

# CAN TRIANGULATION BE USED TO VALIDATE SOCIOLOGICAL RESEARCH FINDINGS?

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## **Abstract**

*Research in sociology is always conducted to find out a solution(s) to societal problems. There are so many elements involved in the research process, from the introduction to data collection and to result in analysis. These factors sometimes distort the result or influence the findings. But a valid and reliable result is always wanted and widely acceptable. To make the sociological research findings bias-free and valid, generalised triangulation plays an important role. Triangulation helps sociological researchers and other researchers in the field of social sciences to overcome bias and increases the rate of certainty and bringing neutrality. It is a process of using more than one method, theory, researcher and data collection method and technique to make the research findings more valid, reliable and generalisable. This paper discusses the concept of Triangulation, from its validity, types, reasons, importance and uses with relevant examples to sociology.*

**Keywords:** Triangulation, Sociological Research, Generalizability, and Investigator.

## **Introduction**

Sociology is the study of human social relationships and institutions. Sociology's subject matter is diverse, ranging from crime to religion, from the family to the state, from the divisions of race and social class to the shared beliefs of a common culture, and from social stability to radical change in whole societies. Unifying the study of these diverse subjects of study is sociology's purpose of understanding how human action and consciousness is been shaped and shaped by surrounding cultural and social structures.

Sociology is an exciting and illuminating field of study that analyzes and explains important matters in people's personal lives, communities, and the world (Ahmed, 2007). On a personal level, sociology investigates the social causes and consequences of such things as gender identity, family conflict, deviant behavior, aging, and religious faith. At the societal level, sociology examines and explains matters like crime and law, poverty and wealth, prejudice and discrimination, schools and education, business firms, urban, rural and international border communities, and social movements. At the global level, sociology studies such phenomena as population growth and migration, war and peace, and economic development. How then do sociologist studies all these? The simple response is through conducting research.

Research is a systematic investigation to find answers to a problem, which is carried out mainly in the social context. Exact prediction of social science is difficult as it is not science. The objective of research in science is to discover, describe and explain the fact, whereas in the case of research in sociology which is a branch of social science it deals with observation,

verification, and conclusion. Research in sociology operates through observation and experience; as well as through ideas, theories, and models. While in science, the scientist can achieve the goal of gathering knowledge scientifically by following the basic principles of research methodology. But in sociological research, it is not very easy as it is an inquiry to discover social phenomena involving human behaviour. Because various elements influence and change the social phenomena and most of the time, those elements cannot be measured through microscopy.

In the natural sciences, the research findings of Scientist A are held to have been validated when Scientist B in a different laboratory is able to repeat Scientist A's original experiment with identical findings. But this validation by replication is not possible in the sociological research because, with the exception of psychological laboratory studies, sociological research takes place in natural environment, everyday settings, which will always contain particular and unique features that cannot be exactly reproduced in a second setting, or even in the same setting at a different point in time. According to Young (1968), social research is a scientific understanding which by means of logical methods, aims to discover new facts or old facts and to analyze their sequences, interrelationships, causal explanations, and natural laws that govern them. Since much social research is founded on the use of a single research method and as such may suffer from limitations associated with that method or from the specific application of it, multiple methods offer the prospect of enhanced confidence. There is also a distinct tradition in the literature on sociological research methods that advocates the use of multiple methods. Blaikie (1991) argued that the deficiencies of any one method can be overcome by combining methods and thus capitalizing on their individual strengths. One such method is the 'triangulation' that is the born of contention in this paper.

## **Conceptual Clarifications**

### **What is Triangulation?**

Triangulation is defined as the use of multiple methods mainly qualitative and quantitative methods in studying the same phenomenon for the purpose of increasing study credibility. This implies that triangulation is the combination of two or more methodological approaches, theoretical perspectives, data sources, investigators and analysis methods to study the same phenomenon. It is a process of verification that increases validity by incorporating a number of methods. In social science it is referred to as the combination of two or more theories, data sources, methods in one study of a single phenomenon to converge on a single construct, and can be employed in both quantitative and qualitative studies (Hussein, 2009).

