HOW IS MULTIPLE CASE STUDY ADAPTED IN SEQUENTIAL EXPLANATORY RESEARCH?

A CASE EXAMPLE OF NEPALI SCHOOLS

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ABSTRACT

In sequential explanatory mixed methods research, "How is multiple case study adopted?" is the focus of this review paper. After selecting the issues from the first phase study (quantitative study), the next task of the researcher is to select the cases for second phase study. In this second phase study (qualitative research), multiple case study, as a part of the first or case within the first, is preferred as its one of the applications is to explain the presumed casual relation. In the second phase, the researcher intends to explain or justify the statistical results of the first phase study. The multiple case study as research inquiry can be conducted for collecting and analyzing the qualitative evidences. The questions for the case study in the form of "how?" and "why?" are more meaningful rather than "what?". This paper discusses about the selection of unit of analysis, site selection for the study, preparation of evidence collection methods and analysis, and ensuring quality that are fundamentals for the follow-up inquiry.

KEYWORDS: *Nepali Schools, Quantitative Study, Sequential Explanatory*

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1. INTRODUCTION

In explanatory research design, the quantitative data of the first phase are analyzed and the results are used to follow-up qualitative data collection with a smaller emphasis on the qualitative approach (Creswell & Plano Clark, 2011). Qualitative research strategy, grounded in constructivist philosophical stance, is more than the process of gathering quantitative data, and it intends to explore in-depth understanding through the persuasion of information-rich data. Creswell (2013) states that it is bottom-up process that follows inductive approach in analyzing qualitative data (p. 237). In this research process, six major strategies of qualitative inquiry: ethnography, grounded theory, case studies, phenomenological, and narrative research are included (Creswell, 2009). Each research strategy has their own characteristics and is used in different situations. Despite the intrinsic variation in the strategies, in qualitative research strategy, five interrelated steps in the process of data collection are discussed (Creswell, 2013). They are: a) identify participants and sites to be studied, b) gain access to these individuals and sites by obtaining permission, c) consider the types of information that best answer the research questions, d) design protocols or instruments for data collection and recording the information, and e) administer the data collection procedure with special consideration of ethical issues

In sequential explanatory mixed methods research, "How is multiple case study adapted?" is the focus of this study. This article links this multiple case study with the quantitative research, for example, conducted by the author, J. Khadka (2017), on the topic *Perceived relation between Principals' Emotional Intelligence and*

Leadership, and their effect on School Performance to make it convenient for the readers to capture the sense of writing. In this article, multiple case study, case study issues and question, participants setting, evidence collection, interview and procedure, pilot case study, qualitative validation, analysis of case study evidence, and ethical issues are discussed.

2. MULTIPLE CASE STUDY

As stated by Denzin and Lincoln (2005), case study is to optimize understanding of the case rather than to generalize beyond it. Further, in contrast, they state that the instrumental case study extended to several cases can be used that provides insight about a particular issue to draw generalization. Generally, two types of case study designs: single and multiple case studies are discussed in several literatures. According to Gabel (1994), a single case is appropriate at the outset of theory generation whereas "the multiple case design is more appropriate for description, theory testing (Gable, 1994), theory testing for establishing generalizability of the inferences, and for developing richer and more nuanced interpretations of a phenomenon." (p. 94). As the multiple case study, also known as collective case study in Stake's (1995) term, cross-case studies or comparative case study method in Yin's (2014) term, intend to involve several instrumental cases and allow better understanding (Berg, 2009). Multiple case study is the research strategy in the second phase study (Creswell, 2009) although it is not a methodological choice rather it is a choice of cases to be studied (Denzin & Lincoln, 2005). It "explores in-depth a program, event, activity, process, or one or more individuals" (Creswell, 2009) that establishes the operational link between variables, and explain by disclosing the contemporary phenomena within its real-life context. This study is to supplement the first phase quantitative research by exploring much more information about the population (Stecher & Borko, 2002) as it has relatively high degree of explorability and representability (Gabal, 1994).

