



## My Data Speak to Me: Grounded Theory as a Tool for Analysis in Qualitative Research

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### Abstract

*Qualitative research method is adjudged a veritable tool in generating data aimed at subjective understanding of sociocultural issues facing humanity. Using archival research method, this review study strives to understand qualitative research paying particular attention to grounded theory method. I pay particular attention to the grounded theory research process. I examine the methodological strength of grounded theory research method as option in qualitative research. Finally, I route for criteria for evaluation of qualitative research.*

**Key Words:** Qualitative research method, grounded theory, research process, qualitative data analysis, and understanding qualitative research.

### Introduction

One of the main problems of conducting interpretive qualitative research is to decide an appropriate starting point for the research, and the basic framework within which the data will be collected and analysed. Yin notes that qualitative studies tend to produce large amounts of data that are not readily amenable to mechanical manipulation, analysis and data reduction (Lawrence & Tar, 2013). It not only produces large volume of data, but it generates data in a non-standard plan which makes analysis challenging (Lawrence & Tar, 2013). Qualitative analysis provides an opportunity for the researcher to gain information and gather understandings that may be discounted with traditional data analysis techniques. The analysis of the case study is done in pursuant to guidance provided by many scholars in this field, (Glaser & Strauss, 1967; Lofland and Lofland, 1995; and Taylor & Bogdan, 1984).

Bogdan and Biklen note that the process of data analysis in qualitative research involves working with data, organising it, breaking it down, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you

will tell others (Vera, 2005). Spradley (1979) refers to analysis as a systematic examination of something to determine its parts, the relationship among parts, and their relationship to the whole. While Miles and Huberman (1984) describe data analysis as consisting of three concurrent activities - data reduction refers to the process of selecting, simplifying, abstracting and transforming the new case data.

They argue that data collection and data analysis should overlap to allow for flexibility in data collection procedures so that the researcher remains open to new ideas or patterns which may emerge. There are many ways of analysing qualitative data and a number of approaches were considered such as hermeneutics, content analysis and semiotics (Myers, 1997). These approaches come from diverse fields and all offer the possibility of different insights on the data. These approaches were evaluated from the perspective of whether the approach draws on all features of case study and whether the philosophy of the approach imposes any pre-existing theories. Eisenhardt (Vera, 2005) suggests that theory building research must begin as close as possible to the ideal of no theory under consideration and no hypotheses to test since preordained theoretical perspectives may bias and limit the findings.

In this article, my deliberately restricted aim is to understand grounded theory method. I pay particular attention to the grounded theory research process. I examine the methodological strength of grounded theory research method as option in qualitative research. Finally, I route for criteria for evaluation of qualitative research.

## **The Grounded Theory Method**

Grounded theory originates in the work of Glaser and Strauss (1967), and Strauss and Corbin (1990) describe it as a method that has been used extensively across a variety of social science disciplines. A grounded theory is one that is discovered, developed, and provisionally verified through systematic data collection, and analysis of data pertaining to a particular phenomenon (Strauss & Corbin, 1990). It is invaluable when conducting empirical research; it has some attraction for a researcher using qualitative techniques for the first time and it offers well sign-posted procedures. In the method, conceptual properties and categories may be 'discovered' or generated from the qualitative data by following a number of guidelines and procedures. The grounded theory is iterative, requiring a steady movement between concept and data, as well as comparative, requiring a constant comparison across types of evidence to control the conceptual level and scope of the emerging theory.

Grounded theory, first published in 1967 by Glaser and Strauss, is the master metaphor of qualitative research. According to Lee and Fielding, many qualitative researchers choose it to justify their research approach, particularly in more quantitative fields. Grounded theory is a methodology of developing inductive theories that are

grounded in systematically gathered and analysed data. Data collection, analysis, interpretation, and theory development proceed interdependent and interactive (Lawrence & Tar, 2013).

