

## **A PRACTICAL GUIDE TO USING GROUNDED THEORY IN SUPPLY CHAIN RESEARCH**

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## **Abstract**

A foundational theory of Supply Chain Management (SCM) has been elusive. This is a significant gap. SCM theory is required for researchers and practice to be able to predict and influence the impact of broad SCM phenomena.

As a discipline SCM has focused toward the upstream side of the supply chain on functions such as warehousing, transportation, procurement and production. More recently the power in that supply chain shifted downstream toward the retailers and their customers. Yet SCM research has been slow to recognize and respond to that shift. This represents a significant gap, and a significant opportunity. Retailers face challenges that differ from those found in upstream suppliers and manufacturers. Somewhat surprisingly, retailer-specific supply chain issues have not been given much attention in academic journals, and therefore our understanding is limited. We present findings from a study of senior supply chain executive in the retail industry that focuses on the supply chain challenges of greatest importance to retailers, and the evolving capabilities used to address these issues.

**Keywords:** Grounded theory, supply chain, methods, research design

## **A PRACTICAL GUIDE TO USING GROUNDED THEORY IN SUPPLY CHAIN RESEARCH**

Min and Mentzer (2004) suggest the Supply Chain Management (SCM) researcher should focus on revealing the theory foundation upon which integrated supply chain business processes improve performance and decrease cost. Lambert, Garcia-Dastugue (2006) assert that from a theory perspective inter-firm integration is at the core of SCM as a discipline. Yet as Mentzer, Min, and Bobbitt (2004, p. 64) have pointed out such a “theoretical framework of SCM” has remained elusive; lack of theory foundation has constrained the maturation of SCM as an academic and practical discipline.

A macro level theoretical framework of SCM, if found, would guide future researchers in their efforts to explain and predict how products, services, information, and finances are integrated across supply chains. Lambert and Cooper (2000) call for researchers to develop a “normative model that can guide managers in their efforts to manage their supply chains.” Ogden et al. (2005) suggest that supply chain integration has strategic importance to both research and practice, and integration is likely to form the core of an SCM theory. SCM research and practice have seen a continued expansion and evolution, yet so far a foundational SCM theory has remained evasive. Bridging the gap in the ability to explain and predict SCM phenomena is an essential step in the evolution of SCM as an integrative business discipline.

Recognition of the value of everyday life experiences in understanding social behavior within and between organizations is important to being able to develop theory in the field of SCM because of the social nature of supply chains. Supply chain phenomena such as inter-firm relationship management, applications of power/dependence between firms, supplier negotiations, impacts of outsourcing on employees, customer service perceptions, supply chain

innovation as a social process, and so forth, involve people actively solving problems, interpreting, reacting to, and trying to influence their environments (Mello and Flint 2009). One of the major strengths of grounded theory is its emphasis on basic social processes (BSP's) and on gaining deep insights into social phenomena that are problematic for the people involved. Through deep immersion in the daily worlds of supply chain managers and gaining access to their thoughts, feelings and behaviors as they go about solving the problems they encounter, researchers can gain insights into social aspects of SCM that other methodologies are less likely to tap into. Such insights are imperative in furthering our understanding of SCM phenomena and in developing useful theories in this important research topic.

While we cannot directly answer the call for a unified theory of SCM (Mentzer, Min & Bobbitt 2004), we do believe we can provide the tools and the techniques, in the form of grounded theory (GT), that can help advance the development of such a theory. Advancement of a SCM theoretical structure requires an aggregate approach based upon inductive techniques. GT provides an inductive method for creating aggregate level theory through in-depth investigations within and across organizations (Charmaz 2006, Glaser 1992, Glaser, Strauss 1967). As such, GT is the recognized method of choice for developing foundational theory.

The goal of this paper is to provide researchers with an introductory set of tools and techniques through which they might approach uncovering supply chain theory using GT. First, this paper provides an overview of the GT technique, paying particular attention to GT's applicability to supply chain management. This overview is intended to provide supply chain researchers with the basic understanding of why GT works, and where it might be applied. Third, a step-by-step guide of how the GT technique is employed is provided. This guide should

serve as the methodological basis for GT technique in supply chain research. Fourth, we provide a method for assessing GT research. We conclude with a summary of these points.

### **WHAT IS GROUNDED THEORY?**

Grounded theory is a systematic approach to qualitative research based upon a process of comparative analysis designed to build theory from field data. Essentially this process compares multiple concepts using a replicable and deliberate process. Concepts are sought and compared using multiple sources, such as: (1) articulated by study participants based upon single interview, (2) comparison of multiple interviews with multiple participants, (3) comparison and review of field memos, (4) comparison with organizational artifacts such as meeting minutes, awards, appraisals, etc., and (5) comparison with relevant literature. This constant comparison looks for theoretical similarities and differences in order to develop higher order concepts that help interpret and explain behavior in social settings (Gephart Jr. 2004, Glaser 1978).

