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Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers

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Abstract

Qualitative case study methodology provides tools for researchers to study complex phenomena within their contexts. When the approach is applied correctly, it becomes a valuable method for health science research to develop theory, evaluate programs, and develop interventions. The purpose of this paper is to guide the novice researcher in identifying the key elements for designing and implementing qualitative case study research projects. An overview of the types of case study designs is provided along with general recommendations for writing the research questions, developing propositions, determining the “case” under study, binding the case and a discussion of data sources and triangulation. To facilitate application of these principles, clear examples of research questions, study propositions and the different types of case study designs are provided

Keywords

Case Study and Qualitative Method

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Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers

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Qualitative case study methodology provides tools for researchers to study complex phenomena within their contexts. When the approach is applied correctly, it becomes a valuable method for health science research to develop theory, evaluate programs, and develop interventions. The purpose of this paper is to guide the novice researcher in identifying the key elements for designing and implementing qualitative case study research projects. An overview of the types of case study designs is provided along with general recommendations for writing the research questions, developing propositions, determining the “case” under study, binding the case and a discussion of data sources and triangulation. To facilitate application of these principles, clear examples of research questions, study propositions and the different types of case study designs are provided. Key Words: Case Study and Qualitative Methods

Introduction

To graduate students and researchers unfamiliar with case study methodology, there is often misunderstanding about what a case study is and how it, as a form of qualitative research, can inform professional practice or evidence-informed decision making in both clinical and policy realms. In a graduate level introductory qualitative research methods course, we have listened to novice researchers describe their views of case studies and their perceptions of it as a method only to be used to study individuals or specific historical events, or as a teaching strategy to holistically understand exemplary “cases.” It has been a privilege to teach these students that rigorous qualitative case studies afford researchers opportunities to explore or describe a phenomenon in context using a variety of data sources. It allows the researcher to explore individuals or organizations, simple through complex interventions, relationships, communities, or programs (Yin, 2003) and supports the deconstruction and the subsequent reconstruction of various phenomena. This approach is valuable for health science research to develop theory, evaluate programs, and develop interventions because of its flexibility and rigor.

Background

This qualitative case study is an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources. This ensures that the issue is not explored through one lens, but rather a variety of lenses which allows for multiple facets of the phenomenon to be revealed and understood. There are two key approaches that guide case study methodology; one proposed by Robert Stake (1995) and

the second by Robert Yin (2003, 2006). Both seek to ensure that the topic of interest is well explored, and that the essence of the phenomenon is revealed, but the methods that they each employ are quite different and are worthy of discussion. For a more lengthy treatment of case study methods we encourage you to read Hancock and Algozzine's, *Doing case study research: A practical guide for beginning researchers* (2006).

Philosophical Underpinnings

First, both Stake (1995) and Yin (2003) base their approach to case study on a constructivist paradigm. Constructivists claim that truth is relative and that it is dependent on one's perspective. This paradigm "recognizes the importance of the subjective human creation of meaning, but doesn't reject outright some notion of objectivity. Pluralism, not relativism, is stressed with focus on the circular dynamic tension of subject and object" (Miller & Crabtree, 1999, p. 10). Constructivism is built upon the premise of a social construction of reality (Searle, 1995). One of the advantages of this approach is the close collaboration between the researcher and the participant, while enabling participants to tell their stories (Crabtree & Miller, 1999). Through these stories the participants are able to describe their views of reality and this enables the researcher to better understand the participants' actions (Lather, 1992; Robottom & Hart, 1993).

When to Use a Case Study Approach

So when should you use a case study approach? According to Yin (2003) a case study design should be considered when: (a) the focus of the study is to answer "how" and "why" questions; (b) you cannot manipulate the behaviour of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context. For instance, a study of the decision making of nursing students conducted by Baxter (2006) sought to determine the types of decisions made by nursing students and the factors that influenced the decision making. A case study was chosen because the case was the decision making of nursing students, but the case could not be considered without the context, the School of Nursing, and more specifically the clinical and classroom settings. It was in these settings that the decision making skills were developed and utilized. It would have been impossible for this author to have a true picture of nursing student decision making without considering the context within which it occurred.

