption of such research helps to integrate a more complete and synergetic utilization of data, instead of separating the quantitative and qualitative methodologies for the purpose of collecting and analyzing the data. So it is a method for conducting research that involves collecting, analyzing and integrating and quantitative and qualitative researches. By mixing both the paradigms the researcher gains breadth and depth of understanding and corroboration (evidences which supports findings). That is why it is multiple methods to explore research problem.

3.3.2 Definitions:

This definition is almost identical to that given in the Handbook of Mixed Methods Research **(Creswell and Plano Clark 2007:5)**:

"**Mixed method** is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies".

Jonson, Onwuegbuzie and Turner (2007:118), who sought to formalize a definition by synthesizing the perspectives from 31 'leaders' in the field. They concluded that: "mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purpose of breadth and depth of understanding and corroboration".

Valerie Caracelli: A mixed method study is one that plan fully juxtaposes or combines methods of different types (qualitative and quantitative) to provide a more elaborated understanding of the phenomenon of interest (including its context) and, as well, to gain greater confidence in the conclusions generated by the evaluation study.

Steve Currall: Mixed methods research involves the sequential or simultaneous use of both qualitative and quantitative data collection and/or data analysis techniques.

Marvin Formosa: Mixed methods research is the utilization of two or more different methods to meet the aims of a research project as best as one can. The research project may be conducted from either one or two paradigmatic standpoints (mixed methodology study).

Jennifer Greene: Mixed method inquiry is an approach to investigating the social world that ideally involves more than one methodological tradition and thus more than one way of knowing, along with more than one kind of technique for gathering, analyzing, and representing human phenomena, all for the purpose of better understanding.

Hunter: Mixed method is a term that is usually used to designate combining qualitative and quantitative research methods in the same research project. I prefer the term multi method research to indicate that different styles of research may be combined in the same research project.

These need not be restricted to quantitative and qualitative; but may include, for example, qualitative participant observation with qualitative in-depth interviewing. Alternatively it could include quantitative survey research with quantitative experimental research. And of course it would include quantitative with qualitative styles.[5]

Burke Johnson and Anthony Onwuegbuzie: Mixed methods research is the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study or set of related studies.

3.4 Why to Use Method in Research?

3.4.1 Triangulation:

The researcher needs to use mixed method to convergence, corroborate or to validate result from different methods. Mixed methods research focuses on triangulation that spans multiple methodologies **(Denzin, 1970, 2012; Singleton & Straits, 1999).**

Jick (1979) argues that methods-spanning forms of triangulation are on the complex end of a continuum of triangulation design while within-method forms are on the simple end.

This reflects the view that using multiple methods produces more valid results as the strengths of one method can offset the limitations of another method (**Jick, 1979; Scandura & Williams, 2000).**

3.4.2 Complementarity:

When the researcher wants to elaborate, enhance, extended illustration, or to clarify the result of a method. the idea of complementarily also found a solid home in the social sciences. One way of knowing the problem is from the perspective of inside, i.e., involving the entry level of problem and the other one is when we are viewing the problem from outside and researcher generally encircles the problem inside („looking in", or Verstehen—qualitative approaches), or examining these actions from the Outside („looking at", or Erklären—quantitative approache.

3.4.3 Development:

When the researcher in a need to use one method to help and develop the other method. **Mixed methods** are especially useful in understanding contradictions between quantitative results and qualitative findings. It reflects participants' point of view. **Mixed methods** give a voice to **study** participants and ensure that **study** findings are grounded in participants' experiences. This aspect urges researchers to carefully plan their works with intentional choices that can leverage integration. The issue is to produce a whole through the integration that is greater than the sum of the individual parts of both methods.

3.4.4 Initiation:

When looking for contradiction and new perspectives. The result of one method may be used to examine and change the question for the other. The prime focus of researcher is to obtain divergent information. Purposeful data integration enables researchers to seek a more panoramic view of their research landscape, viewing phenomena from different viewpoints and through diverse research lenses.

3.4.5 Expansion:

When the researcher want to expand the breadth, depth and range of research by using different methods and various ways of inquiring results in more comprehensive outcome. This will definitely expand the scope of undertaken study. In the **European Journal of Educational studies, (2018) author Fernando Almeida** cited that, **Toomela (2008), Ponterotto et al. (2013) and McKim (2017**) emphasize that mixed methods research helps the researcher to deeply and accurately understanding of the phenomena under study. **Bamberger (2012)** complements this vision by advocating that mixed methods research promote greater understanding of stakeholder perspectives on the nature of the intervention.

3.4.6 Theory Building:

Optimally, all studies draw upon one or more theoretical frameworks from the social, behavioral, or biological sciences to inform all phases of the study. Mixed methods studies provide opportunities for the integration of a variety of theoretical perspectives (e.g., ecological theories, complexity theory, stress theory, critical theories, or others). When researcher want to develop a theory about a phenomenon of interests Mixed and after testing it a theory is generated. There is a gradual use of quantitative and qualitative methods. First, the qualitative method is used and the results are intended to contribute to the development of

the quantitative research process. The nature of qualitative research and its evidence: A salient strength of qualitative research is its focus on the contexts and meaning of human lives and experiences for the purpose of inductive or theory-development driven research. Qualitative data help researchers understand processes, especially those that emerge over time, provide detailed information about setting or context, and emphasize the voices of participants through quotes.