Readers may have encountered the concept of ground truth (or ground truthing) through multi-disciplinary projects. Ground truth, a concept derived from remote sensing, refers to the gathering of on-site reference data (Short, 2004). Both grounded theory and ground truthing rely on systematic data collection. However, the purpose of grounded theory research is to inductively develop a new theory of a research area based on systematically collected data; the purpose of ground truthing is calibration, testing, or validation of a model or a theory with additional data. Ground truthing is more likely to occur in a deductive research approach, whereas grounded theory is an example of an inductive research approach.

The goal of grounded theory is seeking a theory that is intimately tied with the evidence, so that the resultant theory is likely to be consistent with empirical data (Lawrence & Tar, 2013). Data collection, coding rationale, integration of categories, abstracting from the data and construction of theory are thus guided by theory as it emerges. Hughes and Wood-Harper (Lawrence & Tar, 2013), report that the main application areas of grounded theory are most notably in Glaser and Strauss' own research into status passage, but also in a number of other, usually medical or nursing related areas. Additionally, much work has been done with respect to guidance on the use of grounded theory method. Most notable amongst them include Strauss & Corbin, 1990; Lawrence & Tar, 2013.

Hughes and Howcroft (Lawrence & Tar, 2013) consider that the individual researcher plays a critical role in an interpretive study. They maintain that using the grounded theory procedures may be a way for a researcher to deal with some of the uncertainties that some researchers feel when faced with data collection and analysis in interpretive studies. Notably, they point to the fact that, for novice researchers (or experienced researchers new to interpretive studies), grounded theory provides a useful template and as such serves as a comfort factor in the stressful and uncertain nature of conducting qualitative research (Hughes & Jones, 2003).

Grounded theory is a general style of doing analysis that does not depend on any particular disciplinary perspectives (Strauss & Corbin, 1990) and, therefore, would seem to lend itself to information systems research, which can be described as a hybrid discipline. The main aspect of grounded theory, which differentiates it from other qualitative research methods, is its emphasis upon theory development (Strauss & Corbin, 1990). Theory is grounded when it emerges from and generates explanations of relationships and events that reflect the life experiences of those people and processes that the researcher is attempting to understand. It also differs from other qualitative

approaches, because traditional qualitative approaches collect data first before commencing the analysis and long after they have left the research site. In contrast, grounded theory uses the emerging theoretical categories to shape the data collection while doing the fieldwork (data collection and analysis proceed simultaneously). By analysing data from the lived experience of the research participants, the researcher can, from the beginning attends to how they construct their world.

The use of grounded theory is founded on the premise that the generation of theory at various levels is indispensable for a deep understanding of social phenomena. It requires that the researcher demonstrates theoretical sensitivity (Glaser & Strauss 1967; Corbin, 1990) by being well grounded in technical literature as well as from personal and professional experience in collection and analysis of data (Strauss & Corbin 1990). It encourages researchers to steer their thinking out of the confines of technical literature and avoid standard ways of thinking about the data. The interplay between emergent theory and technical literature comes to the fore when extending generalisations from the study, which is achieved by either integrating supplementary or conflicting analysis into the theory by including them as categories or conditions, or criticizing them in terms of what has emerged (Strauss & Corbin, 1990).

One very practical problem with grounded theory is that the method is extremely labour intensive, requiring the investment of considerable cognitive effort by the researcher. However, the author believes that grounded theory technique is a suitable approach to use, especially when a researcher needs to analyse large quantities of unstructured or semi-structured qualitative data. This section has presented and discussed grounded theory as a practical tool for collecting and analysing qualitative data. The description of the procedures involved in collecting and analysing data in grounded theory is the topic of the next section.

## **The Grounded Theory Research Process**

The process of building grounded theory consists of different phases, which include deciding on a research problem, framing the research question, data collection, data coding and analysis, and theory development. A grounded theory project typically does not begin with a theory from which hypotheses are deducted, but with a field of study or a research question, and what is relevant to this question is allowed to emerge during the research process.

Like other research projects, the process starts with identifying the research problem and the framing of a research question that demarcates the phenomenon to be studied. The research situation varies depending on many factors, such as literature that provides background information. The literature review is, however, not a key part of a grounded theory approach. Personal and professional experiences of the researcher or research team,

the study sites and materials accessible, and the level of sophistication brought to the analytical process are considered more important than being familiar with previous research—the rationale being that preconceptions can get in the way of critical thinking and discovery.

