

Multi-methods Approach in Entrepreneurship Research: Triangulation in Action



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ABSTRACT: The purpose of this study is to apply the experience from a study conducted on entrepreneurial intention among university students with regard to the effective use of triangulation in entrepreneurship research. It applies the knowledge acquired to address issues such as inconsistencies, contradictions, and biases when using the single method. It was also used to develop a framework for research by adopting triangulation. The study discussed issues such as design and the whys and how's of triangulation. It is hoped that the study will help future researchers who adopt triangulation to produce quality work and make informed judgements that lead to completeness. Finally, it would be interesting to researchers who always want to be up-to-date in academic research.

KEYWORDS: Entrepreneurship research, Multi-method, Triangulation.

I. INTRODUCTION

The study multi-methods approach in entrepreneurship research was emanated from the inconsistent and contradictions in results found from literature on entrepreneurship studies and to be free from possible mistakes and biases inborn in a single method hence, a distinctive practice in social and management science research that support the adoption of more than one method. This type of convergent research technique is mostly called multi-method or multi trait (Campbell & Fiske, 1959). Convergent validation which is known as 'triangulation' (Webb, Campbell, & Schwartz, 1966). These several ideas are having the same view that quantitative and qualitative methods should be seen as complementary instead of a rival. Many studies emphasise on the possibility of mixed methods considering the strengths and weaknesses with one method of research design.

Recently, the use of multi-method has been acknowledged by researchers and academicians. In trying to show the significance attached to this method, a number of literatures are of the view that it is the third research method beside the quantitative and qualitative methods. However, this new trend in research is described in different ways by various scholars, for example multi-strategy (Bryman, 2004), multi-methods (Brannen, 2017), mixed methodology (Tashakkori, Teddlie, & Teddlie, 1998), or mixed methods (Creswell & Creswell, 2017; Tashakkori, & Teddlie, 2003). Therefore, in this study, the classical form of mixing the quantitative and qualitative methods in studying the same problem is called triangulation. The aim of adopting the classical method is related to the definition of triangulation and the various stages that occur in the process of research.

The history of triangulation, its usages, and meanings have some flaws (Denzin, 2012). For instance, some authors differentiate between triangulation and other types of multi-methods studies that are informed by poststructuralism and traditional studies (Richardson, 2000). In this type of studies, there are various principles in knowing the social world (epistemological relativism). But in the view of Saukko (2003), the 'classical aim of triangulation is to combine different kinds of material or methods to see whether they corroborate one another.'

The study stresses on the importance of using triangulation (methodological) in entrepreneurship studies. It provides a synopsis of methodological triangulation, it offered types, function, and issues in its use, prior evaluating these issues in the perspective of entrepreneurship research. The actual experiences of operationalising methodological triangulation and how issues raised in the literature were examined and discussed. The study is divided into seven (7) sections, section one introduction, section two

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the concept triangulation, section three types of triangulation and section four theoretical based, section five triangulation designs, section six the purpose of triangulation and finally, section seven is the conclusion.

II. TRIANGULATION

The concept 'Triangulation' was originated from the field of surveying and navigation that use to indicate the point of a location by means of observations from two other locations (Sharp, 1943). However, in social and management science triangulation is a means by which a researcher would like to verify findings of independent measures which indicates agreement or do not show a contradiction (Miles, Huberman, Huberman, & Huberman, 1994). In social and management science the practice of qualitative and quantitative studies usually involves adopting triangulation source that has many strengths and weaknesses in order to complement each other and to enhance the validity of the study's results (Brewer & Hunter, 1989; Denzin, 1989; Denzin, 1978). Particularly in studies that involves complex problem – example issues on undergraduate student's entrepreneurial intention, which the researchers Ph.D. thesis focus on. However, mixing many methods in one study is a crucial aspect (Creswell & Creswell, 2017; Uwe Flick, 1992).

The adoption of 'Triangulation' in social and management sciences was started by Campbell and Fiske (1959) and Webb et al., (1966), who are of the view that using more than one method is necessary for the purpose of confirmation and any differences arising from the investigation were not from the methodology used. Literature on multi-methods design (triangulation) such as (Denzin, 1978; Kimchi, Polivka, & Stevenson, 1991; Miles et al., 1994) have identified several types of triangulation in research thus; data source triangulation (data obtained from different individuals or that obtained at different periods or at different locations), methodological triangulation some researchers called it data type triangulation (this is the use of both quantitative and qualitative data in a single study, example the use of focus group discussion, interviews, survey, case study, observations etc.), researcher/investigator triangulation (this method involves the use of two or more independent investigators in conducting the research), theoretical triangulation (this method of triangulation implies that hypotheses are developed by two or more theories or that involves using many theories to explain/interpret researcher's data), and data analysis triangulation (involves the use of more than one method of analysis of data with one set of data)

