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Reflections on the Use of Grounded Theory in Interpretive Information Systems Research

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Abstract

In Information Systems research there are a growing number of studies that must necessarily draw upon the contexts, experiences and narratives of practitioners. This calls for research approaches that are qualitative and may also be interpretive. These may include case studies or action research projects. For some researchers, particularly those with limited experience of interpretive qualitative research, there may be a lack of confidence when faced with the prospect of collecting and analysing the data from studies of this kind. In this paper we reflect on the lessons learned from using Grounded Theory in an interpretive case study based piece of research. The paper discusses the lessons and provides guidance for the use of the method in interpretive studies.

Keywords

Grounded Theory, IS evaluation

1. Introduction

Grounded Theory (Glaser & Strauss 1967) has been increasing in popularity in Information Systems as a research method. This is evidenced by the growing literature that is either discursive on philosophy and application or detailed about method (Toraskar 1991, Orlikowski 1993, Adams & Sasse 1999, Baskerville & Pries–Heje 1999, Trauth 2000, Hughes & Howcroft 2000, Urquhart 2001). As more researchers are taking up qualitative studies it is worth reflecting on lessons learned from the practical application of the method. The purpose of this paper is to provide insight for the novice researcher and the experienced researcher coming to Grounded Theory for the first time. For those who already have experience in the use of the method the paper provides further much needed discussion arising out the method's adaption and adoption in the IS field.

The paper is structured as follows. It begins with a brief overview of the Grounded Theory method and a discourse on the use of Grounded Theory in Information Systems. An illustrative piece of research is then presented in which Grounded Theory was used in interpretive, qualitative case studies. Following on from that we present reflections based on the use of the method and conclude with a set of practical considerations in the use of the method derived from a synthesis of literature and the authors' experience.

2. The Grounded Theory Method

It is not the intention here to present a tutorial on the method. There is a significant heritage containing such articles. Rather the following two sections set the scene and provide the authors' perspective.

Grounded Theory or as it was originally titled 'The Discovery of Grounded Theory' (Glaser and Strauss, 1967) is a method for the collection and analysis of qualitative data. In the method conceptual properties and categories may be 'discovered' or generated from the qualitative data by following a number of guidelines and procedures. For IS researchers it is worth picking out three concepts from Grounded Theory that have resonance with the process of interpretive research and that give it its intuitive appeal. Firstly *constant comparative analysis* – a procedure for identifying conceptual categories and their properties that may be embedded in the data. Secondly *theoretical sampling* by which the conceptual categories are enriched through coding and integration. These two procedures together lead to the development of a hierarchy of integrated categories and lead to the emerging theory. *Theory* is the third concept of note here and the usage of the term is critical. Strauss and Corbin (1994) maintain that theory consists of

> "plausible relationships proposed among concepts and sets of concepts..... researchers are interested in patterns of action and interaction between and among various types of social units (i.e. actors)..... They are also much concerned with discovering process - not necessarily in the sense of stages or phases, but in reciprocal changes in patterns of action/interaction and in relationship with changes of conditions either internal or external to the process itself" (Strauss and Corbin, 1994, p.274)

They note two important features of the theory. Firstly that they are traceable to the data and secondly that they are 'fluid', that is to say the emphasis is on process and the temporal nature of the theory. So then 'theory' is used in the method to refer to local empirical models surrounding the phenomenon under study, it is not substantive. The theory is made apparent through the production of an 'account' and/or associated relationship diagrams of categories.

Dey (1999) provides useful insight into the term

> "Theory focuses on how individuals interact in relation to the phenomenon under study; it asserts a plausible relation between concepts and sets of concepts; it is derived from data acquired through fieldwork interviews, observations and documents; the resulting theory can be reported in a narrative framework or as a set of propositions" (adapted from Dey, 1999, p. 1-2)

The method of Grounded Theory has spread to many other disciplines including research in Information Systems. Interestingly Strauss and Corbin (1994) noted their regret that the methodology 'runs the risk of becoming fashionable' and were at pains to point out the importance of theoretically sensitised and trained researchers. Nevertheless the use of the method in IS is growing in popularity.

3. Grounded Theory in Information Systems Research

The most notable use of Grounded Theory in IS research is that by Orlikowski (1993) in which she presents findings of a study into the adoption and use of CASE tools. In this study the use of Grounded Theory was justified on the basis that it provided 'a focus on contextual and processual elements as well as the action of key players associated with organizational (sic) change elements

that are often omitted in IS studies'. Although not the first published use of Grounded Theory in IS (earlier publications include Calloway and Ariav (1991) and Torasker (1991)) its publication in a leading international journal provided a signpost for its future use. The other significant aspect of this publication was its contention that Grounded Theory fitted well with the interpretivist rather than positivst nature of her research.

