Case Study Approach to Conducting and Designing Qualitative Investigation for Business Researchers

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Abstract: Research into social problems, problems of deviation, of control and of crisis and the like, the general subject matter to which social problems are devoted is still mainly feasible through methods which yield qualitative data. Indeed, a method of analyzing qualitative interview data can be outlined as a stage-by-stage process. This research offers a resource guide for qualitative researchers in social science investigations, discussing data collection techniques, data analysis, reporting, and the issues of validity, reliability, and ethics adopting the qualitative context. This study further provides an overview of important concepts (manifest and latent content, unit of analysis, meaning unit, condensation, abstraction, content area, code, category and theme) related to qualitative content analysis. The research would serve as a resource guide for qualitative researchers in the field of business and the social sciences, discussing data collection techniques, data analysis, reporting, and the issues of trustworthiness, dependability, credibility and ethics.

Keywords: Case Studies, Manual Analysis, In-depth Interviews, Qualitative Research, Research Methodology.

1.0 Introduction of the Research

Past studies have argued that qualitative research (QR) strategy is viewed as belonging to the area of science because it possesses the scientific characteristics of being systematic, analytical, rigorous, disciplined, and critical in perception (Dana & Dana, 2005; Creswell, 2012; Yin, 2012; Ajagbe et al., 2015). However, in certain studies the opinions are that qualitative research approaches are an art since it involves an artistic part of exploring, playful, metaphorical, insightful, and creative (Creswell, 2012; Yin, 2012). Patton (2002) conceived the QR as the human element of inquiry as both in its strength and weakness. The author posited that the strength of qualitative research is fully adopting human insight and experience, while, its weakness is being so fully dependant on the skills of the author, training, intellect, discipline, and creativity. Paton (1990) argued that in qualitative research, the tool is the researcher himself, so the value of the investigation depends essentially on the skills of his personality. In order to complement this view, qualitative researchers (QRs) prepare the foundation for quantitative researchers to work on. In essence, this research describes the research paradigm, research methods, ethical considerations, and data analysis process through which researchers could answer research questions in a qualitative conduct.

2.0 Paradigm of the Research

The mindset that QR is dependent on the principles of naturalistic, constructivist, realist (qualitative) standpoint of qualitative inquiry was suggested by Lincoln & Guba (1985). However, this paradigm was suggested because an exploration of literature showed a need for a better understanding of the experience of researchers in conducting enquiry in the field of business and social sciences (Lincoln & Guba, 1985; Creswell, 2007; Chin et al., 2012). In addition, in circumstances where the need arises to understand experience, there is the need to identify the creation of such experience. Yin (2009) enumerated some of the qualities of the naturalist paradigm as:

a) Realities are multiple, constructed, and holistic.
b) The knower and the known interact and are inseparable.
c) Only time and context-bound hypotheses are possible.
d) All entities are in a state of mutual simultaneous shaping, so that it is impossible to distinguish causes from effects.
e) Inquiry is value-bound.

Lincoln & Guba (1985) opined that approaching research from this context, contrary to a positivist paradigm (quantitative), has substantial implications for the manner research is carried out. The design of QR is based on 14 principles suggested by Lincoln & Guba (1985). For instance, qualitative researchers could adopt purposeful sampling, use the case study as a reporting tactics, and adopt analogous means to create the positivist concepts of validity, reliability, and objectivity.

2.1 Assumptions of Qualitative Research Technique

Ajagbe et al. (2015) posited that the design of a starts from the selection of a topic and a paradigm. The authors added that a paradigm is fundamentally a worldview, a whole framework of beliefs, values and methods within which research is conducted. It is within this worldview within which researchers operate. Creswell (2007) opined that a qualitative study is an inquiry process of understanding social or human problem, based on constructing complex, holistic picture, formed with words, reporting detailed insights of informants, and carried out in a natural setting. Siegle Research (2013) enumerated that:

1. The process of qualitative research is inductive because the investigator builds abstractions, concepts, hypotheses, and theories from details.
2. Qualitative research is descriptive because the investigator is interested in process, meaning, and understanding derived from words or pictures.
3. Qualitative research involves fieldwork. The researcher physically goes to the people, setting, site, or institution to observe or record behavior in its natural setting.
4. Qualitative researcher is the primary instrument for data collection and analysis. Data are mediated through this human instrument, rather than through inventories, questionnaires, or machines.
5. Qualitative researchers are interested in meaning; how people make sense of their lives, experiences, and their structures of the world.
6. Qualitative researchers are concerned primarily with process, rather than outcomes or products.