The principles involved in triangulation can be traced back to ancient times when man discovered that it was possible to locate or fix an object's exact location with the use of Multiple reference points. It soon became a core tool in navigation and military strategy and even today forms a cornerstone of the surveyor's trade (Jick, 1983; Neuman, 2003). Although the original Greek word implied that it consisted of the 'making of A triangle'. Triangulation does not require the use of three reference points or options, only more than one (Denzin, 1989; Rubin & Babbie, 2001)

Although the idea of utilizing triangulation in the social and behavioural sciences originated in the 1950s (Hakim, 1987), it still has not, in spite of its advantages, become standard practice. This is probably because it can take on a wide variety of forms and can become very complicated (Bryman, 2003; Ritchie & Lewis, 2003). Recent experience has

shown that the latter does not, necessarily, have to be the case. Although there are various definitions of triangulation. It can be seen as the use of multiple theoretical perspectives/procedures/methods, sources of data, investigators or theories to collect and interpret data about a phenomenon to converge on an accurate representation of that particular 'reality' (Brink, 2003; Hilton, 2003).

Triangulation is a process of overcoming bias and developing certainty in the research methodology checking data validity, reliability, theoretical issues, interviewers' biases, and methodological problems. Denzin (1978) defines triangulation as 'the combination of methodologies in the study of the same phenomenon'. 'Introducing triangulation into research design is one means whereby the evidence collected from one source is corroborated by evidence collected from another source, with the discrepancies emerging between the two sets of data altering researchers to potential analytical errors. Thus, triangulation can enhance researchers' believe that results are valid and not a methodological artifact.' Bouchard (1976) and Adam and Healy (2000: 58) defines triangulation as the combination of methodologies in the study of the same phenomenon. So it is seen that every author defines triangulation as the combination of different approaches and methods in the same phenomenon that helps the researcher to overcome bias and uncertainty in the research findings to be widely acceptable and useful for future research.

There have been mixed views on the uses of triangulation in researches. Some authors such as Olsen (2004); Brink (2003); Hilton (2003) argue that triangulation enhances a deep understanding of the study phenomenon. While others (Karim, 2007; Thurmond, 2001; Mactavish & Schleiem, 2000) have argued that triangulation is used to increase the study accuracy thus, making triangulation one of the validity measures use in validating not only sociological researches but other researches. Creswell and Miller (2001) delineate triangulation as "a validity procedure where researchers look for convergence among multiple and different sources of information to form themes or categories in a study". Broadly, triangulation is defined as the use of multiple methods mainly qualitative and quantitative methods in studying the same phenomenon to increase study credibility. According to Kimchi, Polivka, and Stevenson (1991) triangulation can be categorized into five types; these are; (1) methodological triangulation, (2) investigator triangulation (3) theoretical triangulation (4) analysis triangulation and (5) data triangulation.

For instance, in research study such as "stakeholders assessment of challenges, implications, and prospects of basic education in the border areas of North-western Nigeria". This study came up with the findings that although challenges are comforting basic education in these areas, it was a situation of schools without schooling activities after the researcher had adopted the use of a questionnaire to elicit the needed data from the stakeholders residing in these border areas. The researcher then adopted an independent t-test to analyze the data and presented the result. To validate this finding, the same researcher then goes back to the field to use of interview and focus group discussion to elicit another set of data from the stakeholders. Then used percentage and a bar chart to answer the research questions and present the results. The findings remain a situation of schools without schooling activities.

By implication, the researcher has used three instruments for data collection which are, the questionnaire, interview and focus group discussion. These instruments were used to elicit the needed data at different times. In this case, the researcher has applied data triangulation. Also, the analysis was carried out using analysis triangulation because two different statistical tools were adopted in the analysis of the result of the study.

In another instance, the same study was conducted by the researcher and a questionnaire and a focus group discussion were used to elicit data from the stakeholders at the same time, a questionnaire was used where basic schools do exist and communities where schools do not exist focus group discussion was employed. And the result still main a situation of schools without schooling activities. In this case, methodological triangulation was used, this is a situation where both qualitative and quantitative research method was adopted in a study. This is an indication that methodological triangulation was adopted by the researcher to validate research findings.



