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## Including Rigor and Artistry in Case Study as a Strategic Qualitative Methodology

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## Including Rigor and Artistry in Case Study as a Strategic Qualitative Methodology

### Abstract

Case study has emerged as a popular research design among the other variations of qualitative designs. This theoretical research study presents the nature of case study as a stand-alone qualitative research methodology, which has an in-built flexibility that is unique among the other qualitative approaches. Literature points to two approaches of case study within which criteria for rigor through clear and complete description of the research design can be applied. A qualitative case study also lends itself to creativity or artistry with a freedom to be multi-method in nature. Being simultaneously rigorous and artistic is possible in case study through enhanced methodological justification and integrity.

### Keywords

Qualitative Research, Case Study Research, Rigor in Case Study

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## Including Rigor and Artistry in Case Study as a Strategic Qualitative Methodology

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*Case study has emerged as a popular research design among the other variations of qualitative designs. This theoretical research study presents the nature of case study as a stand-alone qualitative research methodology, which has an in-built flexibility that is unique among the other qualitative approaches. Literature points to two approaches of case study within which criteria for rigor through clear and complete description of the research design can be applied. A qualitative case study also lends itself to creativity or artistry with a freedom to be multi-method in nature. Being simultaneously rigorous and artistic is possible in case study through enhanced methodological justification and integrity. Keywords: Qualitative Research, Case Study Research, Rigor in Case Study*

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Case study research as a qualitative research design has caught the interest of researchers due to its uniqueness in several aspects. First, case study is one of the earliest identified types of qualitative research dating back to the middle of 19th century (Starman, 2013). Second, it is also one of the most widely used among qualitative research designs across social sciences since late 1960s (Kohlbacher, 2006; Merriam, 1988) and has become increasingly popular in several related fields such as psychology, sociology, anthropology as well as in professions such as Education, Business, Social Work, and Public Health (Yin, 2014).

Third, case study research has been misunderstood (Flyvbjerg, 2006) and has been criticized for its lack of rigor, reliability, and generalizability (Johnson, as cited in Noor, 2008). In fact, a review of 34 published case studies (Hyett, Kenny, & Dickson-Swift, 2014) in reputable journals asserted the need for improved reporting especially of the methodological aspects. Fourth, case study research is uniquely flexible in comparison to other qualitative research designs (Hyett et al., 2014). And fifth, case study research is “one of the most challenging of all social science endeavors” (Yin, 2014, p. 3).

In my own early experiences with a major case study research (Gaikwad, 1991), it was found that the path of the research journey to be quite interesting and complex. This novel view of research, unlike the popular positivist approach that I was acquainted with in natural science, considered reality as socially constructed rather than objectively decided. I was intrigued. Since then, case study research has not lost its charm among my areas of research interest. This present study attempts to examine case study research in order to clarify some of the related concerns.

Established as an alternative and more suitable method to conduct research in social sciences, a plethora of case studies are being published. However, due to inconsistencies in paradigms and methods, case study research continues to baffle novice researchers. How can case study research be best understood? How can researchers enhance case studies for rigor and yet make it appealing to the creative senses of humans? These are questions that are addressed in this study. In the context of these questions, this study is organized into the following main sections: (a) criticisms and misunderstandings, (b) nature of case study, (c) rigor in research design and reporting, and (d) appeal to creative senses.

## Criticisms and Misunderstandings

Case studies often have been looked upon as less desirable than other research strategies, especially those from the quantitative research paradigm. The following discussion gives a shortlist of four of the criticisms of case study (Yin, 1984, 2014).

1. **Lack of rigor.** The complaint of lack of rigor has been the greatest concern for case studies. Case studies conducted and written in sloppy ways reflect ambiguous evidences and biased views of researchers. The write-up of case studies in journals is often devoid of sufficient details of the study design and methodological discussions (Hyett et al., 2014). Perhaps the limited pages allocated for journal articles are taking a toll on the quality of case studies.
2. **Poor generalizability.** “How can one generalize from a single case?” is a frequently asked question (Yin, 2014, p. 20). This concern with generalizability points to sampling, as case studies use a small number of participants, even as small as one. Generalization as a critical, quality criteria of quantitative research when used for a case study that is qualitative does not give case study much chance to be comparable.
3. **Takes too long, is difficult to conduct and produces massive, unreadable documents.** Traditionally data collection in case studies have taken (unnecessarily) long time similar to ethnographic research studies. Also, the complaint of research data being massive and reports long may seem true in most instances. The heart of the matter is, case study researchers traditionally have been imitating the data collection procedures of participant-observation of ethnographic research which generally require extensive investment of time. Case studies can be carried out much faster using other data collection tools such as interviews.
4. **Confusion with teaching cases.** Case study as a teaching strategy is popular in many subject areas, especially in business. The essential elements such as citation of primary documents and data as evidence may be absent from such teaching cases. Individuals with prior exposures to teaching cases can likely form a dimmer image of case study research.

