

# Doing Classic Grounded Theory Methodology in Information Systems Research: How to Create and Sustain Transparency?

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## **Abstract**

Information Systems(IS) field is fast growing. There is increase application of Classic Grounded theory (CGT) methodology in the Information Systems (ISs) studies. However, "how to create and sustain transparency when using Classic Grounded theory in studies is still unanswered." The Classic Grounded Theory [CGT] research method reveals latent patterns of human behaviour. It is a general research methodology because it makes use of all kinds of data. Whether the data are qualitative or quantitative, CGT main objective is to discover a robust empirically derived hypothesis or core variable. The core variable articulates the main concern of the respondents. It is so called because the core variable is able to explain most of the variation in the data. The particular feature of the CGT research method is that it is transcendent of both time and place. This is because CGT delivers a conceptual explanation rather than a low level descriptive context based narrative. As the number of IS researchers using CGT increases so does the likelihood for more confusion regarding the legitimate criteria for its evaluation. To contribute towards eliminating the confusion, this paper investigates how to create and sustain transparency in IS research when using the Classic Grounded Theory research method. This will, hopefully, enable IS researchers, supervisors and respective institutions to make more informed decisions on how to evaluate research, which has used the CGT research methodology.

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## 1. Introduction

Information systems research has been borrowing various research methods from sociology and other disciplines. One of this methodology is Grounded theory Methodology, in which various researchers have identified several approaches, namely careful evaluation of literature; this paper has discovered that only two categories of grounded theory. These are: Classic (Original) grounded theory and Modified Grounded theory methodological approaches (see Table 1).

Category of Grounded Theory Methodology	Approaches(Citation)
Classic (Original)	<i>Classic (Original ) Grounded Theory (CGT)</i> ( Glaser & Strauss (1967); Glaser(1978) (1992) (1998) (2000) (2003) (2008) (2009))
Modified Approaches	<ol style="list-style-type: none"> <li>1. Evolved Grounded theory,</li> <li>2. Analytical Grounded theory</li> <li>3. Mixed method Grounded theory</li> </ol>

There are confusion among IS studies resulting from the approaches, the classic “original” grounded theory and the modified approaches. How the original approach can be classified as approach? It is important to distinguish between the classic and the modified approaches as far as classic grounded theory methodology is concerned.

Classic grounded theory methodology (CGTM) is gaining importance as a method for theory building in Information Systems (ISs). As Matavire and Brown (2013) argue that the rise in IS studies claiming to use CGTM shows that concerns about the development of IS theory are being considered. While studies claiming to use CGTM are increasingly popular in IS research, there is often misunderstanding and its label abused in different ways (Birks *et al.*, 2013; Bryant 2002; Lowe, 1996; Matavire & Brown, 2013; Suddaby, 2006). Many IS authors label their work classic grounded theory (CGT), but do not follow the tenets of the methodology. Birks *et al.* (2013) identify three types of mislabelling (1) involves an author to claim to have conducted CGTM to attain legitimacy in cases where CGTM has not actually been applied; (2) occurs by omission, that is when CGTM is not reported as such; and (3) occurs when researchers claim to have used CGTM when they have only done so partially. The IS reviewers and editors in various publishing outlets continue to struggle with the nature and boundaries of CGTM while examining papers claiming to be CGTM studies. This may be in part of two issues. First, may be in part because there is still limited understanding of the methodology and its application; hence, the need for a study to clarify these issues (Matavire & Brown, 2013). Second, may be in part because there are few practical examples of CGT in use in the IS literature (Tossy 2012). Regardless Matavire and Brown (2013) claim the existence of several claimed grounded theory approaches including classic, evolved, analytical and mixed method, classic grounded theory is termed to be the original grounded theory (Lowe & Guthrie 2011; Matavire & Brown, 2013; Tossy, 2012). It is time for IS

researchers to avoid using GT label when referring to classic grounded theory. It is necessary to label the approach one uses correctly such as classic grounded theory, evolved grounded theory, analytical grounded theory and mixed method grounded theory. Most reviewers, editors and researchers keep using GT while refereeing to one of the mentioned approaches. There is confusion among people doing CGT on how to create and sustain transparency. This has motivated the researcher to write this paper. To address this problem. This aim is to provide a model for practice, to connect IS researchers with the useful methodology and to increase the quality for classic grounded theory research published in the IS literature.

