

Full Length Research Paper

Grounded theory analysis of municipal supply chain management

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This article illustrates practical examples of theories built during a grounded theory process on the implementation of supply chain management in the Central District Municipality, North West province, South Africa. It provides an understanding of and evaluates some basic concepts that are associated with grounded theory. The article suggests theories and hypotheses about the implementation of supply chain management in the Central District Municipality. It contributes to knowledge on the application of grounded theory in the field of supply chain research.

Key words: Grounded theory, supply chain management, municipality/municipal entity.

INTRODUCTION

The purpose of any research endeavour is to develop new theory or to test an existing theory (Mavetera and Kroeze, 2009). Employing a suitable research methodology is a pivotal task for researchers (Mansourian, 2006). Grounded theory (GT) as a research methodology is in an increasing use (Shannak and Aldhmour, 2009). This is justified by the number of articles in referred journals employing GT (Elliott and Lazenbatt, 2005; Binder and Edwards, 2010). GT was developed by Glasser and Strauss and the concept has provoked much discussion about its application to different fields of study (Mills et al., 2006; Binder and Edwards, 2010). Martin and Turner (1986) asserted that GT is an 'inductive theory discovery methodology that allows the researcher to develop a theoretical account of the general features of the topic while simultaneously grounding the account in empirical observations of data.

Traditionally, GT was used in sociological studies (Jones and Noble, 2007). Today, it is widely used across various disciplines. GT has been justified in accounting research (Kirk and van Staden, 2001), information systems (Prasad and Prasad, 1994), organisational change (McEntire and Bentley, 1996; Brown and Eisenhardt, 1997), operations management (Binder and Edwards,

2010) as well as supply chain management (Rodman, 2004; Thomas and Esper, 2010). These authors indicated that GT generates new and accurate insights than when a researcher relies on past research or on office bound experiments (Kirk and van Staden, 2001).

Against this background, the purpose of this article is to illustrate practical examples of theories built during a grounded theory process on the implementation of supply chain management in the Central District Municipality, North West Province, South Africa. The remaining section of the article presents the definition and background of GT, building GT, and a discussion of the GT build on the implementation of supply chain management at the Central District Municipality (CDM).

DEFINITION AND BACKGROUND OF GROUNDED THEORY

The definition and background of grounded theory (GT) is presented here. It examines the elements of GT, phases of GT, developments in GT and justifications for the use of GT as a research method.

Definition

Grounded theory (GT) is a qualitative research analysis technique whereby theory is generated from collected

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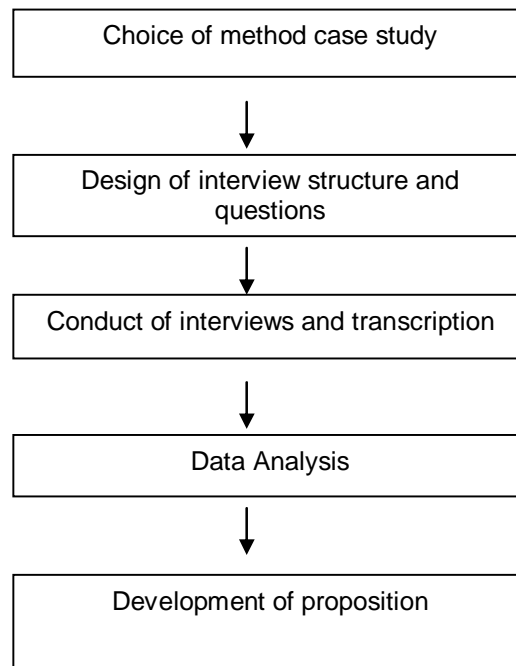


Figure 1. Overview of the grounded theory (Glaser and Strauss, 1978).

data. Inductive processes are used to collect and analyze the data (Punch, 1998; Charmaz, 2000), while theories, concepts, hypotheses and propositions are generated without prior theories, assumptions or other research. There are no rigid prescriptions for grounded theory, but there is a set of flexible strategies that allows the researcher to experiment with. It specifies analytic strategies, not data collection methods (Chamaz, 2000). The interpretation of the data by the researcher shapes the emerging codes. According to Strauss and Corbin (1990), GT is: "a qualitative research method that uses a systematic set of procedures to develop and inductively derive a phenomenon". Strauss and Corbin's analysis involves posing analytic questions. Glaser (1992) defines grounded theory as: "a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area".