This paper emphasis on the 'methodological triangulation'. Mixing two or more of these methods, example, focus group discussion, interview and survey data gives a fairly strong way of evaluating the extent of convergence and complementary findings also extending on divergence between results found (Atkinson, Coffey, Delamont, Lofland, & Lofland, 2001; Becker & Geer, 1957; Becker & Geer, 1970; Gubrium & Holstein, 2002; Trow, 1957). For instance, interviews may increase the understanding of the factors that influence entrepreneurial intention among undergraduate students. Also, the focus group may enhance a more complete and better understanding of the survey results and aid in explaining irregularities and obstructions arising from the interview. Brewer and Hunter (1989) and Wolcott (1995) expressed that the use of triangulation method or multi-method techniques cannot be explained different from the questions that guide the problem under investigation.

III. TYPES OF TRIANGULATION

Triangulation means adopting two or more approach when conducting a study for the purpose of gaining richer, comprehensive data and help or confirm the findings of the study. This study points out seven (7) different types of triangulation as found in previous literature.

A. Data Sourced Triangulation - this method of data collection involves the adoption of different sources of data collection in one study. According to Denzin (1989), data sourced triangulation comprises the adoption of many types of data collection methods in a single research. Data triangulation can also refer to the use of many data collection procedures in one research for validation purpose. There are three main different forms of data triangulation viz; time (refers to data obtained at different times), space/location (refers to collecting data from different places) and person (refers to different people involved in collecting the data) (Denzin, 1978). This method emanated as a result of the idea that the strength of data can differ on the basis of the time the data were collected, the individuals that partake in the process of data collection and the location from which the data were obtained (Begley, 1996). This method helps researchers to uncover which of the areas of a problem are related and which are not related across situations, which transform over a period of time and also which vary among members of a group (Mitchell, 1986).

B. Researcher Triangulation – this type of triangulation refers to using two or more people in sourcing data and in the process of data analysis. This type of triangulation is a 'systematic comparison of different researchers' influences on the issue and the results of the research' (Uwe Flick, 2002). Researcher triangulation is to involve many researchers, recorders, questioners, and

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analysers in a particular research that everyone has a particular skill, with a well-known character to show in the research in dealing specific data in question. However, this method eliminate the possible bias that may manifest in a research that involve only one researcher and this safeguard better reliability in sourcing the data as well as in analysing the data (Denzin, 1970). Furthermore, according to Denzin (1989) and Thurmond (2001) researcher triangulation is the process of involving three or more researchers in each of the steps of a research. This has to do with involving many researchers, questioners, or data analysers in a single study for the purposes of confirmation.

C. Theory Triangulation - Theoretical triangulation concerns about the adoption of many varied frameworks or perceptions in analysing the same set of data. Furthermore, gathering data through many theoretical views 'extend the possibilities for producing knowledge' (Uwe Flick, 2002). Mitchell (1986) refers to multi-methods in operational hypotheses, within numerous alternative clarifications of the problem, independent of one other but interrelated. In relation to this Chamberlin, (1965) refers to this method as involving many operational hypotheses, within numerous alternative clarifications of the phenomenon, that are theoretically different but interrelated, together are considered and verified within the same type of data. In this type of design, the researcher is more assured in accepting the hypothesis formulated in the study that already verified with the same data set against the opposition hypothesis. Theoretical triangulation refers to the process of adopting several theoretical approach (Marxist, feminist, phenomenological, interactionist) use to interpret the findings of the same research (Denzin, 1989). This is challenging and hardly attained satisfactory, mostly arising after the study is completed (Shih, 1998). Theoretical triangulation is the use of more than one theories in a single study for the purpose to back up or challenging findings since different theories help research to observe problem at hand by means of multiple lenses (Denzin, 1970). The theories that interrelated or competing can be used in formulating a hypothesis for the purpose of gaining an in-depth and greater understanding of the phenomenon in question (Banik, 1993).

D. Methodological Triangulation or Mixed-methods – This is a type of research that applies several methodologies to study a problem or phenomenon that are within one paradigm (Casey & Murphy, 2009; Denzin, 1989; Risjord, Moloney, & Dunbar, 2001). It is referred to as data type triangulation (Miles et al., 1994). This method of triangulation is two types across/between and within the method. Across/between method is the combination of qualitative and quantitative methods of data collection methods (Boyd, 2001; Casey & Murphy, 2009). The quantitative approaches are the statistical analysis of results or questionnaires obtained from a standardised scales and expressed in numerical form, while the qualitative approaches are the descriptive and written format which comprise attentive observation, participant observation and open-ended interviews (Risjord et al., 2001) this may involve focus discussion as well. Mixed methods is the adoption of three or more methods in conducting one study (Mitchell, 1986). This type of method can be applied at all levels of research strategy or data gathering stage (Bums & Grove, 1993). This method has been widely used in the social and management sciences. Though it is sometimes confusing due to the fact that it takes place at two levels in the research process. (Denzin, 1989) classified methodological triangulation into two types: 'across method' and 'within method'.