Qualitative methods facilitate the collection of data when measures do not exist and provide a depth of understanding of concepts. Quantitative research is a mode of inquiry used often for deductive research, when the goal is to test theories or hypotheses, gather descriptive information, or examine relationships among variables. These variables are measured and yield numeric data that can be analyzed statistically. Quantitative data have the potential to provide measurable evidence, to help to establish (probable) cause and effect, to yield efficient data collection procedures, to create the possibility of replication and generalization to a population, to facilitate the comparison of groups, and to provide insight into a breadth of experiences.

This integration consists of combining the qualitative data in the form of texts or images with the quantitative data in the form of numeric information. This integration can be achieved by reporting results together in a discussion section of a study, such as reporting first the quantitative statistical results followed by qualitative quotes or themes that support or refute the quantitative results.

It also can be achieved by transforming one dataset (e.g., counting the occurrence of themes in a qualitative dataset) so that the transformed qualitative results can be compared with the quantitative dataset **(Sandelowski, Voils, & Knafl, 2009**).

3.4.7 Generalization: Generalization:

which is an act of reasoning that involves drawing broad inferences from particular observations, is widely-acknowledged as a quality standard in quantitative research, but is more controversial in qualitative research. The goal of most qualitative studies is not to generalize but rather to provide a rich, contextualized understanding of some aspect of human experience through the intensive study of particular cases. Mixed methods research, which involves the collection, analysis, and integration of qualitative and quantitative data within a study or coordinated series of studies, appears to hold promise for generalizability.

In the **International Journal of Nursing Studies, by Denise F. Polit. and Cheryl Tatano Beck** it is being cited that larger and more representative samples in the quantitative strand of mixed methods studies can promote confidence in generalizability in the classic sense. Well-grounded meta-inferences **(Teddlie and Tashakkori, 2009)** based on rich, complementary data sources can enhance analytic generalization.

And rich and diverse descriptive information from two types of data source can promote an understanding of proximal similarities and hence transferability. Interest in mixed methods research is growing rapidly, and exciting developments are also occurring with regard to mixed methods integration **(e.g., Flemming, 2010; Plueye et al., 2009)**.[6]

3.4.8 Instrument: Generally, there are various procedures of collecting data. The main instruments used in the mixed method researches consist of closed-ended, open-ended questionnaires, interviews and classroom observations.

These different ways of gathering information can supplement each other and hence boost the validity and dependability of the data.

In the main, the quantitative data are obtained through closed-ended questionnaires and the qualitative data through open ended questionnaires, interviews and classroom observations.[7] **provides an approach for developing better, more context specific instruments**.

For instance, by using qualitative research it is possible to gather information about a certain topic or construct in order to develop an instrument with greater construct validity, i.e., that measures the construct that it intends to measure.

3.5 Different Aspects of Mixed Research Method:

Bryman (2006) formulated a list of more concrete rationales for performing mixed methods research.

Bryman's classification breaks down **Greene et al.'s (1989)** categories into several aspects, and he adds a number of additional aspects, such as the following:

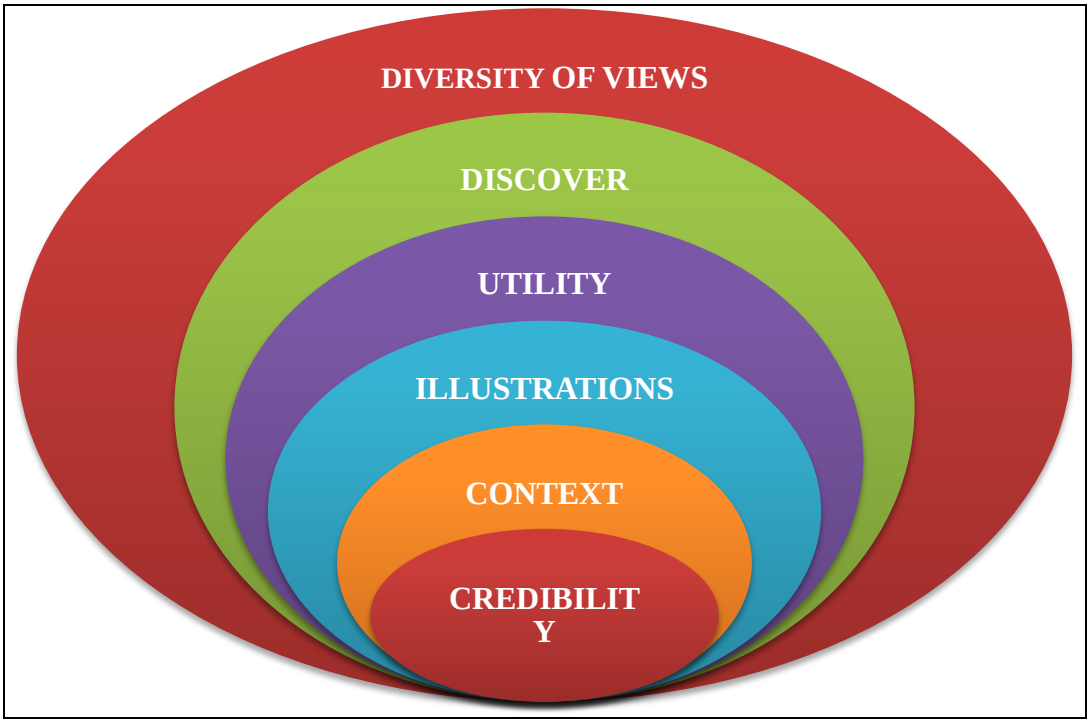

Diagram 3.4: Showing Different Aspects of Mixed Research Method

Source: https://link.springer.com/article/10.1007/s11577-017-0454-1

3.5.1 Credibility: refers to suggestions that employing both approaches enhances the integrity of findings.

3.5.2 Context: refers to cases in which the combination is justified in terms of qualitative research providing contextual understanding coupled with either generalizable, externally valid findings or broad relationships among variables uncovered through a survey.