In sequential explanatory research, Creswell and Plano Clark (2011) state that some individuals are selected who participated in the first phase study (for example, survey study) as the intent of this study is to explain initial results. In the second phase (qualitative research), multiple case study, as a part of first phase research or case within first phase research, is preferred as its one of the applications is to explain the presumed casual links that are not easily assessed by first phase research (Yin, 2014). In this multiple case study, the researcher explores in-depth information, for example, about the emotional intelligence and transformational leadership model in real-world situation (issue taken from the study of Khadka, 2017). Bhattacharjee (2012) states that the case study "is a method of intensively studying a phenomenon over time within its natural setting in one or a few sites (p. 93)" and he recommends interview, observations, pre-recorded documents and secondary data for methods of evidence collection. Yin (2014) lists six different methods of evidence collection. They are documentation, archival records, interviews, direct observations, participant-observation and physical artefacts. Further, Bhattacharjee (2012) emphasizes the five key decisions that are considerable in a case study. The first decision is *questions for case study* that mainly concerns with answering the questions in the form of "how" and "why" of phenomena. The second is *unit of analysis* that concerns with examining a single individual, group, organization or multiple level cases. The third is *design of case*: single case or multiple cases. The fourth is *sites of case study* that needs to be "based on the fit with the research question." The fifth is *techniques of data collection* of the case study.

3. CASE STUDY ISSUES AND QUESTIONS

In the qualitative phase of the study, the researcher intends to explain the statistical results of first quantitative phase study. The multiple case study as qualitative research approach can be conducted for collecting and analyzing the qualitative evidences that further illuminates the particular issue (Stake, 1995 as cited in Ivankova, 2002). The 'issues', in Stake's

(1995) term, or the 'proposition', in Yin's (2014) term, are identified and specified from the first phase result analysis. In the example, the case study issues might be grounded on the statistical results that concerns with the stated three leadership styles in relation with emotional intelligence and respective theories (form Khadka, 2017). The individual teachers (form Khadka, 2017) from a sample can be inquired based on their scores in statistical results of survey research that how, and why they rated their principals' emotional intelligence and leadership styles at higher level (Creswell & Plano Clark, 2011). In the first phase survey research, the respondent teachers rated their principals as emotional intelligent and transformational leaders. From the result of Khadka (2017), the major issue for the second phase study might be whether the principals are emotional intelligent, and they exhibit leadership behaviour according to transformational leadership model. In the study of Khadka (2017), despite their high rating scale towards the principals' emotional intelligence and transformational leadership style, why a large number of respondents were at undecided level at some items of the questionnaires. The case study questions of second phase study can be stated as -How have the Nepali institutional school principals been exhibiting the emotional intelligent behaviour? How have the Nepali institutional school principals been adopting leadership role? Why were the participants at undecided state in some statements? After picking up the issues from the first phase study, the next task of the research is to select the cases (participants) for second phase study.

4. PARTICIPANTS SETTING

The selection of cases is much more important and also a difficult task in the sense that the case is necessarily to be representative of some population of cases (Denzin & Lincoln, 2005, p. 449). The case may be embedded in different historical, social, cultural, economic or physical backgrounds. But, for qualitative fieldwork, Denzin and Lincoln (2005) state to draw a purposive sample, and the researcher describes the social, cultural, situational and other contexts as far as possible. About sample, Creswell and Plano Clark (2011) recommend a much smaller sample than the sample in quantitative data collection as the purpose of second phase study is "not to merge or compare the data as a convergent procedure" (p. 186).

Based on the results of the first phase, there are not extreme and unique cases to be identified because there is not found any significant difference between the variables across the demographic characteristics of the principals (Khadka, 2017). But, despite the findings of this study in line with the findings of the several international researches, the results about leadership styles of the principals are not similar to the previous research findings conducted in Nepali institutional schools. In the related literature, considering the institutional schools, the principals' leadership styles are identified not as transformational leadership styles and they are supposed to practice autocratic or authoritative leadership. Considering the results and the nature of respondents of the first phase study, a small size of sample consisting of principals and teachers can be selected for second phase for collecting the evidences:

Further, while selecting a sample, two important criteria will be considered. The first condition is that whether the principals are from the group with the stated demographic characteristics who were rated at higher level of emotional intelligence and transformational leadership. The second is that whether the teachers of the selected were the participants of the first phase study. In multiple case design, a sample size of a few cases, 6 to 10 cases, who can provide compelling support for the research issue can be selected (Yin, 2014) as the intent of this study is not to study the schools or teacher as an entire case, and it is just to clarify the issues emerged in the first phase study.

