



TRIANGULATION AN ESSENTIAL TOOL TO ENHANCE THE VALIDITY OF A CASE STUDY

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ABSTRACT

Triangulation involves using multiple data sources in an investigation to produce understanding. Triangulation in sociological research is the use of three or more contrasting methods in a study to produce three different sets or even types of data. Its purpose is to reduce the weight given to any individual set of results. 'Triangulation' can also be achieved by using different research techniques. Triangulated techniques are helpful for cross-checking and used to provide confirmation and completeness, which brings 'balance' between two or more different types of research. The purpose is to increase the credibility and validity of the results. Often this purpose in specific contexts is to obtain confirmation of findings through convergence of different perspectives. There are various types of triangulation which can be done at various stage of the research. It has got lot of relevance in case study as it is believed that its lacks in objectivity. Case studies has various advantages, in that they present data of real-life situations and they provide better insights into the detailed behaviors of the subjects of interest, they are also criticized for their inability to generalize their results. Thus triangulation can help to overcome its disadvantages. It helps to increase its construct validity

Keyword: Triangulation, Case study, Validity, reliability



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**“Triangulation is an attempt to map out, or explain more fully, the richness and complexity of human behavior by studying it from more than one standpoint”
- Cohen and Manion**

Introduction

Triangulation involves using multiple data sources in an investigation to produce understanding. Triangulation in sociological research is the use of three or more contrasting methods in a study to produce three different sets or even types of data. Its purpose is to reduce the weight given to any individual set of results. Instead, results obtained by different methods are contrasted in order to learn more about their validity. Different types of triangulation are used to test validity based on different variables. It enhances the validity and reliability of existing observations about a given situation. If findings converge, it can also generate new, credible findings about a situation or phenomenon and can create new ways of

looking at a situation or phenomenon. Most importantly, it can provide a better understanding of a situation or phenomenon.

Historical Perspective on Triangulation

The concept, originated from ancient Greek mathematics and is applied in a wide range of spheres, including geometry and surveying. In navigation, it is used to establish a ship's position: measuring a vessel's distance from more than one point on the shore gives a more accurate reading of its location

Triangulation was first applied to research by Campbell and Fiske (1959) and developed by Webb (1966), who argued that researchers should employ more than one instrument to measure variables. As this implies, triangulation was first associated with quantitative research but its relevance to qualitative methods was soon explored.

Denzin (1970, 1978) was a major proponent of the use of triangulation by researchers working within the interpretivist paradigm.

Purpose of Triangulation

- The main purpose of triangulation in educational and social science research is to increase the credibility and validity of the results.
- It increases confidence in research data, creating innovative ways of understanding a phenomenon, revealing unique findings, challenging or integrating theories.
- It provides a clearer understanding of the problem.
- It obtains a variety of information on the same issue.
- To use the strength of each method to overcome the deficiencies of the other.
- To achieve a higher degree of validity and reliability; and to overcome the deficiencies of single-method studies.

Types of Triangulation

- data triangulation
- investigator triangulation
- theory triangulation
- methodological or method triangulation

Data triangulation:

Data triangulation is the use of a variety of data sources, including time, space and persons, in a study. Findings can be corroborated and any weaknesses in the data can be compensated for by the strengths of other data, thereby increasing the validity and reliability of the results. The approach has been used in many sectors to strengthen conclusions about findings and to reduce the risk of false interpretations.

Investigator triangulation:

Investigator is the use of more than one investigator, interviewer, observer, researcher or data analyst in a study. The ability to confirm findings across investigators without prior discussion or collaboration between them can significantly enhance the credibility of the findings. Investigator triangulation is particularly important for decreasing bias in gathering, reporting or analyzing study data.

Theory triangulation

It includes the use of multiple theories or hypotheses when examining a situation or phenomenon. The idea is to look at a situation/phenomenon from different perspectives, through different lenses, with different questions in mind. The different theories or hypotheses do not have to be similar or compatible; in fact, the more divergent they are, the more likely they are to identify different issues and concerns.

Methods triangulation

It involves the use of multiple methods to study a situation or phenomenon. The intention is to decrease the deficiencies and biases that come from any single method. This type of triangulation is very similar to the mixed method approaches used in social science research, where the results from one method are used to enhance, augment and clarify the results of another. It is also a variation on data triangulation, with an emphasis on using data collected by different methods as opposed to data collected for different programmes, locations, populations, etc.

