Grounded Theory in Use – a Review of Experiences

Stefan Cronholm
Dept. of Computer and Information Science
Linköping University
SE-581 83 Linköping, Sweden

Abstract

This paper evaluates experiences from novice use of the qualitative analysis methodology grounded theory. The methodology can be understood as a reaction against more traditional scientific approaches such as hypothesis testing and quantitative analysis. The paper tries to answer the question: What problems and strengths arise from the practical use of grounded theory? In order to answer the question a list of problems and strengths, categorised into the methodology phases open coding, axial coding, selective coding and theoretical sampling, is presented. Some findings of a more general nature are also presented.

Key words: Grounded theory, qualitative analysis

1. Introduction

This paper evaluates experiences and critiques of the use of Grounded Theory. Grounded Theory is a qualitative methodology aiming at generating theory that is grounded in data. The methodology can be understood as a reaction against more traditional scientific approaches such as hypothesis testing and quantitative analysis. Arthur (1983) claims that many theories that have been developed have been tested by irrelevant hypotheses. The methodology was first presented in Glaser & Strauss (1967). Glaser and Strauss have then separately further developed the methodology (Glaser, 1978; Glaser, 1992; Strauss, 1987; Strauss & Corbin, 1990; Strauss & Corbin, 1998). The discussion of the differences between of Glaser and Strauss is however outside of the scope of this paper. This is discussed in i.e. Babchuk (1996).

This inquiry tries to answer the question: What problems and strengths exist from the practical use of grounded theory? There are a lot of theoretical discussions about grounded theory but as far as we know there are not so many discussions about concrete usage. This paper is more pragmatic in that it reviews experiences and critiques from their use of grounded theory. This paper could be understood as a complement to earlier research that is more abstract and theoretical in nature (vide Babchuk, 1996; Rennie et al, 1988).

As we see it grounded theory can be used in a “pure” way. This means that the methodology user follows each step or phase in the suggested order. Grounded theory can also be used in a more flexible form. This means that parts of the methodology are abandoned or replaced by other methodology. We have recently noticed that several PhD students doing qualitative analysis in their theses claim that their research method is “inspired by” grounded theory. What does the word inspired mean? Why use inspired at all? Are there problems in adopting the methodology depending on some less developed parts in the methodology or is it just a way to hide a weak understanding? Identifying problems from use can help us to understand why methodology users employ the term “inspired by”.

Methodology users can be seen as novices or experts or something in between. In this study we are focusing on novice methodology users’ (first time users’) experiences. The reason for analysing novice users’ experiences is that we want to understand if grounded theory is applicable for users with no or only a low pre-understanding. If novice users experience

grounded theory as too complex and having a high learning threshold, then there is a risk that they never will become expert users.

The empirical data (the PhD students' experiences) is collected from course reports written by PhD students. The student reports contain analyses of real life empirical data containing experiences and reflections from using grounded theory. This study will not suggest solutions to identified problems, rather it will point out some problems and strengths experienced from usage.

2. Short Description of Grounded Theory

Grounded theory aiming at explaining phenomena in a social context. The methodology is iterative and comparative. It encourages a continuous focus shift between data and conceptualisation as well as constant data comparison. Other characteristics of the methodology are that it is contextual, process oriented and inductive with abductive elements. Pettigrew (1989) claims that the methodology "provides an opportunity to examine continuous processes in context in order to draw out the significance of various levels of analysis and thereby reveal the multiple sources of loops of causation and connectivity so crucial to identifying and explaining patterns in the process of change".

Grounded theory consists of three integrated major phases: open, axial and selective coding. Briefly described, according to Strauss & Corbin (1998), open coding is the analytical process through which concepts are identified and their properties and dimensions are discovered in data. Axial coding is the process of relating categories to their subcategories. Selective coding is the process of integrating and refining the theory. There is also a phase called theoretical sampling. Theoretical sampling is a process aiming at discovering variations among concepts and to enrich the categories in terms of their properties and dimensions. Theoretical sampling means to select new data sources that enrich the evolving theory. The phases should be viewed as iterative and not as strictly sequential steps.