Determining the Case/Unit of Analysis

While you are considering what your research question will be, you must also consider what the case is. This may sound simple, but determining what the unit of analysis (case) is can be a challenge for both novice and seasoned researchers alike. The case is defined by Miles and Huberman (1994) as, "a phenomenon of some sort occurring in a bounded context. The case is, "in effect, your unit of analysis" (p. 25). Asking yourself the following questions can help to determine what your case is; do I want to "analyze" the individual? Do I want to "analyze" a program? Do I want to "analyze" the

process? Do I want to “analyze” the difference between organizations? Answering these questions along with talking with a colleague can be effective strategies to further delineate your case. For example, your question might be, “How do women in their 30s who have had breast cancer decide whether or not to have breast reconstruction?” In this example, the case could be the decision making process of women between the age of 30 and 40 years who have experienced breast cancer. However, it may be that you are less interested in the activity of decision making and more interested in focussing specifically on the experiences of 30-40 year old women. In the first example, the case would be the decision making of this group of women and it would be a process being analyzed, but in the second example the case would be focussing on an analysis of individuals or the experiences of 30 year old women. What is examined has shifted in these examples (See Case Examples #1 and #2 in Table 1).

Table 1

Developing Case Study Research Questions

Case Examples	The Research Questions
1. The decision making process of women between the age of 30 and 40 years	How do women between the ages of 30 and 40 years <i>decide</i> whether or not to have reconstructive surgery after a radical mastectomy? What factors influence their <i>decision</i> ?
2. The experiences of 30-40 year old women following radical mastectomy faced with the decision of whether or not to undergo reconstructive surgery	How women (30-40 years of age) describe their post-op (first 6 months) <i>experiences</i> following a radical mastectomy? Do these <i>experiences</i> influence their decisions making related to breast reconstructive surgery?
3. The decision making process (related to breast reconstruction post-radical mastectomy) of women between the age of 30 and 40 years attending four cancer centers in Ontario.	How do women (ages 30-40) attending four different cancer centers in Ontario describe their decision making related to breast reconstructive surgery following a radical mastectomy?

Binding the Case

Once you have determined what your case will be, you will have to consider what your case will NOT be. One of the common pitfalls associated with case study is that there is a tendency for researchers to attempt to answer a question that is too broad or a topic that has too many objectives for one study. In order to avoid this problem, several authors including Yin (2003) and Stake (1995) have suggested that placing boundaries on a case can prevent this explosion from occurring. Suggestions on how to bind a case include: (a) by time and place (Creswell, 2003); (b) time and activity (Stake); and (c) by definition and context (Miles & Huberman, 1994). Binding the case will ensure that your

study remains reasonable in scope. In the example of the study involving women who must decide whether or not to have reconstructive surgery, established boundaries would need to include a concise definition of breast cancer and reconstructive surgery. I would have to indicate where these women were receiving care or where they were making these decisions and the period of time that we wanted to learn about, for example within six months of a radical mastectomy. It would be unreasonable for me to look at all women in their 30s across Canada who had experienced breast cancer and their decisions regarding reconstructive surgery. In contrast, I might want to look at single women in their 30s who have received care in a tertiary care center in a specific hospital in South Western Ontario. The boundaries indicate what will and will not be studied in the scope of the research project. The establishment of boundaries in a qualitative case study design is similar to the development of inclusion and exclusion criteria for sample selection in a quantitative study. The difference is that these boundaries also indicate the breadth and depth of the study and not simply the sample to be included.

Determining the Type of Case Study

Once you have determined that the research question is best answered using a qualitative case study and the case and its boundaries have been determined, then you must consider what *type* of case study will be conducted. The selection of a specific type of case study design will be guided by the overall study purpose. Are you looking to describe a case, explore a case, or compare between cases? Yin (2003) and Stake (1995) use different terms to describe a variety of case studies. Yin categorizes case studies as explanatory, exploratory, or descriptive. He also differentiates between single, holistic case studies and multiple-case studies. Stake identifies case studies as intrinsic, instrumental, or collective. Definitions and published examples of these types of case studies are provided in Table 2.