3.5.3 Illustration: refers to the use of qualitative data to illustrate quantitative findings, often referred to as putting "meat on the bones" of "dry" quantitative findings.

3.5.4 Utility or Improving the Usefulness of Findings: refers to a suggestion, which is more likely to be prominent among articles with an applied focus, that combining the two approaches will be more useful to practitioners and others.

3.5.5 Conform and discover: this entails using qualitative data to generate hypotheses and using quantitative research to test them within a single project.

3.5.6 Diversity of Views: this includes two slightly different rationales – namely, combining researchers' and participants' perspectives through quantitative and qualitative research respectively, and uncovering relationships between variables through quantitative research while also revealing meanings among research participants through qualitative research. **(Bryman, p. 106)**

3.6 Typology of Mixed Research Method:

3.6.1 Sequential Explanatory Strategy:

This is the popular among the others that appeal to researcher with strong quantitative background. In this typology researcher first collect and analyses quantitative data followed by the collection and analysis of qualitative data in the second phase that builds on the result of the initial quantitative paradigm.

The mixing or integration of data occurs when the initial quantitative outcome informs the secondary qualitative data collection. Thus the form of data collection separated but connected.

The overall purpose of this design is to use a qualitative strand to explain initial quantitative results **(Creswell, Plano Clark, et al., 2003).**

For example, the explanatory design is well suited when the researcher needs qualitative data to explain quantitative significant (or non-significant) results, positive-performing exemplars, outlier results, or surprising **results (Bradley et al., 2009; Morse, 1991).**

So this form of strategy begins with the explanation and interpretation of quantitative outcome by collecting and analyzing qualitative outcome.

It generally arises when unexpected outcome arises from the quantitative then the qualitative data collection that follows can be used to examine the details. For example survey method was used then interview method on group members to get deep insight about the responses of survey, to assist findings in quantitative study.

3.6.1.1 Strength:

- It is easy to implement because the steps fall to clear and separate stages.
- It is very easy to describe and to report.
- The final report can be written with a quantitative section followed by a qualitative section, making it straightforward to write and providing a clear delineation for readers.
- This design lends itself to emergent approaches where the second phase can be designed based on what is learned from the initial quantitative phase.

3.6.1.2 Weakness:

- It takes long duration of time for data collection of two different phases.
- If two different phases are given equal priority then it acts as a great drawback.

The researcher must decide who to sample in the second phase and what criteria to use for participant selection. Chapter 6 explores approaches to using individuals from the same sample to provide the best explanations and criteria options, including the use of demographic characteristics, groups used in comparisons during the quantitative phase, and individuals who vary on select predictors.

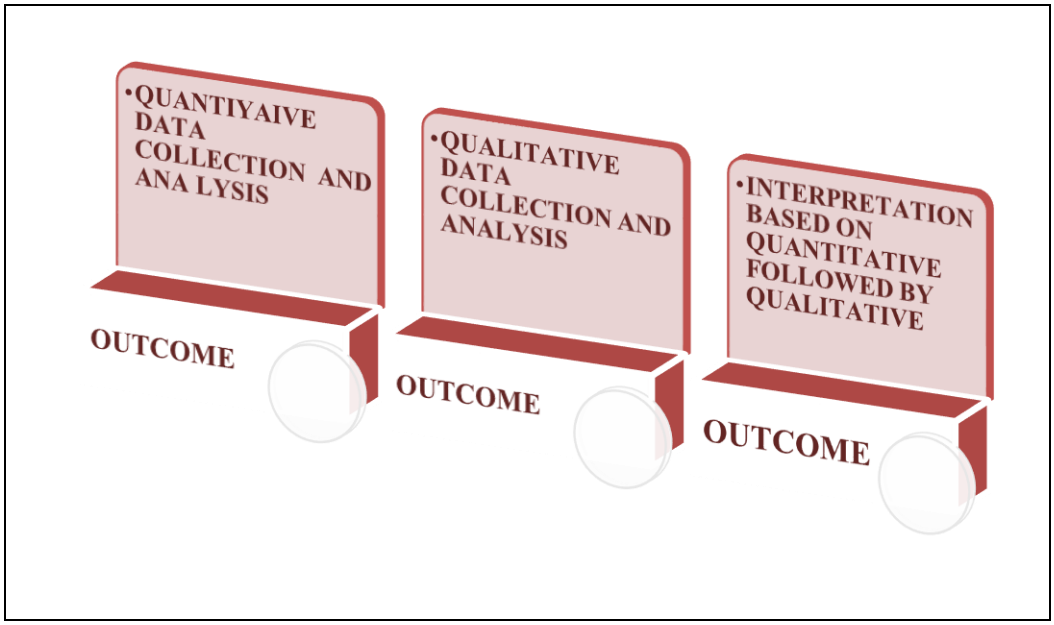

Diagram 3.5: Showing Sequential Explanatory Strategy.