3. Method

The data source for this study was a doctoral course in grounded theory. At the course start, the PhD students were instructed to log experiences from using grounded theory and they were informed that the course examination consisted of both a presentation of how grounded theory has been used and a critical review of the methodology. Both of these areas have been data sources for this study. The PhD students performed their qualitative data analyses in different subjects and organisations such as business in electronic commerce, information systems development, the Armed Forces and the Swedish National Road Administration. The PhD students' worked with grounded theory and the course reports for four months. The reason for choosing a doctoral course as a data source is that all the PhD students used the methodology for the first time. They were novice users. Since we were the lecturers for the course, this also meant that we had ready access to the data source. Grounded theory is often used in psychological and sociological research. The major subject of the PhD students is information systems analysis. Examples of other grounded theory studies that have been performed in this research area are Pries-Heje (1992), Orlikowsky (1993) and Cronholm (1995). The variant of grounded theory the students used is the one presented in Strauss & Corbin (1998).

The PhD students' experiences of using grounded theory are gathered from course reports and follow-up questions. The follow-up questions were mainly asked at course seminars and when the course reports were written. Questions like "Why is this problematic?", "How did you use this recommendation?" and "How did you understand this part?" were asked. A total of 12 course reports have been analysed. The reason for asking follow-up questions is to achieve a richer picture besides the written course reports.

For the data analysis we have chosen a qualitative approach. First, the PhD students' experiences are categorised according to the main phases in grounded theory: open, axial and selective coding. Some experiences are related to the phase theoretical sampling and some are viewed as being of a more general character. Within each phase the categories are viewed either as a problem or as a strength. The experiences are also categorised according to the paradigm model suggested by Strauss & Corbin (1998). The model describes causality and it consists of the three components conditions, action/interaction and consequences. For each phase the categories are viewed either as a condition or as a consequence.

The reason for choosing a qualitative approach data analysis is that we have a qualitative research interest in that we want to understand the meaning of the PhD students' experiences and we want to be able to explain causality in terms of how the experiences relate to each other.

4. Results

4.1 Open Coding

This section describes identified experiences in terms of problems and strengths related to the phase open coding (see table 1 and 2). The experiences are viewed either as a condition or as a consequence.

Problems

	Conditions	Consequences
1.	Weak support for how to start with a large amount of data	Frustration about disorder in the data
2.	The tool "analysis of a word, phrase or sentence" is presented as three choices	The choices can/should be made in parallel
3.	Unclear definitions and hard to distinguish between a concept, a category and a property	The PhD students have difficulties when deciding if a concept should be treated as a category or as a property
4.	Naming of categories	The category name's coverage of the meaning of the category was not complete
5.	Hard to understand the utility of describing dimensions	Dimensions for properties were often left out

Table 1: Problems in Open Coding

Experiences related to the first consequence were questions like: Where shall I start to code? and What shall I focus on? There was certain amount of temporary frustration that disappeared after a while when central concepts began to emerge. An experience related to the second consequence was that a sentence acts as a background for the word (the foreground). The meaning of the word has to be understood in a context (the sentence or paragraph). Rennie et al. (1988) discuss meaningful units of individual concepts as an alternative. A meaningful unit is a naturally delimited context.

The third consequence was the most common one. At the beginning it was hard for the PhD students to understand the different concepts in the methodology. They were even doubtful if this way of performing analysis was scientific. The fourth consequence meant that the choice of name was changed several times during the process. The name chosen was often too wide and therefore lacking from precision or it was too narrow to describe the meaning of the category. The type of naming used was so called in-vivo codes (the names of categories that appear in the language are used by the respondents) (Strauss, 1987). The fifth consequence means that the variation among data is week or missing. Why several PhD students left the dimensions out is not clear. Didn't they understand the usefulness of dimensions or was it just a slip? The reasons for this must be further elaborated.