There are many varied ways of conducting research using GT. Some of these ways are very prescriptive (Strauss and Corbin, 1990) but others leave room for the researcher to direct his or her research in a way that suits the research environment. The proponents of GT method, however, urge researchers to use the method flexibly (Glaser and Strauss, 1967) and are strongly supported by Charmaz (2006), who refuses to accept any prescriptive way of using this method. Instead she regards the method as a guiding framework, that is, "a set of principles and practices" which any researcher can

fine tune to suit the context of the particular research project (Charmaz, 2006). The basic tenet of GT is to allow free discovery of theory and, by all means, to limit any preconceptions (Mavetera and Kroeze, 2009). Figure 1 shows an overview of the GT process.

Elements of grounded theory

Three basic elements of GT are concepts, categories and propositions. Concepts are the basic units of analysis. It is from conceptualization of data. Theories cannot be built with actual incidents or activities as observed or reported; that is, from "raw data". The second element of grounded theory is categories. Categories are higher in level and more abstract than the concepts they represent. They are generated through the same analytic process of making comparisons to highlight similarities and differences that is used to produce lower level concepts. Categories are the "cornerstones" of developing theory. They provide the means by which the theory can be integrated. The third element of grounded theory is propositions. It indicates generalized relationships between a category and its concepts and between discrete categories. It is felt that the term 'propositions' is more appropriate (Strauss and Corbin, 1990).

Whetten (1989) stated that, propositions involve conceptual relationships whereas hypotheses/questions require measured relationships. Since the grounded

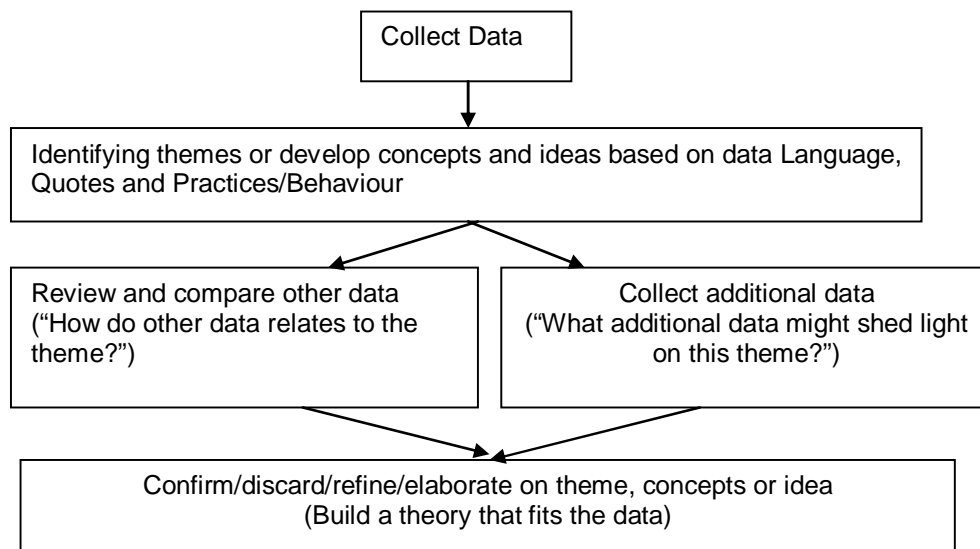


Figure 2. Elements of the grounded theory approach (Strauss and Corbin, 1990).

approach produces conceptual and not measured relationships, the former term is preferred. The generation and development of concepts, categories and propositions is an iterative process. GT is not generated prior and then subsequently tested. Rather, it is, inductively derived from the study of the phenomenon it represents. That is, discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Data collection, analysis, and theory should therefore, stand in reciprocal relationship with each other. One does not begin with a theory, and then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge (Strauss and Corbin, 1990). Figure 2 depicts an analysis of the elements of GT approach.