5. EVIDENCE COLLECTION METHODS

The literature states several techniques of data collection such as unstructured or structured in-depth interview, participant or non-participant observation, documentation, archival records and physical artefacts, and longitudinal studies can be used for evidence collection (Gabel, 1994). In qualitative research, all kinds of information can be collected by four kinds of techniques: observations, interviews, documents and audiovisual materials with appropriate protocols (Creswell, 2007 as cited in Jacob & Furgerson, 2012, p. 1). In any technique of evidence collection, five stages are followed that are using sampling procedure, obtaining permission, collecting information, recording data and administrating the procedures (Creswell & Plano Clark, 2011). Below how an interview method can be used for evidence collection is discussed:

5.1 INTERVIEW AND PROCEDURE

One of the six sources of case study evidence is an interview that is usually associated with the survey research (Yin, 2014, p. 110). Out of three types of case study interviews: prolonged case study interviews, shorter case study interviews, and survey interviews, as stated by Yin (2014), the shorter case study or the general interview guide approach, in Patton's (2002) term (Teddlie & Tashakkori, 2009), is suitable to conduct in about one hour in one round interview.

The purpose of the second phase study, as stated by Yin (2014), is to clarify the certain findings rather than conducting it in broader and open-ended nature that provides opportunity to express their own understanding (Teddlie & Tashakkori, 2009). In the study of Khadka (2017), for example, interview method might be the source of evidence collection that can be conducted after the quantitative results of the first phase survey research. Interview is an essential source of case study evidences about human affairs and actions in which all types of questions are permissible so that different styles of interview can be adapted in the process (Yin, 2014; Teddlie & Tashakkori, 2009; Denzin & Lincoln, 2005). The interview is conducted on conversational manner rather than rigid in nature that involves one-to-one interaction between interviewer (researcher) and interviewees (participants). This strategy provides ample opportunity to clarify through intensive interview (Teddlie & Tashakkori, 2009) if any question is unclear by 'in-depth' or unstructured' interview (Yin, 2014).

The interview to be conducted is bounded by the cases and time, and will be based on specific open-ended questions. Primarily, the face-to-face mode is the way of interview, and in some cases, telephone interview may be the supporting part. In the procedure of evidence collection, the researcher can visit sites or send the links for interview with earlier request to the interviewees. At current pandemic COVID-19 situation, online apps such as Zoom, Google Meet or TEAMS might be the suitable means for interview that provides both audio and video modes. The participants (interviewees) need to be ensured about the ethical issues as discussed under the topic 'ethical issues'. The interviews asking open-ended questions to the participants can be conducted to each of the cases over a period of time, and the cases will be the interest of case study issues raised from the first phase. The interviews with the participants can be noted and recorded with their permission. Then, the interviews need to be transcribed into words for further analysis. The entire interview procedure needs to be guided by the interview protocol.

5.2 INTERVIEW PROTOCOL

The interview protocol that is not only a list of questions but also guides the whole interview process is necessary to prepare for conducting the interview in systematic order (Jacob & Furgerson, 2012). In this study, the protocol will be pilot tested in the same target population but the participants who participated in pilot test will not be selected for the final phase

of interview. In the protocol, the researcher involves before, during and after the interview (Jacob & Furgerson, 2012). Generally, it involves introduction of interviewees with their background, writing big or expansive questions, the way of warming up to build trust, asking question that are easy to answer and then difficult or controversial questions. Interview protocol includes the probing questions that may be in bullets form to remind the interviewer to make clear about any issues and create new emerging evidences. The interview will be conducted in the precise time frame that includes some big questions (semi-structured) related to issues, additional sub-questions under the main big questions, and probing points. Further, the schedule for next shorter interviews will be set up after the first interview is transcribed, and at last for final validation of the codes and themes developed from the first and other previous rounds of interview that address the case study questions.

5.3. The Pilot Case Study.

A pilot case study (pre-exercise of interview procedure) helps researcher to improve and refine the content of case evidence and procedure of evidence collection (Yin, 2014). The interview questions and the procedure of conducting interview will be pilot tested as stated by Yin (2014), taking a convenient, accessible and geographically proximate sample from the same population. The pilot case sample is also based on the same criteria set for final multiple case study.

The pilot test is expected to get insider information into case study issues that are being studied and logistics for the field inquiry (Jacob & Furgerson, 2012). After conduction the pilot case study, a report prepared with focusing what lesson learned about the content and the procedure of case study (Yin, 2014). The insights gained from the pilot case will be used to modify or revise the interview procedure and the case study questions as per the situation before the final stage of interview.

6. QUALITATIVE VALIDATION

Validity of the evidences and results ensures the quality of evidence, results and interpretation, and it is of more concern than reliability (Creswell & Plano Clark, 2011). As stated by Denzin and Lincoln (2005), the result is more credible by triangulating the descriptions and interpretations through continuous inter-play in data and interpretation throughout the period of study. The credible information to be revealed from the second phase study is to enhance the quality of first phase results by enriching and refining the results of first phase.