Supply chain research often involves phenomena with complex behavioral aspects that are best understood using field investigation, direct data collection, and interaction with practitioners across multiple organizations in order to bring to light the unique perspectives and understanding of those practitioners. Grounded Theory does this by providing a deliberate inductive technique aimed at revealing the structure behind processes (Charmaz 2006, Glaser, Strauss 1967).

The field of logistics has long recognized the importance of the perceptual and behavioral, or social, aspects of the field as reflected in reviews of the growth of the discipline (Kent, Flint 1997, Frankel, Naslund & Bolumole 2005). Qualitative research in some form, with its emphasis on natural settings, has been employed in the study of almost every key

phenomenon of the logistics discipline. Frankel, Naslund and Bolumole (2005) provided an overview of the predominant research methods in the *Journal of Business Logistics* over a five year period from 1999 through 2004. Their research revealed that 29 articles relied on interviews as a primary or secondary means of collecting data, four used observation, and ten used case studies. Some recent supply chain management and logistics topics explored using qualitative methods since then include logistics service driven loyalty (Davis, Mentzer 2006), supply chain management coordination mechanisms (Fugate, Sahin & Mentzer 2006), logistics management in post-soviet central-Asian transitional economy (Price 2006) logistics outsourcing strategy (Mello, Stank & Esper 2008), and supply and drivers of inter-organizational relationship magnitude (Golicic, Mentzer 2005).

GT is a strong method for finding emergent theory. However there are two cautions when using GT. First GT research entails significant resource investment. Typically GT involves 15 or more recorded interviews. There is considerable time spent setting up these interviews, conducting the interviews and then coding the transcript from the interview once the transcriptions are made. The second challenge deals with the unwillingness of some editor to publish GT research. Yet there appears to be increasingly favorable reception of strong properly conduct GT research (as shown above).

Like any research methodology GT has its own terminology. In order to assist the reader Table 1 provides definitions for many of the most important terms (Mello, Flint 2009).

-----INSERT TABLE 1 ABOUT HERE-----

Essentially, the objective in GT is to build theory. Grounded theory is used most commonly in exploratory research into phenomena about which little theoretical knowledge has been developed (Suddaby 2006). Theory emerges from analysis of data obtained in the field rather than from *a priori* assumptions developed before the research begins. Grounded theory accomplishes this by incorporating a rigorous and systematic approach to the study of individuals and their experiences in business and social settings (Goulding 1998). The veracity of GT comes from a systematic adherence to a process of constant comparison. Grounded theory researchers adhere to a series of guidelines for conducting systematic data analysis, including specific analytic procedures and research strategies. Glaser and Strauss (1967) codified a set of procedures for collecting and analyzing qualitative data. Through these methods, theory is developed that is grounded in the behaviors, words, and actions of the participants in the study (Goulding 2002).

The GT perspective of what constitutes a “theory” is defined by Strauss and Corbin (1998) as a “set of well-developed concepts related through statements of relationship, which together constitute an integrated framework that can be used to explain or predict phenomena.” Theory is constructed from categories (abstract, higher order concepts under which other concepts can be grouped through an underlying, shared uniformity) and their properties (general or specific characteristics or attributes of a category which allow a category to be further refined). Figure 1 provides a pictorial depiction of this process. Interviews are conducted in which initial words that have some theoretical importance are identified and coded.

-----INSERT FIGURE 1 ABOUT HERE-----

The researcher, through an iterative comparative process, called constant comparison, begins to evolve the codes into theoretical concepts. Over time, through the process of emerging concepts from data, comparing data and concepts between participants, and generating new data higher order concepts called “categories” begin to emerge.

Table 2 provides an example of a category and its properties (Mello, Stank, and Esper 2008). Taken together with Figure 1, Table 2 illustrates a product of the constant comparison process. The category “Decision-Making Inputs” is at the highest level of abstraction, and it ties together four lower level concepts that share uniformity in that they all relate to the decision-making process companies use to determine logistics outsourcing strategies. Categories are systematically interrelated through statements of relationships to form a framework that explains some or all of the behavior in a phenomenon. The resulting theory should provide clear categories and hypotheses that can be verified using either qualitative or quantitative methods.

-----INSERT TABLE 2 ABOUT HERE-----

In addition, a GT should be easily understandable, not only to academics but to students and practitioners as well (Glaser and Strauss 1967). In SCM numerous GT programs have met this criteria, (e.g., the model on social processes involved in logistics innovation (Flint et al. 2005) and the nine propositions of customer desired value change and its implications for logistics managers (Flint and Mentzer 2000)). In summary it is the objective of the GT researcher to develop theories around core categories and their properties that enable explanation of behavior, are applicable in practice, and allow for hypotheses that can be verified.