Added to such criticisms are also misunderstandings about case study. Flyvbjerg (2006) presents five common misunderstandings about case study research. It is interesting to note that the real issues are related to theory, reliability, and validity. The five misunderstandings accompanied by the corrected stand (Flyvbjerg, 2006, pp. 221-241), as italicized, are discussed below.

Misunderstanding 1: General, theoretical (context-independent) knowledge is more valuable than concrete, practical (context-dependent) knowledge.

Experts (Bourdieu, 1977; Christensen & Abby, 1987; Cragg, 1940; Dreyfus, 1986; as cited in Flyvbjerg, 2006) have argued that in the study human activities only context-dependent knowledge exist. They also state that adult learning is greatly enhanced through context-dependent knowledge and experiences as compared to context-independent knowledge. While both approaches are necessary, “The closeness of the case study to real-life situations and its multiple wealth of details” (Flyvbjerg, 2006, p. 223) are critical elements for the development of fine-tuned reality and for the researchers to develop their own research skills. Therefore, the corrected statement (Flyvbjerg, 2006) is as follows:

*Predictive theories and universals cannot be found in the study of human affairs. Concrete, context-dependent knowledge is, therefore, more valuable than the vain search for predictive theories and universals. (p. 224)*

Misunderstanding 2: One cannot generalize on the basis of an individual case; therefore, the case study cannot contribute to scientific development.

As a beginning argument against this misunderstanding, Flyvbjerg (2006) cites Beveridge (1951): “More discoveries have arisen from intense observation than from statistics applied to large groups” (p. 226). Just as carefully selected studies (for example, Galileo, Newton, Einstein, etc.) have contributed to hard science, “The strategic choice of case may greatly add to the generalizability of a case study” (Flyvbjerg, 2006, p. 226). Besides that, case studies serve to find the “black” swan/s where the established fact is “all swans are white” when just one non-example would falsify an established proposition. Thus, the corrected statement would read as follows:

*One can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alternative to other methods. But formal generalization is overvalued as a source of scientific development, whereas “the force of example” is underestimated. (Flyvbjerg, 2006, p. 228)*

Misunderstanding 3: The case study is most useful for generating hypotheses; that is, in the first stage of a total research process, whereas other methods are more suitable for hypotheses testing and theory building.

It is obvious that case studies are primarily for generating hypotheses using an inductive analysis. However, related to the previous point (misunderstanding #2), if case studies can be used for generalization, it can also be used for hypotheses testing. Case selection becomes an important issue in this situation. It is paramount to choose a critical case model, which is “likely to either clearly confirm or irrefutably falsify propositions and hypotheses” (Flyvbjerg, 2006, p. 231). Thus, the corrected viewpoint would be as follows:

*The case study is useful for both generating and testing of hypotheses but is not limited to these research activities alone. (Flyvbjerg, 2006, p. 229)*

Misunderstanding 4: The case study contains a bias toward verification, that is, a tendency to confirm the researcher’s preconceived notions.

To clarify this misunderstanding, Flyvbjerg (2006) brings out the point that case studies are conducted with “proximity to reality” (p. 236) which enhances understanding. The result is that the case study researcher is more likely to cast off biases in the process of gaining new insights. The corrected statement reads as follows:

*The case study contains no greater bias toward verification of the researcher’s preconceived notions than other methods of inquiry. On the contrary, experience indicates that the case study contains a greater bias toward falsification of preconceived notions than toward verification. (Flyvbjerg, 2006, p. 237)*

Misunderstanding 5: It is often difficult to summarize and develop general propositions and theories on the basis of specific case studies.

Flyvbjerg (2006) argues whether summarizing is the only desirable outcome of a study. According to Peattie (2001, as cited in Flyvbjerg, 2006), the dense case study “is more useful for the practitioner and more interesting for social theory than either factual ‘findings’ or the high-level generalizations of theory” (p. 238). Thus, the corrected statement reads as follows:

*It is correct that summarizing case studies is often difficult, especially as concerns case process. It is less correct as regards case outcomes. The problems in summarizing case studies, however, are due more often to the properties of the reality studied than to the case study as a research method. Often, it is not desirable to summarize and generalize case studies. Good studies should be read as narratives in their entirety. (Flyvbjerg, 2006, p. 241)*

Improving the quality of something begins with obtaining a clear grasp of what the entity’s essential attributes are. Therefore, understanding the nature of case study research is important.

