

USE OF TRIANGULATION STRATEGIES FOR QUALITATIVE EDUCATIONAL RESEARCH IN NIGERIA

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Abstract

Triangulation of research has clear implication for objective qualitative educational research. This study was concerned with the academics knowledge and use of triangulation strategies in carrying out educational research. Two research questions and one null hypothesis guided the study. Descriptive survey design that employed interview was adopted. A sample of 120 lecturers was randomly and proportionately drawn from the population of 1,023 lecturers from two institutions in the south-eastern Nigeria. An instrument titled "Rating Scale for Academics on the Use of Triangulation Strategies during Research (RSAUTSR) was used for the study. This was validated by experts and reliability coefficient found to be 0.82 using Cronbach Alpha. Data generated were analyzed using mean, standard deviation and t-test statistics. Findings among others revealed that the use of triangulation strategies during research does not only help and / or needed for cross-validation of result but also provides in-depth knowledge and understanding of the construct under study. Recommendation include that researchers should not merely depend on the utilization of questionnaires and cognitive instrument but also adopt other instruments in their research work for cubing inconsistencies and utilization of more comprehensive data in research activities for quality results.

Keywords: Triangulation, Quality research, Nigeria

Introduction

Research remains an indispensable tool that has transformed the society and a vital tool that must be effectively and efficiently utilized by any society in the world that must develop. Innovations and inventions that have affected the society educationally, politically and economically are all functions of research works.

Research also involves the combination of both experience and reasoning and can be regarded as the most successful approach to the

discovery of the truth. 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 possible solution for it. Research is the most important tool for advancing knowledge, promoting progress and enabling man to relate more effectively to his environment, accomplish his purpose and resolve his conflicts (Amadi 2015). It is also a process of searching for unknown, new knowledge, which means to find solutions to problems or answers to questions by filling identified gaps. Researches are also conducted in education

Educational research is a systematic approach employed by researchers, students in education to identify problems, investigate the problems and based in the findings offer suggestion as to how to solve the problems (Ukwuije & Obowu Adutchev, 2012). To Idoko (2011), educational research is conducted to find solution to problems of policy and administration, curriculum and pedagogy, measurement and evaluation, philosophical, psychological, and sociological underpinnings of education. He said it that educational research should be relevant, providing solutions to problems, evidence or uniform of advice to teachers and others in practice. Kerlinger 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 and be geared towards improving existing body of knowledge or discovering gaps between what was and what ought to be. However, 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.

A typical research is a never ending process of discovery and creation leading to new discovery and new creations. In fact, without trust worthy and tested published researches available, one would be dangerously lost in the experience, opinions and hearsay domains. A good research is planned, organized and has a specific question. It is termed scientific when it entails observation, theorizing, experimenting to test the drawn conclusion and reporting results. Therefore, research as a broad activity must be approached from different dimensions.

The quality of research for any nation shows the quality of their education. Quality is said to be an assurance to perfection. It is seen as synonymous to excellence and can be defined as the tendency of making sure that standard, merit, excellence and perfection are maintained or attained in a given organization, process, input and output. Quality of any research needs to be assured. Quality assurance is a preventive control; an attempt to ensure that things produced are of catalogued descriptions. (Afemikhe, Omo-Egbekuse & Imobekhai, 2010).

Quantity or number of research conducted can be of help in identifying gaps and paving way to close them up, but in the midst of the quantity, if there are no qualities, it may end up identifying gaps without closing them. Quantitative-qualitative research approach has been an issue of long debate among various schools of thought. The positivist holds tenaciously that quantitative approach should be adopted for objective outcome while phenomenologist and ethno-methodologist posit that qualitative approaches can still be used to arrive at an objective outcome. These debates have been on and many researchers see these approaches as incompatible rather than supplementary.

The positivist, ethno-methodologist, phenomenologist among others have different perceptions, and methodologies of carrying out research. Positivism has its root in the philosophical position of Auguste Comte. Comte's position about research in the social science 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 experiment. Following the empiricist tradition, the movement developed a rigorous orientation to social facts and natural phenomena to be investigated empirically (Beck, cited in Cohen, Marrion & Morrison, 2011). Cohen et al claim that scientific procedures provide us with the clearest possible ideal of knowledge. Cohen et al also assume that the human behaviour is ruled or governed and that the tenability of a theory or hypothesis is dependent in the nature of empirical evidence for its support. They try to devise general theory to explain human behaviour and to validate it through complex methodologies and analytical techniques. More so, they opined that events are explicable in terms of their antecedent and that these cause are determined by other circumstances. Thereby making the individual passive object of study.