Phases of grounded theory

Five analytic (and not strictly sequential) phases of GT building are: research design, data collection, data ordering, data analysis, and literature comparison. Within these phases, nine procedures or steps are followed. These phases and steps are evaluated against four research quality criteria: construct validity, internal validity, external validity and reliability. Establishing clear specified operational procedures enhances construct validity. Establishing causal relationships whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships, enhances internal validity. Internal validity therefore addresses the credibility or "truth value" of research findings. External validity requires establishing clearly the domain to which the study's findings can be generalized. Reliability

requires demonstrating that the operations of the study such as data collection, procedures can be repeated with the same results.

Developments in grounded theory

According to Goulding (1999), the roots of GT can be traced back to a movement known as 'symbolic interactionism'. The concern of these scholars was to avoid the polarities of psychologism and sociologism. The researcher engaged in symbolic interaction to interpret actions, transcend rich description and develop a theory which incorporates concepts of "self, language, social setting and social object" (Schwandt 1994). The method they developed was labeled grounded theory to reflect the source of the developed theory which is ultimately grounded in the behaviour, words and actions.

The discovery GT book by Glaser and Strauss (1967), which was written to propagate a new way of doing sociological research, together with Glaser's (1978) 'Theoretical Sensitivity' and Strauss and Corbin's (1990) 'The Basics of Qualitative Research', demonstrates the subtle but distinct differences in perceptions of the method between the authors (Goulding, 1999). In the face of this, grounded theory has split into two camps, each subtly distinguished by its own ideographic procedures. On the one hand, Glaser stresses the interpretive, contextual and emergent nature of theory development; while on the other hand, Strauss appeared to have become somewhat dogmatic regarding highly complex and systematic coding techniques (Goulding, 1999).

Researchers in disciplines such as nursing, where the method is widely used, are now obliged to specify whether

the grounded theory approach they employed was the original 1967 Glaser and Strauss version, the 1990 Strauss and Corbin rendition or the 1978 or 1992 Glaser interpretation (Urquhart, 2001). However, it is also important to note that its original intent was a methodology, specifically for sociologists. In recent years, the diffusion across a number of disciplines such as social work, health studies, psychology and more recently management (information communication technology and supply chain management), has meant that, the adaptation of the method may not be completely congruent with all of the original principles. However, despite conflicting perceptions over methodological transgressions and implementation, there remain a set of fundamental non-mothetic principles associated with the method (Urquhart, 2001). This is because the method is useful in developing context-based, process oriented descriptions and explanations of phenomenon (Myers, 1997; Urquhart, 2001).

Justification for the use of grounded theory

This article employs the combination of Glaser (1992) and Strauss and Corbin (1990) approaches to GT to generate theories about supply chain management (SCM) implementation in the Central District Municipality (CDM). The Central District is one of the four district that makes up the North West province (Bophirima, Bojanala, Central and Southern Districts), and is made up of five local municipalities namely: Mafikeng local municipality (Mafikeng), Ditsobotla municipality (Lichtenburg), Ramotshere Moiloa local municipality (Zeerust), Tswaing local municipality (Delareyville) and Ratlou local municipality (Setlagole).