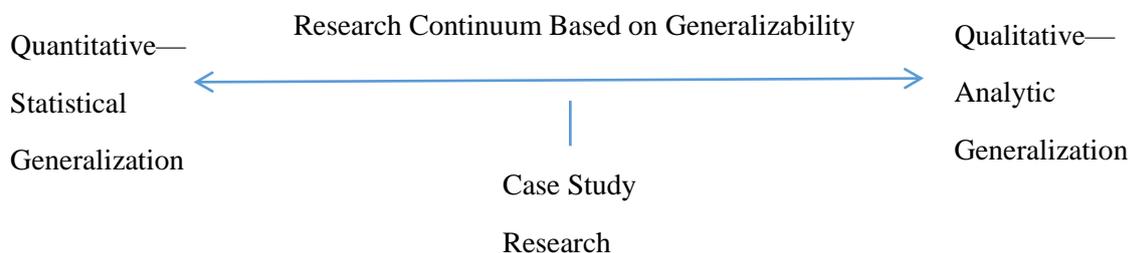
### **Nature of Case Study**

The complexity of case study research is obvious as evidenced by its varied definitions in relation to methodological considerations. However, there exists consensus among experts (Creswell, 2013; Gillham, 2000; Merriam, 1998; Miles & Huberman, 1994; Stake, as cited in Hyett et al., 2014; Yin, 2014) on certain common essential elements. They agree that a case study begins with a “case” which is the focus of the study; the “case” should be (a) a complex functioning unit, (b) studied in a natural or real-life context using multiple methods, and (c) contemporary. Agreement also exists about the main questions addressed by a case study as being “how” and “why.” However, experts vary in their approach to case study research.

**Two approaches to case study research.** Deliberations in case study research are generally grouped into two: (a) social constructivist paradigm promoted by Merriam (2009) and Stake (1995), and (b) the post-positivist viewpoint of Yin (2014), Eisenhardt (1991), and Flyvbjerg (2006). In a social constructivist paradigm, case study is seen as naturalistic and holistic, utilizing multiple methods (Stake, 1978, 1995, 1998; as cited in Hyett et al., 2014). It also touches the core values and intentions and is “particularistic, descriptive and heuristic” (Merriam, 2009, p. 46). According to Merriam (1988), generalizability is redefined as transferability of what is learned in a specific situation to other situations. She recommends procedures of providing thick descriptions, establishing the typicality, and using multiple case studies as means to do this. From the social constructivist approach, case study research is seen as a stand-alone research design that need not be necessarily comparable to other quantitative research designs even with the existing similarities.

On the other hand, a post-positivist approach as proposed by Yin (1984, 2014) emphasizes the aspects of technically distinct situation having multiple variables of interest, and the use of multiple sources of evidence. He also highlights the use of theoretical propositions that guide the collection of data and its analysis. Thus, post-positivists hold the view that case studies can be generalized, but not to populations, but to theoretical propositions as a case study does not represent a sample from a population (Yin, 2014). Yin (2014) suggests that a case study can shed empirical light on theoretical concepts, thus going beyond the specific case. This type of generalization is called analytic generalization, which contrasts with statistical generalization (inference making to population on the basis of data from a sample).

Flyvbjerg (2006) refers to such generalizability as “the force of example” (p. 228). This approach seems to position the case study research design as part of a continuum of quantitative/qualitative research (see the figure below), where case study fits in either sides, but with a tilt towards the qualitative side.



**Uniqueness of a case study research.** Attempts have been made to identify the uniqueness of case studies in comparison with other types of qualitative research. Stake (as cited in Merriam, 1998) suggests four of these areas of uniqueness:

1. More concrete—being more vivid, sensory, it relates to one’s personal experiences
2. More contextual—just the same as our experiences are rooted in a context, the knowledge produced by case studies is embedded in a context
3. More developed by reader interpretation—those who read the case study can bring their own experiences and understanding in order to make generalizations, thus adding new data (person’s own) to the old (from the case study)
4. Based more on reference populations determined by the reader—while making generalizing as mentioned in (#3), the readers have a specific population in mind which is an extension of generalization to reference populations.

Yin (2014) highlights the uniqueness of case study as capturing “how” something works. Generally, quantitative studies may address the effectiveness aspect, but a case study can come in to explain the “how” aspect much more effectively. This advantage stands in contrast to quantitative research studies.

The discussion so far focused on understanding some of the aspects of case study research. Now it is time to focus on procedures to improve the quality of case studies. Quality issues primarily deals with research design considerations. Below is a discussion on the research design issues pertaining to case studies.