2.2 Research Methodology Framework

Ajagbe et al. (2015) explained that in carrying out any kind of investigation, it is essential to present an operational structure that would give an overview of the operation that has to be carried out throughout the investigation. Such channel will help to source and gather data needed for the investigation. However, for the study to ensure that all research efforts are properly composed, articulated, organised and concluded as at when needed, a schedule of the research operational structure is essentially suggested. The structure will also serve as a guide as the research moves forward. It is a form of trend by elucidating the correlation and interrelationship between a variety of manners that will be undertaken as part of the research activities. The investigation and understanding of the problem entity at the beginning of the research will be done; that will take the form of literature review of empirical articles, problem statement definition and later followed by the research questions. This means constructing the interview schedule considering the particular methodology to be adopted. The scope of the study will then be outlined and the proposal evaluation and submission followed. Figure 1 shows the sample of a typical operational structure for conducting qualitative research.

Figure 1: Amended Research Methodology Structure
Source: Ajagbe (2014)

2.3 Research Instruments Design

Dana & Dana (2005) suggested that in carrying out a QR, investigators could either choose to make use of the organizational or individual unit of analysis for their research. Organisational unit of analysis is adopted to determine the chosen sample population by selecting samples of particular individuals that stand for the entire organisation. In the organizational unit of analysis, each individual chosen talks on behalf of the organization in which they operate. Ajagbe (2014) opined that the individual unit of analysis determine multiple samples in a particular organization. In the individual unit of analysis, whatever the participants say will be taken as their personal opinion and does not represent the opinion of the organization in which they operate. Implementing the organisational-based unit of analysis will help researchers understand the experience of the respondents under investigation. Chin et al. (2012) noted that, in qualitative study of data gathering there are three basic approaches usually adopted by researchers such as; observation, interview and experiment. However, be that as it may, the researchers made use of observation, interview and document review. This process is also known as triangulation. It is important to note, however, that the most frequently used technique for data collection in qualitative research is the interview (Kumar, 2005; Chin et al., 2012). The purpose of any QR is to observe the research topic from the perspective of the participants, and to realize how and why they hold a specific point of view.

2.4 Data Collection Method

Typically, in a QR approach for business and social sciences, it is usually suggested that the researchers adopt an inductive strategy to gather information from samples selected across geographic boundaries. Yin (2012) enumerated the essential purpose for making use of the inductive strategy. They include the following: (i) reducing raw textual data into a brief format; (ii) setting out apparent linkage between the research objectives and the summary findings obtained from the raw data; and (iii) developing a structure of the underlying arrangement of experiences or procedures that are evident in the raw data. Although, Creswell (2012) stressed that in qualitative studies (multiple case studies), it is common to study a few individuals or a few cases, because the universal ability of the researcher to provide an in-depth picture diminishes with the inclusion of each new individual or site. In addition, the sample size for a particular study is dependent on the nature of the study. Whereas, some qualitative studies examine one case in depth, others take a wider approach, focusing on 10 or 20 cases – but may only be able to offer shallow opinions (Creswell, 2007; Creswell, 2012). The investigation could adopt purposeful sampling strategy to identify respondents that represented "information rich" samples (Patton, 2002; Yin, 2009), since such instances lend themselves to the "logic and power" of purposeful sampling.

Creswell (2007) posited that during the interviews in a QR, respondents could be asked a sequence of questions using an interview guide strategy. An interview guide is a qualitative data-collecting technique that contains of a sequence of questions to be asked during an interview. This technique is contrary with an informal conversational interview, in which the interviewer has a general theme to discuss but no concrete questions, and a standardized open-ended interview, in which the interviewer has a particular catalogue of questions to ask and does not diverge from those questions (Patton, 2002). Put in context of a continuum of interview formats between "unstructured" and "totally structured," the interview guide is "partially structured" (Yin, 1994; Yin, 2012). The interview guide approach tender flexibility to ask additional questions and explore areas that come up in the course of the interview. A disadvantage of this method, contrary to one that is more formally designed, is that answers for unplanned questions may be difficult to compare across interviewees. This technique (and the larger emergent paradigm), however, is suited to the nature of this research topic (certain research topics), which used evidence from existing literature as a starting point for a phenomenon which was somewhat unexplored.

2.5 Document Collection

Interviewees in a qualitative data gathering could be asked to provide any important documents related to their area of business operations, including publications of research that led to the resulting product or service, brainstorming notes, business plans, mission/goal statements, product or company brochures, and organizations websites. The interviewees should be made to voluntarily provide such documents and should not be mandated to do so if they did not willingly provide them post-interview. The artefacts provided could be another source of data about the interviewees' experience and therefore a means to triangulate against their narrative. The documents could also be analysed to help answer the study's research questions and the outcome included into the overall profiles, or case studies of the interviewees.