According to the initial investigation, the South African public sector has undergone transformation through the introduction of procurement reforms. The procurement reforms started in 1995 and were directed at the promotion of principles of good governance and the introduction of a preference system to address certain socio-economic objectives. The procurement reforms processes were embedded in section 76(4) (C) of the Public Finance Management Act (PFMA) (Act No 1. Of 1999) and the Preferential Procurement Policy Framework Act (Act No 5 of 2000) (PPPFA) (SAMDI, 2005). A research study pursued by the National Treasury and the Joint Country Procurement Assessment Review (CPAR) in 2001 instigated the government to introduce the concept of SCM in the management of its public procurement. Based on the findings of the study, there were deficiencies in practices relating to governance, interpretation and implementation of PPPFA and its associated regulations (South Africa (SA), 2003). The deficiencies led the National Treasury, to embark on a reform initiative to introduce best procurement practices that are efficient and effective. Based on this, SCM was introduced in the South African public sector as a measure

measure to alleviate the deficiencies with the objective to achieve good governance and economic development (Mkhize, 2004; SA, 2005).

Based on the policy, each government unit was to develop an SCM policy to suit its needs. The SCM policy requires the creation of bid committees. The various committees to be created include: the bid specification committee, bid evaluation committee and the adjudication committee. However, there was evidence that there was a lack of proper implementation of SCM as stipulated by the SCM policy across the spheres of government, but the specific aspects of the supply chain which required attention were not known. Therefore, the authors believed there was enough ground and reason for applying GT to explore the practices of SCM in the CDM. The main aim was to determine the extent to which the municipalities were complying with SCM policy and regulations. GT presents a single, unified, systematic method of analysis; in other words, how to analyze data, for example, by using line by line coding. GT also includes processes such as open coding and selective coding, axial coding or theoretical coding, and so on; not as other qualitative methods which often rely upon the application of general principles without specificity. This was in line with Charmaz's (2006) contention that the major strength of GT is that it provides tools for analyzing processes which make it easier for the researchers to follow specific steps to develop the concepts, categories, hypotheses and theory. GT approach allows a degree of flexibility in both the selection of instances for inclusion in the sample and the analysis of the data, both of which are well suited to the exploration of SCM implementation in the CDM. This was done by using GT which includes systematic procedures for selecting the sample and continues the analysis and comparison process, which has helped the researchers to make continuous modification according to the actual data. In addition, the GT approach includes the means of developing theoretical propositions from data which should increase the researcher's confidence in the area of theorizing, looking to generate data about SCM practices.

Having looked at the definition and background of GT, the focus of the article now moves toward building theories (GT) on supply chain practices in the CDM.

BUILDING GROUNDED THEORY

The GT process at CDM is presented here; the process of entering the field, sampling procedures, data analysis and coding of data will also be discussed.

Entering the field

The GT process started with field work where the phenomena were found. The key objective was to develop assumptions about the extent to which SCM is practiced in the CDM. The following were taken into consideration:

Table 1. Distribution of respondents based on interviews.

Municipality	Number of persons interviewed
Central District Municipality	7
Mafikeng Local Municipality	4
Ditsobotla local Municipality	6
Ramotshere Moiloa Local Municipality	6
Tshwaing Local Municipality	2
Ratlou Local municipality	5
Total	30

- i. Based on the grounded theory tradition, 'the problem' was to be discovered from the respondents. The primary problem did not include a priori constructs or guiding theories.
- ii. Practical issues like crafting ethical protocols and obtaining approval, selecting the recorder required for interviewing and processing the data, producing transcription were addressed.
- iii. Entering the field included preparation work such as selecting an appropriate site as demonstrated above (CDM and its local municipalities), obtaining access to the case, getting consent from the participants and contacting them.