### **Rigor in Research Design**

Case study presents several design issues that a researcher needs to grapple with. As Joyner, Rouse, and Glatthorn (2013) have rightly stated, one “should be certain to develop and use a sound research design” (p. 115). They have recommended that the researcher must include the design aspects of (a) research perspective (as being quantitative, qualitative, or mixed), (b) the type and subtype of the research, (c) the context of the study, (d) the participants of the study, (e) the methods and instruments used to collect data, (f) and data analysis (p. 116). In each of these features, the specific nature of the research type needs to be considered by the researcher. In the context of case studies, case as central to the study, and the relationship of theory and case study are important considerations to be clarified by the researcher.

**The case.** The critical concept of a case study research is the case. A case comes with a package of sub-issues such as the unit of analysis, case, and boundary, and whether case exists in singular or multiple forms. Here is a clarification of these issues:

**Unit of analysis.** Since the major focus of the case study is the case, it is important to find out more about the attributes of the case. The case can be a person, a program, an event, a process, or a problem. In education and other social sciences, the cases of interest are people and programs (Stake, 1995).

Case study researchers are urged to use “careful and in-depth consideration of the nature of the case, historical background, physical setting, and other institutional and political contextual factors (Stake, as cited in Hyett et al., 2014). In a constructivist approach, the researcher develops an engaging relationship between all the participants of the research. In a post positivist approach, developing a clear research protocol (explained later) is recommended (Yin, 2012).

As the case study focuses on the case, it simultaneously considers the context, a bounded system of the case which includes variables of interest. A typical case study research may involve few cases (even as small as one) but with a large number of variables within the context of the study.

**Clarification of case and boundary.** Assessing the “boundedness” of a case is important. Merriam (1998) suggests the following practical ways to do this:

Ask how finite the data collection would be, that is, whether there is a limit to the number of people involved who could be interviewed or a finite amount of time for observations. If there is no end, actually or theoretically, to the number of people who could be interviewed or to observations that could be conducted, then the phenomenon is not bounded enough to qualify as a case. (pp. 27-28)

Miles and Huberman (1994) give a simple analogy to illustrate the relationship between the case and the boundary. Imagine a diagram (see Figure 2) with a small heart in the center of a dotted-line circle. The heart is the focus of the study and a dotted-line circle is the boundary around the case outside which will not be studied. Thus, carefully choosing the case and its boundary is critical in a case study research.

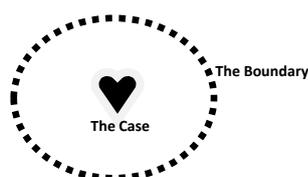


Figure 2. The case and the boundary.

Take an example of a study of the decision making of nursing students by Baxter (2000, 2003; as cited in Baxter & Jack, 2008). This case study was conducted to find out the “types of decisions made by nursing students and the factors that influenced the decision making” (Baxter & Jack, 2008, p. 545). The *case* in this case study 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. Here the *boundary* was the *clinical and classroom settings*.

As an example of a case study (Gaikwad, 1991), a description of a program—integrated thematic instruction (ITI)—the case was ITI, but the boundary was two public schools

practicing ITI. The units related to the ITI practices of the schools consisted of teachers, students, classrooms, administrators, training sessions, and proponents of ITI. The findings of the study were a clear picture of what ITI emerging from a 9-month study through prolonged observations, interviews, questionnaires, review of literature, and archival records used as data collection tools. Including several “perspectives on the context or interaction means that case study designs can build up very detailed in-depth understanding” (Lewis & Nicholls, 2014, p. 67). Such is recommended to be the end-product of a case study research.

**The number of cases.** Case studies can include *single* or *multiple* cases. Single case study research can be either *intrinsic* or *instrumental*. In an intrinsic case study, the researcher selects a unique or extreme case of interest and defends what that uniqueness is. The case itself is significant for what it represents and conveys (Merriam, 1998, p. 29). On the other hand, the instrumental case study is to provide general insights on a typical case. It helps to understand more than what is obvious to the observer (Tellis, 1997).

Multiple case studies or collective case studies include cases that occur at the same place or at different places. Both within-case analysis and cross-case analysis will be necessary in such situations. Analytical generalizations are carried out (in contrast to statistical generalizations).

Thus, the design considerations in case studies include whether it will be a single or multiple case study, and whether it will be a holistic (single unit of analysis) or an embedded (multiple units of analysis) one. Figure 3 shows the 2 x 2 matrix showing the various combinations of designs resulting in four types of designs: (a) single-case (holistic), (b) single-case (embedded), (c) multiple-case (holistic), and (d) multiple-case (embedded).