Table 2

Definitions and Examples of Different Types of Case Studies

Case Study Type	Definition	Published Study Example
Explanatory	This type of case study would be used if you were seeking to answer a question that sought to explain the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies. In evaluation language, the explanations would link program implementation with program effects (Yin, 2003).	Joia (2002). Analysing a web-based e-commerce learning community: A case study in Brazil. <i>Internet Research</i> , 12, 305-317.

<p>Exploratory</p>	<p>This type of case study is used to explore those situations in which the intervention being evaluated has no clear, single set of outcomes (Yin, 2003).</p>	<p>Lotzkar & Bottorff (2001). An observational study of the development of a nurse-patient relationship. <i>Clinical Nursing Research, 10</i>, 275-294.</p>
<p>Descriptive</p>	<p>This type of case study is used to describe an intervention or phenomenon and the real-life context in which it occurred (Yin, 2003).</p>	<p>Tolson, Fleming, & Schartau (2002). Coping with menstruation: Understanding the needs of women with Parkinson’s disease. <i>Journal of Advanced Nursing, 40</i>, 513-521.</p>
<p>Multiple-case studies</p>	<p>A multiple case study enables the researcher to explore differences within and between cases. The goal is to replicate findings across cases. Because comparisons will be drawn, it is imperative that the cases are chosen carefully so that the researcher can predict similar results across cases, or predict contrasting results based on a theory (Yin, 2003).</p>	<p>Campbell & Ahrens (1998). Innovative community services for rape victims: An application of multiple case study methodology. <i>American Journal of Community Psychology, 26</i>, 537-571.</p>
<p>Intrinsic</p>	<p>Stake (1995) uses the term intrinsic and suggests that researchers who have a genuine interest in the case should use this approach when the intent is to better understand the case. It is not undertaken primarily because the case represents other cases or because it illustrates a particular trait or problem, but because in all its particularity and ordinariness, the case itself is of interest. The purpose is NOT to come to understand some abstract construct or generic phenomenon. The</p>	<p>Hellström, Nolan, & Lundh (2005). “We do things together” A case study of “couplehood” in dementia. <i>Dementia, 4</i>(1), 7-22.</p>

	purpose is NOT to build theory (although that is an option; Stake, 1995).	
Instrumental	Is used to accomplish something other than understanding a particular situation. It provides insight into an issue or helps to refine a theory. The case is of secondary interest; it plays a supportive role, facilitating our understanding of something else. The case is often looked at in depth, its contexts scrutinized, its ordinary activities detailed, and because it helps the researcher pursue the external interest. The case may or may not be seen as typical of other cases (Stake, 1995).	Luck, Jackson, & Usher (2007). STAMP: Components of observable behaviour that indicate potential for patient violence in emergency departments. <i>Journal of Advanced Nursing</i> , 59, 11-19.
Collective	Collective case studies are similar in nature and description to multiple case studies (Yin, 2003)	Scheib (2003). Role stress in the professional life of the school music teacher: A collective case study. <i>Journal of Research in Music Education</i> , 51,124-136.

Single or Multiple Case Study Designs

Single Case

In addition to identifying the “case” and the specific “type” of case study to be conducted, researchers must consider if it is prudent to conduct a single case study or if a better understanding of the phenomenon will be gained through conducting a multiple case study. If we consider the topic of breast reconstruction surgery again we can begin to discuss how to determine the “type” of case study and the necessary number of cases to study. A single holistic case might be the decision making of one woman or a single group of 30 year old women facing breast reconstruction post-mastectomy. But remember that you also have to take into consideration the context. So, are you going to look at these women in one environment because it is a unique or extreme situation? If so, you can consider a holistic single case study (Yin, 2003).