3.0 Ethical Considerations

3.1 Humans as Instruments of Data Collection

Since data collection for most qualitative investigation are conducted through interviews, it is important to recognize the adoption of humans as the tool for data collection. Lincoln & Guba (1985) argued that humans can be a highly valid data collection instrument; provided that they are trustworthy. Lincoln & Guba (1985) noted several benefits to the use of humans as instrument.

- Can be responsive to the environment and interact with the circumstances to sense its scope and make them unambiguously.
- Are adaptable and can determine a variety of constructs, whereas, most tools cannot assess any other factors aside the ones which they have been designed to assess.
- Can grasp the holistic world of any phenomenon with all its "buzzing confusion" in one opinion.
- Can work with the interviewee "on the spot" for "clarification, correction, and amplification" of information.
- Can process data, form hypotheses, and test those hypotheses with interviewees as soon as the information is available.

3.2 Semi Structured Interview

Patton (1990) noted that conducting an interview is known to be a significant source of providing information for a research. The author stated the chosen data collection approach could be selected if it allows the researcher better access to the thoughts and feelings of the respondent to be interviewed as compared to other approaches. It is essential to ask people questions about how they organise their world and the meanings they attach to what goes on if one wishes to gain insight into how they interpret that world (Paton, 1990; Yin, 2009). This could best be done through in-depth interview rather than through questionnaire design. Brookfield (1987) suggested that interviews should only be adopted when no other approach can collect the data one is requesting. In addition, interviews are often suitable to explore concepts or notions which have an idiographic rather than homothetic rationale, or in other words, those which are concerned with portraying the highly specific nature of an individual's experiences rather than with advancing broad generalisations concerning laws of human behavior (Thomas, 2006; Yin, 2012).

Creswell (2012) stressed that interview is a conversation with a purpose, of which the collection of data must occur in a face to face situation in a research context and involve the posing of questions by the interviewer. The author recommended that the ability to tap into the experience of others in their own natural language, while exploiting their value and belief agendas, is practically impossible without face to face and verbal interaction with them. Other researchers have highlighted the fact that the respondent is not a passive vessel for the interviewer to open and unload (Thomas, 2006; Yin, 2009). The interview, therefore, is a social interaction where the validity of the data is derived from the cooperation of the investigator and the interviewee to

construct meaning about situated experimental realities in terms that are locally comprehensible. There are several influencing factors that determine the quality of the data gathered in an interview, comprising the structure of the interview, the types of questions asked and the capability of the interviewer.

There are varying thoughts on how structured and unstructured an interview should be. Merriam & Simpson (1984) pointed out that by increasing the structure of an interview, the consistency and ability to compare data is increased. Trochim & James (2006) argued that increasing the structure may not allow the subject to give form to the subject of investigation. In contra distinction, the unstructured interview discovers all the potentials relating to the research agenda (Damianakis & Woodford, 2012). For the purpose of this study, the semi-structured interview which strikes a middle ground between structured and unstructured formats in an attempt to gain the benefits of both was adopted. Patton (1990) described the semi structured interview as asking importantly similar questions with similar words. As a result, a set of questions were used to explore the predetermined problem. Saunders et al. (2007) insisted that one can be confident of getting comparable data across topics.

3.3 Observations
According to Damianakis & Woodford (2012), observation allows a researcher to understand an occurrence to a degree not entirely possible using insights of others obtained through interviews. Much of the literature on research methods found that observational studies may help a researcher to comprehend complex issues through direct observation, either as a participant or a nonparticipant observer (Patton, 1990; Sekaran, 2003). Researchers put forward that this method plays an important role in helping the researcher gain an insight into the participants under investigation (Dana & Dana, 2005; Damianakis & Woodford, 2012; Creswell, 2012). Each observation could be tape-recorded with an observation guide in the form of contact sheets which details the recorded entries including description of activities, behaviour, language, lists of personnel present, the setting or environment and the researcher's personal subjective notes and observations. Trochim & James (2006) argued that an important feature of the participant's research is its reflective character: to recognise that researchers are part of the social world they study. The crucial roles of reflexivity and participant-observation in social research in which researchers act in the social world and yet are able to reflect upon ourselves and actions as objects in the world was further justified.

3.4 Validation of Interview Schedule
A pilot study was defined by Shuttle Worth (2008) as a standard scientific instrument for 'soft' research, which allows scientists to conduct an introductory analysis before commencing a full-blown investigated. In other words, in qualitative research, the researcher could conduct a pilot to validate the research interview questions to assess how much the questions are relevant and clear (Ajagbe, 2014; Ajagbe & Ismail, 2014). The validation should be conducted among experts in the field to ascertain whether the question that is designed is clear enough to enable the researcher ensure the validity and reliability of the instrument chosen for the survey. Ajagbe et al. (2015) posited that it is necessary to clarify that those respondents who participated in the interview schedule validation should be excluded from the population sample of the study.