(Source: Investigator Self Made)

3.6.2 Sequential Exploratory Strategy:

The Sequential Exploratory is almost identical to the Sequential Explanatory Strategy except their phases are reversed with each other. Here in the first phase instead of quantitative, qualitative data collection and analysis were carried on followed by the quantitative data collection and analysis in the second phase, which builds on the result of the first qualitative phase. Weight is actually given to the first phase and data are mixed through while establishing connection between qualitative data analysis and quantitative data collection. But it is also true that the design may not be implemented within explicit theoretical perspective. The purpose of this typology is to utilize quantitative data and results simultaneously in order to provide assistance in the interpretation of qualitative findings. The purpose of such strategy according to **Morse** is to determine distribution of phenomena within chosen population. It is often described as procedure of choice when the researcher needs to develop an instrument, because the existing instruments are inadequate or it is not available. The primary purpose of the exploratory design is to generalize qualitative findings based on a few individuals from the first phase to a larger sample gathered during the second phase.

As with the explanatory design, the intent of the two-phase exploratory design is that the results of the first, qualitative method can help develop or inform the second, quantitative method **(Greene et al., 1989)**.

This design is based on the premise that an exploration is needed for one of several reasons: (1) measures or instruments are not available, (2) the variables are unknown, or (3) there is no guiding framework or theory.

Because this design begins qualitatively, it is best suited for exploring a phenomenon (Creswell, Plano Clark, et al., 2003).

This design is particularly useful when the researcher needs to develop and test an instrument because one is not available **(Creswell, 1999; Creswell et al., 2004)** or to identify important variables to study quantitatively when the variables are unknown.

For example, conduct a survey to develop classification for testing or identifying the variables.

Researcher uses information from different sources like journals or diaries in order to develop a survey and to administer it on larger samples.

3.6.2.1 Strength:

- It is easy to implement as it is straight forward to describe the report.
- It is useful for those researchers who wants to explore phenomena as well as also wants to expand qualitative findings.
- Although this design typically emphasizes the qualitative aspect, the inclusion of a quantitative component can make the qualitative approach more acceptable to quantitative-biased audiences.
- This design is useful when the need for a second, quantitative phase emerges based on what is learned from the initial qualitative phase.

3.6.2.2 Weakness:

- It needs prolonged period of time to complete both data collection phases which acts as a drawback in the research process.
- Researcher has to make key decision about which findings from the initial qualitative phase will be focused on in the subsequent quantitative phase.
- Researchers should consider using a small purposeful sample in the first phase and a large sample of different participants in the second phase to avoid questions of bias in the quantitative strand.
- Procedures should be undertaken to ensure that the scores developed on the instrument are valid and reliable.

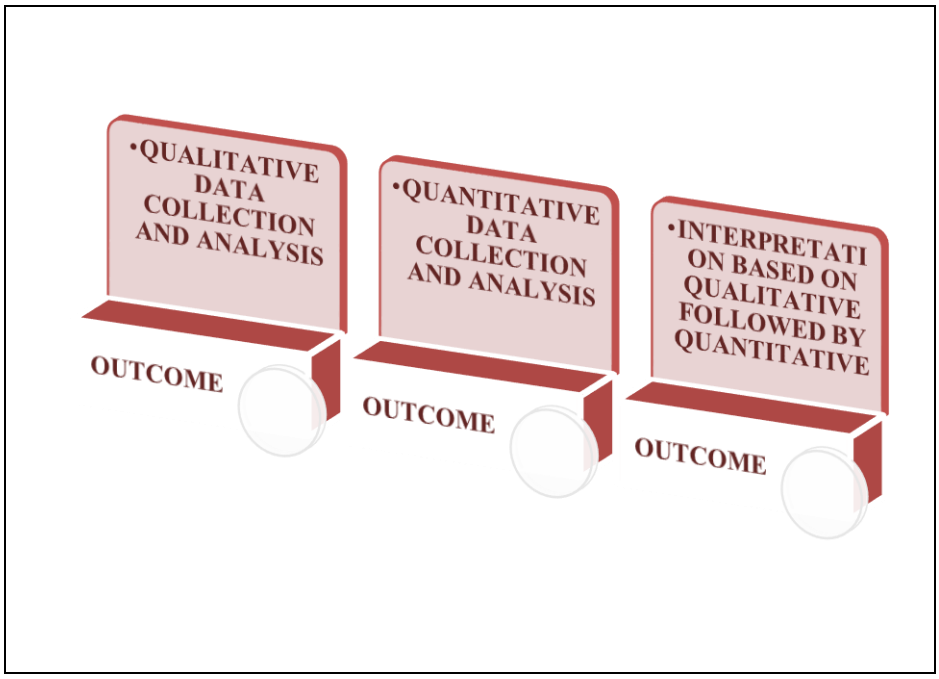

Diagram 3.6: Showing the Sequential Exploratory Strategy

Source: (Investigator Self Made)

3.6.3 Sequential Transformative Strategy:

This typology consists of two different phases of data collection, one following the other as in the above two strategically types described before. The sequential transformative strategy is a dual phase design (either quantitative or qualitative) followed by second phase (either qualitative or quantitative) that builds on earlier phase.