Single Case with Embedded Units

If you were interested in looking at the same issue, but now were intrigued by the different decisions made by women attending different clinics within one hospital, then a holistic case study with embedded units would enable the researcher to explore the case while considering the influence of the various clinics and associated attributes on the women's decision making. The ability to look at sub-units that are situated within a larger case is powerful when you consider that data can be analyzed *within* the subunits separately (within case analysis), *between* the different subunits (between case analysis), or *across* all of the subunits (cross-case analysis). The ability to engage in such rich analysis only serves to better illuminate the case. The pitfall that novice researchers fall into is that they analyze at the individual subunit level and fail to return to the global issue that they initially set out to address (Yin, 2003).

Multiple-Case Studies

If a study contains more than a single case then a multiple-case study is required. This is often equated with multiple experiments. You might find yourself asking, but what is the difference between a holistic case study with embedded units and a multiple-case study? Good question! The simple answer is that the context is different for each of the cases. A multiple or collective case study will allow the researcher to analyze within each setting and across settings. While a holistic case study with embedded units only allows the researcher to understand one unique/extreme/critical case. In a multiple case study, we are examining several cases to understand the similarities and differences between the cases. Yin (2003) describes how multiple case studies can be used to either, "(a) predicts similar results (a literal replication) or (b) predicts contrasting results but for predictable reasons (a theoretical replication)" (p. 47). This type of a design has its advantages and disadvantages. Overall, the evidence created from this type of study is considered robust and reliable, but it can also be extremely time consuming and expensive to conduct. Continuing with the same example, if you wanted to study women in various health care institutions across the country, then a multiple or collective case study would be indicated. The case would still be the decision making of women in their 30s, but you would be able to analyze the different decision-making processes engaged in by women in different centers (See Case Example #3 in Table 1).

Stake (1995) uses three terms to describe case studies; intrinsic, instrumental, and collective. If you are interested in a unique situation according to Stake, conduct an intrinsic case study. This simply means that you have an intrinsic interest in the subject and you are aware that the results have limited transferability. If the intent is to gain insight and understanding of a particular situation or phenomenon, then Stake would suggest that you use an instrumental case study to gain understanding. This author also uses the term collective case study when more than one case is being examined. The same example used to describe multiple case studies can be applied here.

Once the case has been determined and the boundaries placed on the case it is important to consider the additional components required for designing and implementing a rigorous case study. These include: (a) propositions (which may or may not be present) (Yin, 2003, Miles & Huberman, 1994); (b) the application of a conceptual framework

(Miles & Huberman); (c) development of the research questions (generally “how” and/or “why” questions); (d) the logic linking data to propositions; and (e) the criteria for interpreting findings (Yin).

Propositions

Propositions are helpful in any case study, but they are not always present. When a case study proposal includes specific propositions it increases the likelihood that the researcher will be able to place limits on the scope of the study and increase the feasibility of completing the project. The more a study contains specific propositions, the more it will stay within feasible limits. So where do the propositions come from? Propositions may come from the literature, personal/professional experience, theories, and/or generalizations based on empirical data (Table 3).

Table 3

Case Study Propositions

Potential Propositions	Source
	**These are only examples of literature and do not reflect a full literature review.
Women in their 30s most often decide not to have reconstructive surgery	<p>Professional experience and Literature</p> <p>Handel, Silverstein, Waisman, Waisman, & Gierson (1990). Reasons why mastectomy patients do not have breast reconstruction. <i>Plastic Reconstruction Surgery</i>, 86(6), 1118-22.</p> <p>Morrow, Scott, Menck, Mustoe, & Winchester (2001). Factors influencing the use of breast reconstruction postmastectomy: a National Cancer Database Study. <i>Journal of American College of Surgeons</i>, 192(1), 69-70.</p>
Women choose not to have reconstructive surgery post mastectomy due to the issues related to acute pain	<p>Literature- Wallace, Wallace, Lee, & Dobke (1996). Pain after breast surgery: A survey of 282 women. <i>Pain</i>, 66(2-3), 195-205.</p>
Women face many personal and social barriers to breast reconstructive surgery.	<p>Professional experience and Literature</p> <p>Reaby (1998). Reasons Why Women Who Have Mastectomy Decide to Have or Not to Have Breast Reconstruction. <i>Plastic & Reconstructive Surgery</i>. 101(7), 1810-1818.</p>