3.5 Case Study
The case study strategy to QR was noted by Yin (2012) as among the many manners of carrying out social science research. Some other methods are historical analysis, surveys, experiments, observation, and the analysis of archival documents. Yin (2009) posited that each of these approaches has its varying benefits, considering three scenarios: (a) the kind of research question, (b) the control the interviewer has over actual behavioural activity, and (c) the focus on current as opposed to historical events. The case study research deals with the "how" or "why" questions of the experiences of respondents under study. It is also suitable in situations where the researcher has some level of control over the event that is under study. In another dimension, explanatory multiple case studies may be supported by two other types - exploratory and descriptive case studies. Not minding the type of case study chosen, researchers should be careful in designing and conducting case studies to overcome the traditional criticisms of the approach.

Dana & Dana (2005) stressed that adopting the case study approach could be a daunting task. The authors opined further that the goal of using the case study approach is to design good case studies and to gather, present, and analyse data articulately. In addition, it could help to bring to conclusion by writing a compelling report for the study (Yin, 2003; Creswell, 2012). As a research strategy, the case study is adopted in several situations to add to the body of knowledge of organisational, individual, group, social, political and other similar activities (Yin, 2003, 2009). However, it has been regarded as a familiar approach in other fields of social science research, commerce and environmental planning. In short, this method allows researchers to maintain the holistic and meaningful features of real-life experiences such as individual life cycles, organisational and managerial activities, neighbourhood change, international relations, and the maturation of industries (Yin, 2012).

4.0 Qualitative Data Collection
4.1 Primary/Secondary Data Collection
Creswell (2012) mentioned that, because secondary sources provides second-hand data while primary sources provide first-hand data, the use of secondary data alone would not be not sufficient to give credence to a reliable conclusion. In view of this, Kumar (2005) suggested the need to carry out an extensive primary data collection in order to have or feel the practical scenario on ground and get useful and reliable data from the participants. Secondary data collection is mainly based on ideas and work of previous researchers and scholars who have worked on topics related to the study (Kumar, 2005; Creswell, 2012). The secondary sources of data collection rely on various verifiable resources such as; books, journals, earlier research, personal records, electronic documents, websites, online materials, mass media and government or semi-government publications. Primary data collection on the other hand can be gathered through the use of questionnaires, interviews, observations and experiments. Kumar (2005) acknowledged the difficulty and huge resource requirements of carrying out a research through interview.

4.2 Sampling
Researchers could adopt the purposive sampling approach which is according to some authors judgemental in nature and is carried out for a unique purpose (Trochim & James, 2006; Saunders et al., 2007). Purposive sampling method has been adjudged as very effective and this is particularly when the researcher is working on specific case study (Garson, 2004). However, snowballing sampling method could also be used to achieve the particular objectives of the research because it is the most suitable technique for qualitative study. The type of study that is very qualitative and exploratory is more appropriate for a purposive sampling design, because it is not after the representativeness of the samples, but depends strictly on the availability and willingness of respondents to participate in the interview especially those who are very busy and difficult to track down for discussions (David, 2002; Garson, 2004; Creswell, 2012). In qualitative data collection, interviews should continue until the responses reach a saturation point, that is until the responses from each additional respondent no longer provide unique or new information regarding the questions being asked (Trochim & James, 2006; Yin, 2012). This is also consistent with the suggestion of Eisenhardt & Santos (2001), who emphasized that a "researcher should discontinue conducting additional cases and interviewing additional respondents" when he reaches 'theoretical saturation". Creswell (2012) argued that theoretical saturation is once the statistically significant number of cases has been reached, and the researcher should discontinue collecting cases so as to avoid repetitive data and hearing the same stories repeated again and again. Other scholars recommended that the number of case studies is determined by the researcher himself and in qualitative sampling; there are no general rules for the sample size (Patton, 1990; Trochim & James, 2006). As in any qualitative study, the crucial factor is not the number of respondents but rather the potential of each person to contribute to the development of insights and understanding of the phenomenon (Thomas, 2006). However, qualitative samples may be small in size, but the yield is usually rich.