In the embedded case studies, the same study may include more than one unit of analysis and that can happen in a single case study or a multiple case study. It is important to return to the larger unit of analysis once the subunit level is covered. The boundaries of the case must also be carefully selected.

	Single Case	Multiple Case
Holistic (single unit of analysis)	<b>Type 1</b>	<b>Type 3</b>
Embedded (multiple units of analysis)	<b>Type 2</b>	<b>Type 4</b>

Figure 3. Basic types of case study designs.

In the example of a research study (Gaikwad, 1991) described earlier a type 2—single embedded—design was used. The case was selected for its uniqueness, as prior studies on implementation of ITI were absent in research literature. The units of analysis were embedded mainly within two schools, and the teachers implementing ITI in those schools. As Yin (2014) asserts, embedded designs include multiple units of analysis and one major unit is subdivided into smaller units at a different level. In line with this practice, such case studies look for patterns across units, within the case.

Regarding the outcome of multiple case study, Yin (2014) emphasizes replication or the prediction of similar results. “The development of consistent findings, over multiple cases, can then be considered a very robust finding” (Yin, 1993, p. 35). Yin (2012) supports the use of multiple case studies over single case study for relevant data collection:

In the context of issue of rigor in case study research, Eisenhardt (1991) argues that multiple cases are powerful in creating theory as they permit replication and extension among individual cases. Replication simply means that individual cases can be used for independent corroboration of specific propositions. This corroboration helps researchers to perceive patterns more easily and to eliminate chance associations. Extension refers to the use of multiple cases to develop more elaborate theory. Different cases often emphasize complementary aspects of a phenomenon. By piecing together the individual patterns, the researchers can draw a more complete theoretical picture. (p. 620)

Dyer and Wilkins (1991), on the other hand, take the stand that single case studies can be more rigorous. They affirmed that the critical attribute of a case study is the “careful study of a single case that leads researchers to see new theoretical relationships and question old ones” (p. 614). According to them, the trade-off is seen between in-depth understanding of a specific social setting and the usefulness of comparative insights.

It is evident from these debates that when the attributes of the case study, whether single or multiple, are in place, the study can lead to proper outcomes. What makes sense in this debate is that both single case studies and multiple case studies can be carried out with rigor. The focus of the former is rich descriptions of the social context view with researchers trying to “tell good stories that have theoretical import” (Dyer & Wilkins, 1991, p. 618). The latter is found to be more useful for establishing theoretical constructs.

**Theory and case study.** The role of theory in case study is a much-debated issue among experts. Some researchers view theory as the starting point of a case study even if the purpose of the study is to develop a new theory while others consider it as the end result. For example, Yin (1989) contends that a case study is guided by some existing theory. Creswell (2008) and Merriam (1998) assert that theory is the end product of a case study.

Eisenhardt (1991) provides three outcomes for case studies: (a) description, (b) test theory, or (c) generate theory (p. 534). As generation of theory is an important outcome of case studies, Eisenhardt outlines roadmap for the theory-building process by incorporating the ideas of Miles and Huberman (1994); Yin; and Glasser and Strauss, as shown in Table 1. This procedure is a good example for case study researchers to follow. Another aspect of case study that needs attention is the data collection procedures.

**Data collection procedures.** Case studies can be exploratory, descriptive, and explanatory (Yin, 2014). Whatever be the type of case study, review of literature is the first stage of data collection of the research. Review of literature results in formulation of the theoretical construct (Noor, 2008), if applicable. Tools to collect data include documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts (Yin, 2014). Table 2 showcases the nature, the strengths and the weaknesses of each of these tools.

Table 1. Process of Building Theory from Case Study Research

Step	Activity
Getting started	Definition of research question Possibly a priori constructs
Selecting cases	Neither theory nor hypotheses Specified population Theoretical, not random sampling
Crafting instruments and protocols	Multiple data collection methods Qualitative and quantitative data combined Multiple investigators
Entering the field	Overlap data collection and analysis, including field notes Flexible and opportunistic data collection methods
Analyzing data	Within-case analysis Cross-case pattern search using divergent techniques
Enfolding literature	Comparison with conflicting literature Comparison with similar literature
Reaching closure	Theoretical saturation when possible

Table 2. Types of Evidence (Yin, as cited in Tellis, 1997)