Here researchers have a choice to use either method of the first phase and the weight can be given to either or distributed evenly to both the phases. As in case of sequential design, mixing is connected in all. So like the other two phases this typology is also not free from theoretical perspective to guide the study. While using both the phases in sequential transformative

researchers are able to put voice to divergent perspectives, to better advocate for participants or to better understand a phenomenon or process which is being changing as a result of being studied .So this way it allows theoretical perspective to quick study and determines the order of data collection and then results are integrated at interpretation.

3.6.3.1 Strength:

- While using the distinct phases it facilitates its implementation, description and sharing of results.
- It gives voice to diverse perspectives and to advocate for participation or to better understand a phenomenon or process that is changing as a result of being studied.

3.6.3.2 Weakness:

- It requires time to complete two data collection phases.
- There is little guidance on how to use the transformative vision to guide the method.

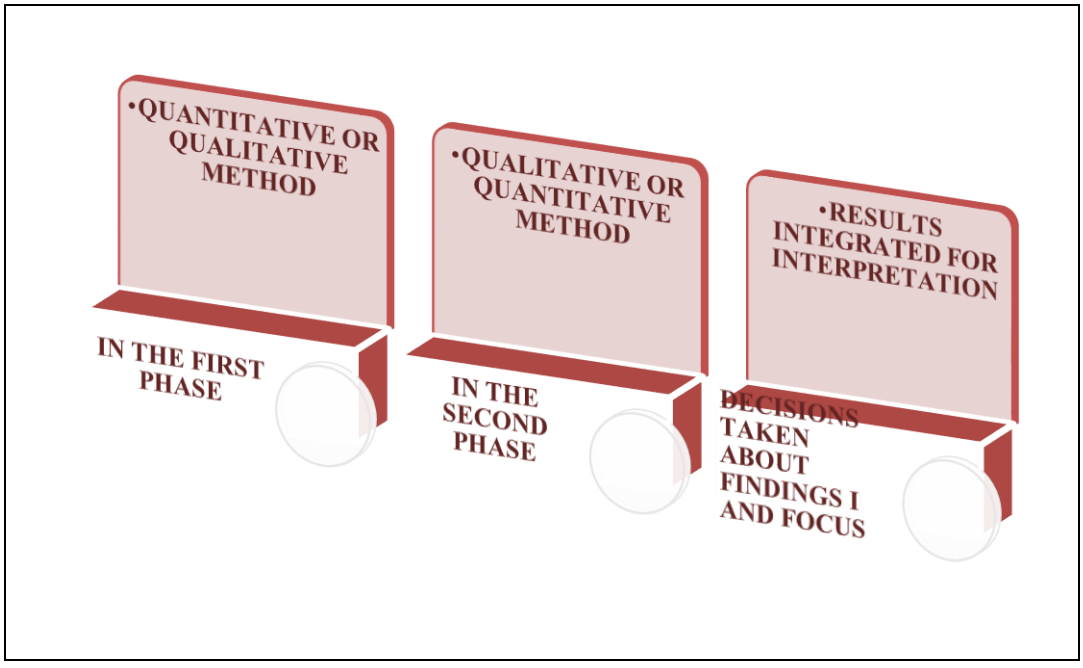

Diagram 3.7: Showing the Sequential Transformative Strategy

Source: Investigator Self Made

3.7 Concurrent Triangulation Strategy:

This typology is the most common and familiar in compares to other major typologies. Here researcher involves himself in both quantitative and qualitative data concurrently and then he compares the collected database to determine if there is convergence, differences or some combination.

Some authors refer this comparison as **Confirmation, Cross- Validation or Corroboration**.

This typology separately uses qualitative and quantitative method as to offset the inherent weakness within one method with the strength of the other. I is concurrent because both quantitative and qualitative data collection takes place in single phase of the research.

Definitely equal weight is given to both the methods but in the practical phase often priority is given on one over the other.

So the mixing during this approach is generally found in an interpretation or discussion section, in order to amalgamate the data (transforming one types of data into another one so that they can be easily compared) or to integrate, compare the results of two sets of database side by side in a discussion.

This side by side integration is often published in mixed method studies in which discussion section first provide quantitative statistical result followed by qualitative quotes that supports or negates the quantitative results.

For example, researcher conducted survey and undertaken interview to collect data simultaneously.

3.7.1 Strength:

- Concurrent triangulation method supports the validation and substantiated findings.
- It requires very short time for data collection as because both quantitative and qualitative data are collected simultaneously in the same stage.
- It can expand the quantitative data through collection of open ended qualitative data.

3.7.2 Limitations:

- It requires great expertise on the part of researcher to collect data and adequately to study the phenomena with two separate methods.
- It may also establish a problem for a researcher to compare the results of two analysis using data of different forms.
- Researcher may not have clarity about how to solve the discrepancies arises while comparing the results although the procedures are emerging the literature such as conducting additional data collection to resolve discrepancies, revisiting the original database, gaining new insight from the disparity of data or developing new projects that addresses different discrepancies.