4.3 Interview Analysis
Data in qualitative study could be analysed using inductive analysis, and certain techniques from the constant comparison method could also be used to perform the analysis of the experience of the participants under study (Ajagbe, 2014). The constant comparative method involves the researcher conducting data analysis from the start of observation (Krathwohl, 1998; Yin, 2012). Initial data is coded to indicate the concept or dimension it represents, and the researcher links concepts together into a theory, or explanation of the phenomenon studied. Analysing qualitative data requires understanding how to make sense of text and images so that you can form answers to your research questions. Creswell (2012) mentioned the six steps used in analysing and interpreting the qualitative data. These steps are not always taken in sequence, but they represent preparing and organising the data for analysis; engaging in an initial exploration of the data through the process of coding it; using the codes to develop a more general picture of the data - descriptions and themes; representing the findings through narratives and visuals, making an interpretative meaning of the results and connecting the findings to the literature with the aim of validating the research findings. Miles & Huberman (1994) mentioned that qualitative research is iterative; meaning that, you cycle back and forth between data collection and analysis by going back to your respondents to collect more information to fill in gaps in their stories as your analysis proceeds. Also, it involves reading through the data several times and conducting an analysis each time. Each time you read your database you develop a deeper understanding about the information supplied by your respondents. Creswell (2012) pointed out that there is no single accepted approach to analysing qualitative data, although several guidelines exist for this process. Furthermore, qualitative research is an interpretative research, in which you make a personal assessment as to a description that fits the situation or themes that capture the major categories of information. The interpretation that you make of a transcript, for example, differs from what someone else makes. This does not mean that your interpretation is better or more accurate; it simply means that you bring your perspective to bear in your interpretation (Creswell, 2007).

4.4 Manual Analysis

Although, the use of computers for various purposes is recently very popular, researchers still have a choice about whether to analyse data manually or use a computer (Tesch, 1990; Miles & Huberman, 1994; Yin, 2003; Creswell, 2012). The manual analysis of qualitative data means that researchers read the data, mark it by hand, and divide it into parts. Traditionally, analysing text data involves using highlighters, colour coding to mark parts of the text or cutting and pasting text sentences onto cards. Some qualitative researchers like to analyse all of their data manually. A manual analysis may be preferred when you:

- Are analysing a small database of less than 500 pages of transcript.
- Are not comfortable using computers or have not learned how to use a qualitative computer software program.
- Want to be close to the data and have a hands-on feel for it without the intrusion of a machine.
- Feel distanced from the raw data and need to have the opportunity of being immersed into the raw interview transcript.
- You have time to commit to hand analyse, since it is labour intensive requiring manual sorting, organise, locate words in a text database.

4.5 Data Analysis and Coding

The initial preparation of data for analysis requires organizing the vast amount of information, transcribing it from spoken to written words, to typed file, and making decisions about whether to analyze manually or use a computer (Yin, 2003; Creswell, 2012). Some reasons to manually analyze text data were suggested by Tesch (1990). After the data was transcribed, the researchers had about 157 pages of raw data transcript organized into different files and folders based on participants, sites, locations and kept the duplicate copies of all forms of the data. It took the researchers approximately 4 hours to transcribe 1 hour of interview. The researchers have had to listen to the audio tape and write out the interview into a word file, sometimes when the researchers did not get the words properly, the tape was replayed until they were able to understand the proper words and sentences used by the participants. This process was very labour intensive and the researchers made sure that adequate time was allowed for the process. The next thing the researchers did was to explore the data several times in order to ensure that the appropriate interpretation of the data was obtained. The researcher further read through the data several times and tried to be immersed in the details before breaking them into parts by writing out memos like short phrases, ideas, concepts, hunches that occurred, by re-arranging and removing irrelevant words that were not required for the study. The researchers tried again to arrange and put responses that are related and with similar meanings by grouping them under the same research question/interview theme before coding them.

It is instructive to note that coding involves the process of segmenting and labelling text to form descriptions and broad themes in the data. Creswell (2007) and Tesch (1990) mentioned that there are no set guidelines for coding data. The main objective of the coding process is to make sense out of the data, divide it into parts or image segments, label the segments with codes, examine codes for overlap and redundancy, and collapse them into themes. At the end, the researchers selected specific data to use and disregarded other data that do not specifically provide evidence to the themes. Creswell (2012) and Yin (2012) posited that codes can be stated in the participants' actual words which are called "in vivo codes" or rather the researcher may choose to use his own words or phrase and this is known as "lean coding". For the purpose of this analysis, the researchers used both "in vivo codes and lean codes" because it was sometimes discovered to be necessary to use the codes exactly the same way as provided by the participants during the interview, while other situations warrant the researcher to rephrase the words differently. This is common in cases where the participants could not use the proper professional or business language to pass across their message correctly. The researchers started the first level coding process by bringing in all related codes under the same interview question/theme. For each interview theme, the researchers reported the number of coding categories initially and finally generated the tested codes after repeated counting (3569 codes). At the second level coding, the researchers sub-categorised the generated codes into sub-themes by screening out all codes that are not important to this particular study and codes which have the same meaning are further removed to avoid unnecessary repetition. Because the researchers later in the process found that there are so many repeated codes from different respondents, they removed the codes that are similar and repeated and put them aside. Finally, the researchers were able to come up with an agreeable and more refined number of codes (489 codes). The third level coding involved the re-grouping of the coding categories generated from the second level coding under 21 coding groups and this third level sub-themes as the case may be were finally pruned down to 7 major themes used for the theme development and report writing. A cross-case analysis was performed after the coding process was concluded (Krathwohl, 1998; Joubish et al., 2011; Yin, 2012). Units of analysis from across cases (multiple sources) were combined into one document and grouped by category within the document. The researchers added a column beside each unit of analysis entitled 'conclusion' and put summary-level conclusions that could be drawn based on that unit. When the researchers answered this study's research questions, they synthesized the conclusions drawn in the categories that were relevant to the particular research question.

