

Utilization of Triangulation Strategies in Research: A Panacea for Objective Qualitative Educational Researches in Nigeria

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Abstract

Quantitative-qualitative –research approach has been an issue of long debate among various schools of thoughts. The positivists hold tenaciously that quantitative approach should be adopted for objective outcome while phenomenologists and ethnographers posit that qualitative approach can still be used to arrive at an objective outcome. This debate has been on and many researchers see these approaches as incompatible rather than supplementary. Triangulation is not only needed for cross – validation of results, but also provides in depth knowledge and understanding of the construct under study. The study was concerned with assessing different triangulation strategies, the benefits of triangulation in research techniques, types of triangulation and the skills needed to properly triangulate, how to cross – validate outcomes and possible challenges in utilizing triangulation strategies. It was recommended that, researchers should not merely depend on the utilization of questionnaires and cognitive instruments; but should also adopt other instruments in their research work for eradication of inconsistencies and utilization of more comprehensive data in research activities.

Keywords: *Utilization, triangulation, cross validation, instrumentation*

Introduction

Research remains an indispensable tool that has transformed the society. Innovations and inventions that have affected the society economically, politically and educationally are all functions of our research works. This implies that research remains a vital tool that must be effectively and efficiently utilized by any society that must develop. Kerlinger (1986) cited in Isangedighi (2012) explains that, any research exercise that must be transformative in nature, must transcend beyond mere transcribing of facts. It must not be carried out for selfish purpose. It must be geared towards improving existing body of knowledge or discovering gaps between what was and what ought to be. This was why Kerlinger (1987) in Isangedighi (2012) posited that, research that must be productive and transformative, must be systematically and scientifically carried out to

discover the truth. This implies that, research is a serious business for the curious minds. It is an activity for those who are dissatisfied with the state of things and are poised into possibly discovering the reason for such phenomenon and proffer possible solution for it. Research as a broad activity, must be approached from different dimensions.

The Quantitativist and Qualitativist Approach to Research

The positivists, ethnographers, phenomenologists among others have different perceptions and methodologies of carrying out research. Positivism has its root in the philosophical position of Auguste Comte (Dannermark, 2002). Comte's position about research in the social science was to lead to a general doctrine of positivism which held that all genuine knowledge is based on sense experience and can only be advanced by means of observation and experience. Following the empiricists' tradition, the movement developed a rigorous orientation to social facts and natural phenomena to be investigated empirically (Beck, 1979 in Cohen, Marion & Morrison, 2011). It claims that, scientific procedures provide us with the clearest possible ideal of knowledge. More so, they assume that the human behaviour is ruled or governed by principles, that the tenability of a theory or hypothesis is dependent on the nature of empirical (verifiable by observation and direct experience) evidence for its support. They try to devise a general theory to explain the human behaviour and to validate it through complex methodologies and analytical techniques. They also posit that, events are explicable in terms of their antecedents and that these causes are determined by other circumstances, thereby making the individuals passive objects of study. This is what predominantly occupy the position of the quantitativist' approach to research.

In rejecting the view point of the positivists (quantitativists), the anti-positivists and post positivists would argue that individuals' 'behaviours' can only be understood by the researcher sharing their frame of reference : understanding of individuals' interpretation of the world around them, has to come from the inside, not outside. Research in Social Science is thus seen as subjective rather than an objective undertaking; as means of dealing with direct experience of people with specific contexts, and where social scientists understand, explain and demystify social realities

through the eyes of different participants, the participants themselves define the social reality (Beck, 1979).

The anti-positivists and post positivists are categorized into three schools of thought which are the phenomenologists, ethno-methodologists and symbolic integrationists. A common trait across these schools of thought in the qualitative approach to research is concerned with 'phenomena'. They assume that, instead of the researcher standing apart to introspect and hypothesize, the researcher should make him/herself a direct participant of the phenomena. This is because, people are deliberate and creative in their actions, they act intentionally and make meanings in and through their activities, they certainly construct their social world and are not mere 'cultural dopes' or 'passive dolls' of positivism; that situations are dynamic and not static, events and behaviours evolve over time and are richly contingent upon situated occurrences, people are unique and largely non – generalizable , that the social world should be studied in its natural form by the researchers and that reality is multi-layered, and complex events may not be reducible to simplistic interpretation hence, 'thick descriptions' are essential not reductionism (Morrison, 1998).

