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Possible advantages that may be enhanced with the adoption of research triangulation or mixed methodology

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Abstract

In research, triangulation refers to the use of various datasets, methodologies, theories, and/or investigators to answer a research question. This work highlighted some of the advantages of triangulation in qualitative and quantitative research. It shows that triangulation is helpful in the development of complementary analysis which can facilitate the completeness of a research and help develop an insight.

Keywords: Triangulation; Research; Qualitative; Quantitative

1. Introduction

According to Stage and Russell [1], triangulation is a research method that is used to merge pre-eminent quantitative and budding amount of qualitative research.

Many authors of qualitative and quantitative research models have had problems with choosing the best method of research that would give them the perfect research and hence present perfect findings [2]. While many authors of quantitative research methods have the view that social observations should be considered in similar way that physical phenomenon is considered by scientists that deal with physical phenomenon [3], authors that propound qualitative research methods opine that this would be difficult to do, as it would be difficult to distinguish cause and effect as understanding of data is generated by inductive means following the flow of logic from general to specific. Also, according to Guba [4], an individual and a subject he/she understands cannot be separated due to the subjectivity of the person who knows the subject being the foundation of reality.

Having in mind the advantages and disadvantages of both qualitative and quantitative research methods, it became necessary to dilute/counter their disadvantages and strengthen the advantages hence the need for triangulation.

There is persistence of misunderstanding of basic concepts of the foundation of the research method known as triangulation [5]. This misunderstanding is there despite many explanations by different authors in various research [6].

According to Nickel et al [7], in many instances and studies, triangulation method is explained as the combination of qualitative and quantitative research methods on the same general interest.

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2. Other definitions of triangulation

Singleton et al [5], describe triangulation as the use of multiple approaches to seek answers to research questions.

Bednarz [8] describes it as the employment of multiple sources of data, methods, observers, or theories in researching a specific subject.

Denzin [9] went deeper to break triangulation into different parts and forms basing on the process or when it is employed into investigator triangulation, data triangulation, methodological triangulation, and multiple triangulations.

Oppermann [10] however notes despite the foregoing supporting data above regarding triangulation that it has a defect in area of results cross-validation.

3. Advantages of Triangulation adoption in research

3.1. The elimination of Research Bias (validity, bias, investigator bias, data set bias etc)

Triangulation has the capacity to detect that bias could be in an investigator survey or the set of data when a single research method is used. According to Blaikie [11], one of the highlights of triangulation is that it seeks to overcome the difficulties associated with validity and bias.

A school of thought postulates that the problems and impediments seen in research done with a single research method can be surmounted by the combination of different research methods, and in that manner explore the different strengths of the different research methods. In this way, biases in methodology, instrument used, and data collected can be dealt with [12].

The argument is that in adoption of a single method of data generation such as interview with closed questions, the data collected will have limitations in veracity. Why this is the case is that the response will only be for the questions that was asked but may likely be excluding other important information that may have been gotten with an open question style or a mixture of both. Closed questions only without room for other types of questions styles would likely render the result biased towards the preconceived ideas of the researcher. Also, the problem with recall of information by the respondent may make the answers given to be wrong or the respondents may deliberately withhold some answers that are considered sensitive or not socially correct. In situations like this, a combination of the interview with observation might deliver a better representation of the situation [10].

When the population being researched has rare characteristics not obtained in other populations, triangulation will help to eliminate such bias in data that can happen in these situations [10].

For example, basing general theory on the behaviour of few people in a peculiar situation or a specialised environment and then generalising this to the general population will produce invalid results because that situation or environment or individuals cannot be applied to other populations in other parts of the world. For this reason, the cross validation of results from a population from one environment to the other is very important [12].

With investigator bias, different investigators arrive at dissimilar findings simply because of inherent investigator biases. It is important that researchers recognise this and use triangulation methods and involve diverse investigators, if possible, from different disciplines so that it becomes easier to recognise and identify investigator bias where it exists [12]. By doing the above listed, triangulation in research helps to remove biases and brings forth a research result that can be better trusted.