Thereafter, the researchers concluded the coding process of the transcript and merged all the themes that emerged from the first, second and third level coding categories under the 7 main selected themes for the development of interpretation for the research. The researchers searched further for the most important themes that were most frequently mentioned by each respondent under the coding categories listed under the main themes, then selected 5 important themes in some cases, 4 in some cases and 3 themes in other cases. This categorization was tabulated for easy understanding of the tables (Ajagbe, 2014, appendix), because this revealed the figures that show the frequency of responses for the items. Afterwards, the researchers converted the coded frequencies to quantitative terms and were used to plot the frequencies of occurrence of the important themes (as mentioned by the respondents) on either a pie chart or a bar chart. Figure 2 showed the qualitative analytical process and table 1 showed the sample result of the coding process (Ajagbe & Ismail, 2014; Ajagbe, 2014).
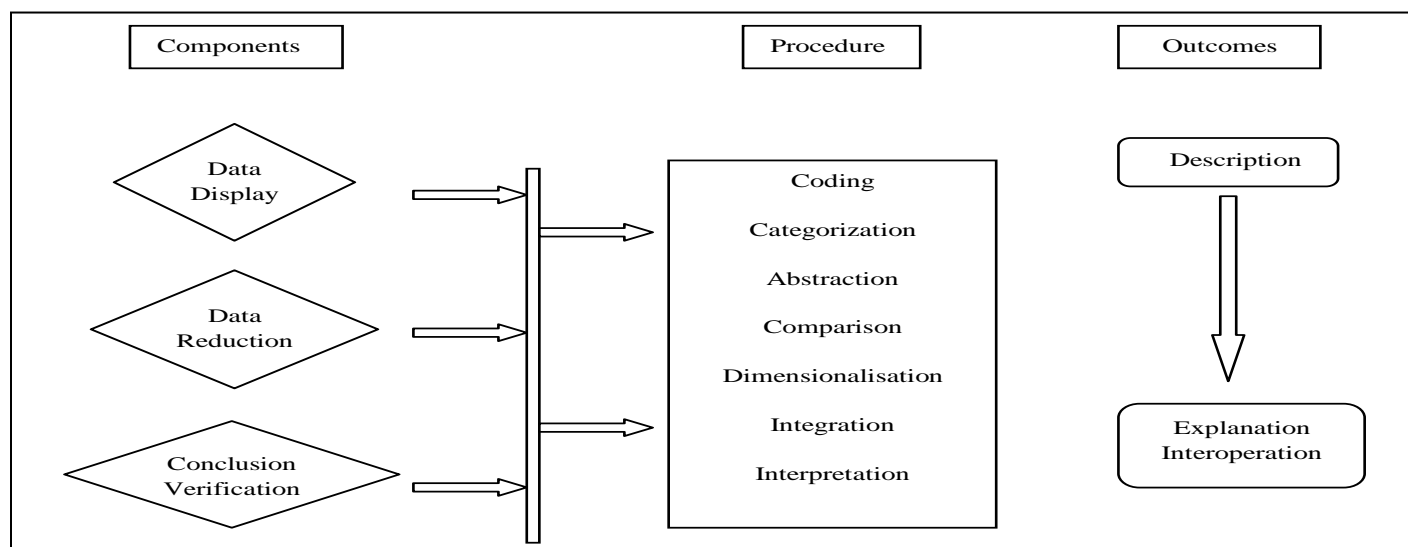
Figure 2: The Qualitative Analytical Process.
Source: (Joubish et al., 2011; Ajagbe & Ismail, 2014)

Table 1: Sample Result of the Coding Process

Major Emerging Codes	Sub-Codes	Coding Categories
Funding Structure	6 Sub-Codes	95 Codes
Further Funding	5 Sub-Codes	121 Codes
Investment Decision	2 Sub-Codes	112 Codes
Roles of VC	2 Sub-Codes	50 Codes
Exit Options	1 Sub-Code	20 Codes
Tech Commercialisation	4 Sub-Codes	60 Codes
Start Up Performance	1 Sub-Code	31 Codes
7 Major Codes	**21 Sub-Codes**	**489 Codes**