Strengths

	Conditions	Consequences
1.	Open coding is not a routine-like process	An iterative process between categorisation and creativeness. Good support for discovering new ideas and relations among categories and properties
2.	Encouragement to use memos	The students made extensive use of memos. Memos supported the students in identifying concepts, actions and initial categories

Table 2 Strengths of Open Coding

Strength experiences related to the first consequence are that the PhD students understood the open coding phase as creative, meaningful and even joyful when they saw potential relationships among categories emerge. This experience is in line with Orlikowsky (1993) who claims that the ability to incorporate unique insights during the course of the study is one of the benefits of a grounded theory research approach. Strauss & Corbin (1998) also claim that open coding is a creative phase and that open and axial coding are not discrete phases.

The PhD students made extensive use of memos. Memos supported the PhD students in identifying concepts, actions and initial categories. The use of memos should not be underestimated. Babchuk (1996) claims that memos should be seen as vehicles for creativity.

4.2 Axial Coding

This section describes identified experiences in terms of problems and strengths related to the phase axial coding (see table 3 and 4). The experiences are viewed either as a condition or as a consequence.

Problems

	Conditions	Consequences
1.	Weak support for illustrative presentations of categories and their relations	High variation in use of illustration techniques
2.	Time consuming process	Unwillingness to reorganise too early created data structures
3.	Sometimes problems when making abstractions	Differences in successfulness in making abstractions

Table 3 Problems in Axial Coding

Experiences related to the first consequence are that the illustrations of categories and their relationships vary greatly among the students. The PhD students claimed that the methodology should be clearer about how to present categories and their relationships. They maintained that there should have been a suggested notation in diagram techniques. Some diagram techniques have been suggested, but they lack precision. A probable explanation for this experience is that the PhD students are used to working with information systems methodologies. These methodologies consist of suggested notations/techniques for describing processes and data models (vide Rumbaugh et al., 1991; Jacobsson et al., 1992). It was not just the representation of a phenomenon such as a category or a relation that varies. It is also what is illustrated and the granularity of what is illustrated that varies. The PhD students felt a high degree a freedom when illustrating the results of axial coding.

Condition number two has to do with the process itself. Carrying out qualitative analysis is time consuming. It takes time to carefully ground theory in data. The pay-off for the time investigation arises when patterns among data and theory evolve. Experiences related to the second consequence are that several PhD students came up with data that did not fit in their data structures. This could mean that there was a need for reorganising the data structure. Sometimes there was a certain resistance in breaking down existing data structures in order to find more accurate ones. Another reason for the resistance is that there are no distinct borders between open and axial coding. It seems that a detailed open coding in an early stage caused the PhD students to get stuck over initial conceptualisations and presumptive relationships among categories. Sometimes these initial conceptualisations were not questioned enough, when new data was discovered.

Condition number three is related to the PhD students' pre-knowledge and analytical skills. Making abstraction in this phase means to group categories and to find subcategories. The third consequence meant that there was a difference in the way the PhD students succeeded in making

abstractions. Some PhD students presented several abstraction levels with a clear trace ability from the highest to the lowest levels. Others, more or less, had problems with finding higher abstraction levels. The reason for the differences had to do with fact that the PhD students were first-time users as well as to their individual ability to make abstractions.

Strengths

	Conditions	Consequences
1.	Encouragement to use an action-oriented paradigm model	Well-structured applications according to the paradigm model
2.	Encouragement to relate categories to each other	Meaningful and highly motivated work High acceptance and positive attitudes
3.	Encouragement to use the tool "Questioning"	

Table 4 Strengths in Axial Coding

The experiences of all these encouragements are entirely positive. The first consequence is in line with the PhD students' strong pre-understanding of an action-oriented perspective. Strength number 1 implies an action-oriented way of analysing relationships between the categories. This perspective is familiar to the PhD students since the major theoretical base in their research education is action-oriented theory (vide Goldkuhl & Lyytinen, 1982; Habermas, 1984; Searle, 1969).

The experiences related to strength number two are that the evolvement of patterns in data gave meaning to the domain studied. The categorisation work was not of a routine like process. Categorisation was seen as creative work performed in several iterations. The students felt great satisfaction when patterns arose.