Sampling

In the field, theoretical sampling was employed. According to Alam (2011), theoretical sampling is a data collection process that continues until the very end of the research (including the write-up stage). This was achieved through face-to-face interviews with actors of SCM within the five municipalities. The analysis phase started after the point of theoretical saturation (30 interviews) where no new ideas were emerging. The authors took advantage of emergent themes, acquire data continuously and maximize observation opportunities. The interviews were transcribed by listening to the recorded interviews through the windows media player sentence-by-sentence (Alam and Hoque, 2010). After transcription, 190 codes were developed from the transcript data. The data went through open coding, axial coding and selective coding to develop phenomena, concepts and categories (Charmaz, 2006). It is important to note that the whole GT is too complex to discuss in detail in one paper, but samples of the grounded theory process are illustrated. Key supply chain actors of the CDM and its local municipalities were interviewed. These interviewees included municipal managers, chief financial managers and other managers that form part of the SCM bid committees. Table 1 shows the distribution of interviewees from the different municipalities.

DATA ANALYSES AND RESULTS

Analysis of the data started with writing of theoretical memo almost in parallel with open coding. Memos are "the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding" (Glaser, 1978; Mills et al., 2006). Memos are produced constantly in GT, from the beginning of the analysis process until reaching closure, capturing the thoughts of the analysts while they progress through the work (Clarke, 2005). As codes and memos accumulated, the researcher started to perceive relationships between

them. The process is theoretical coding, the delimitation of the analysis to the significant variables affecting the core variable contributed to parsimonious theory (Mills et al., 2006). At this point in the process, the role of the extant literature became very important and the researcher acquired sensitivity and knowledge on grounded concepts.

Theoretical saturation was achieved when there was accountability for the main concern of the research and further sampling failed to add significant value to the study (i.e. new categories or properties). The authors discovered a substantive theory. Substantive theories are applicable to the particular area of empirical enquiry from where they emerged (Charmaz, 2000).

Coding

Coding is the result of raising questions and giving provisional answers about categories and their relations (Glaser, 2005). Creating distinctions between the codes produced dimensions and sub dimensions. The coding paradigm refined by Strauss and Corbin (1990) was applied. It represents the operations by which data were broken down, conceptualized, and put back together in new ways (Strauss and Corbin, 1990). Three types of coding are proffered: open coding, axial coding and selective coding (Glaser, 2005). Coding as a term conjures up notions of esotericism, whilst in actuality the authors labeled fragments of data through various developmental stages. The coding paradigm focused on the slightly different aspects of naming and comparing different levels of conceptual perspective that span the three forms of analytic activity (Locke, 2001). The transcripts' data were predominantly coded (labeled) applying the authors constructed codes (Halloway, 2008).

Open coding

Open coding occurred at the beginning of the study. The primary goal of open coding was to conceptualize and categorize data, achieved through two basic analytic procedures: making comparisons and asking questions on the data. Open coding begins the process of labeling

Table 2. Sample template for open coding: Step 1-identification of phenomena.

Code	Phenomenon	Code type
1	Planning	Open label
2	Management	Open label
3	Specifications	Open label
4	Sourcing	Open label
5	Monitoring	Open label
6	Contracts	Open label
7	Training	Open label
8	Workshops	Open label
...

many individual phenomena. In time, a number of individually labeled concepts were clustered around a related theme (Binder and Edwards, 2010). The individual concepts were gathered together to form more powerful and abstract categories. Once categories are formed in open coding, they are fleshed out in terms of their given properties and dimensions.

Exploring complex phenomena are “characteristics of a category, the delineation of which defines and gives it meaning” (Strauss and Corbin, 1998). Properties and dimensions provide the richness and description to the abstract category. Open coding is achieved by examining the transcripts by line, by sentence, or by paragraph, and sometimes by scanning the entire document (Binder and Edwards, 2010). During the process of open coding, the transcript were compared, conceptualised and categorized. This process is known as data reduction (Mills et al., 2006). Open coding consists of labeling emergent phenomena, discovering categories and developing categories from the concepts with their properties and dimensions (Glaser, 2005). Phenomena were labeled by breaking the transcripts by asking the questions such as “what is this?” What does it represent?” Table 2 shows a sample template for open coding step 1: identification of phenomena.