The anti-positivist and post positivist are categorized into three schools of thought which are the phenomenologist, ethno-methodologist and symbolic interactionist. They have a common thread across them in their qualitative approach to research which concerns a "phenomenon". 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 (Maybell & Valery, 2014). 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 not mere "cultural dopes" or passive dolls of positivism; that situation are dynamic and not static; events and behaviours evolves over time and are richly contingent upon situated occurrences; people are unique and largely non-generalizable.

The phenomenologist or qualitative researcher posits that ideas, variables and reports on multiple realities are obtained by exploring multiform of evidence from different individuals' perspective and experience. They hold strong to participant research, that is getting as close as possible to participants being studied. Phenomena in the qualitative research are approached holistically and research report is largely from the researchers, inside subjective point of view, while according to the positivist, research should follow a scientific process as 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 evidence derived from careful observations of and/or experimental manipulation of variables. They hold tenaciously to the position that research variables must be subcategorized and hypotheses must be followed logically.

Despite the world wide controversial debate amongst researchers on quantitative-qualitative dichotomy, the popularity of quantitative research has increased in the higher education field especially in the area of education where it is observed that the predominant research approach invoke is the quantitative approach (Holtzhausen, 2001). He also from his research noted that, there seems to be room for these two research approaches because one is not inferior to the other. A researcher who considers the approaches helpful and chose to use them both in the same study could do so. However, Bodgam and Bidden (2013) is of the view that it is very difficult to use two approaches simultaneously and attain good standard in both. Gadden (2011) posits that using the two approaches is very difficult but when applied judiciously will give a quality and more dependable result. Perhaps experienced researcher may successfully integrate qualitative and quantitative approaches in a simple study but this cannot be guaranteed of inexperienced researchers.

It is not uncommon to say that most students, post graduate students and researchers do not have knowledge of qualitative research work, and even 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. These days, too much time are 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. The affirmation is that most researchers end up in developing hypotheses, cook data and manipulate it to provide a preconceived result which has not actually helped research to grow in Nigeria. It is worrisome that these results obtained from mere rejecting and accepting hypotheses are not enough to validate a particular study. From experience therefore, no single research approach is perfect. It is even from the over reliance on a single

method that problem emanate. This is where mixed method research and triangulation comes in.

Triangulation 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 (Devos 1998; La Rossa, 2010). It is the combination of different research methods to investigate one trait in order to study it properly from many dimensions.

Triangulation is 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 behaviour by studying it from more than one stand point (Kennedy, 2009). In the researchers' viewpoint triangulation can be the act of employing one or two strategies or methods, data, techniques into an already mapped out one, in order to cast light upon a topic, trait or problem of study. It can also be the act of mixing data, theory, technique, strategy or method so that diverse viewpoints or standpoints can cast light upon a topic, trait or problem of study. Triangulation, therefore is of different types Viz- Methodological triangulation, data triangulation, observation / investigation (technique) triangulation, theory triangulation and multiple triangulation.

The mixing of data or data triangulation is often thought 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 or strategy, for example, the mixing of the use of survey data with interviews. It is a more profound form of triangulation and the idealist refers to it as methodological pluralism (Carter 2003). He posits that methodological pluralism is the utilization of several methods that helps the researcher to use different techniques to get access to different components of the same phenomenon.

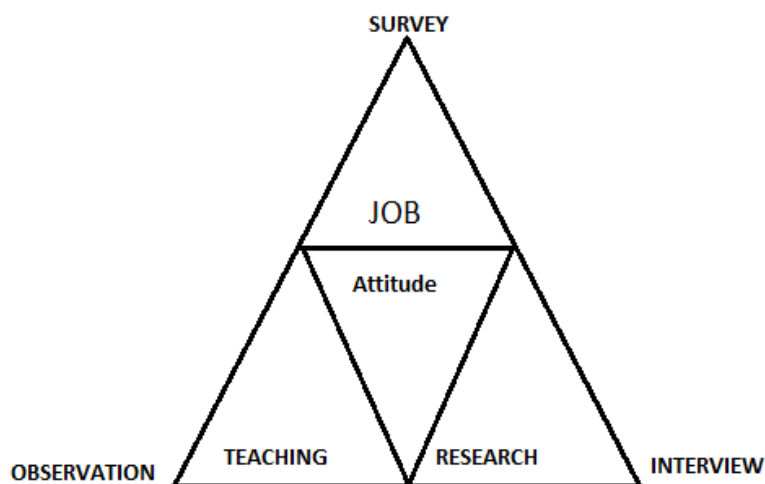


Figure 1: An example of triangulated design for data collection on teachers' attitude.