According to the positivists, research should follow a scientific process as a way of understanding and researching social and psychological phenomena (Grey, 2016). They believe that, any research work that must be accepted must have empirical evidence, especially evidences derived from careful observations of the phenomena and/or experimental manipulations of variables. They hold tenaciously to the position that research variables must be sub-categorized, and hypotheses must be followed logically (Ndiyo, 2010).

On the other hand, the phenomenologists or qualitative researchers posit that ideas, variables and reports on these multiple realities are obtained by exploring multiform of evidences from different individuals' perspectives and experiences. They hold strongly to participant' research; that is, getting as close as possible to participants being studied. Phenomena in the qualitative research

are approached holistically and research reports are largely from the researchers, inside subjective point of view.

Over the years, there has been this standing controversy over which research approach is most suitable for research activities. The quantitativists hold tenaciously that, research must be objective in nature, such approach can help in obtaining veritable results. On the other hand, the qualitativists hold that nature cannot be categorized. The positivists views have been challenged as misrepresenting the nature and the way that scientific thinking and knowledge develop. Holtzhausen (2001) further noted that, despite the world wide controversial debate among researchers on the quantitative – qualitative dichotomy, the popularity of quantitative research has increased in the higher education field. The author observed that there seems to be room for these two research approaches. This is because one is not inferior to the other. A researcher who considers the two approaches helpful and elect to use them both in the same study could do so. However, one agrees with Bogdam and Biklen (2003) that, it is very difficult to use the two approaches simultaneously and attain good standard in both. Perhaps, experienced researchers may successfully integrate qualitative and quantitative approaches in a simple study, but this cannot be guaranteed of inexperienced researchers (Maxwell, 2004; Creswell, 2009; Tashakkori & Teddlie, 2003).

Interestingly, especially in the area of education, it is observed that the predominant research approach in vogue is the quantitative approach. One fundamental truth is that; it is inappropriate to quantify the deep seated problems of human beings. Too much time is spent by statisticians on statistics when it would have been more interesting for them to spend more time on developing alternative interpretation and triangulation of the data they have. It is not uncommon to say that most students, post graduate students and researchers do not have the knowledge of qualitative research work, not to talk of extending to mixed-method research work. This situation has denied most students and researchers in-depth knowledge of most phenomena or cases that would have been studied holistically. The affirmation is that most researchers end up in developing hypotheses, cook data, and manipulate it to provide preconceived results which have not actually helped

research growth in Nigeria. The rationale has been that, these results obtained from mere rejecting or accepting hypotheses are not enough to validate a particular study. It is on this note that the researchers are poised in presenting this paper to aid researchers to utilize the mixed – method approach, learn the strategies in utilizing this approach and understand the relevance of mixed – method in research for a more dependable results.

Mixed-method research utilization

Schwandt (2000) argued that “all research is interpretive (qualitative)” whilst Miles and Herbarman (1994) reported Kerlinger’s comment that, there is no such thing as qualitative data and that, everything is either 1 or 0. This differences in research orientation has led to a ‘paradigm war’(Gage, 1989) in which proponents of each research approaches paid complete allegiance to their school of thought and this gave rise to mixed-method (Gorrard & Taylor, 2004; Gorard & Smith, 2006; Teddlie & Tashakkon, 2009). There was a need for less confrontational approaches to be adopted between research paradigms (Denzin, 2008), greater convergence between the two, (Brannem, 2005) and a greater dialogue to be engaged between the two proponents. Mixed-method research is a research paradigm whose time has come (Johnson & Onwuegbuzie, 2004). They argued that methodological puritanism should give way to methodological pragmatism in addressing research questions.