In this second phase, as stated by Creswell and Plano Clark (2011), different procedures of validation can be used to establish the validity of the findings. Member-checking for providing the opportunity to the participants' agreement whether the themes or findings are the accurate reflection of their experiences, triangulation of data for comparing the evidences drawn from the participating individuals, evidence of disconfirmation that contradicts the findings or themes, and validation by external auditors are the common measures of ensuring the validity.

Yin (2014) states four tests for judging the quality of research. First, the construct validity is established by taking data from multiple cases, by member-checking, and appropriate measures of concepts. The data will be analyzed by matching codes and themes across the cases that the procedure ensures the internal validity, and the evidence of the participants' experience that explains the major constructs such as emotional intelligence and transformational leadership (for the study of Khadka, 2017). The data collected from the participants will increase the degree of external validity and lastly, the case study protocol (interview protocol) and case study database in qualitative data software will also increase the reliability of the qualitative evidences (Yin, 2014, p. 46).

7. ANALYSIS OF CASE STUDY EVIDENCE

Cohen et al. (2007) state that in qualitative data analysis, several stages are taken such as generating natural units of meaning, classifying, categorizing and ordering them, structuring narratives, and interpreting them. It is bottom-up approach or inductive approach to analyze the data (Creswell, 2014). As stated in Invankova (2002) cited from Creswell (2002), major five stages of qualitative data analysis can be used. The first stage is preliminary exploration of data by the transcription and writing memos. The second stage is coding the data by grouping and labelling the texts. The third stage concerns with the use of codes for developing themes. The fourth stage focuses on connecting and interrelating themes, and the fifth stage is constructing narrative.

As stated by Berg (2009), the cross-unit comparisons with phenomenological bent will be base of data analysis that condenses data by sorting, coding and exploring themes. Similarly, Cohen et al. (2007) state Robson's (2002) six forms of writing up a case study: suspense structure, narrative report, comparative structure, chronological structure, theory generating structure and unsequenced structure. Out of them, in comparative structure, a case is examined through different lenses of research such as explanatory, descriptive or theoretical to provide the rich information (Cohen et al., 2007). In the study of Khadka (2017), as the cases will be selected from the research findings yielded from the first phase quantitative study, the comparative structure within individual (within each case-teacher) and between individuals (across the cases-teachers) will be as the form of writing up the case study.

8. ETHICAL CONSIDERATIONS

A researcher always needs to consider about ethics while undertaking a research. Cohen et al. state the ethical consideration that concerns with right and wrong, or good and bad, and further, they enlist its most part as individual 'rights to privacy'. According to Alcer et al. (2011), the ethical consideration is necessary from the initial stage to the end of research study. In addition to the privacy, they point out other ethical consideration such as sensitivity to cultural and social differences, scientifically-rigorous research at all stages of the study, appropriate quality control procedures etc. The researcher should consider all the ethical components stated above or the others that may occur during the field survey, interview, data analysis or discussion from the right beginning of research design to the dissemination of the final report.

Ethical issues stated by Yin's (2014) and Cohen et al. are considerable from the right beginning of interview procedure, for example, informed consents, participants protection from any harm due to the research study, get participants know about they are being observed or avoid the use of any deception, keeping faith with participants who helped by providing information through the promise of confidentiality, participants' right to privacy about physical, mental condition, preserving personal matters or sensitivity of information, minimizing while selecting participants and preserving the law of equitably.

9. CONCLUSIONS

In sequential explanatory research design, the credible information is necessary from the second phase study through (multiple) case study or any other inquiry methods such as ethnography, grounded theory, phenomenological, and narrative inquiry to justify the surprising or significant results of first phase quantitative research. Despite the intent of qualitative research, multiple case study is used to explore in-depth understanding through the persuasion of information-rich data and its thick description. In explanatory mixed methods research, the first phase results are used to follow-up qualitative data

collection with a smaller emphasis on the exploration and in-depth understanding. However, the qualitative inquiry approach such as multiple case study which carries the major intents of qualitative research is used to construct meaning to further clarify the first phase results. In multiple case study, questions for case study in the form of "how?" and "why?" are more meaningful rather than "what?". The sincere selection of unit of analysis, site selection for the case study, preparation of evidence collection methods such as interview, observation or any others, conducting evidence collection techniques that are fundamentals for follow-up inquiry. The analysis of evidence, ensuring the quality of the research, and considering ethical issues are commonly practiced to all qualitative research.

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