	Staradub, YiChing Hsieh, Clauson, et al. (2002). Factors that influence surgical choices in women with breast carcinoma. <i>Cancer</i> , 95(6), 1185-1190.
Women are influenced by their health care providers when making this decision	Personal experience and literature Wanzel, Brown, Anastakis, et al. (2002). Reconstructive Breast Surgery: Referring physician knowledge and learning needs. <i>Plastic and Reconstructive Surgery</i> , 110:6
Women in different regions of Canada make different decisions about breast reconstructive surgery post mastectomy	Literature Polednak (2000). Geographic variation in postmastectomy breast reconstruction rates. <i>Plastic & Reconstructive Surgery</i> , 106(2), 298-301.

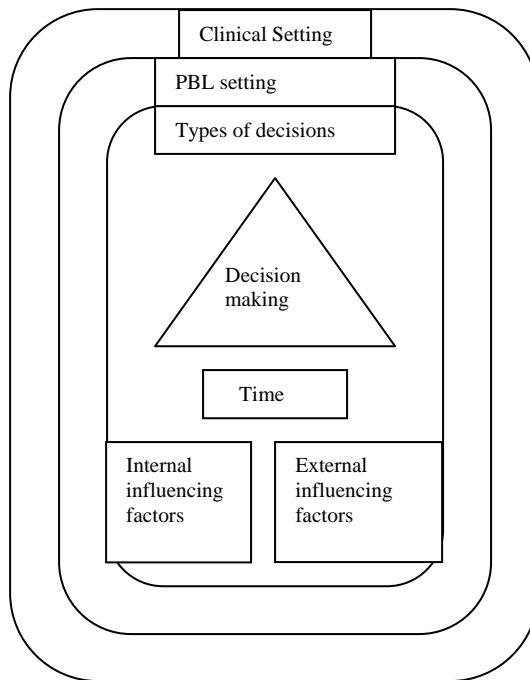
For example, one proposition included in a study on the development of nursing student decision making in a clinical setting stated that “various factors influence nurse decision making including the decision maker’s knowledge, and experience, feelings of fear, and degree of confidence” (Baxter, 2000, 2006). This proposition was based on the literature found on the topic of nurse decision making. The researcher can have several propositions to guide the study, but each must have a distinct focus and purpose. These propositions later guide the data collection and discussion. Each proposition serves to focus the data collection, determine direction and scope of the study and together the propositions form the foundation for a conceptual structure/framework (Miles & Huberman, 1994; Stake, 1995). It should be noted that propositions may not be present in exploratory holistic or intrinsic case studies due to the fact that the researcher does not have enough experience, knowledge, or information from the literature upon which to base propositions. For those of you more familiar with quantitative approaches to experimental studies, propositions can be equated with hypotheses in that they both make an educated guess to the possible outcomes of the experiment/research study. A common pitfall for the novice case study researchers is to include too many propositions and then find that they are overwhelmed by the number of propositions that must be returned to when analyzing the data and reporting the findings.

Issues

To contribute to the confusion that exists surrounding the implementation of different types of qualitative case study approaches, where Yin uses “propositions” to guide the research process, Stake (1995) applies what he terms “issues.” Stake states, “issues are not simple and clean, but intricately wired to political, social, historical, and especially personal contexts. All these meanings are important in studying cases” (p. 17). Both Yin and Stake suggest that the propositions and issues are necessary elements in case study research in that both lead to the development of a conceptual framework that guides the research.