The PhD students have experienced the tool, *questioning,* as useful when making abstractions. Asking questions like "What is this an example of?" and "What examples are there for this phenomenon?" have improved the PhD students' analyses. For all these strengths there were high levels of acceptance and positive attitudes.

4.3 Selective Coding

This section describes identified experiences in terms of problems and strengths related to the phase selective coding (see table 5 and 6). The experiences are viewed either as conditions or consequences.

Problem

	Conditions	Consequences
1.	Find one central (core) category that covers the whole studied domain	Difficulties in suggesting one central category

Table 5 Problems in Selective Coding

Strauss & Corbin (1998) claim that one central category should be identified. This central category shall represent the main theme of the research. Some of the PhD students arrived at several core categories. The experiences were that some of the PhD students thought it was hard to integrate all the categories into one central category. The output from axial coding can be seen as several clusters of categories. The problem was to integrate all the clusters into one big cluster. In other words, it was hard to identify one major theme in the data material.

Strengths

	Conditions	Consequences
1.	The process of finding a central (core) category	Recognized work procedures

Table 6 Strengths of Selective Coding

The experiences of the PhD students have been that there is no distinct border between the phases axial and selective coding. The work procedures are similar to axial coding but they exist on a higher abstraction level. This experience is supported by Strauss & Corbin (1990). They maintain that integration in selective coding "*...is not much different than axial coding. It is just done in a higher more abstract level of analysis.*"

4.4 Theoretical sampling

This section describes experiences identified in terms of problems and strengths related to the theoretical coding (see table 7). The experiences are viewed either as conditions or consequences.

Problems

No experiences that concern problems with theoretical sampling were identified.

Strengths

	Conditions	Consequences
1.	Encouragement for seeking variation among concepts and condensing categories	Iterations were planned in beforehand in the research process

Table 7 Strengths in Theoretical Sampling

The PhD students experienced this encouragement as a strength because it emphasized the importance of getting richer categories in terms of properties and dimensions. A wider range of properties and dimensions implies the higher explanation power of the theory. There is always a choice for how to plan the research process. One experience of PhD students is that the theoretical sampling phase encourages the analyst to plan for iterations. Instead of doing all the data collection first and then doing the data analyses this phase recommends alternations between data collection and data analysis. The PhD students experienced theoretical sampling as useful and they let the evolving theory govern the subsequent data collection in order enrich their categories and to achieve a better understanding of the domain studied.

4.5 General Experiences

This section describes identified experiences in terms of problems and strengths related to more general experiences (see table 8 and 9). That means that the experiences are not solely related to a specific phase. The experiences are viewed either as conditions or consequences.

Problems

	Conditions	Consequences
1.	Low pre-knowledge. The PhD students were novice users and therefore they had a low degree of maturity	The PhD students show a tendency to slavishly following the methodology instead of a more flexible approach
2.	No encouragement to analyse in quantitative terms	Risk for an over-interpretation of the significance of one single problem

Table 8 Problems: General Experiences

The first problem is not specific for novice users of grounded theory. This behaviour is also in line with how novice users react when using information systems methodologies (vide Cronholm, 1995). Strauss & Corbin (1994) advocate flexibility, stating that “individual researchers invent specific procedures” and “while we set these procedures and techniques before you, we don not wish to imply rigid adherence to them”. In order to follow this advice the PhD students must be able to keep their distance from the methodology. This advice demands practice and is therefore hard for novice users to follow. The second consequence means that the

PhD students wanted support for describing the severity of identified problems in terms of quantitative measures. They mean that qualitative measures would have helped them to prioritise among identified problems. There is always a risk that data has been over- or under interpreted. In order to minimize this risk, triangulating methods for data collection could be used (Denzin, 1978).