For each phenomenon (incident, idea or event), a name was given; the name that captures its essence in a more general way and generated concepts. It was compared to others already discovered if they could label in the same way as other integrity. Table 3 shows a sample template of open coding step 2: identification of concepts.

Discovering categories of concepts and developing properties and dimensions

At the end of even a small piece of the transcript, lots of concepts emerged. At this point, concepts were grouped into categories. Categories are the classification of concepts discovered when the concepts are compared

(what’s similar, this started when) (Binder and Edwards, 2010). The phenomena in categories were sorted and labeled. Also properties and dimensions were developed, that is the characteristics and attributes of a category. These helped develop broader relations. Table 4 shows a sample template of open coding step 3: developing categories from concepts.

Axial coding

Axial coding is defined as a process to find relationships between categories and subcategories (Pandit, 1996; Strauss and Corbin, 1998; Goulding, 2002; Douglas, 2003; Gasson, 2004). Moving from the transcript of one respondent to that of another, and towards the final transcript or piece of data, tentative relationships emerge - plus a considerable number of individual fragments of data. Figure 3 shows a sample template for the axial coding process.

During axial coding, data were assembled in new ways after open coding by making connection between the categories. At this stage, the authors moved from induction to deduction analysis (Strauss and Corbin, 1990). Axial coding consists of taking categories and identifying them noting the conditions that gave rise to them, context into which it is embedded, action and the interaction strategies in which it is handled, carried out and the consequences of those strategies (Mills et al., 2006). The authors expanded their knowledge on the categories and the categories at this stage represent the phenomena.

The authors also took note of the causal, context and intervening conditions which included the events, incidents that lead to the occurrence of a category by searching for the data that lead to it and the category phenomena. The authors further set the properties that pertain to a category. Intervening conditions are the broader structural context pertaining to the category and include space, time, and career. The GT has a particular emphasis that focuses on action and integration. Also consequences were developed based on the outcomes of the inter- (actional) strategies. Table 5 shows a sample template for axial coding.

Selective coding

Selective coding is defined as a “process of integrating and refining the theory” (Strauss and Corbin, 1998). During the process, there was selection of core category (central) around which the final analysis was based. It was related to other categories explicating the storyline that includes analytic description of the core category validating the storyline. The authors prioritized one category over the others to get the storyline by asking striking and interesting questions about the category. The categories were related to the storyline by outlining the

Table 3. Sample template for open coding: Step 2-identification of concepts.

No	Detail of concept
1	Takes into consideration the elements of supply chain management
2	Still to develop the three committees
3	Links demand management to procurement practice
4	Department and consultants do specifications
5	Trying to benchmark with other municipality
6	Only local sourcing
7	Low capacity municipality
8	Three quotations for all acquisitions
9	Most often consultant do evaluate bids
10	Policy send to council for approval
11	Training and workshops organized by the national treasury
12	No supply chain management units
13	Advertised on local news papers
14	Use local contractors and labour
15	Involve communities in integrated development planning
...	...

Table 4. Sample template for open coding Step 3 - discovering categories from concepts.

Category 1 Demand management	Detail of concept
Concept	1 Still to developed three committees 2 Links demand and procurement practices 3 Department and consultants do specifications 4 Gives considerations to supply chain management
Dimension	Still to be implemented, not fully in place
Property	Needs assessment, planning, specifications, equipment
Incident	1 Treasury guidelines and regulations 2 Service delivery 3 Procurement
Consequence	Inefficient practices, non compliance to treasury regulations