3.2. Triangulation aids the completeness of research

Triangulation enhances the quality of research and helps defined objectives to be achieved [13]. Advocates of triangulation in research advance the view that the ultimate aim of research is to find the truth and that researchers should adopt different approaches that will help in finding that truth. Hence triangulation offers that opportunity to find out the universal view of a phenomenon that is under investigation, and in that way, ensures the completeness of the research [14].

Denzin and Lincoln [15], further note in their writing that the adoption of multiple research methods, empirical outlooks, and observers in a lone study can be seen as a strategic approach that incorporates rigour, depth, and breadth

to research. They note that triangulation is neither a validation strategy nor tool, but a substitute for validation. The concept of triangulation can be seen as a way to show the effort to obtain a total / comprehensive understanding of the phenomenon that is under study. Thus, its function of completeness is in itself a confirmatory tool [16]. Triangulation is an appropriate tool for ensuring and confirming research completeness [17].

Webb et al [18], propose the necessity for a concept measurement in various ways to ascertain the extent of convergence of different measures used in research, hence the need for triangulation. This is because according to them, the extent of convergence is equal to the extent of confidence that the study captures the intended phenomenon.

3.3. The use of Triangulation allows complementary design and analysis

The adoption of triangulation in design of research shows theoretical concerns about the meaningful assessment of data needs. Weiss [19] in a review of early trials of evaluation that used stakeholder approach looked at the theory that decision makers can present their data/information needs in advance given the variability and unpredictability intrinsic in most organizational settings.

The proponents of triangulation approach in research propose that stakeholders need effective assessment, this is a grave concern that needs a naturalistic view for its complement [20]. Evaluation theorists propose integration by the addition of naturalistic method through interviews that are open-ended to address the concerns raised [21]. Pluralism in the methodology of research is what triangulation indicates.

Greene and McClintock [22], notes that triangulation incorporates realism and empiricism hence giving allowance for testing arguments to provide for procedure analysis and complementary research designs. This ensures that empiricism which is relied on heavily by statisticians becomes purely a matter of discretion. Empiricism assumes that the world is just about facts, a position that is unrealistic since the world is much more complex than that. The data gotten about reality is just a fraction of all there is to get and is rough. Realism also though having validity may be naïve in some contexts and in some situations, hence the need for triangulation as stated previously.

The matrix display done in triangulation also provides an opportunity that aids in the broader review of patterns between result complementarity and method correspondence [22]. This is achieved by comparative analysis.

3.4. Triangulation strengthens the overall validity & new insight of research

One of the major goals of and advantage of triangulation is the capacity to strengthen the overall validity of the research. Validation process happens through the determination of consistency between design, process, and results in different research methods. Since in the triangulation principle holds that the methods used are different and independent assessments of the same phenomenon with removal of bias and measurement errors, this would help strengthen the validity of the research where triangulation is adopted [23].

The different results that is due to triangulation would lead to new insights and hence supplemented research can issue more understanding with explanations as needed. This goes beyond the capacity of singular qualitative or and quantitative research methods can provide. This for instance was shown by Oppermann [10] who demonstrated the derivation of new insight by the simultaneous adoption of three time-dimensional research approaches that examined age, period, and cohort instead of the adoption of one research approach. The research analysis by individual time dimensions though it gave statistically significant findings, however failed to show definite fundamental trends.

4. Conclusion

In this work, some of the advantages of triangulation has been explored and reviewed its concept to cut across-bridge between qualitative and quantitative research methods, and also an ideology that sets to further the course of scientific discovery and investigation.

Triangulation advantage rests in the capacity to identify and eliminate research biases, method shortcoming elimination and ensuring the veracity of research results.

It is a very useful tool to develop complementary design and analysis, able to further ensure completeness of research and help develop insight into phenomenon. It helps to generate and sustain confidence in the result of research where it is employed and has the capacity to expose off-quadrant dimension of a research phenomenon or a research subject.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no competing interest.

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