## **2. Classic Grounded Theory Methodology**

Classic Grounded Theory (CGT) Methodology main objective is to discover a robust empirically derived hypothesis or core variable. The core variable articulates the main concern of the respondents. It is so called because the core variable is able to explain most of the variation in the data. The particular feature of the CGT research method is that it is a transcendent of both time and place. [Glaser (1978) (1992) (1998) (2000) (2003) (2008) (2009)]. This is because CGT delivers a conceptual explanation rather than a low level descriptive context based narrative. The emerged grounded theory must earn its way by being able to demonstrate that it represents the main concern of those being researched [Glaser (1978)]. There are four main criteria with which to evaluate CGT. They will all be discussed later in this paper in more detailed see Glaser & Strauss (1967), Glaser (1978) (1992) (1998) (2001). Unfortunately, some researchers claim to be using CGT whereas they have simply borrowed the powerful jargon of CGT in order to legitimize their work without following all the tenets of CGT see Glaser (2006). This has perpetuated confusion among researchers, sponsors and institutions as to how to evaluate CGT research based projects.

This paper will clarify the confusion as to how transparency can be created and sustained through out the CGT process.

The paper has four main sections; a clarification of the main purpose of the CGT research method, an explanation of the CGT process, a detailed outline of how transparency is both created and maintained throughout the CGT process and finally how CGT must be evaluated.

## **3. Clarification of the Main Purpose of the CGT Research Method**

This research method is a latent pattern indicator. It achieves this by revealing the respondents deep-seated habitual tendencies. These tendencies will exist whether any research is done or not. They are difficult to reveal because often the respondent's are unaware of them although they constitute an important part of their daily behaviour.

Glaser (1998) states that CGT is multivariate and a process which happens sequentially, subsequently, simultaneously, serendipitously and in a scheduled manner. It is the systematic generation of theory from data acquired by rigorous research method [Glaser (1967) (1978) (1998) (2000) (2007) (2008) (2009)]. It is an integrated set of conceptual hypothesis, probability statements about the relationship between concepts. The hypothesis are generated through constant coding and analyzing of data. CGT is a general research method which is not evidence based. This is because when using evidentiary data it presupposes that deductive hypothesis based research method is being employed. CGT is a general research method which is mainly inductive. Glaser (1978:134) explains why it is inappropriate to treat CGT as though it were evidence based. *"The credibility of the theory should be won by its integration, relevance and workability, not by illustrations as if it were proof. The theory is an integrated set of hypotheses, not findings. Proofs are not the point."*

#### **4. An Explanation of the CGT Process**

CGT is a non-linear process. Although there are very specific stages through which the CGT researcher must go through, the order of doing them will change according to what emerges from the data. This is necessary in order to reveal the deep seated patterns of human behaviour. The orthodox structure of CGT is as follows:

##### ***Generating Theoretical Sensitivity***

The researcher, prior to embarking on any CGT research, must first develop his theoretical sensitivity. What this entails is explained by Glaser (1978). There are already in existence literally hundreds of patterns of human behaviour. Having a repertoire of these in advance of doing the research is absolutely essential. Here are just a few examples of theoretical codes:

- (1) Causal consequence models [cause, consequences, contexts, contingencies, covariances and conditions]
- (2) Process models [stages, phases, polarity, progressions, temporalizing and cycling]
- (3) Degree models [cutting points, probability, polarity, continuum and intensity]
- (4) Asymptote models [maths model for getting as close as possible]
- (5) Isomorphism [maths model how one established theory can trigger a new theory]
- (6) Moment capture [business model which explains how many financial services operate]

Armed with a repertoire of theoretical codes it is easier for the CGT researcher to start making sense of his data.

##### ***Theoretical Sampling***

This is a form a sampling in which it is both inappropriate and impossible, prior to doing the research, to state exactly what data will be needed. This is because the sampling process will only cease once the core variable has emerged. The researcher samples his data until he discovers the main concern of the respondents. The researcher then samples within his chosen constituency for this newly emerged concept. Once the researcher reaches the point where no more patterns emerge and the data is said to be saturated and the core variable has emerged.