Fig. 1: Summary of Triangulation (Bello,2019)

### **Validating Sociological research findings**

In sociological research, validating research findings through triangulation basically refers to a process by which a researcher wants to verify a finding by showing that independent measures of it agree with or, at least, do not contradict it. Consequentially, some social scientists (Lustick, & Tubin, 2012 ; Macal, 2005) have suggested that validation in the social sciences might be achieved by the collection of corroborating findings from the same respondents and on the same topic, but using different methods. This is because the Social realities of every human society are inherently complex to be grasped in its entirety with one method of investigation. It is so complex that it is impossible to be captured by a single way of data collection or technique. All the existing tools of social research method have advantages and disadvantages. In other words, each method contains strengths and weaknesses. No single one can prove all the required ideals. Therefore, it is useful to triangulate in order to compensate for the weaknesses of other methods so as to have a holistic view of social realities.

Validity is defined as the extent to which a test or procedure produces similar results under constant conditions on all occasions. This means that any method that is used needs to give similar results each time it was used. Thomas and Nelson (1996:214) define validity as the "Degree to which a test or instrument measures what it purports to measure." Official statistics hold a very high degree of reliability in the sense that they are genuine records of what has happened in the past. Validity here refers to the degree to which the data collected is a true picture of what is being studied. In other words, it is concerned with the meaningfulness of research components. When researchers measure behaviours, they are concerned with whether they are measuring what they intended to measure. There are four types of validity that researchers should consider: construct, internal, external and statistical validity.

Validity in the Context of Triangulation may also mean different things to different people in different disciplines and contexts. Cook and Campbell (2000) identified four major threats to validity (construct, internal, external and statistical) from the triangulation perspective. Construct validity refers to how appropriate a simplified version of a problem is so that the researcher can solve the problem. If there is adequate construct validity the theory will modify the problem under investigation. However, sometimes, even when the construct of the problem is appropriate, interventions may not allow for the expected results because there are unknown factors. Most of the time researchers are not aware of the numbers and magnitude of unknown factors influencing the problems of researchers' interest. These unknown factors are regarded as "internal" threats to the overall validity.



Thus, even if researchers implement an adequate solution (i.e. construct appear to be valid), it may not produce the expected results. This fact alone implies the need for triangulation approaches to address complex problems since unknown “internal” factors are often known within other areas. Also, even when researchers have adequate “construct and internal” validity, it may happen that when the researcher wants to generalize the application of the research finding to new environments or social groups differ in some characteristics from those where a solution has initially been observed. This is referred to as an “external” threat to validity. Take, for instance, a situation when a management strategy that was discovered to curb indecent dressing among the University of Ilorin students under the Ilorin environment may not be able to do the same when applied to Imo State University students. This is so because of the differences in the location or environment that is possible in Kwara State will not be possible in another location. Again, sometimes these unknown “external” validity threats might be known to other fields. Without “construct, internal or external” validity, no quantitative analysis (statistical validity) can improve the overall validity. Therefore, the generalizability of findings in this field becomes a serious challenge. The study of Hussein, (2009) corroborated this by revealing that most of the social sciences study most especially sociological research experience limitations about reporting patterns, adoption, and generalizability of its findings because most of the research investigation failed to address the validity of their findings through different approaches. Thus, the triangulation approach helps a researcher to authenticate research findings in any study especially in a study of human behaviour or social groups like sociological studies.

### **Reasons for Triangulation in Sociological Research?**

Triangulation is required in sociological research because so as to:

- a. enrich the outputs of study that was carried out through different methods, data and theories.
- b. refute facts and issues that are not correct about the issue understudy, this is possible because when one set of options disproves a hypothesis generated by another set of options.
- c. confirm facts and figures presented in sociological studies, this it does by validating the instruments used in the study whether they were adequate or not.
- d. explain further by shedding more light on unexpected findings derived from another set of options.
- e. provide room for sociological researchers to have more confidence in their results/ findings.
- f. minimize the inadequacies of single-source research. Two sources complement and verify one another, which reduces the impact of bias. This provides richer and more comprehensive information because humans share more candidly with an independent third party than they do with someone they know or think they know.
- g. increase methodological reliability and the rate of certainty in the research findings.

- h. ruled out rival explanations.
- i. overcome the deficiencies of single-method studies.
- j. increase the understanding of human nature and social reality in their full complexity (Brown & Dowling 1998).

All these being some of the reasons for the conduct of sociological researchers.