Source: (Ajagbe, 2014; Ajagbe & Ismail, 2014)

4.6 Operationalize and Make Measurable
This sample extract is from the study conducted by Ajagbe (2014) and Ajagbe & Ismail (2014)

This bar chart represents the opinion of the 28 TBFs and 19 VCFs interviewed for this research. On financial prudency and increased market share, 28 TBFs (100%) and 19 VCFs (100%) mentioned those items as among the main areas their company improved tremendously after VC involvement. While 26 TBFs (93%) and 19 VCFs (100%) said that revenue growth improved more for their company as a result of VCFs involvement. Adequate capital provision by VCFs was listed by 24 TBFs (86%) and 17 (90%) VCFs as areas important to the performance of their firms after VCs infused capital into their firm, and lastly 22 TBFs (79%) and 14 VCFs (74%) concluded that the business reputation of the TBFs increased tremendously after VCFs invested in

their technology" Figure 3 and 4 indicated the bar and pie charts from statistical analysis of coded data extracted from the sample research study.
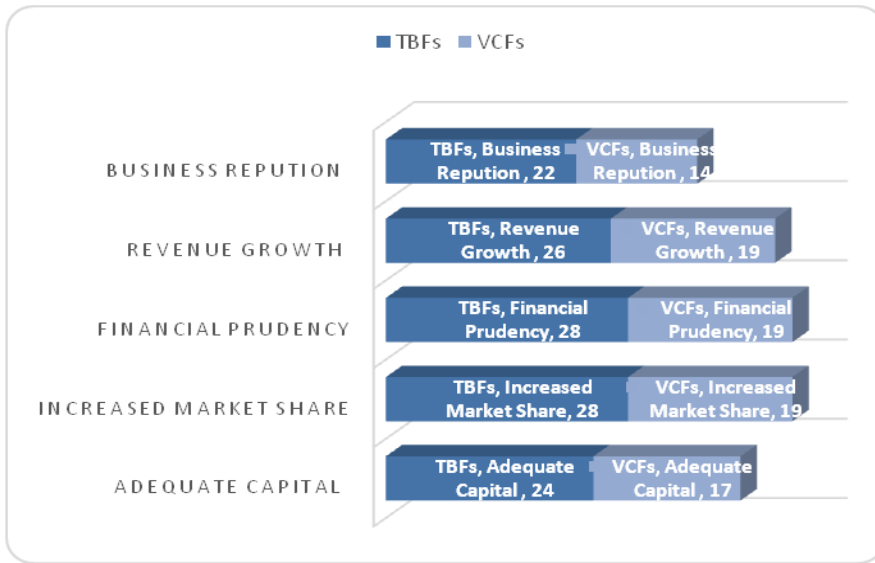

Figure 3: Bar Charts from Statistical Analysis of Coded Data
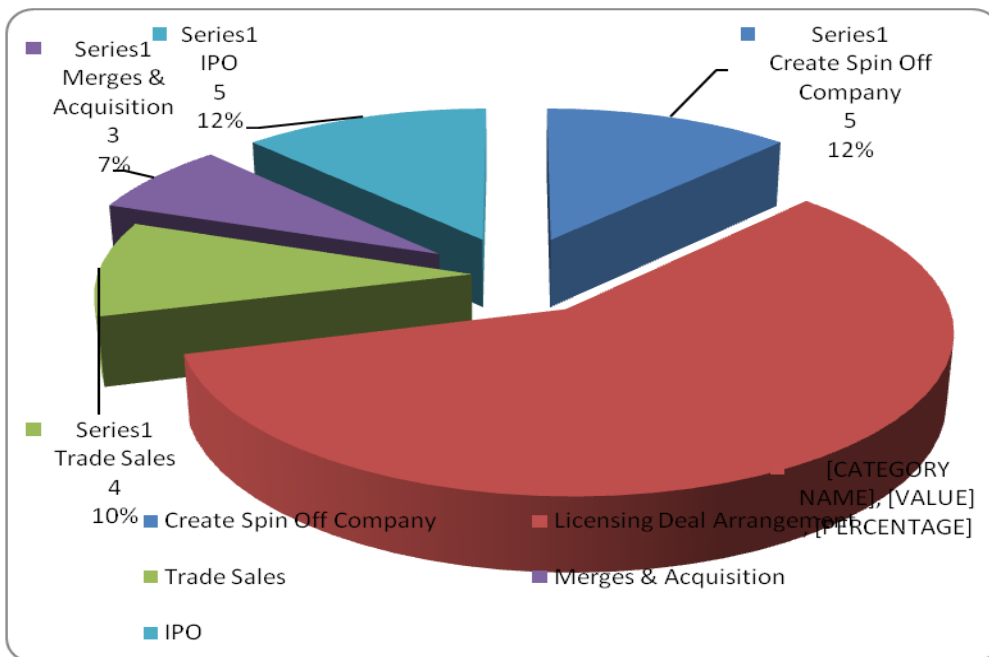Source: Ajagbe (2014) and Ajagbe & Ismail (2014)