Benefits of data triangulation

The triangulation of data strengthens the research and allows the researcher to write a better research paper because of the following benefits.

- Additional sources of information often give more insight into a topic.
- Inadequacies found in one-source data is minimized when multiple sources confirm the same data
- Multiple sources provide verification and validity while complementing similar data
- More comprehensive data is obtained.
- Data and information is supported in multiple places/types of research, which makes it easier to analyze data to draw conclusions and outcomes.
- Inconsistencies in data sets are more easily recognized.

Case Study Research

“An empirical enquiry that investigates a contemporary phenomenon within its real life context” (Yin.2003).

Earlier case studies were being understood as that type of research which lacks objectivity, so the research design to be used in it should be properly planned and then implemented. They offer deep insight to a particular case so its contribution in research cannot be ignored. They are useful in contemporary events when the behavior cannot be manipulated. It uses variety of evidence from different sources like documents, interviews, observations, artefacts etc. Case studies are generally a mix of both qualitative and Quantitative evidences. Including both quantitative and qualitative data, case study helps explain both the process and outcome of a phenomenon through complete observation, reconstruction and analysis of the cases under investigation.

Case studies are considered useful in research as they enable researchers to examine data at the micro level. As an alternative to quantitative or qualitative research, case studies can be a practical solution when a big sample population is difficult to obtain. Case studies have various advantages, in that they present data of real-life situations and they provide better insights into the detailed behaviors of the subjects of interest, they are also criticized for their inability to generalize their results. Thus triangulation can help to overcome its disadvantages.

Types of Case Studies

- Intrinsic Case studies-It explores a particular case without getting concerned whether the findings may be applicable to other case studies.
- Instrumental Case Study-It is a study where a particular case is taken to develop insight on a phenomenon which later might develop into a theory.
- Collective Case Study-When many instrumental case studies are used to make comparisons in relation to a particular phenomenon.

Triangulation and Case Study Designs

- Single-case design is its inability to provide a generalizing conclusion, in particular when the events are rare. It can be overcome by triangulating the study with other methods in order to confirm the validity of the process.
- The multiple-case design, on the other hand, can be adopted with real-life events that show numerous sources of evidence through replication rather than sampling logic.

Triangulation in Case study Research

Triangulation provides an important way of ensuring the validity of case study research. Normally, data collection methods are triangulated, but in addition to this, data sources, theory, or investigators might also be triangulated. Gathering evidence typically case studies

draw on multiple sources of evidence. These include documents, archival records, interviews, direct observation, participant observation, and physical artifacts. Each of these different sources requires different approaches to their interrogation, and are likely to yield different kinds of insights. Each source has its strengths and its weaknesses, and the richness of the case study evidence base derives largely from this multi-faceted perspective yielded by using different sources of evidence.

In Case studies at every step a clarification is needed to make sure that the individual or event is described accurately. At such a situation triangulation serves as one of the great strengths of case studies as compared with other methods that is evidence can be collected from multiple sources.

Thus triangulation is a Quality assurance tactic in a Case study which ensures that the Case study is based on a disciplined approach and not just a matter of intuition or good intention.

Application of triangulation in a case study

- Method Triangulation can be done in a case study. As it can use mixed methods for purpose of Triangulation and both qualitative and quantitative data can be gathered and the results can be verified.
- Data Triangulation is also possible as data is gathered from various sources and the findings can be verified. Thus the weaknesses of a case study can be removed to a large extent.
- Theory Triangulation can be done in a case study at the time of data analysis, as the event or phenomenon can be examined from different perspective.
- Investigator Triangulation involves other researchers to verify and add meaning to the Case study research.
- These Triangulation protocols can provide strength to the overall research.

Conclusion

'Triangulation' is a strategy for increasing the validity of evaluation and research findings. It is used to combine the advantages of both the qualitative and the quantitative approach. Case study research is particularly appropriate for generating in-depth understanding of complex problems across the dimensions of people, places and spaces. To respond to the criticisms of lack of rigor in case study research, triangulation has been widely recommended as it strengthens case study researches.

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