## **Theoretical framework**

### ***Grounded Theory***

This theory forms the bedrock of this paper, this is because Grounded Theory is considered a systematic methodology in the social sciences involving the construction of theories through methodical gathering and analysis of data. This research methodology uses inductive reasoning, in contrast to the hypothetico-deductive model of the scientific method (Martin & Turner, 1986). Grounded Theory provides a detailed, rigorous, and systematic method of analysis, which has the advantage of reserving the need for the researcher to conceive preliminary hypotheses. It, therefore, provides the researcher with greater freedom to explore the research area and allow issues to emerge (Bryant, 2002; Glaser, 1978, 1992, 1998, 2001). The process of Grounded Theory encompasses an acknowledgment of the researcher bias, the selection of a data collection site, the data collection process, the process of coding and analysis, and the compilation of results. This at the end allows a researcher to arrive at a conclusion that can be used for generalization. Thus, this explains validation that is needed in a sociological research finding.

### **Types of Triangulation**

***Methodological Triangulation*** is defined as the use of more than two methods in studying the same phenomenon under investigation (Mitchell, 1986). This type of triangulation may occur at the level of research design or data collection (Bums & Grove, 1993). Methodological triangulation is the type of triangulation that has been widely used in social sciences (Sociology, Anthropology, Geography among others). However, this type of triangulation is somehow confusing due to the two levels where it can occur in a research process. This has led Kimchi, Polivka, and Stevenson (1991) to refer to qualitative and quantitative research paradigms combined in the same study thereby indicating a paradigmatic connection. Other authors have referred to methodological triangulation as the use of both qualitative and quantitative data collection methods and analysis in studying the same social problem (Thurmond, 2001). There are three basic types of methodological triangulation:

- a. One researcher using two or more research techniques.
- b. Two or more researchers using the same research technique.
- c. Two or more researchers using two or more research techniques.

In general terms, Thurmond (2001) pointed out some of the purposes of methodological triangulation as follows:

- i. To collect different types of information (qualitative and quantitative, primary and secondary, for example).

- ii. With two or more researchers using the same method (observation, for example) their observations can be compared to see if they agree that they have seen the same things in the same ways.
- iii. To check that data collected in one form (for example, through a structured interview) is both reliable and valid.
- iv. To verify (that is, "confirm") that any data collected for a study is accurate.

2. **Investigator triangulation** can be defined as the use of more than two researchers in any of the research stages in the same study. It involves the use of multiple observers, interviewers, or data analysts in the same study for confirmation purposes (Denzin in Thurmond, 2001).

3. **Theoretical triangulation** is defined as the use of multiple theories in the same study to support or refute findings since different theories help researchers to see a problem at hand using multiple lenses (Denzin in Thurmond, 2001). Both related and/or competing theories can be used in formulating a hypothesis to provide a broader and deeper understanding of the research problem in hand.

4. **Analysis triangulation** also referred by some authors as the data analysis triangulation. It is described as the use of more than two methods of analyzing the same set of data for validation purposes (Kimchi, Polivka, & Stevenson, 1991). In addition to validation purposes, analysis triangulation can be described further as the use of more than two methods of data analysis in qualitative and quantitative paradigms within the same study for both validation and completeness purposes. In other words, whenever a researcher uses both qualitative and quantitative data in the same study, then more than two methods are needed in the analysis towards attaining data validation within the single paradigm; and further extending the analysis between the two paradigms for completeness purposes. For instance, a researcher is carrying out a study on the socio-cultural life of international border communities as it constitutes a challenge to educational opportunities of school-age children in these communities. A researcher is expected to use data analysis triangulation for both validation and completeness purposes because both qualitative and quantitative data will be collected for the study.

5. **Data triangulation** also referred to as data sources triangulation depicts the use of multiple data sources in the same study for validation purposes. According to (Denzin, 1978), there are three types of data triangulation; namely, time, space and person. These types of data triangulation come as the result of the idea that the robustness of data can vary based on the time data were collected (i.e space), people involved in the data collection process and the setting from which the data were collected (Begley, 1996). It is a process of using more than one data collection technique to make the research findings more reliable and variable. For the research, methodology data is the main factor to influence the research result. In terms of data collection, there is a possibility to collect data from less important sources, even less important data. If the researchers are having no experience their data collection may be affected by the ignorance of interviewees who may give wrong data, may be given for not understanding the question or for a personal problem. Anyway, this data will certainly affect the research findings. Primary data is time-consuming and sometimes interviewees do not

give due attention. For this reason, data may be biased or incorrect that will affect research findings. So data triangulation can play a vital role in research methodology to get the reliable result in minimizing data errors. Getting the primary data from the source, from an authentic source data triangulation can reduce bias. If the data collected from genuine, authentic sources research findings will be more acceptable no doubt. It would be more reliable and valid. So data triangulation proves that it is very much important in research methodology. If data triangulation is maintained, validity and reliability will be higher in the social research thus, leading to the generalizability and acceptability of research findings.