Theoretical sampling is a process of data collection for generating theory whereby the researcher simultaneously, generates, codes, analyzes and synthesizes data and decides what data to collect next and where to find them. The researcher begins by selecting a context for the research. He then has a series of short conversations with a small number of respondents. This has to be so for two reasons. Firstly, a high level of rapport must be established between the researcher and respondents so that trust and respect can develop. This can not happen easily with single encounters. Secondly, the researcher must not make use of any form of recording or note taking during the meeting. This both deepens the researcher/respondent trust and also increases the level of the researcher's concentration. Immediately, following all encounters with respondents the research must then document the interaction by writing numerous theoretical memos.

##### ***Theoretical Memos***

Theoretical memos are described by Glaser (1978:83) as "*the theorising write up of ideas about codes and their relationships as they strike the analyst while coding*".

They are the means to abstraction and ideation and can be used continually throughout the CGT process. Initially they start out as a short sentence but as the analysis moves on, they are updated and developed can be several pages long.

##### ***Substantive Coding***

These are the very first attempts to highlight the data which the analyst believes may have importance beyond the simple description of the context of the data. These codes are labeled and often gerunded. In other words,

the researcher converts the substantive code label into a verb ending in “ing”. The purpose of this is to sensitise the researcher to the processes and patterns which will be revealed at a later stage. Gerunding also helps to give the emerging concepts some traction and make the researcher look at his data in a more dynamic way.

### ***Theoretical coding***

This is a conceptual code. It arises from the synthesis of the substantive codes. To move from substantive codes to theoretical codes is tricky and often elusive. It can be achieved by examining the interplay between theoretical memos. The main mechanism for this is called the constant comparison method. Here the researcher has to engage both the intellect and intuition to achieve a shift in perspective from low level context based description to higher level conceptual abstract. This is where the researcher’s previously acquired skill development of theoretical sensitivity is vital. Often the lack of theoretical skill development by the researcher makes it very difficult for the CGT researcher to make the transition from substantive to theoretical coding. Once theoretical codes do start emerging the constant comparison method comes into its own.

### ***Constant Comparison Method***

The researcher has to painstakingly look across all his data in all his theoretical memos to look for various types of indicators which might lead him to reveal previously hidden connections and patterns. There is a hierarchy at play here. It starts with raw data in the theoretical memos and so on to substantive coding which is then fractured into categories and sub categories. These in turn have different properties. Then both the categories as well as the properties get constantly compared across all the theoretical memos. As this begins to gather pace theoretical codes begin to emerge. What begins as a property of a category of a substantive codes sometimes emerges as a theoretical code in its own right. Only by constantly comparing the data for differences and similarities theoretical codes can emerge. The exception to this are those rare occasions when the respondent himself is an articulate conceptualizer and is able to step back from his own context and give an authentic explanation of his main concern.

### ***Sorting***

This is an iterative process which although it mainly occurs at the later stages of the CGT process, it is also happening perpetually. This is because it will ensure that the emerging theoretical codes really have earned their place. If sorting does not happen several times it is unlikely that the research will move much beyond low level narrative description. The sorting processes principle aim is to ensure that the emerging core variable has been fully saturated and has earned its place.

### ***The Emergence of the Core Variable***

The core variable is so called because it is around this variable which can account for most of the variation in the data. It is the main concern of the respondents explained at the conceptual level. Frequently there are also sub-core variables which lead into the core variable. Sometimes more than one candidate for the core variable might emerge. Glaser (1978:96-100) details how to clearly discriminate between competing core variables. Multiple candidates for core variables exist because the human condition is always multivariate. Skills have to be developed which enables the researcher to utilize the Glaser (1978:96-100) criteria for making such discriminations.

## **5. An outline of How Transparency is both Created and Maintained throughout the CGT Process**

### ***Generating Theoretical Sensitivity***

Anyone reading a thesis which has used CGT must be able to assess the extent to which the researcher prior to starting the project has been exposed to theoretical sensitivity. This will become obvious by the skill with which the researcher deals with his data.