1) Crossways Technique Triangulation - this type of triangulation involves the use of quantitative and qualitative approaches in data gathering in a single research (Boyd, 2001; Denzin, 1970; Kimchi et al., 1991; Mitchell, 1986).

2) Within Method Triangulation - this is a situation in which two or more techniques of data collection from the same research design are adopted in a single study to measure the same variables (Denzin, 1989; Kimchi et al., 1991). This is a situation involving the use of many independent methods. Since they are autonomous, they varied in strengths and weaknesses. The result should provide completeness, give substantial data and reveal any indiscretions that may disclose a dissimilar perception (Duffy, 1985; Mitchell, 1986). Mixed methods can also be 'sequential' or 'simultaneously used' (Creswell, Shope, Plano Clark, & Green, 2006; Morse & Field, 1995). It is called chronological order when using various techniques. Where quantitative or qualitative approaches are adopted concurrently and the results obtained complement each other, then it is referred to as 'simultaneous triangulation'. But when one technique is adopted in advance of another technique, it is referred to as 'sequential triangulation'. Mixed methods seem advantageous in confirming results, and also provides complete data, increased validity and improved understanding of the problem in question (Casey & Murphy, 2009; Foss & Ellefsen, 2002; Halcomb & Andrew, 2005; Redferm & Norman, 1994; Risjord et al., 2001).

E. Data Analysis Triangulation – this method as described by some researchers is the adoption of two or more methods of data analysis using one data set for the purpose of validation (Kimchi et al., 1991). Furthermore, this type of triangulation can also be used in quantitative and qualitative approaches to analyse data involving more than two techniques across the same research for validation and completeness purposes. However, a situation when researchers adopted both quantitative and qualitative

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data in the same research, hence the use of two or more methods are required to achieved validity within the single paradigm, and also extending the analysis between the two paradigms for completeness purpose.

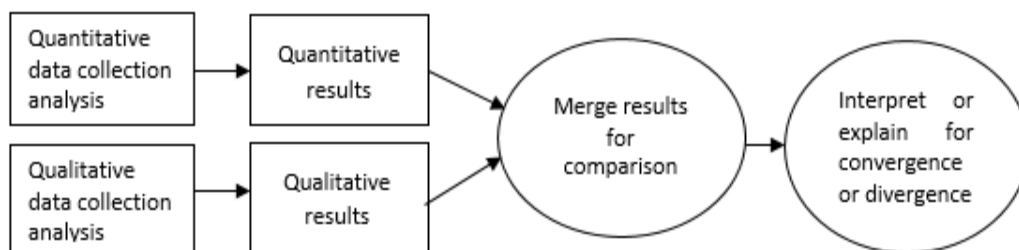
IV. TRIANGULATION DESIGN

When chosen the type of design to use, the researcher should consider his skill and orientation. Whether to adopt quantitative or qualitative than to start with the stronger. There are three features of mixed methods research designs as observed by (Creswell, 2015).

- i. Priority – this has to do with importance attached to a particular method, qualitative or quantitative
- ii. Sequence – this has to do with the order in which the data collected, whether qualitative data first or quantitative data
- iii. Techniques used in data analysis whether to combine the data analysis or to keep the two separate

a) QUAN-QUAL MODEL

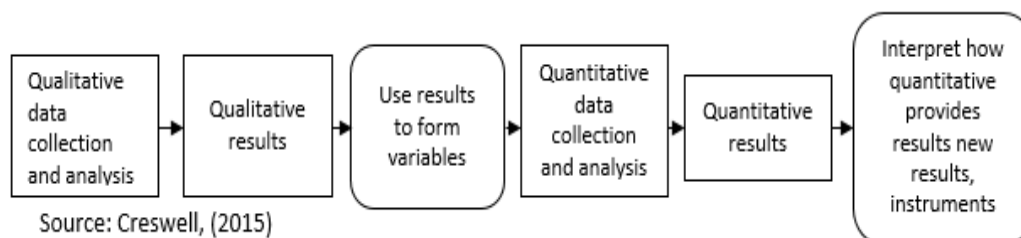
This is a convergent of similar strategy when quantitative and qualitative data are collected concurrently and both are weighted equally, in order develop more complete understanding of the problem, to cross-validate or corroborate findings, and to collect both quantitative and qualitative data, analyses both sets of data, and then combine the results of the two datasets, finally, analysed data for comparison purpose.