Grounded Theory studies in this interpretivist tradition have become increasingly common in the IS research literature precisely because the method is useful in developing context-based, process-oriented descriptions and explanations of phenomenon (Myers, 1997; Urquhart, 2001). However Grounded Theory has been used in many interpretivist studies in a contingent way. That is to say many researchers have adopted the procedures and processes of the method to focus on rigour and traceability in substantive theory development. For example in the action research arena Baskerville and Pries-Heje (1999) consider the use of Grounded Theory to increase the rigour in the theory development part of action research. Similarly Wastell (2001) arrives at similar conclusions noting that the Grounded Theory procedures 'provides a systematic basis for developing and verifying theory [in action research projects]'. Others, such as Fitzgerald (1997) and Hughes and Wood-Harper (1999) have adopted the method by using 'seed categories' to initiate the data collection activities. The question may be legitimately raised as to whether there is some 'correct' way of applying the method and this returns to the Strauss and Corbin (1994) concerns about method diffusion. The issue seems to rest in the interpretivist nature of the research since in positivist IS research projects the methods are rigorously applied (Oliphant and Blockley, 1991; Galal and McDonnell, 1997).

We would argue however that from its roots in the social sciences, its philosophy is post-positivist, and that it relies less on dogma and positivist validity models and more on the practical application of methods to suit real situations. In a given methodological context therefore, one would expect that the intended method could differ from the method in use because of the dynamics of the situation and this is entirely consistent with the need to extract richness from social situations. In support of this view, Hughes and Howcroft (2000) argue against the rigid application of Grounded Theory in practice. Indeed, Urquhart (2001) highlights that some seminal advice on Grounded Theory is in fact contradictory, not least the disagreement between the two original co-authors on its use. Hughes and Howcroft (2000) further maintain that in any context, the researcher has to adapt to the contingencies of the particular situation, that Grounded Theory is a useful vehicle for structuring the process of conducting data collection and as a rigorous means of data analysis. This is supported by Urquhart (2001) who argues that,

> "Grounded Theory is by definition a rigorous approach – it demands time, it demands a chain of analysis and the relating of findings to other theories. As it is an inductive, emergent method that is located mainly in post positivism, this means that researchers need to carefully consider their own philosophical position" (Urquhart, 2001, p. 27).

There is resonance here with the work of Klein and Myers (1999) who maintain that considering a method as either positivist or interpretivist is unhelpful since quantitative methods have been used in interpretive research and qualitative methods (eg case studies) used in positivist research. Indeed it may be that in IS Grounded Theory is predominantly used in interpretive studies because that is where it is most appropriate and that its contingent use is consistent with the treatment of many other methods in this paradigm.

There may be other less overt reasons for the spread of Grounded Theory amongst IS researchers. Hughes and Howcroft (2000) consider underlying assumptions from a selection of research projects where Grounded Theory has been used and they identify a different scenario for the evaluation of grounded theory in IS research. They consider the critical role that the individual researcher plays in any interpretive study and conjecture that the Grounded Theory procedures and processes may be a way for them find their way through the uncertainty surrounding 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'.

Wherever the motivation or justification arises it is clear that Grounded Theory is growing in popularity. It is worth advising some caution however when discussing the popularity of a method since the danger is that it may achieve a standing beyond its usefulness. Grounded Theory will certainly not always be appropriate to every situation and the emphasis on qualitative methods does not preclude the use of quantitative methods in interpretive research. In the next section we present by way of illustration a research project in the interpretive tradition in which Grounded Theory was used.

4. Illustrative Research Project

The research concerned a study of two public sector councils in the UK and was motivated by a concern for the use of IS evaluation methods, particularly in the public sector domain. At the outset it was posited that in spite of the numbers of methods and techniques available for organisations to undertake IS evaluation, the prevailing situation is one where economic factors dominate. These IS evaluation methods contain little or no organisational or user perspectives as to the usefulness and impact of the IS. This is an important omission because user perspectives on IS evaluation are of value. This is particularly an issue in the public sector where economic factors have little meaning and are therefore, largely inappropriate. Additionally, the conceptual framework posited that in practice the prevailing scenario is predominately one of ritualistic use, under use or non-use of these methods and techniques. Finally, the conceptual framework argued that in order to understand these issues from an organisational context, user opinion, via situated hermeneutic IS evaluation, should be considered.

The methodological approach chosen for the research was the use of interpretive, qualitative, in-depth case studies. Following a review of the available research methods for undertaking case studies, the method chosen for qualitative data collection and analysis was Grounded Theory. The justification for this was based on the premise that Grounded Theory provided a set of procedures for coding and analysing data which suited the interpretive approach since it would keep the analysis close to the data and provide for inductive discoveries about the phenomena under study. Furthermore it was anticipated that as the focus of the domain was the production of rich contextual organisational accounts (theory) then the development of categories would assist the researcher in the structuring process. It will be necessary here to briefly indicate the development of the Grounded Theory to show how it led to traceable lessons.