### ***Theoretical Sampling***

The researcher has to be very explicitly explain how and why his theoretical sampling has been constructed. There must be a clearly stated logical argument as to the main reasons for his choice. There should be no note taking or recording during the encounters with respondents.

There are four main reasons why real time note making during the interactions with the respondents is to be avoided in CGT. Firstly, it allows the respondents feel more relaxed and less threatened by the encounter with the researcher. Secondly, because the researcher is not taking any notes at the meeting he will have to make each encounter with the respondents quite brief; this greatly assists the process of theory generation because allows the researcher examine his data reflectively before arranging subsequent meetings. Thirdly, the grounded theory method is a delayed action process to both the respondent and the researcher. Thus having a series of brief interactions with the same respondent permits the development of concepts rather than just descriptions. Finally, the researcher is encouraged to make notes immediately following the encounter with respondents rather than in real time forcing the researcher to increase his level of concentration during the encounter rather than passively going through a check list of pre-determined questions.

### ***Theoretical Memos and coding***

Although there is no standard template which all theoretical memos must adhere to, there are some basic issues which all theoretical memos must address. If these are not present then it would not be transparent to the reader how the researcher progressed from raw data to emerged core variable. All memos should contain the following to meet transparency requirements:

- (1) Memo Title
- (2) Summary of any substantive codes, categories and properties
- (3) Conceptual indicators [These are important links that form the bridge from substantive description to conceptual explanation]
- (4) Emergent theoretical codes, categories and properties
- (5) A statement as to the type of data researcher believes he has been given to him by the respondent [Baseline – reliable , properlined - manipulated, vague – economical with the truth or interpreted data – edited]. It actually does not matter at all when doing CGT what type of data the researcher has because everything is data. If people are being untruthful for example that is probably more interesting than if they were being honest. What is of the ut most importance is for the researcher to fully understand type of data he/she has.
- (6) A clear separation of empirical data from conjecture data. Both are important in CGT but they are quite different types of data and need to be treated accordingly.
- (7) How data have been fractured? Which conceptual theoretical perspectives has the researcher used to better understand the latent patterns embedded in the data?
- (8) What links have been highlighted to other memos from the researchers bank of memos?
- (9) What unanswered questions arising from the data will the researcher use in his next meeting with the respondent?
- (10) How have the theoretical concepts in each memo been constantly compared and then sorted?

### ***The Constant Comparison Method and Sorting***

The reader of a CGT thesis should be able to easily understand how and why both the constant comparison and sorting process were operationalized. There are now commercially available computer software packages which are designed to “speed up” these processes. However Glaser (1996) strongly advises researchers to avoid their use. This not for reactionary reasons its rather that the use of computer packages in Glaser’s words is “a creative kop out”. He says there are four main reasons why the use of computer software should be avoided when using CGT. Firstly, computer packages are excellent for dealing with very large volumes of data. If the research is using CGT correctly then there is no need for very large volumes of data because latent patterns can be detected from rather small amounts of data. Secondly, Glaser (1996) states that when sorting is done manually it takes time. This time can be used creatively and productively by the researcher to reflect on the data itself. The CGT is delayed action phenomena both for the researcher as well as the respondent. Thirdly, when a CGT researcher is faced with having to manually analyze a mass of his data it can seem overwhelming and it can create a degree of anxiety. This anxiety results in fear or psycholological regression. However the CGT researcher needs to develop skills to cut through the uncertainty in order that the authentic latent emerges rather than being forced. Computer packages to-date are unable to do this. Finally none of the currently available computer software packages have been written by people who fully understand the CGT process.

### ***Emergence of the Core Variable***

It must be possible for the researcher to demonstrate to the reader a pathway through his data showing how the raw data emerged to become the core variable. But it should not be treated as evidence. It should instead be presented in a transparent way so that the reader can immediately understand how the core variable emerged. This can be achieved in a PhD thesis by publishing thin deep slices of data in the appendices of the thesis for all to see.

## **6. How CGT must be Evaluated**

The grounded theory research method is a general inductive methodology which can be applied to all types of data both quantitative and qualitative or the combination thereof Glaser (1978) (1998). It is not a sub set of Qualitative Data Analysis (QDA). Therefore QDA criteria are inappropriate for the evaluation of research done by using grounded theory research method.