A key concept for this approach is theoretical sensitivity (Strauss & Corbin, 1990), which reflects the ability to think about data in theoretical terms and integrate complex knowledge in the research situation. Strauss and Corbin (1990) define theoretical sensitivity as “the attribute of having insight, the ability to give meaning to data, the capacity to understand, and capability to separate the pertinent from that which isn't” (p. 42).

Theoretical sensitivity is to be developed further during the research process through continuous interaction with the data and the emerging theory in conceptual terms. Sampling procedures differ from those of quantitative studies and are based on the concept of “theoretical sampling” (Strauss & Corbin, 1990).

Sampling decisions are to be grounded in the emerging concepts that become relevant to the developing theory. This means sampling decisions evolve during the research process, and sampling cannot be planned before embarking on the study.

Comparable to other qualitative research strategies, the grounded theory approach applies one or more techniques to gather empirical data. These techniques range from different interview types (e.g., in-depth interview, focus group interview, survey) to observational techniques, including participant observation and similar field work, through archival analysis.

The analytic procedures in data coding and analysis are based on the method of constant comparison. After noting an event, it is compared to other events with respect to commonalities and differences. Constant comparison serves to uncover and explain patterns and variations. During the research process, hypotheses about the relationships between categories are developed and tested. Hypotheses are revised and qualified until they pertain to all data material, in preparation of the development and grounding of the emerging theory. One of the quality control procedures is the search for negative cases and qualifying material (Glaser & Strauss, 1967).

Collection and analysis of data are closely related and carried out in constant alternation. Theory generation is not based on the raw data; it is based on concepts and categories being developed out of the raw data. The data coding and analysis phase of grounded theory studies builds on three analytic techniques: open coding, axial coding, and selective coding (Strauss & Corbin, 1990). Open coding refers to the technique of identifying and developing categories and subcategories in terms of their properties and dimensions. Open coding is most pertinent during early stages of the research project and data collection. Sampling concentrates on the systematic variation of conditions during this phase. Axial coding focuses on the relationships between categories and

subcategories, including conditions, cause-and-effect relationships, and interactions. During the axial coding phase, sampling strives for increasing variance by including cases that seem to contradict the evolving theory. Selective coding involves integrating categories and subcategories with a central concept and providing sufficient detail and density for the evolving theory. Sampling during the selective coding phase becomes very directed and deliberate to fill in additional detail, test for further variation, and clarify final questions near the completion of the research project.

To summarize the data collection and analysis phases, the selection of the sample depends on the emerging theory, the concepts extracted, and their characteristics. Systematic variation of conditions is the leading objective. Sampling and data collection continue until theoretical saturation. Theoretical saturation means that, with the collection and analyses of additional data, no new concepts are developed and additional data do not require changes in conditions, characteristics, or consequences of the existing categories (Strauss & Corbin, 1990).

## **Criteria for Evaluation of Qualitative Research**

Principles for the assessment of qualitative research cannot be easily smuggled from quantitative research. Criteria for scientific thoroughness must be reformulated to address qualitative research sufficiently. In addition, different criteria, such as research ethics, responsibility, and consequences of research must be considered (Vera, 2005).

The diversity of qualitative research is reflected in the variety of approaches to criteria for evaluation. For the purpose of this paper, the discussion will be limited to general criteria for the evaluation of qualitative research, excluding the more specific criteria that have been developed for and apply only to grounded theory. The conditions delineated below are revisions of the positivistic criteria of thoroughness. This paper does not embark on post-modern or relational conceptualizations (Vera, 2005), and will not include ethical criteria that are benign to any kind of research. However, the discussion transcends the concepts of generalization and repeatability (Yin, 1994).

Lincoln and Guba (1985) developed criteria of trustworthiness which parallel the criteria of internal validity, external validity, reliability, and objectivity. Pointing out that different concepts should be labelled differently to reflect the reconstruction of the criteria in a qualitative context, Lincoln and Guba (1985) refined and further detailed the application of the trustworthiness criteria (credibility, transferability, dependability, and confirmability) in the context of project evaluation.