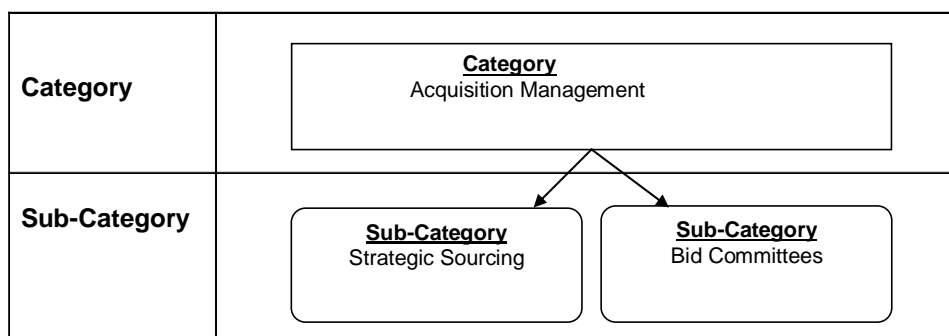


Figure 3. Sample template for axial coding.

Table 5. Sample template for axial coding.

Category: Acquisition management	Detail of category: Sourcing, industry analysis, bids, bid committees, procurement, etc.
Paradigm	
Condition	Causal, intervening, contextual
Why	Delivery services, need assessment, research, procurement
When	When need arises, available fund, during projects of the community, bids
Where	Municipality, municipal entity
Action/interaction	Routine or strategic
By whom	Municipality, members of the various bid committees.
How	Tenders, negotiations, quotations
Consequence	Intended or unintended
Duration	Depends on project, do not have a timetable for promulgation
Visibility	Very visible, project execution by consultants and contractors.
Impact	Job creation, rendering municipal services,
Predictability	Inefficient management,
Scope	Still to put system in place, lack of skills and capacity, still at infancy stage in implementing policy
Memo	Municipalities are still to develop the various bid committees; They lack the skills and capacity to carry appropriate industry analysis and research

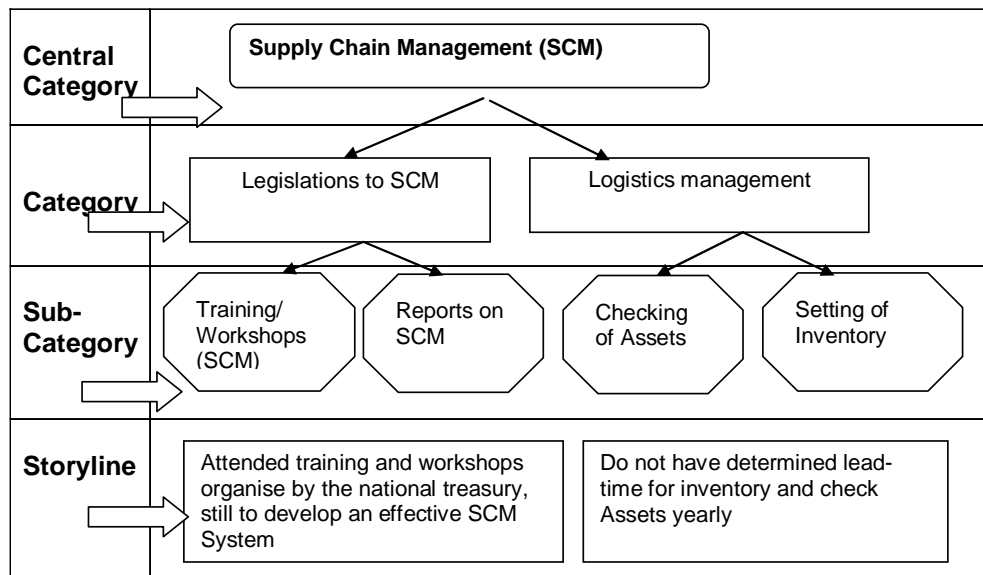


Figure 4. Sample template for selective coding process.

core properties, dimension, conditions, context, strategies, and consequences. The storyline was the validated data. A series of memos was developed by organization of all data. Figure 4 shows how the selective coding process was developed.

DISCUSSION

The article explores the use of GT as an inductive methodology to access SCM practices in the CDM. The justification for the use of GT was based on the premise

that GT provides a set of procedures for coding and analyzing 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. Also it was anticipated that as the focus of the domain was the production of rich contextual theory (supply chain practices), and then the development of categories would assist the researchers in the structuring process.