Glaser (1978) (1998) (2000) and (2001) reiterates the four main criteria with which to evaluate grounded theory study as follows:

### ***(a) Fit***

Fit of a concepts means that it adequately reflects the data that it purports to express. The categories must fit the data used to create the theory. Ungrounded assumptions and forcing the data into preconceived concepts derails fit in CGT, as well as the relevancy of the theory. (Fit corresponds to positivistic validity; however, it is fit in action and usage, not by testing.). In comparison with the pre-conceived research such as testing hypothesis, data which can not be forced are discarded, rather than used to correct categories. Data and only data for development of theory make CGT to be fit Glaser (1978, 1998). The fit could be expressed as refit or emergent fit. The categories during research emerge so fast, raising the need to refit them to the data as the research proceeds to be sure they fit all the data they purort to indicate, increasing the transparency. Categories can emerge between data and pre-existant categories as explained by Glaser (1978).



**(b) Workability**

How does the core variable account for the respondents continual resolution of their main concern? The emergent GT must clearly explain what is happening, and its happening and by so doing should be able to predict future behaviour Glaser (1978) (1998) (2001).

**(c) Relevance**

How was the emerged core variable been received by the members of the constituency from where the data was drawn? Prior to the research commencing it is very likely that respondents would be unable to articulate their main concern. Once they have read the research they should be able to instantly recognize the emerged core variable as being authentic.

**(d) Modifiability**

The theory is considered modifiable if it is easy for subsequent CGT researchers to catch up with what has been done so far, and to proceed to modify or refine the theory as they collect and code new data (e.g., code new data for emergent fit), without invalidating the theory.

Questions on the issue of transparency raised by universities such as *“How research using CGT can have chain of evidence? How this reconcile with the approach of not recording and not taking notes in interviews? How will you demonstrate the chain of evidence from data to concept/theory?”* have an implied assumption of the requirement for accuracy in the collection of evidence based data.

CGT is an inductive research methodology so it is appropriate only to use a legitimate set of evaluation criteria as outlined by the CGT’s co-ordinator Glaser (1978) (1992) (1998) (2000) (2001) (2003) (2005) (2007) (2008). However there must be total transparency when using CGT so the reader can easier and clearly see how the emergent core variable arose.

Glaser (2007:41-42) explains why the level of misunderstanding of the grounded theory research method still persists amongst many academics because they fail to distinguish clearly between "conceptual generalizations" and "descriptive generalizations".

*"The constant comparative method [at the heart of CGT] was originated in 1967 to generate concepts by constantly comparing indicators of a latent pattern. After several comparisons, the result is conceptually naming the pattern and its properties.....The category is abstract of time, place and people. The conceptual categories applies with emergent fit. The Formal CGT research generates categories that relate to each other as generalizations.*

*In contrast descriptive comparisons are as old as research itself. They just compare differences and similarities and a sum of description of people's social actions in a unit of time. The concern is always accuracy, that is, the researcher has worrisome accuracy to constantly contend with. Generalizations are difficult to make from one unit to another and even within the unit studied. These are the problems of accuracy of external and internal validity respectively of descriptive generalizations.*

*Conceptual generalizations do not have this validity problem. They just apply within a context applied to with modification. For example, controlling clients by pseudo-friending simply varies for client types and client conditions."*

Finally Glaser (2009:15) gives a robust response to the continuing misconceptions regarding CGT as articulated by Bryant & Charmaz (2007).

*"Data worries dominate the GT jargonizing of QDA issues in the Handbook. And why shouldn't it? Worrisome accuracy is the central issue of QDA. QDA research has to yield accurate description, which*



*puts an emphasis on analyzing the data used in any research to see which and what, indeed, is being described and is verifiable. And furthermore how fast will the description get stale-dated and if it can be momentarily discursively generalized. This is a perennial, non-solvable problem. It totally neglects the conceptual level of GT, which is free of and abstract of place, time and people and hence free of worrisome accuracy. Comparisons generate a GT's constant concept modifiability."*

The transparency of a fully grounded theory will be achieved only when the reader is able to clearly see how the researcher progressed from raw data to the final integrated cover variable. If the researcher who uses the CGT research method follows the guidelines outlined in this paper then this will be achieved.

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