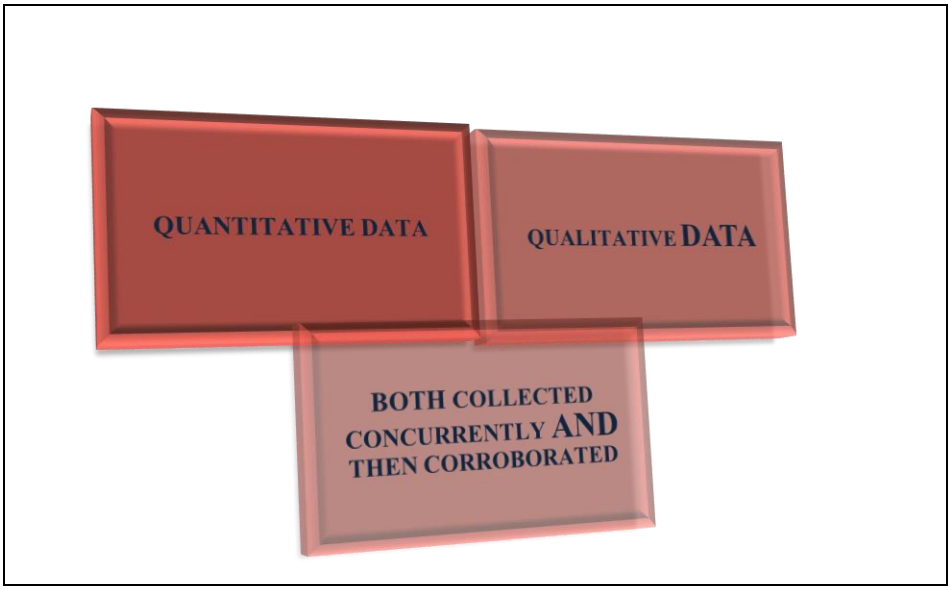

Diagram 3.8: Showing the Convergent Triangulation Strategy.

Source: Investigator Self Made

3.8 Concurrent Embedded Strategy:

Like the Concurrent Triangulation approach, the Concurrent Embedded Strategy of mixed method research can be identified by its use of one data collection phase during which both qualitative and quantitative data are collected simultaneously. In this method one is embedded within the other. Here n this typology priority is given to primary data collection approach with less emphasis placed on the nested approach and data are mixed during the analysis phase. A theoretical perspective may or may not guide the design. The primary purpose of it is to gain a broader perspective than would be gained from using only the predominant data collection method.

It is also used to address different research questions or accumulate information from different groups or levels within an organization. Here, researcher combines the collection and analysis of both quantitative and qualitative data within a traditional quantitative research design or qualitative research design **(Caracelli & Greene, 1997; Greene, 2007)**.

The collection and analysis of the second data set may occur before, during, and/or after the implementation of the data collection and analysis procedures traditionally associated with the larger So, it is a one phase data collection in which priority is given to one approach that guides the project while the other approach is nested or embedded in the project to provide support or to devote additional source or arguments, through different questions is addresses.

3.8.1 Strength:

- The researchers are able to collect two types of data simultaneously, where advantages of both the methods can be gained.

- According to Morse, this method can enrich the description of the sample participants by embedding the qualitative design to some quantitative data.
- This typology can be employed when researcher have a choice to employ different methods for studying different groups or levels.
- Because the different methods are addressing different questions, this design fits a team approach well, where members on the team can focus their work on one of the questions based on their interests and expertise. • The focus on different questions means that the two types of results can be published separately.
- Tashakkori and Teddlie noted that this approach as a multi-level design.
- Lastly, one method could be used within the framework of the other method.

3.8.2 Weakness:

- The problem of this approach is that the data need to be transformed to allow the integration during the analysis which may lead to issue in resolving the discrepancies that occurs between different data types.
- The scope of literature is very narrow in this area for providing guide or assistance to the researcher.
- It can be difficult to integrate the results when the two methods are used to answer different research questions. However, unlike the convergent design, the intent of the embedded design is not to merge two different data sets collected to answer the same question.

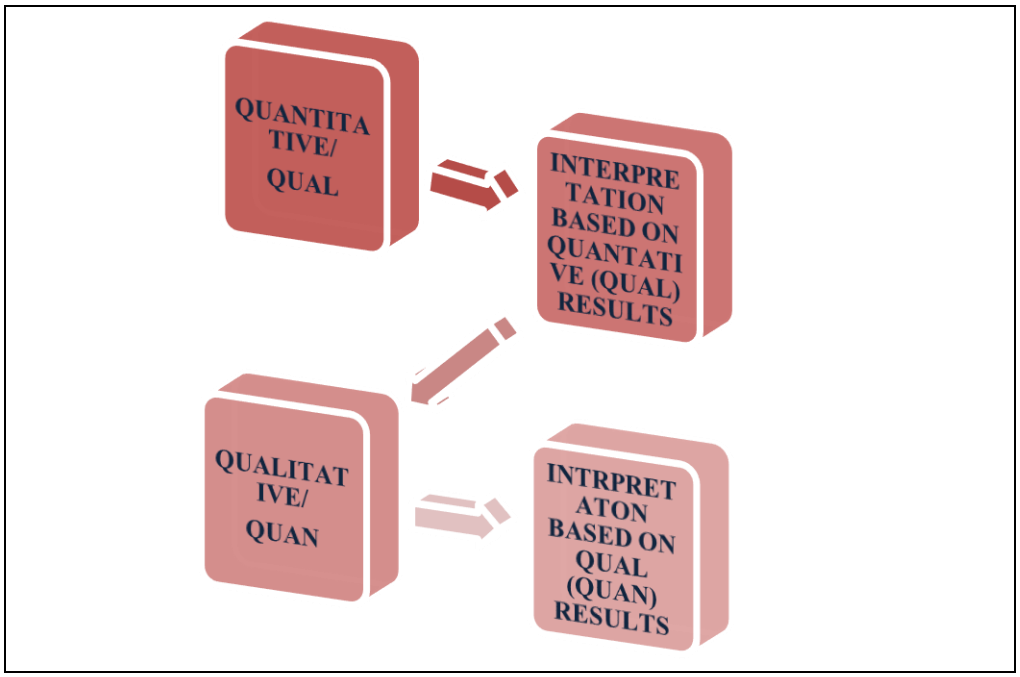

Diagram 9: Showing the Concurrent Embedded Strategy.