## **Credibility**

Internal validity refers to the equivalence of research results with the objective reality. This so-called correspondence theory of truth has been rejected by knowledge theorists, independent of the research paradigm. Czarniawska notes that statements can only be

compared to other statements (Vera, 2005). Just as Popper notes that truth or proximity to truth is not provable (Popper, 1959). Therefore, in a qualitative research context, correspondence with reality is replaced by correspondence of the perspectives of the participants with the description of their perspectives by the researcher. Guba and Lincoln elaborated on six techniques to ensure credibility: (a) prolonged engagement, (b) persistent observation, (c) peer debriefing, (d) negative case analysis, (e) progressive subjectivity, and (f) member checks. These six credibility techniques, in addition to a seventh technique, triangulation, are discussed more fully below (Vera, 2005).

*Prolonged Engagement:* Prolonged engagement asks the question whether the researcher or research team spent enough time on the research site. Have they overcome the effects of misinformation, built the trust necessary to uncover local constructions, and understood the context and its culture?

*Persistent Observation:* Persistent observation poses the question whether the researcher or the research team have done an in-depth study to gain details. Have the most relevant characteristics of the situation for the problem under study been identified? Have enough details been gathered? Has sufficient depth been added to the scope, which was gained through prolonged engagement?

*Peer Debriefing:* Peer debriefing addresses whether the researcher or research team have engaged in an ongoing discussion with non-contractually involved peers during the research process. Have conclusions been shared during the research process? Has tacit and implicit information been verbalized and have findings been tested against others' perceptions?

*Negative Case Analysis:* Negative case analysis looks at whether hypotheses have been refined to account for all known cases. Do a "reasonable" number of cases fit the appropriate categories? Have rival hypotheses been considered and rejected?

*Progressive Subjectivity:* Progressive subjectivity focuses on monitoring bias. Have the researcher's or the research team's conceptions changed during the process or did they mainly find what was already expected? Are the findings joint constructions of the researcher(s) and the participants?

*Member Checks:* Member checks address research participants' input in the interpretations and reports. Have data and interpretations been re-checked with the participants? Did those who provided the data agree with findings and interpretations? Have they been heard, and did they contribute to the final findings and conclusions?

*Triangulation:* An additional way to strengthen a study design is through triangulation, a term taken from land surveying where any point on the planet's surface can be located with two other known landmarks. Lincoln and Guba (1981) included triangulation for assessing credibility and confirmability. Four types of triangulation include (a) data triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) methodological triangulation. Data triangulation refers to using a variety of data

sources instead of relying on a single source. Investigator triangulation means employing more than one researcher, constituting a research team to balance predispositions. Theory triangulation aims at bringing multiple perspectives to bear on the data set to yield different explanations which can be pursued and tested. Methodological triangulation combines different methods to study a problem, a case, or a program. Studies that use only one method are subject to biases linked with that particular method. For example, a combination of interview, observation, and archival research can reduce possible distortions or misrepresentations.

### Transferability

Transferability parallels external validity and generalizability. It refers to the degree to which research results can be applied to a context apart from where they were gained or with different subjects. Situational variations might produce atypical effects. One way to deal with this possibility is to apply probability sampling to reduce context-dependence. While the history of science shows that generalizations eventually decay, i.e., they are replaced by different theories and models, contextual specificity is a concern in the social sciences. As Adcock and Collier showed, political science, depending on the context of observations (e.g., different countries), and empirical domains, need to be refocused and indicators need to be adjusted to measure similar concepts (Vera, 2005).

Transferability refers to determining the extent to which findings can be applied in other contexts or with other respondents, the similarity between sending and receiving context. In contrast to quantitative research techniques, the burden of proof shifts from the researcher to the person who wants to apply the research results.

The researcher facilitates the transferability judgment by a potential user through “thick description” and purposeful sampling. Thick description, a term coined by Geertz (1973), is not only dense and rich in detail, but an interpretive description. The description includes the intentions of the actors and what gives actions meaning from their point of view. What constitutes proper thick description is not completely resolved, because what is relevant or irrelevant changes, depending on the research question and the context of an inquiry. Potential users will be provided with a database as comprehensive as possible.