Conceptual Framework

Both Stake and Yin refer to conceptual frameworks, but fail to fully describe them or provide a model of a conceptual framework for reference. One resource that provides examples of conceptual frameworks is Miles and Huberman (1994). These authors note that the conceptual framework serves several purposes: (a) identifying who will and will not be included in the study; (b) describing what relationships may be present based on logic, theory and/or experience; and (c) providing the researcher with the opportunity to gather general constructs into intellectual “bins” (Miles & Huberman, p. 18). The conceptual framework serves as an anchor for the study and is referred at the stage of data interpretation. For example an initial framework was developed by Baxter, 2003 in her exploration of nursing student decision making. The framework was based on the literature and her personal experiences. The major constructs were proposed in the following manner:



(Adapted from Baxter, 2003 p. 28)

The reader will note that the framework does not display relationships between the constructs. The framework should continue to develop and be completed as the study progresses and the relationships between the proposed constructs will emerge as data are analyzed. A final conceptual framework will include all the themes that emerged from data analysis. Yin suggests that returning to the propositions that initially formed the conceptual framework ensures that the analysis is reasonable in scope and that it also provides structure for the final report. One of the drawbacks of a conceptual framework is that it may limit the inductive approach when exploring a phenomenon. To safeguard against becoming deductive, researchers are encouraged to journal their thoughts and decisions and discuss them with other researchers to determine if their thinking has become too driven by the framework.

Data Sources

A hallmark of case study research is the use of multiple data sources, a strategy which also enhances data credibility (Patton, 1990; Yin, 2003). Potential data sources may include, but are not limited to: documentation, archival records, interviews, physical artifacts, direct observations, and participant-observation. Unique in comparison to other qualitative approaches, within case study research, investigators can collect and integrate quantitative survey data, which facilitates reaching a holistic understanding of the phenomenon being studied. In case study, data from these multiple sources are then converged in the analysis process rather than handled individually. Each data source is one piece of the “puzzle,” with each piece contributing to the researcher’s understanding of the whole phenomenon. This convergence adds strength to the findings as the various strands of data are braided together to promote a greater understanding of the case.

Although the opportunity to gather data from various sources is extremely attractive because of the rigor that can be associated with this approach, there are dangers. One of them is the collection of overwhelming amounts of data that require management and analysis. Often, researchers find themselves “lost” in the data. In order to bring some order to the data collection a computerized data base is often necessary to organize and manage the voluminous amount of data.

Database

Both Yin and Stake recognize the importance of effectively organizing data. The advantage of using a database to accomplish this task is that raw data are available for independent inspection. Using a database improves the reliability of the case study as it enables the researcher to track and organize data sources including notes, key documents, tabular materials, narratives, photographs, and audio files can be stored in a database for easy retrieval at a later date. Computer Aided Qualitative Data Analysis Software (CAQDAS) provides unlimited “bins” into which data can be collected and then organized. In addition to the creation of bins these programs facilitate the recording of source detail, the time and date of the data collection, storage, and search capabilities. These are all important when developing a case study database (Wickham & Woods, 2005). The advantages and disadvantages of such a database have been described in the literature (Richards & Richards, 1994, 1998) one of the greatest drawbacks is the distancing of the researcher from the data.

Analysis

As in any other qualitative study the data collection and analysis occur concurrently. The type of analysis engaged in will depend on the type of case study. Yin briefly describes five techniques for analysis: pattern matching, linking data to propositions, explanation building, time-series analysis, logic models, and cross-case synthesis. In contrast, Stake describes categorical aggregation and direct interpretation as types of analysis. Explaining each of these techniques is beyond the scope of this paper. As a novice researcher, it is important to review various types of analysis and to determine which approach you are most comfortable with.

Yin (2003) notes that one important practice during the analysis phase of any case study is the return to the propositions (if used); there are several reasons for this. First, this practice leads to a focused analysis when the temptation is to analyze data that are outside the scope of the research questions. Second, exploring rival propositions is an attempt to provide an alternate explanation of a phenomenon. Third, by engaging in this iterative process the confidence in the findings is increased as the number of propositions and rival propositions are addressed and accepted or rejected.

One danger associated with the analysis phase is that each data source would be treated independently and the findings reported separately. This is not the purpose of a case study. Rather, the researcher must ensure that the data are converged in an attempt to understand the overall case, not the various parts of the case, or the contributing factors that influence the case. As a novice researcher, one strategy that will ensure that you remain true to the original case is to involve other research team members in the analysis phase and to ask them to provide feedback on your ability to integrate the data sources in an attempt to answer the research questions.