Source: Investigator Self Made)

3.9 Concurrent Transformative Strategy:

This model is definitely supported by researcher use of a specific theoretical perspectives as well as concurrent collection of both qualitative and quantitative data.

It is based on the ideologies of critical theory, participatory research, conceptual or theoretical framework.

The choice of concurrent model whether to use it as triangulation or embedded typologies is made to facilitate this perspective.

So both qualitative and quantitative data are collected which are guided by theoretical perspectives which guides methodological choices and the purpose is to evaluate the perspectives at different levels of analysis.

For example, the design may have one method embedded in other so that diverse participants are given a voice in the change process of organization.

It may involves the triangulation of qualitative and quantitative data to best coverage information to provide evidences for an inequality of policies in an organization.

So it takes the design features of triangulation or embedded approaches.

The merging of data would be through the mixing or embedding the data, because the current transformation model shares features of both triangulation and embedded approaches. It also shares their specific strength and weakness.

3.9.1 Strength:

- The researcher gets a chance to address the issues for social justice and to bring changes in the society.
- In this strategy the needs and demands of marginalized or unprivileged groups were taken In to consideration.
- Participants play an active as well as participatory role.
- The researcher is able to use a collection of methods that produces results that are both useful to community members and viewed as credible to stakeholders and policy makers.

3.9.2 Weakness:

- There is still little guidance in the literature to assist researchers with implementing mixed methods in a transformative way. One way to proceed is to review published mixed methods studies that employ a transformative lens **(Sweetman, Badiee, & Creswell, 2010)**.
- The researcher may need to justify the use of the transformative approach. This can be done by explicitly discussing the philosophical and theoretical foundations as part of the study proposal and report.

- The researcher must develop trust with participants and be able to conduct the research in a culturally sensitive way.

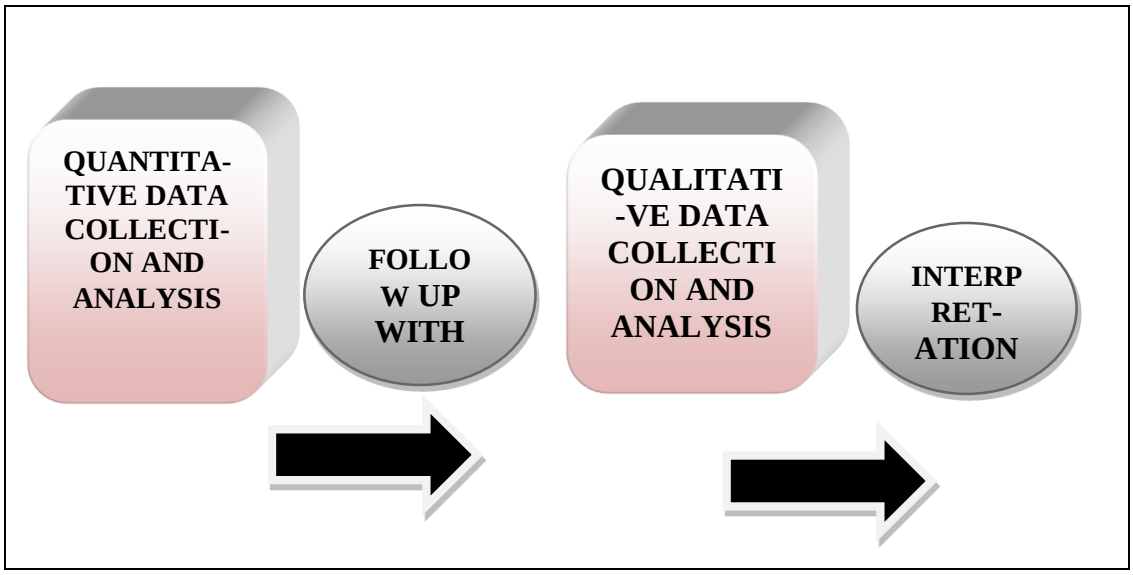

Diagram 3.10: Showing the Concurrent Transformative Strategy.

Source: https://www.sagepub.com/sites/default/files/upm-binaries/35066_Chapter3.pdf

3.10 The Multiphase Design:

The Multiphase mixed typology is the complex and complicated design as because it has been built on the bedrock of above all basic designs like the convergent, explanatory, exploratory embedded where the teams of researcher examine the problem through a series of phases or separate studies that are sequentially aligned with each new approach building on what was learned previously to address a central program objective.

Today, multiphase designs combine sequential and concurrent aspects and are most common in large funded studies that have numerous questions being investigated to advance one programmatic objective.