Strengths

	Conditions	Consequences
1.	Real world cases have been used	Highly motivated PhD students
2.	Not a dogmatic standpoint to act unbiasedly	Enlarged discussions and clarifications about used perspectives and the PhD students conceptual frameworks
3.	Systematic work is highly supported	Ordered data and trace ability from data to categories
4.	Cooperative work	Higher understanding of the methodology developed

Table 9 Strengths: General Experiences

The first consequence means that the PhD students were highly motivated when real word data was used. The PhD students performed interviews with industrial employees and from project documentation. This means that it was possible to use theoretical sampling that would not have been the case if a prepared text from the lecturer had been used as the basis for analysing data. The second consequence means that the PhD students had a pre-assumption that using qualitative analysis means to act unbiasedly in order to minimize the risk of pre-categorising. Strauss & Corbin (1998) claim that "… it is not possible to be completely free from bias". People are the products of their cultures (ibid.). This has implied wider discussion and clarification of the perspectives used and the students' frames of reference. It is important to understand that the evolving theory is a result of several factors such as: quality of data, access to data, the researchers' ability to analyse/interpret the data and the researchers presumptions. Glaser (1978) and Strauss & Corbin (1990) discuss the researcher's conditions for reaching a good result in terms of skill, maturity, motivation and competence.

The third consequence means the PhD students claim that grounded theory contributed systematic ways of structuring the data. The PhD students maintained that the use of the methodology brought order to the data and this order offered trace ability between the data and categories. The fourth consequence was identified after a comparison between individual and cooperative work. Two course reports were written as cooperative work. Both these reports are of a higher quality in terms of the conceptualisations and abstractions made, than the ones that were performed as individual work. The students that worked in a group maintained that the opportunity to discuss concepts had improved the definitions of the concepts analysed.

5. Conclusions

The general conclusion is that students with a low pre-knowledge are able to carry out a reasonably good qualitative analysis. However, there are some problems such as students having difficulties in reorganising their data structures, finding proper names for the categories and making abstractions. We believe that these problems arise because the PhD students are novice users. The most positive strength the PhD students experienced is the systematic approach offered in the methodology. There are similarities with the major subject studied (information systems analysis). In this subject there is a need for systematic work and the PhD students recognized similarities in grounded theory with what is called the data modelling (vide Chen, 1976; Howe, 1989) of information systems.

Another conclusion that is related to the PhD students being novices is that analyses with a higher quality were achieved when they worked in groups. Several PhD students reported that they missed a dialogue partner. This is in line with findings in Babchuk (1996). Babchuk claims that "whenever possible grounded theory should be a collaborative enterprise".

Further, we think that there is a need for computer-based support when working with a large amount of data. There are some present computer-based tools such as QSR Nud*ist (QSR International, 2002b) and Merge for Nvivo (QSR International, 2002a). Unfortunately, they support a more general qualitative analysis than the specific grounded theory methodology according to Strauss & Corbin (1998).

In some ways grounded theory can be viewed as a paradox. The methodology user is encouraged to rid themselves of pre-assumptions so that the "true nature" of the field of study will come out. At the same time Strauss & Corbin (1998) believe that this can never be achieved. They claim that it is not possible to be completely free from biases since humans are the products of their cultures. A practical implication of this paradox is that grounded theory researchers should avoid reading pertinent literature until the study is finished (Rennie et al., 1988). We claim that it is important to relate the evolving theory to related research during the process. This could be done during the theoretical sampling phase. One of the PhD students claimed that "to ignore existing theory means that there is a risk for inventing the wheel again and existing theory can contribute in condensing the theory". Goldkuhl (1999) claims that external grounding in the form of established theories is an important source for validation of action knowledge.

Another paradox is that Strauss & Corbin (1994) advocate flexibility, stating that "individual researchers invent specific procedures" and "while we set these procedures and techniques before you, we do not wish to imply rigid adherence to them". At the same time, they point out to methodology users that the procedures must be taken seriously "otherwise researchers end up claiming to have used a grounded theory approach when they have used only some of its procedures or have used them incorrectly" (Corbin & Strauss, 1990, Babchuk, 1996). In order to simplify matters for methodology users (especially novice users) the methodology should avoid paradoxes of this type.

The results are based on only one case study that encompasses 12 course reports. Despite this, we think that it is possible to make some generalisations. We think that the results should be considered in any methodology contexts where novice users are involved. Interesting future research would be to enlarge this study with follow-up interviews and also compare the problems and strengths the PhD students experienced with more professional methodology users' experiences.

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