Denzin, (2008); Trifomas (2009); Creswell (2009); suggest the power of integrating different approaches, ways of viewing a problem and types of data in conducting both confirmatory and exploratory researches, induction and deduction, in answering research questions, and strengthening the inferences (both in terms of processes of analysis and outcomes of analysis) that can be made from research and data, even generating theory. However, Onwuegbuzie and Leech (2005) argued that, not all quantitative approaches are positivist and not all qualitative approaches are hermeneutic. The authors suggested that ‘quantitative’ and ‘qualitative’ approaches could be replaced by confirmatory and exploratory research. Mixed method research recognizes the fact that,

the world is not exclusively quantitative or qualitative, it is not an either/or world but a mixed world. Therefore, this approach is the best for research activities.

As earlier stated, no single research approach is perfect. It is even the over reliance on a single method that problems emanate. This is where triangulation comes in. Triangulation according to Denzin (2012), Patton (2002) and De Vos (1998), involves the conscious combination of quantitative and qualitative research methodologies as a powerful solution to strengthen a research design where the logic is based on the fact that, a single method is inadequate to solve the problem of rival causal factors. Again, Kennedy (2009) refers to triangulation as an act of combining several methods to study one trait in an attempt to map out or explain more fully, the richness and complexity of human behaviours by studying from more than one standpoint.

Triangulation is of different types viz; data triangulation, methodological triangulation, observation/investigation triangulation, theory triangulation and multiple triangulation. Therefore, triangulation is not just limited to methods alone, as data can equally be triangulated. In social science, triangulation is defined as the mixing of data or methods so that diverse viewpoints or standpoints can cast high integrity upon a topic. The mixing of data also known as data triangulation is often thoughts to help in validating the claims that might arise from an initial pilot study (Dezin, 2008). Methodological triangulation involves the utilization of more than one method and may consist of within-method and between-method strategies, the mixing of methodologies, for example, combining the use of survey method with interviews, is a more profound form of triangulation. This is what idealists refer to as methodological pluralism (Carter 2003).

Methodological pluralism refers to the utilization of several methods that enables the researcher to use different techniques to get access to different components of the same phenomenon. For instance, a mixed methodologist or a methodological pluralist interested in collecting data on “how learners from various cultural background see their school learning environment”; may decide to use multi-method-simple trait (MMST) approach. Qualitatively, the researcher instead of breaking the cultural background into sub variables like social class, ethnic

group, etc, and collecting data to analyze statistically using large sample, may rather utilize observation, interview and survey methods to have an in-depth and detailed understanding of the ways they feel. Upon the completion of the study, the researcher may then present his/her report as narrative that can be appreciated for its richness, in-depth and comprehensiveness. This sort of pluralism is tolerant of the methodological choices of other researchers because, it recognizes that cultural background is a multi-faceted phenomenon with different aspects.

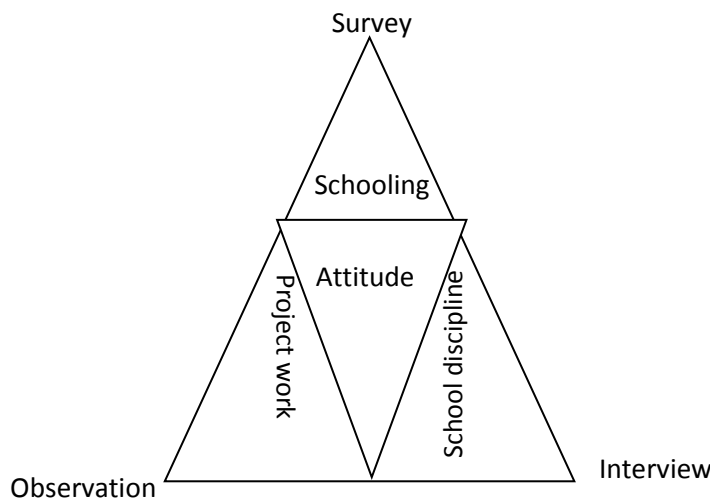


FIG. 1 Triangulated design for data collection on students' attitude

Fig 1 is a representation of a sample of three methods (survey, observation and interviews) to collect information on a learners' attitude to schooling, attitude to project work and attitude to school discipline. The use of triangulation according to Mark and Shotland in Oliver (2005), will yield a more accurate and valid estimate of results when each method of measurement actually converges on the same answer.