### **Validating Sociological Research Findings is possible through Triangulation**

This is because triangulation allows the sociological researcher to combine multiple observers, theories, methods, and empirical materials, with the hope of overcoming the intrinsic biases and the problems that come from the single method, single-observer, single-theory studies. Validating sociological findings is possible since:

- a. Triangulation techniques use a more holistic approach to conducting investigation therefore, it becomes most possible for sociological researchers to adopt, since they are into a holistic view of research. Also their findings or researches try to look at achievement or outcome rather than the development of attitudes.
- b. Triangulation has special relevance where a complex phenomenon requires explanation. This is what is required in sociological research, there are contrasting theorists, ideologies, and views that would not be clearly explained in which adopting of single method would provide limited value to, but the adaptation of a multi-method approach would give very different and more realistic features.
- c. Triangulation helps in validating sociological research, especially where controversial aspects like translating focus group discussion into quantitative data for analysis is required. Olsen (2004) stressed further that triangulation is suitable for validating a controversial aspect of research that needed to be evaluated more fully. It could measure and investigate factors such as achievement, teaching methods, practical skills, cultural interests, social skills, interpersonal skills, community spirit and so on. Validity could be then increased.
- d. Triangulation is useful for validating sociological findings since it helps to ensure that data collection and analysis are through multi-methods, thereby establishing an approach appropriate to yield a limited and frequently distorted picture or result.
- e. In the work of Cohen and Manion (1989) triangulation is described as one of the veritable tools that help in describing nature studies better than a laboratory. Thus, it became very useful when conducting sociological studies that are a case study in nature. A case study is a situation whereby a researcher has to study an individual or small group of individuals with an unusual condition or situation. For instance, a study of the cultural life of a married Fulanis man in the Northern part of Nigeria would involve a researcher adopting more than one method of collecting data. The researcher would be a participant-observer, to be able to use more than one instrument to elicit the needed information from this group. If this is done, it means both a qualitative and quantitative approach has been employed.



- f. Finally, in the quantitative approach, triangulation for the confirmatory purpose is normally applied to confirm if instruments were appropriate for measuring a concept (Flick, Kardoff, & Steinske, 2004). That is to say, those sociological researchers do adopt a quantitative approach in conducting research. In addition to that, as a confirmatory approach, triangulation can help the researcher to overcome challenges related to a single-method, single-observer and single-theory biases and thus can be applied to confirm the research results and conclusions of his/her study.

In essence adoption of two or more approaches in sociological research helps to adequately validate research findings for generalizability, this is summarized in figure 2:

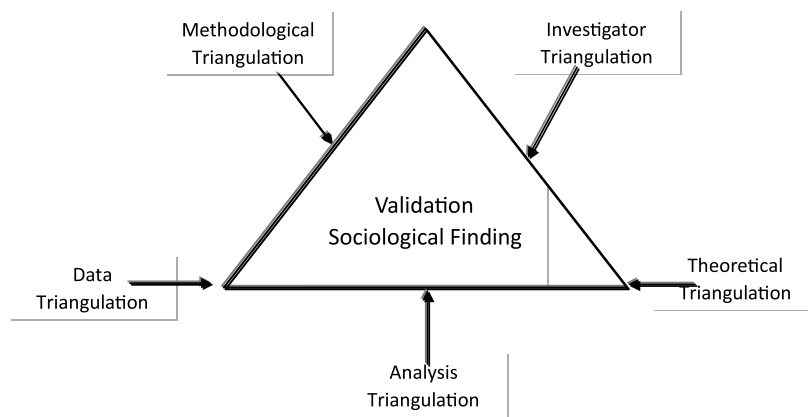


Fig.2: The contribution of the five types of triangulation in validating sociological research (Bello, 2019)

### Conclusion

It could be deduced from the paper that sociological researchers can validate their findings/ results through triangulation. The purpose of triangulation in specific contexts is to obtain confirmation of findings through the convergence of different perspectives. The point at which the perspectives converge is seen to represent reality, especially in a sociological research finding. As it is represented in fig.2.

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