Two primary examples of this design would be a multi-project funded mixed methods project involving numerous investigators and researchers for U.S. federal funding (e.g., a National Institutes of Health [NIH] or National Science Foundation [NSF] project) or a statewide evaluation study involving multiple levels of data collection and analysis as well as multiple studies.

It provides an overarching methodological framework to a multiyear project that calls for multiple phases to develop an overall program of research, or evaluation. For example, in the context of program evaluation, these multiple phases may be tied to phases for needs assessment, program development, and program evaluation testing.

3.10.1 Strength:

- The multiphase design incorporates the flexibility needed to utilize the mixed methods design elements required to address a set of interconnected research questions.
- Researchers can publish the results from individual studies while at the same time still contributing to the overall evaluation or research program.
- The design fits the typical program evaluation and development approach well.
- The researcher can use this design to provide an overall framework for conducting multiple iterative studies over multiple years.

3.10.2 Weakness:

- The researcher must anticipate the challenges generally associated with individual concurrent and sequential approaches within individual or subsequent phases.
- The researcher needs sufficient resources, time, and effort to successfully implement several phases over multiple years.
- The researcher needs to effectively collaborate with a team of researchers over the scope of the project, while also accommodating the potential addition and loss of team members.
- The researcher needs to consider how to meaningfully connect the individual studies in addition to mixing quantitative and qualitative strands within phases.
- Due to the practical focus of many multiphase designs for program development, the investigator needs to consider how to translate research findings into practice through developing materials and programs.
- The researcher may need to submit new or modified protocols to the IRB for each phase of the project.[8]

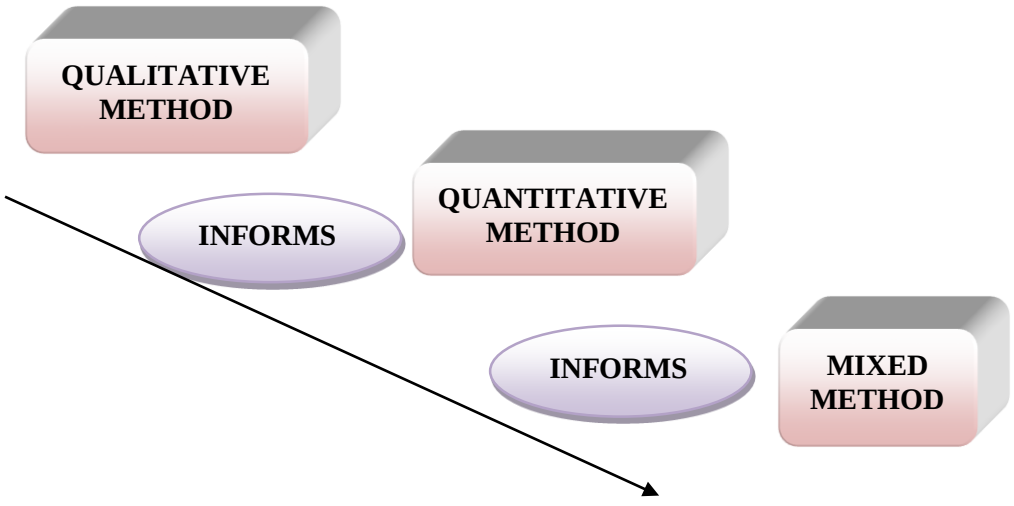

Diagram 3.10: Showing the Multiphase Design.

Source: https://www.sagepub.com/sites/default/files/upm-binaries/35066_Chapter3.pdf.

3.11 Steps for Conducting Mixed Research Method:

3.11.1 Determine A Mixed Method Study That Is Feasible:

Researcher must select the topic that is suitable to undertake the design the mixed method. Then he must access to both qualitative and quantitative data, background and resources.

3.11.2 Identifying a Rationale for a Mixed Method Study:

In this stage the researcher need to provide the rationale for selecting the mixed method design including both qualitative and quantitative approach.

With it he must also explicitly discuss the reasons for collecting the qualitative and quantitative data, including it early in the research plan.

3.11.3 Identifying the Data Collection Strategy:

Now researcher will give priority to quantitative and qualitative data, the sequence of data collection, the specific forms of qualitative and quantitative data need to be collected either through qualitative instruments (interview, observation, document etc.) or quantitative instruments (survey, checklist etc).

3.11.4 Develop Qualitative, Quantitative or Mixed Method Questions:

Researcher now need to identify the questions prior to study or during the study.

Researchers need to establish both exploratory and analytic variable questions. Questions will be developed depend on the type of design.

3.11.5 Collection of Quantitative and Qualitative Data:

The sequence of data collection will definitely depend on the type of design that has been employed by the researcher. After that presentation of data or information need to be sequentially arranged by the researcher.

3.11.6 Analyzing Data Separately or Concurrently:

Now in this stage data will be analysed by the researcher pivotally relate to the specific type of design that will be used.

3.11.7 Writing a Research Report:

Researcher will write the report in two phases, which integrates the quantitative and qualitative phases or diagram of the design.[9]

3.12. Conclusion:

Mixed method research actually has a long history in research practice. Generally contingency theory is recommended for research approach selection which accepts the quantitative, qualitative and mixed research are all superior under the different circumstances and it is the researcher's work to examine the specific contingencies and make the decisions about which research approach or combination of approaches should be used in specific study. It is a philosophical assumption as well as a method of inquiry.

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