Justification for the use of triangulation approach

There is no research methodology that is completely free from errors. Errors are accidental deviations that are inherent in every individual case and occur quite impartially in every direction. These errors can come in, either through the instrument used for data collection or through the

purposeful intrusion of the researcher in the process of the research work. Therefore, errors introduce bias into research results. It is on this basis that triangulation is necessary. That is why Kennedy (2009) noted that, relying on just one method is to do this with bias. There are several types of bias encountered in research studies particularly the quantitative research.

Triangulation minimizes bias such as measurement bias, response bias, sampling bias and procedural bias. Measurement bias is a bias caused by the way in which one collects the data. Example, in a setting where the researcher utilizes a focus group participation, peer influence on one another can cause the individual to provide the kind of response that the researcher probably wants to hear. Triangulation, therefore, allows one to combine individual and group research methods to help reduce this bias; that is, one can combine a self-report with observation research method to help balance out the problem. To avoid sampling bias caused by the inability of the researcher to have a true representative of the population, triangulation combines different methods to ensure that sufficient coverage is obtained. Although, one cannot eliminate bias completely, the extent of their magnitude can be reduced using triangulation approach. Denscombe (2008) suggests that, the mixed methods can;

- (a) Increase the accuracy of data;
- (b) Provide a more complete picture of phenomena under study than would be yielded by a single method, thereby overcoming the weaknesses and biases of single approach;
- (c) Enable the researcher to develop the analysis and build in the original data; and
- (d) Aid sampling, (the author gave an example, where a questionnaire might be used to screen potential participants who might be approached for interview).

Strategies in utilization of triangulation techniques

The strategies to adopt in utilizing triangulation techniques are diverse. This paper explains the following:

- (i) **Parallel method:** Parallel method involves the combination of different techniques that compliments each other: qualitative versus quantitative, individual versus group, face – to –

face versus remote, self-reported versus observed among others. This is the main brain behind triangulation.

- (ii) **Sequential method:** This involves the use of one method at a time before the other. For instance, the researcher may have to observe the phenomenon (participants) first, after an interval he then interviews them, etc.
- (iii) **Selection of appropriate tool:** The researcher must ensure that the right instrument is used in eliciting responses from the participants. Also, the right items should be asked in each method. For example, in a focus group where a particular behaviour is intended to be measured, the researcher should not divert to asking questions on academic performance.
- (iv) **Collaborative exercise:** It is true that 'two good heads are better than one'. It will be advantageous on the part of the researcher to collaborate with another researcher to facilitate in terms of note taking, analysis, observation and rational guessing? These may likely give them different platform from which to interpret and analyze the results. The researchers may balance out any differences later, but a better picture of the phenomena, trait or construct measured is observed.
- (v) **Successive visitations:** It is pertinent that the researcher revisits the participants after a relatively long period of time. For example, after observing a group of participants and appropriate data obtained, the researcher(s) can incite the participants for interview on the same phenomena and data collected can be validated to obtain a better result.

Conclusion

The study was concerned with examining the utilization of triangulation strategies, types of triangulation, justification for utilization of triangulation methods and strategies for utilizing triangulation approaches in research activities. It was however found that the use of a single method in research goes along with some avoidable biases, but if triangulation method is used, which is combining more than one method, a better and objective results can always be found in any research that used the triangulation method.

Recommendations

Based on the theoretical review of literature on various sub-headings, the following recommendations were made;

- Beyond questionnaires and cognitive instruments, researchers should adopt other instruments in their research activities in order to reduce bias or inconsistencies.
- Students and researchers should shift attention about their research strategies from mere quantitative or qualitative approach to mixed-method approach where triangulation stands to be more profitable in obtaining a reliable and dependable results.
- Furthermore, researchers should be encouraged to use more than one data collection technique to study the same phenomena, as this will result in a more comprehensive research outcome.

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