Fig 1 is a representation of a sample of three methods (survey, observation and interview) to gather information on a teachers attitude to job, attitude to teaching and attitude to research. According to Kennedy (2009), triangulation will yield a more accurate and valid estimate of a result when each method of measurement actually converges on the same answer. To minimize bias in research, triangulation is the best option. This is the justification for the use of triangulation approach. The reason is that bias results in research result are introduced by error and no research methodology is completely devoid of error. Kennedy (2009) noted that relying on just one method is to do with bias. It is on this basis that triangulation is necessary. Several types of bias encountered in quantitative research such as measurement/data bias, response bias, sampling bias and procedural bias can be minimized through triangulation. For instance, a self-reported and observation research method can be combined to help balance out the problem. To minimize/reduce sampling bias, caused as a result of the inability of the researcher to have true representative of the population, different methods can be combined to ensure a sufficient coverage such as through mails, phones etc.

Denscombe (2008) is of the view that mixed method can; provide a more complete picture of phenomena under study, increase the accuracy of data, aid sampling and enable the researcher to develop the analysis and build in the original data. In order to accomplish the purpose of triangulation, strategies such as; selection of appropriate tools, sequential method, parallel

method collaborative exercise, successive visitation can be adopted to utilize its techniques.

Since, relying on just one method has to do with bias according to (Kennedy 2009), the purpose of this study therefore are to assess the extent of use and benefits of triangulation in research. To achieve the purpose of this study the following research questions and null hypothesis were posed and formulated respectively.

The following research questions and hypothesis guided the study:

- To what extent do academics use triangulation strategies in conducting research?
- Of what gain is the use of triangulation in research?
- There is no significant difference in the mean rating of academics in College of Education and those in university on their extent of use of triangulation strategies in research.

Method

The study adopted a descriptive survey design that employed interview, to collect data from the lecturers on their use of triangulation strategies during research. The study was carried out in two Tertiary Institutions, one University and one College of Education from South-eastern Nigeria. The population of the study consists of 228 lecturers from faculty of Education Imo state University and 795 lecturers from College of Education Arochuku Abia State. The sample of this study comprised 120 lecturers from both tertiary institutions. Simple random sampling was adopted to select 60 lecturers each from the University and the College of Education used for the study.

The instrument for the study was titled: Rating Scale for Academics on the Use of Triangulation Strategies during Research (RSAUTSR). The RSAUTSR was a 13 item structured rating scale which was developed by the researchers. The instrument was in two sections, A and B. Section A is the bio-data and section B has 13 items on the lecturers' use of triangulation strategies and its benefits during research. Section B items were developed in the pattern of a four-point rating scale of Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE) response options. These response options were weighted 4,3,2,1 respectively. The acceptable mean score for each item was 2.50 and above. Any mean score below 2.50 was taken as low extent while any mean score of 2.50 and above was also taken as high extent. The RSAUTSR was validated by three experts in Educational Measurement and Evaluation from faculty of Education Imo State University. The reliability of the instrument was established through Cronbach Alpha

technique and the reliability coefficient obtained was 0.87. An interview section was also employed after some time to get some direct information from the lecturers and for proper validation of the data collected concerning the use of triangulation strategies. Mean and standard deviation were used to answer the research questions, while t-test of two sample mean was used to test the hypothesis at 0.05 alpha level of significance.

Results

Table 1; Extent of use triangulation strategy in research

Item No	Item statements	College of Education			University		
		X	SD	Decision	X	SD	Decision
1	know what research is all about	3.86	0.25	HE	3.84	0.26	HE
2	am equipped with skills of research and can conduct research in my specialized area	3.64	0.24	HE	3.62	0.23	HE
3	can judge the quality of research	3.48	0.22	HE	3.58	0.21	HE
4	know what triangulation of research means	2.56	0.18	HE	2.62	0.23	HE
5	use triangulation (mixing of strategies/method) in my researches	2.24	0.15	LE	2.40	0.16	LE
6	find the use of triangulation, difficult in conducting research	3.02	0.21	HE	2.88	0.20	HE
7	flow when I research by a particular method/design/strategy	3.28	0.22	HE	3.10	0.21	HE
8	enjoy the use of triangulation because , though it is difficult, it gives answers to my questions	2.50	0.17	HE	2.52	0.17	HE
9	Use triangulation to close up identified gaps because no one strategy can perfectly close up those gaps.	2.48	0.16	LE	2.54	0.18	HE
Grand mean		3.01		HE	3.01		HE

Table 1 reveals from the mean scores and standard deviation that academics/lecturers had high extent of the knowledge and skill of research as well as what triangulation of research is all about.