Source of Evidence	Strengths	Weaknesses
Documentation	<ul style="list-style-type: none"> <li>stable—repeated review</li> <li>unobtrusive—exist prior to case study</li> <li>exact—names etc.</li> <li>broad coverage—extended time span</li> </ul>	<ul style="list-style-type: none"> <li>irretrievability—difficult</li> <li>biased selectivity</li> <li>reporting bias—reflects author bias</li> <li>access—may be blocked</li> </ul>
Archival records	<ul style="list-style-type: none"> <li>Same as above</li> <li>precise and quantitative</li> </ul>	<ul style="list-style-type: none"> <li>Same as above</li> <li>privacy might inhibit access</li> </ul>
Interviews	<ul style="list-style-type: none"> <li>targeted—focuses on case study topic</li> <li>insightful—provides perceived causal inferences</li> </ul>	<ul style="list-style-type: none"> <li>bias due to poor questions</li> <li>response bias</li> <li>incomplete recollection</li> <li>reflexivity—interviewee expresses what interviewer wants to hear</li> </ul>
Direct observation	<ul style="list-style-type: none"> <li>reality—covers events in real time</li> <li>contextual—covers event context</li> </ul>	<ul style="list-style-type: none"> <li>time-consuming</li> <li>selectivity—might miss facts</li> <li>reflexivity—observer’s presence might cause change</li> <li>cost—observers need time</li> </ul>
Participant observation	<ul style="list-style-type: none"> <li>Same as above</li> <li>insightful into interpersonal behavior</li> </ul>	<ul style="list-style-type: none"> <li>Same as above</li> <li>bias due to investigator’s actions</li> </ul>
Physical artifacts	<ul style="list-style-type: none"> <li>insightful into cultural features</li> <li>insightful into technical operations</li> </ul>	<ul style="list-style-type: none"> <li>selectivity</li> <li>availability</li> </ul>

Multiple sources of information provide triangulated evidences. Triangulation involves using more than one way to establish phenomena. Triangulated evidences enhance the validity

and reliability of a case study. A more recent and effective practice is the use of triangulation matrix. This matrix is a schematic presentation of the tools used for collecting data pertaining to the corresponding research questions. Referring to its use to case study researchers, such a data collection matrix is used to “specify the amount of information they are likely to collect about the case” (Creswell, 2013, p. 102).

The research design must be tested for construct validity, internal validity, external validity, and reliability. Yin (2014, p. 46) provides a brief explanation of each of these tests as follows:

1. Construct validity: establishing correct operational measures for the concepts being studied;
2. Internal validity (for explanatory or causal studies only, and not for descriptive or exploratory studies): establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships;
3. External validity: establishing the domain to which a study’s finding can be generalized; and
4. Reliability: demonstrating that the operations of a study—such as the data collection procedures—can be repeated, with the same results.

Table 3 summarizes the tactics for ensuring the quality of case study (Yin, 2014, p. 45).

Case study research produces a large amount of data from multiple sources. Therefore, a systematic organization of the data is important to prevent researcher burnout and losing the focus (Soy, 1997). Yin (2014) suggests the use of an elaborate protocol which will outline the rules and procedures involved in the research (pp. 84-85).

Such a protocol increases the reliability of the case study. Yin identifies the following sections that must be included in a protocol: (a) overview of the case study, (b) field procedures, (c) case study questions, (d) guide for the case study report (outline, bibliographical information, etc.). Computer databases may be prepared for categorizing, sorting, storing, and retrieving data for analysis. Such steps will avoid the criticism of case study as a haphazardly carried out study.

Especially in the case of multiple case studies or multiple sites, training of researchers will be necessary. Training helps the investigators to grasp the basic concepts of the study, and processes of the study. The essential qualifications of the researchers include ability to ask good questions and interpret answers, be flexible as unexpected changes can happen, and be open-minded. After the training, a pilot test, using a pilot site, may be carried out in order to find key people and to identify problem situations.

Ethical aspects of research need to be considered during data collection. Informed consent, establishing confidentiality, and member-checks for accuracy of information are important considerations at this stage of the research.

Collecting and storing multiple sources of evidence comprehensively and systematically is an important step of the case study. Creating rapport with the people and getting permission from gatekeepers are important early steps that will allow a smoother data collection process. Careful observations, modifications to or addition of interview questions may be necessary as the study progresses. Changes made are documented systematically.

*Table 3*  
*Case Study Tactics for Four Design Tests*

Test	Case study tactic	Phase of research in which tactic occurs
Construct validity	Use multiple sources of evidence	Data collection
	Establish chain of evidence	Data collection
	Have key informants review draft case study report	Composition
Internal validity	Do pattern matching	Data analysis
	Do explanation-building	Data analysis
	Do time-series analysis	Data analysis
	Use logic models	Data analysis
External validity	USE theory in single-case studies	Research design
	Use replication logic in multiple-case studies	Research design
Reliability	Use case study protocol	Data collection
	Develop case study data base	Data collection

Exemplary studies incorporate field notes and databases to categorize and reference data. Such procedures facilitate easy retrieval of the data for interpretation. Feelings, hunches, and questions are recorded in the field notes. Patterns that are emerging are noted.