Source: Creswell, (2015).

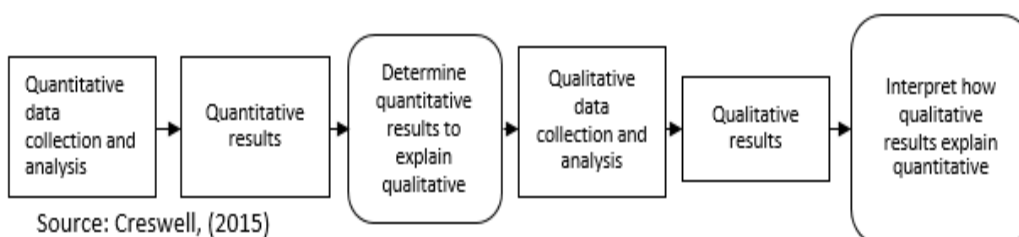
b) QUAL – QUAN MODEL

This is referred to as exploratory sequential research strategy, when data are collected qualitatively in the first place and are more heavily weighted. Therefore, this type of method used to generalise qualitative results to different sample to check the distribution of a problem within the selected population and to discover a problem with qualitative.



Source: Creswell, (2015)

- c) **QUAN – Qual Model** this refers to explanatory sequential research design, when data collected involves the use of qualitative data first and more heavily weighted. In order to describe, interpret, contextualise quantitative findings, to observe in more detail unanticipated results from a quantitative study, and also, use quantitative methods and then qualitative methods to help explain the quantitative results in more in-depth.



Source: Creswell, (2015)

V. REASON FOR TRIANGULATION

The adoption of triangulation in social and management sciences was first started by (Campbell & Fiske, 1959) the method came from idea of 'multiple operationism' towards validation of the study results (Campbell & Fiske, 1959; Field & Morse, 1985), emphasised that triangulation perform numerous functions, however, the most popular among the functions, is to make sure

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the instruments' validation by achieving the same results. In this paper, the researchers make use of the two key reasons of triangulation as recognised by (Shih, 1998), triangulation is used for the purpose of validation and completeness.

a) Validation or Confirmation Purpose

There are many advantages of adopting triangulation for validation or confirmation purposes. The traditional uses as identified by many literature, the major advantages are validation of qualitative results by quantitative study and validation of quantitative instruments by qualitative study when the problem under investigation has few theoretical underpinnings. This method usually used to confirm if the instruments for the study were suitable for measuring a particular construct (Flick & Kardoff, 2004). The approach can also use to prevent problems related to one-method, one-researcher and one-theory or model biases and therefore can be used to validate or confirm the study results and conclusions (Denzin, 1989).

b) Completeness/Full Knowledge Purpose

Triangulation for the purpose completeness, scholars adopted this method to enhance understanding and to have in-depth knowledge about the problem under study through the combination of many approaches and theories or models (Fielding & Fielding, 1986). This method is significant in conducting studies because it permits for the acknowledgement of multiple realities (Tobin & Begley, 2004), also use to expand and deepening the understanding of problem under investigation (Coyle & Williams, 2000; Creswell, 2002; Mactavish & Schleien, 2000). Generally, triangulation for purposes full knowledge or completeness is used in studies that are few explored or that are not explored. Others are generating data that are rich and which further help researchers to formulate hypotheses for quantitative studies. Therefore, to come up with a credible and tested hypothesis for this kind of problems researchers are required to make good use of quantitative and qualitative approaches in the same study.

VI. CONCLUSION AND RECOMMENDATION

Despite its weaknesses as described by some literature, example, (Lincoln & Guba, 1985; Patton, 1980; Silverman, 1985) triangulation methods are vital in confirming and validating the credibility of research findings when two or more data source, investigators, methodologies, theories, and data analysis are used in the same study. This method also encourages innovative and creative research activities. However, it cannot be suitable for all study problems due to many limitations which denied its usage effectively. Therefore, at the event of assessing whether to adopt triangulation or not, investigators must continuously try to balance the efficiency and suitability of approaches for responding to the problem under investigation against the actual limitations example, resources, materials and time at disposal. This type of evaluation points indicating no one superlative technique for answering the study question, thus, no best way that every researcher should adopt among the various methods of triangulation. Therefore, the researchers conclude that triangulation should not be seen as a means to an end, rather an avenue if properly utilised, pools various approaches in a diversity of means to give better-off and more understanding questions of multifaceted phenomena than can be attained by undertaking research using different methods independently.

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