The method proceeded by open coding transcripts from interviewees; some of these codes were simply words or phrases used by the interviewees. As more data was collected the open coding continued and categories began to emerge. The categories were collections of loosely cohesive

codes pertaining to one phenomenon. Categories were then compared and integrated and more abstract categories were formed leading to a hierarchy of categories. To illustrate this process we present an extract from the account of one sub-category – Meetings.

> "One of the Chief Information Officers discussing a corporate information technology client group stated, 'It's a talking shop. I talk, they listen and that's it. I've never really been challenged'. This was borne out by all interviewees, some of whom were frustrated by the process. 'I don't feel I have any influence over the decisions', commented another interviewee. 'IS is only introduced when something is failing'." (extract from the sub-category Meetings)

As this sub-category was compared with others and integrated into the overall hierarchy it became part of one of the major categories – Decision Making. This category was at the highest level of abstraction and the researchers were able to elucidate the empirical *theory* relating to this concept. An extract from this part of the Grounded Theory is given below,

> "Decision making with regard to IS issues in the case study organisations are unsophisticated. That is to say that the case study organisations maintain that the decisions made are largely obvious and common sense…The case studies show that managers often use opportunist tactics to achieve goals, including those concerned with IS. The case studies also highlight that existing power relations influence discourse. Furthermore, IS professionals sometimes do not act in the interests of the organisation, but rather have an allegiance to their own professional development or IS industry direction.
>
> An unexpected outcome from the empirical work was an understanding of how people behave towards decisions that result in changing circumstances. IS investment decisions often bring a change to working practices and as the case studies have shown, this can lead to resistance from IS users to fully utilise IS in the respective service area." (extract from the category Decision Making)

The Decision Making category contributed towards some of the lessons that emerged from the Grounded Theory notably the following

- The views, beliefs and assumptions of stakeholders must be exposed and considered within the IS evaluation process and not be ephemeral to it.
- The hierarchical and political nature of public sector organisations creates a barrier to change and this must be overcome to ensure interpretive approaches are successful in practice.

It is beyond the scope of this paper to show the development of all of the lessons since it is the lessons learnt from the use of Grounded Theory that are of interest here. This is dealt with in the next section.

5. Lessons Learnt from the use of Grounded Theory

In this section, we consider the lessons learned with regard to the use of Grounded Theory in the study. Although Grounded Theory was originally developed as a research paradigm in post-positivism (Annells, 1996) in this work it was used as a method of data collection and analysis. Furthermore, the researcher located the use of Grounded Theory within an interpretivist hermeneutic paradigm (Thompson, 1990).

On reflection, the use of Grounded Theory in the case studies indicated that it can assist conceptually in the understanding of a problem situation, can discover local empirical theory and can also assist with the articulation of lessons learned. The major issue that arose in the empirical work with regard to Grounded Theory was with respect to the 'correct' way of using Grounded Theory. At the outset it was decided to use seed categories (Miles and Huberman, 1994) to help guide the research, which Strauss and Corbin (1998) contend detracts from the method. Furthermore, the researcher had knowledge of the literature, which is contrary to the advice offered by Glaser (1992):

> "there is a need not to review any of the literature in the substantive area under study. This dictum is brought about by the desire not to contaminate...it is vital to be reading and studying from the outset of the research, but in unrelated fields" (Glaser, 1992, p. 32).

However, the use of seed categories to help inform analysis illustrated that the research was drawing upon previous knowledge and experience to provide a basis for current work, which is consistent with interpretive case studies (Walsham, 1993) and certain Grounded Theory approaches (Fitzgerald, 1997).

An important aspect arising from the use of Grounded Theory in the case study is *agency*. Paramount attention must be given to the means by which actors or organisational members create and recreate organisational structures. Its use implies an organisational and social context, rather than the perhaps more familiar technical or economic contexts, for research in the IS evaluation field. Strauss and Corbin (1998) also note that theories produced are 'fluid' because they 'embrace the interaction of multiple actors' and the procedures particularly the development of categories through axial coding (relating categories) facilitates the process of this interaction in a natural way.

In spite of the rationale for the use of Grounded Theory in interpretive case studies the empirical work did highlight a dilemma between the interpretive perspective and the Grounded Theory procedures themselves. This dilemma was that the procedures of coding, comparing, categorising, saturating all had a positivist feel to them. Indeed sometimes it felt quite mechanistic. Conversely, the process of constant comparison felt very interpretive in nature at times when undertaking the procedure which resonates with the work of Urquhart (2001). In attempting to resolve dilemmas of this nature, it is worth looking to the experiences of other researchers, such as Klein and Myers (1999) who claim that the assumption that qualitative methods are the only ones suitable for interpretive research, or conversely, that quantitative methods should only be used for positivist research, is a fallacy. Certainly, in the case studies a good deal of the data structuring was attributed to the researcher. As noted by many authors (Hughes and Howcroft, 2000; Urquhart, 2001) this is common in interpretive research. It could be reasonably said that the Grounded Theory method and procedures have their place as a useful framework, or guidelines or pointers through a structuring process that is essentially an interpretive process.