The article employs the combination of Glaser (1992) and Strauss and Corbin (1990) approaches to GT. As indicated above, a careful consideration was employed by the authors in developing the storyline. This can be summarized as follows: the municipalities did not have a demand management team. Bidding (tendering) is being done by the individual department requiring the goods with confirmation from consultants. Integrated development planning (IDP) documents guides procurement practices. However, there is low level of planning and execution of management processes as well as low level of industry analysis and research. In order to manage acquisition processes, the municipalities benchmark their activities with other municipalities, they take advantage of the cost of ownership and highly utilized the services of consultants. Bids are advertised using local newspapers except for contracts of high amounts. The municipalities have predetermined range of procurement practices. However, they did not have proper structures for a complete bid committee (bid specification committee, bid evaluation committee and bid adjudication committee). Also the municipalities did not have a unique procurement data base system; records of bidders who contravene SCM policies; records on cases of fraud, corruption and defaulters in SCM. More so, the municipalities strived to a high level of monitoring spending patterns on different types of goods and services. However, there was undefined lead times for inventory to put goods in stock and inappropriate internal monitoring systems.

Based on the storyline, the following conclusions were made about SCM practices in the Central District:

- 1) The Central District Municipality and its local municipalities have successfully implemented SCM. However, it is far from satisfactory.
- 2) The municipalities do not have a fully functional established SCM framework (SCM Units).
- 3) There is no difference in the implementation of SCM practices between the different municipalities in the Central District of the North West Province.
- 4) There is a lack of personnel with the necessary knowledge, skills and capacity to effectively implement supply chain management as required by the SCM policy in the municipalities.

From the storyline, hypotheses were developed that need to be tested by future researchers on municipal SCM:

H₁: Is Training and workshops very vital for the implementation of municipal SCM?

H₂: Do officials of the central district municipality and their local municipalities have adequate knowledge, skills and capabilities to implement SCM as intended by the National Treasury?

Conclusion

Ground theory (GT) research has implications for both the understanding and the facilitation of change. It goes "beyond conjecture and preconception to the underlying processes of 'what's going on' in substantive areas" (Kirt and van Staden, 2001). It is therefore, uniquely suited to the task of discovering basic social processes that involve change. It is useful in the health, management and business fields that are notable for their changing environments and the importance and relevance of the dependent variables. Employing the GT methodology helped the researchers to understand the current status of the SCM practices in the Central District Municipality.

The authors were faced with challenges in employing this methodology. These include among others data gathering, the level of confidentiality and truth worthiness of the study. It was a challenge to collect data and to have unrestrained, long term access and time spend with the actors of supply chain in the various municipalities. The level of confidentiality had to be retained when reviewing the SCM issues which resulted in wording referring from the data. Trustworthiness of the article lied on validity and reliability. The concepts of reliability and validity are inappropriate for grounded theory. However, based on Strauss and Corbin (1998), eight general conceptual questions on how to assess trustworthiness of a GT, the following were achieved in this article: concepts were generated; concepts were systematically related; there were many conceptual linkages, and the categories well developed. The categories had conceptual density (richness of the description of a concept). Variations within the phenomena were built into theory (how differences were explored, described, and incorporated into the theory). The conditions under which variations were found built in this article were explicitly explained. Processes were taken into account and the theoretical findings seem very significant, and to a great extent.

Finally, on reflection, the authors acknowledged challenges posed to effectively use GT in SCM research unlike in sociological studies as highlighted by Jones and Noble (2007: 98). Therefore, the methodology's acceptability and practicability needs to be more strongly established. This can be achieved by researchers using the methodology to bring their perspectives and reflections into research arena such as supply chain management. Hence, applying GT to research on SCM should rely on the theoretical sensitively of the researcher.

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