Figure 4: Pie Charts from Statistical Analysis of Coded Data
Source: Ajagbe (20140 and Ajagbe & Ismail (2014)

4.7 Research Validity and Reliability

This study's design was predicated on the principles of Lincoln & Guba (1985) and Miles & Huberman (1994). For instance, the study used purposeful sampling through the case study as a reporting mechanism, and adopted analogous means to establish the positivist concepts of validity, reliability, and objectivity as the researchers considered the phenomenon investigated. This is

because naturalistic inquiry will adopt other analogous means to establish the positivist concepts of internal and external validity, reliability, and objectivity (namely credibility, transferability, dependability, and confirmability). The triangulation methodology was also used which involved studying the same research problem from varied perspectives in terms of data sources, methods, investigations or theories, so that the convergence of results can be obtained to increase their credibility (Creswell, 2012; Yin, 2012).

The research objectives were achieved through a combination of several methods of data gathering approaches (within-method triangulation) when answering the research questions. Observations and document review were used as support to answer some of the study questions. As mentioned by Van Maanen (1990), "within method triangulation approach" is another reliable technique used to ensure trustworthiness within the conventional concepts as supported by Thomas (2006). It is however, important to note that after the data were transcribed and analysed, the researchers sent the analyzed data to the respondents to cross check if what they said during the interview were actually what was reported in the interview transcript. The researchers did that in order to ensure research credibility, confirmability and trustworthiness, subsequent upon which the coding/theme development was carried out. Table 2 provided a summary of research questions, analysis techniques, and tools associated propositions that were utilized and subjects used to address the respective research questions.

Table 2: Operational Framework of the Study

Research Objectives	Research Questions	Research Hypothesis	Research Method	Research Outcome
To find out the roles of venture capital in commercialisation.	(a). What are the roles venture capital play in Commercialising TBFs? (b). How does venture capital nurture TBFs?	No hypothesis testing.	Data gathering. Analyse data with qualitative technique.- interview, content analysis, document review.	????
To investigate how VCs evaluate tech SMEs they finance.	What criteria do you consider when evaluating tech firms to finance?	No hypothesis testing.	Data gathering. Qualitative technique.- interview, document review, observation.	????
To evaluate the performance of nascent ventures after VC infusion	In what ways have VC infusion influenced the performance of your company?	No hypothesis testing.	Data gathering. Qualitative technique.- interview, document review.	????
To find out the level of support TBFs expect from VC investor after capital infusion.	To what extent do tech firms expect to be supported by VC investors after VC infusion?	No hypothesis testing.	Data gathering. Qualitative technique.- interview,content analysis.	????
To investigate how government can encourage VCs to invest in growth firms.	What ways can government encourages VCs to finance growth firms?	No hypothesis testing.	Data gathering, Qualitative technique.- interview, content analysis.	????

Source: Ajagbe (2014)

5.0 Methodological Conclusion of the Study

The study was carried out considering the relevance of the realist (naturalistic, constructivist or qualitative) standpoint in mind. This is because researchers recognized that the opinion of realists has not been adequately implemented in business research. Be that as it may, the character of some business research is such that reports provided contribute significantly through their applicability in organisational settings and adoption by public policy makers. In the concept of realism, it provides the perspective that facilitates this applicability while at the same time understanding the temporary nature of the underlying reality. Adopting the realist perspectives, the researchers assure that this study illustrated the importance of such an approach in business research and shall provide guidance to future generation as to how this research contributed to the field of study in question. In view of the above, this study discussed the qualitative research paradigm, research design, research methodology framework, ethical considerations, data analysis and coding process through which researchers could develop new themes for writing final reports. The goal of this study was to explore the analysis of qualitative interview transcripts without the use of computer software. The exploration was necessitated because several studies are not too peculiar with the best technique to analyze interview transcripts, particularly when they are not comfortable with the use of computer analytical software. Through in-depth review of archival studies to present an approach to conveniently conduct qualitative research. And by extension reviewing secondary documents

and referring to samples of manually analyzed transcript of recent authors. This study has provided an overview of important concepts related to qualitative content analysis, thematic analysis, and constant comparison technique, case by case and cross case analysis. The research would serve as a resource guide for qualitative researchers in the field of business and the social sciences, discussing data collection techniques, data analysis, reporting, and the issues of trustworthiness, dependability, credibility and ethics.

6.0 References

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