The procedures associated with Grounded Theory were especially time-consuming. The transcribing, coding and comparing associated with the data analysis was a particularly lengthy process. We regard this issue as the major criticism of the Grounded Theory method since although it could be argued that it introduces the necessary rigour into the interpretive process it is such an overhead that it is suggested that many researchers may choose to by-pass this level of attention. In this piece of work no software packages were used to assist in this process yet it is still felt that even with such packages a good deal of attention must be given to these procedures

An additional lesson harshly learnt was that the researcher's early understanding of Grounded Theory methods were insufficient and the early coding sessions were not easily undertaken. Furthermore, the use of methods without a full understanding of them or of their conjunction was problematic. This concurs with the Strauss and Corbin (1998) concern about the need for sensitised, trained and experienced Grounded Theory researchers. We would agree that for the two case studies, more extensive practical use of the methods and training in social science research would have been useful. This serves as a marker both to novice researchers and experienced researchers who may be coming to this method for the first time. Grounded Theory is emerging in IS research, but is still relatively new in the IS domain. Perhaps, therefore, researchers should also have a good prior knowledge of the reference discipline from which the methods derived.

In the use of Grounded Theory, the empirical work explicitly sought to discover the underlying assumptions, the contexts and the experiences of those involved in the IS evaluation process. In this respect, the method was successful and these views were elicited via the method in action.

Interestingly, and as an aside to the main findings from the research, the interview process and particularly the procedures associated with the Grounded Theory method itself stimulated IS practitioners and key stakeholders to question their own underlying assumptions and provoked a significant amount of internal self-questioning and review. The research process became a process of self-evaluation of each individual's decision making process. Another interesting point is that although Glaser and Strauss (1967) may prefer to rationalise Grounded Theory as an external process, Hughes and Howcroft (2000) argue that in practice the method should also be viewed as an internal process for the researcher, that enables and facilitates creativity and innovation. This latter view was certainly the experience during the shift from novice to more informed researcher that occurred during the study. Another interesting finding was that the Grounded Theory method could provide a set of procedures for both the articulation and the dissemination of a *grounded* view from the stakeholders on IS evaluation. This enabled the situated processes to be documented and provided an organisational record from which all stakeholders could learn.

6. Conclusions

Based on the above reflections on the research experience, the following guidance for the use of Grounded Theory in IS research is tentatively proffered:

- In the methodological context, the intended Grounded Theory method may differ from the method used because of the dynamics and context in the domain.
- Grounded Theory is consistent with interpretive case based field studies dealing with social and organisational contexts.
- The researcher's personal constructs and skills help structure data and it is the researcher's hermeneutic perspective that maintains the interpretive style rather than the Grounded Theory method.
- Grounded Theory can be very time consuming, particularly in the transcribing, coding and comparing associated with the data analysis.
- To fully understand Grounded Theory, training in Grounded Theory followed by practical use of the methods in social science research is suggested.

- In organisational settings, social science methods such as Grounded Theory can be useful in providing deep insights and understanding of social life.
- Grounded Theory provides a useful template for researchers and can serve as a comfort factor for the stressful and uncertain nature of conducting qualitative research.
- Grounded Theory can generate local empirical theory which although not always generalisable will be generally useful.
- Grounded Theory can help provide confidence in original and rich research findings and theory because of its close tie to the data and the rigour in the method.
- Grounded Theory can explicitly seek to discover the underlying assumptions, the contexts and the experiences of those involved in the IS phenomenon under study.
- The interview process and particularly the procedures associated with Grounded Theory can stimulate interviewees to question their own underlying assumptions and can provoke internal self-questioning and review.
- Grounded Theory is rationalised as an external process, but in practice the method can be an internal process, that enables and facilitates creativity and innovation for the researcher.

This research study has illustrated that Grounded Theory, a method more commonly associated with the social science perspective, can assist with rich, context based interpretive IS research. The empirical work also illustrates that it is possible to successfully use Grounded Theory in qualitative IS evaluation studies where the social aspect is paramount. Finally on reflection, there is a problem to overcome, in that although social science methods such as Grounded Theory may be appropriate, there can be a difficulty in effectively introducing such methods into a technically dominant field such as information systems. The methodology's acceptability and practicability therefore needs to be more strongly established. This can be achieved by those using the method bringing their perspectives and reflections into the public research arena.

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