**Analyzing data.** “Analyzing data is the heart of building theory from case studies, but it is both the most difficult and the least codified part of the process,” states Eisenhardt (1991, p. 539). Analysis of data includes a key step—within-case analysis and can be the most challenging part (Cronin, 2014). The unique patterns of each case are described. These pure descriptions are important for making generalizations. Cross-case analysis is carried out in multiple-case studies. One needs to select categories and look for within-group similarities and intergroup differences.

Case studies use qualitative content analysis for systematically analyzing the data. Mayring (cited in Kohlbacher, 2006) identifies three distinct analytical procedures for analyzing the data:

1. **Summary:** This includes data reduction by preserving only the essential content making a manageable amount of content.
2. **Explication:** This involves explaining, clarifying, and annotating the material.
3. **Structuring:** This includes determination of units of analysis, coding and categorization based on a theoretical basis. Categories are re-examined and revised, if necessary. (Methods and Procedures section)

Figure 4 shows the content analysis procedure which starts from the initial theory to the final analysis and interpretation. It is through an inductive approach of studying an empirical case that a theory emerges.

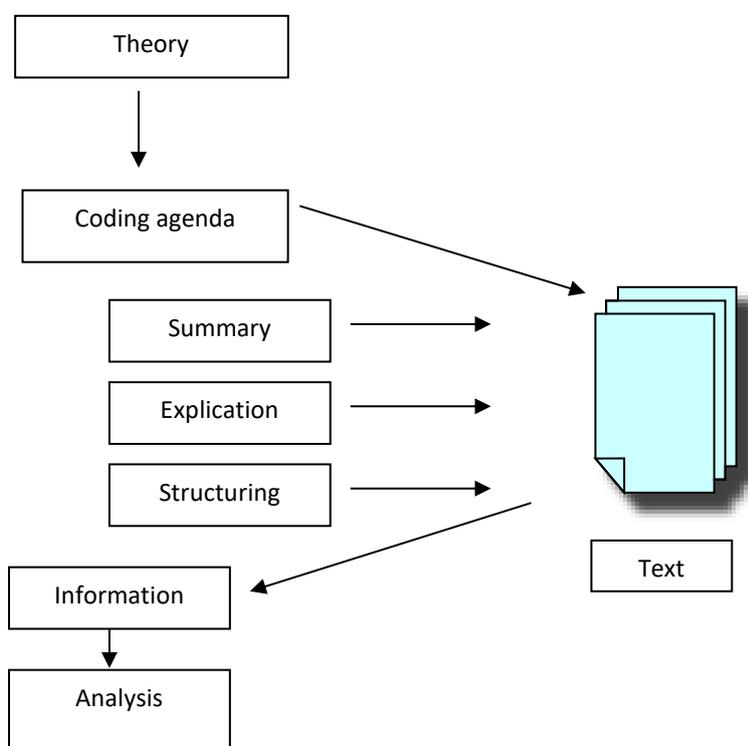


Figure 4. The process of content analysis.

**Preparing the report.** The main challenge in reporting a case study is to convert a complex phenomenon into a material that an independent reader can understand and relate to. The case and the boundaries must be clearly explained. The reader must be convinced that avenues for data gathering had been explored. If multiple cases are used, a separate chapter may be used for describing each. Reviewing the write-up by typical readers, a journalist, and a participant are suggested by experts (Soy, 1997).

A preliminary assessment of a written report is helpful to ensure quality of the work. A set of 20 criteria (see Table 4) developed by Stake (as cited in Creswell, 2013, p. 264; Hyett et al., 2014) which consists of several items applying to all qualitative research and some especially for case studies is a good checklist to guide the quality of the research document. Creswell has a more abridged version of quality criteria as shown in Table 5. Following a set of criteria such as these is helpful for quality control of the written research report.

As the research report is put together one final aspect needs attention. A case study research report lends itself to the creative senses of humans. The final section of this study describes how this can be accomplished.