In both columns, there are indications that many academics do not use triangulation strategies during research, they also find it difficult to use it and they flow better when they go by a particular method. There is also an indication that though triangulation may be difficult, it gives answers to questions and close up identified gaps.

Table 2; Benefits of triangulation research

The benefits of triangulation to college of education		university					
research. It;							
1	provides a more complete picture of phenomena under study and help to overcome weakness and biases of single approaches	2.61	0.19	HE	2.68	0.20	HE
2	enables the researcher to develop the analysis and build in the original data	2.52	0.17	HE	2.84	0.21	HE
3	aids sampling (for example where a questionnaire might be used to screen potential participants who might be approached for interview)	2.60	0.19	HE	2.78	0.22	HE
4	Increases the accuracy of data and minimizes bias such as measurement bias, responses bias sampling bias and procedural bias.	2.74	0.20	HE	2.82	0.21	HE
grand mean		2.62		HE	2.78		HE

Table 2, reveals calculated means above the criterion mean both in the College of Education and university column and the standard deviation ranging from 0.17 to 0.22 indicating that the respondents were close to one another in their responses. These items indicate the usefulness of triangulation in providing the picture of the problem, aiding in sampling, increasing the accuracy of data, minimizing bias and developing analysis

Table 3: t-test analysis of the extent of use of triangulation among academics in college of education and university.

Academics group	N	X	SD	df	t-cal	t-crit	Decision
College of Education	60	64.07	8.27	118	0.208	1.96	not significant
University	60	65.82	8.41				

P<0.05

Table 3; reveals the mean and standard deviation scores of academics in College of Education and University as 64.07; 8.27 and 65.82; 8.41 respectively. The data were further subjected to t-test analysis in order to find whether there is any significant difference between the ratings of the two groups. The result of the analysis indicates that t-calculated of 0.208 obtained is smaller than the crit t-value of 1.96 at 0.05 α levels of significance and 118 degree of freedom. Based on this result, the null hypothesis was upheld, implying that there is no significant difference in the extent of use of triangulation in research among academics in Colleges of Education and those in the University.

Discussion

The study reveals that the extent of the use of triangulation strategies in conducting research among academics is of low extent. This means that many academics do not use triangulation strategies during research. This is not because they don't know what triangulation is all about but because they look at it as very difficult and therefore finds it difficult to use it in addition to their view that they flow when they research with only a particular method.

From the findings, those who use triangulation strategies are of the view that though it is difficult to handle, it gives answers to their questions and close up identified gaps. This is in line with Bodgam and Bidden (2013) who are of the view that it is very difficult to use two approaches simultaneously and attain good standard in both. And also in line with Gadden (2011) who posit that using two approaches is very difficult but when applied judiciously will give a quality and more dependable result.

The result is also in line with the view of Dezin (2008) who opined that mixing of data or data triangulation is often thought to help in validating the claims that might arise from an initial pilot study result. Also the result shows that no significant differences existed in the extent at which academics in college of Education and those in University use triangulation strategies in carrying out research.

This was indicated through the mean (\bar{X}) scores and standard deviation (SD) of 64.07; 65.82 and 8.27; 8.41 for both academics in Colleges of Education and Universities respectively. It was also observed that the calculated t-value of 0.208 was smaller than the crit t-value of 1.96 at 0.05 α - level of significance and 118 degree of freedom. The result of low extent of use of triangulation may be because many academics have not attached the justifiable evidence that relying on just one method is to do with bias.

Conclusion

With the adage that says nothing good comes easy is the answer to the use of triangulation. The problem of the academics on the use of triangulation in research is their attachment of the difficulty in combination, not considering the end result (quality) which will dilute their stress and sacrifice they have made. Quality they say is synonymous to excellence; its assurance is a preventive measure, an attempt to ensure that things produced are of catalogued descriptions.

Recommendations

Based on the findings of this study, the following recommendations were made;

1. Researchers should be sensitized about triangulation; letting them know the danger in using method/strategy that is not free from error and bias.
2. Researchers should shift attention of their research strategies from mere quantitative or qualitative approach to a mixed-method approach where triangulation stands to be more profitable and dependable.

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