Reporting a Case Study

Reporting a case study can be a difficult task for any researcher due to the complex nature of this approach. It is difficult to report the findings in a concise manner, and yet it is the researcher's responsibility to convert a complex phenomenon into a format that is readily understood by the reader. The goal of the report is to describe the study in such a comprehensive manner as to enable the reader to feel as if they had been an active participant in the research and can determine whether or not the study findings could be applied to their own situation. It is important that the researcher describes the context within which the phenomenon is occurring as well as the phenomenon itself. There is no one correct way to report a case study. However, some suggested ways are by telling the reader a story, by providing a chronological report, or by addressing each proposition. Addressing the propositions ensures that the report remains focused and deals with the research question. The pitfall in the report writing that many novice researchers fall into is being distracted by the mounds of interesting data that are superfluous to the research question. Returning to the propositions or issues ensures that the researcher avoids this pitfall. In order to fully understand the findings they are compared and contrasted to what can be found in published literature in order to situate the new data into preexisting data. Yin (2003) suggests six methods for reporting a case study. These include: linear, comparative, chronological, theory building, suspense, and unsequenced (Refer to Yin for full descriptions).

Strategies for Achieving Trustworthiness in Case Study Research

Numerous frameworks have been developed to evaluate the rigor or assess the trustworthiness of qualitative data (e.g., Guba, 1981; Lincoln & Guba, 1985) and strategies for establishing credibility, transferability, dependability, and confirmability have been extensively written about across fields (e.g., Krefting, 1991; Sandelowski, 1986, 1993). General guidelines for critically appraising qualitative research have also been published (e.g., Forchuk & Roberts, 1993; Mays & Pope, 2000).

For the novice researcher, designing and implementing a case study project, there are several basic key elements to the study design that can be integrated to enhance overall study quality or trustworthiness. Researchers using this method will want to ensure enough detail is provided so that readers can assess the validity or credibility of the work. As a basic foundation to achieve this, novice researchers have a responsibility to ensure that: (a) the case study research question is clearly written, propositions (if appropriate to the case study type) are provided, and the question is substantiated; (b) case study design is appropriate for the research question; (c) purposeful sampling strategies appropriate for case study have been applied; (d) data are collected and managed systematically; and (e) the data are analyzed correctly (Russell, Gregory, Ploeg, DiCenso, & Guyatt, 2005). Case study research design principles lend themselves to including numerous strategies that promote data credibility or “truth value.” Triangulation of data sources, data types or researchers is a primary strategy that can be used and would support the principle in case study research that the phenomena be viewed and explored from multiple perspectives. The collection and comparison of this data enhances data quality based on the principles of idea convergence and the confirmation of findings (Knafl & Breitmayer, 1989). Novice researchers should also plan for opportunities to have either a prolonged or intense exposure to the phenomenon under study within its context so that rapport with participants can be established and so that multiple perspectives can be collected and understood and to reduce potential for social desirability responses in interviews (Krefting, 1991). As data are collected and analyzed, researchers may also wish to integrate a process of member checking, where the researchers’ interpretations of the data are shared with the participants, and the participants have the opportunity to discuss and clarify the interpretation, and contribute new or additional perspectives on the issue under study. Additional strategies commonly integrated into qualitative studies to establish credibility include the use of reflection or the maintenance of field notes and peer examination of the data. At the analysis stage, the consistency of the findings or “dependability” of the data can be promoted by having multiple researchers independently code a set of data and then meet together to come to consensus on the emerging codes and categories. Researchers may also choose to implement a process of double coding where a set of data are coded, and then after a period of time the researcher returns and codes the same data set and compares the results (Krefting).

Conclusion

Case study research is more than simply conducting research on a single individual or situation. This approach has the potential to deal with simple through complex situations. It enables the researcher to answer “how” and “why” type questions, while taking into consideration how a phenomenon is influenced by the context within which it is situated. For the novice research a case study is an excellent opportunity to gain tremendous insight into a case. It enables the researcher to gather data from a variety of sources and to converge the data to illuminate the case.

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