Table 4  
Quality Criteria for Qualitative Research by Stake

Relevant for all qualitative research		
1.	Is this report easy to read?	✓
2.	Does it fit together, each sentence contributing to the whole?	✓
3.	Does this report have a conceptual structure (i.e., themes or issues)?	✓
4.	Are its issues developed in a series and scholarly way?	✓
5.	Have quotations been used effectively?	✓
6.	Has the writer made sound assertions, neither over- or under-interpreting?	✓
7.	Are headings, figures, artefacts, appendices, indexes effectively used?	✓
8.	Was it edited well, then again with a last minute polish?	✓
9.	Were sufficient raw data presented?	✓
10.	Is the nature of the intended audience apparent?	✓
11.	Does it appear that individuals were put at risk?	✓
High Relevance to qualitative case study research		
12.	Is the case adequately defined?	✓
13.	Is there a sense of story to the presentation?	✓
14.	Is the reader provided some vicarious experience?	✓
15.	Has adequate attention been paid to various contexts?	✓
16.	Were data sources well-chosen and in sufficient number?	✓
17.	Do observations and interpretations appear to have been triangulated?	✓
18.	Is the role and point of view of the researcher nicely apparent?	✓
19.	Is empathy shown for all sides?	✓
20.	Are personal intentions examined?	✓

Table 5  
Quality Criteria for Case Studies by Creswell

1.	Is there a clear identification of the “case” or “cases” in the study?	✓
2.	Is the “case” (or are the “cases”) used to understand a research issue or used because he “case” has (or “cases” have) intrinsic merit?	✓
3.	Is there a clear description of the “case”?	✓
4.	Are themes identified for the “case”?	✓
5.	Are assertions or generalizations made form the “case” analysis?	✓
6.	Is the researcher reflexive or self-disclosing about his or her position in the study?	✓

### Case Study’s Appeal to Creative Senses

Qualitative researchers, often nick-named as storytellers, embrace a certain amount of artistic license (Denzin & Lincoln, 2011). Case study researchers have to be good storytellers who can entertain their readers through interesting and detailed contextual descriptions related to the case; however, that is not enough. The gold standard of a case study is the translation of contextual description into theoretical constructs (Eisenhardt, 1991). Since case studies can be multi-method, issues related to selection of methodology and the harmony with research design need to be described (Sandelowski, as cited in Hyett et al., 2014).

Case studies, like other qualitative research types, incorporate the validity aspects of reflexivity, transferability, and interpretation and analysis (Malterud, 2001). Important and interesting is the concept of reflexivity when the researcher’s preconceptions and metapositions (creating sidetracks for distancing oneself from the study setting). Integrity and creativity in presenting this human touch in the research report. When important contextual information is

missing, a case study report becomes less appealing and convincing. Transferability allows the readers to make sense parts of the findings in their own context. Interpretation and analysis should be thorough instead of being superficial.

Some of the exemplary case studies of the past, which are remembered even today, are worth mentioning. Sigmund Freud's famous case study in the field of psychology was published in 1918 entitled, *From the History of an Infantile Neurosis*, which is actually a case history of Sergei Petrov, "The Wolf Man." G. Allison's study of the Cuban missile crisis in 1971 is from history. *The Man in the Principal's Office* published in 1973 of H. F. Wolcott comes from the field of education.

Yin (1989, p. 24) cites an example of an interesting case study (a journalistic one) by Bernstein and Woodward in *All the President's Men* (1974). The "case" is not the Watergate burglary itself or even the Nixon administration more generally. Rather, the case is the "cover-up," a complex set of events that occurred in the aftermath of the burglary. By asking two "how" and "why" questions, "How did the cover-up occur and why did it occur?" the case study leads to potential explanation for the cover-up.

In another explanatory case study, Yin (1989, p. 16) uses Allison's *Essence of Decision Making: Explaining the Cuban Missile Crisis* (1971). The single case was carried out to study the confrontation between the United States and the Soviet Union over the placement of missiles in Cuba. Allison suggests three organizational theories or models to explain the events, including answer to three key questions: why the Soviet Union placed missiles in Cuba in the first place, why the United States responded to the missile deployment with a blockade, and why the Soviet Union eventually withdrew the missiles. Allison suggests that this explanation is applicable to other situations, thus extending the usefulness of his single-case study. Examples of other situations where the explanation of the case study is applicable are as follows: United States involvement in Vietnam, nuclear confrontation generally, and the termination of wars by nations. Such are examples of case studies that are artistically portrayed maintaining the rigor of research.

In conclusion, this investigation presented case study as an emerging popular research paradigm among the other variations of qualitative methodologies. It described the concerns of criticisms and misunderstandings about case study research and clarified these issues. Procedures to incorporate adequate descriptions of research designs and the subsequent process of quality checks of written reports were described. It is affirmed that in a case study research, rigor is essential and can be accompanied by artistry.

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