In the interest of reducing contextual specificity, a majority of quantitative studies randomize participant selection; for most qualitative studies, participants are selected purposefully. The guiding idea is to select participants or cases that are information rich, i.e., contribute the most to answering the research question. During the research process, selection of additional participants or study sites will be guided by the emerging insights about what is relevant to the research question. The sampling procedure ensures that typical as well as atypical cases are included. Patton referred to this as theoretical sampling in grounded theory (Vera, 2005).

## Dependability

Paralleling the idea of reliability, dependability refers to the stability of findings over time. Dependability answers the question whether research results would be the same, were the study replicated with the same or similar participants in a similar context. In a quantitative context, changes of methods and techniques would jeopardize reliability. Researchers must take precautions against instability caused by instrumental drift, shifts in hypotheses, constructs, and methods. On the contrary, changes in hypotheses, concepts, and even the focus of a research project are a sign of a maturing and successful research process in a qualitative context. As qualitative studies often feature an emergent design, these changes are expected, but researchers need to keep track of them. Detailed and comprehensive documentation of the research process and every methodological decision ensure the dependability of research findings (Vera, 2005).

Bogdan and Biklen (Vera, 2005), discussed dependability and pointed out how academic training affects the questions a researcher brings to an inquiry. Consequently, theoretical perspectives specific to their fields will structure their study, they will collect different types of data, and reach different conclusions. Therefore, different researchers studying the same setting will focus on different data which results in different findings. As long as their results are not incompatible, their studies may all be dependable.

## Confirmability

Parallel to objectivity, confirmability deals with the issue of bias and prejudices of the researcher. Data, interpretations, and findings are supposed to be anchored in individuals and contexts apart from the researcher. When conducting quantitative research, objectivity is rooted in methods. Following the process correctly ensures that findings are independent of values, motives, or political persuasions. However, Gephart notes that analysis of actual research processes has shown that methodological rules leave room for subjective decisions and bias (Vera, 2005). While objectivity emphasizes value freedom, confirmability relies on the explication of values. Practicing reflexivity and discussing the researcher's underlying epistemological assumptions and personal involvement with the research is another important feature.

The integrity of qualitative research is based upon the data themselves and the research process. Quality assurance of the research process depends on its elaborate documentation. The audit trail should allow data to be tracked to their sources. The logic used to integrate interpretations into a coherent research narrative should also be visible.

## Conclusions: Exploring Strengths of Grounded Theory Research Method

“Throughout the history of science, philosophers and scientists have sought to describe a single systematic procedure that can be used to generate scientific knowledge, but they have never been completely successful. Committee on Science, Engineering, and Public Policy (CSEPP) notes that the practice of science is too multidimensional and its practitioners are too diverse to be captured in a single all-encompassing description (Vera, 2005).

Thus, defining science in a narrow way, and thereby excluding different approaches, unnecessarily bounds the scope of scientific exploration. Lindblom states that, in order to cope with social problems, thinking in many forms is required (Vera, 2005). The search for uniform criteria of what constitutes superior research has not been successful. Some criteria may be applicable at certain stages of research, but less so at others. Different research traditions require different criteria, even within the qualitative research paradigm. If exchange and cross-fertilization between quantitative and qualitative researches are accepted as valid objectives, a common language is needed to foster understanding between both. Analysing qualitative data that have been gathered, as part of a quantitative project under a systematic paradigm, as provided by the grounded theory approach, will contribute to the applicability of research results and their acceptance by stakeholders.

Qualitative research approaches, including grounded theory, are suited to tackle a wide range of problems. Qualitative methods can be used to better understand the details of phenomena which are difficult to address with quantitative methods. Their application is not limited to discovery, but includes qualification and correction of existing theories. Designing, implementing, and reporting qualitative research must be based on competent application of these approaches, reflecting the state of the discussion in other social sciences, and must adhere to quality criteria.

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