## WHY GROUNDED THEORY WORKS

As shown in Figure 2, GT goes beyond observation to categorize and relate phenomena in a theory using a theory building framework (Swartz 2005, Burrell, Morgan 1979). As indicated, GT moves beyond case description toward development of theoretic categories and posited relations between these categories (Charmaz 2006). Grounded theory works because it is the appropriate analytical method to look within an organization and illuminate the fundamental antecedents, processes, and outcomes that form the inherent structure in human activity. The efficiency of GT is therefore contingent upon the richness of the observable phenomena in the desired research area (Charmaz 2006).

-----INSERT FIGURE 2 ABOUT HERE-----

Additionally, GT works because it looks at organizations as they adapt to changes in the environment around them. By examining organizational systems as they adapt to shifts in business conditions, GT investigates facets of that evolution to gain insight into the underlying structure. Also, by studying the work setting of supply chain managers, logisticians, operations managers, and others engaged in supply chain related work, researchers using the GT method can get at the core processes that underlie supply chain management in practice. Grounded theory works because it uses constant comparison to determine the *rules, processes, and strategies* upon which business systems operate (Charmaz 2006, Holland 1992).

In studying complex social systems, such as supply chain networks, GT overcomes some of the limitations of linear approximation and statistical generality (Holland 1992). Constant comparison across multiple facets of the sample organization, at both the individual and

organizational unit of analysis, provides contrasting and complementary views likely to generate insight into the underlying structure (Glaser 1992, Glaser, Strauss 1967). Grounded theory provides a technique to understand how various systems influence each other in a macro level framework.

Unlike quantitative methodology, where the sample supports generalizability, the GT sample provides observational data from which to reveal constructs in support of theory development. Through constant comparison GT researchers make observations, propose relationships, and test those relationships in follow-on interviews. Using the GT approach, previously identified variables can emerge in a new theoretical framework in a way that reveals the underlying theoretical foundation shaping business system adaptation (Charmaz 2006, Burrell, Morgan 1979, Hunt 1990).

### **A STEP- BY-STEP GUIDE TO GROUNDED THEORY**

Figure 3 depicts the GT process, a non linear approach, in a linear fashion. The GT investigation moves back and forth along this process using the method of constant comparative analysis. This process compares multiple concepts articulated by study participants to those concepts discovered within field memos, documents, and relevant literature. This constant comparison seeks theoretical similarities and differences in order to develop higher order concepts that help interpret and explain behavior (Gephart 2004; Glaser 1978).

The first step in the GT investigation is to understand the research problem and opening research questions. In doing this the literature provides a lens through which the work can be initially focused (Charmaz 2006, Glaser 1992, Glaser 1998). From this perspective, the literature focuses, but does not constrain, or presuppose, the direction of the investigation.

-----INSERT FIGURE 3 ABOUT HERE-----

After a review of the literature in the first part of step one, GT research then moves to identification of the initial sample. At this step the researcher will benefit from meetings with industry personnel, along with academic experts in order to clarify the research questions, and identify a sample likely to provide answers to those questions. At step two, an initial pilot interview is typically developed, and an archival review is conducted to ensure the target participants represent a sample rich with the phenomena under study.

A GT investigation involves multiple iterations of the process described in Figure 3. At step two, and again at step four, interviews are conducted with industry personnel from different organizations, and at different management levels of the same organization. These interviews are typically recorded and transcribed verbatim. Turning to sampling philosophy it is typically best to generate a broad vertical and horizontal cross-section in order to generate contrasting and complimentary views. Additionally, data from such sources as participant or passive observation and company documents may occur. In supply chain research, the investigator will want to engage suppliers, manufacturers, and customers (horizontally) while also cutting vertically (line manager, employee, supervisor, executive) and cross functionally (finance, logistics, supply chain management, R&D manufacturing) across the organization. Doing so ensures broad dimensionality in the data (Charmaz 2006; Glaser 1992; 1978; Glaser and Strauss 1967). The goal is to ensure participants have experience in various stages of a product's life as appropriate (i.e., development, production, sustainment), at multiple levels in the supply chain (e.g., focal firm, first tier supplier, and customer), and hold varying levels of responsibility (e.g., vice-

president, manager, and line technician). This sampling approach provides dimensional understanding for the emerging variables and theoretical relationships (Charmaz 2006, Glaser, Strauss 1967).

Step three focuses on constant comparison. This process involves initial coding of interviews. This initial coding then leads to new interviews, step 4, and the reexamination of old interviews. During this process, conceptual categories are refined. The process of constant comparison emphasizes the discovery of concepts and hypotheses that are consistently found to be relevant across multiple interviews (Glaser and Strauss 1967). The process involves hypothesizing a relationship based upon one set of interviews and then testing that relationship in follow-on interviews (Charmaz 2006, Glaser, Strauss 1967). In this fashion GT moves beyond descriptive case and towards structural generalizability.

As the theoretical framework begins to emerge, memos are used to capture hypothesized relationships, and provide a record for how these relationships developed in subsequent interviews. These documented memos, steps three and five, provide evidence in support of the logic and process through which the GT emerged (Charmaz 2006). Memos help researchers “a) to grapple with ideas about the data, b) to set an analytic course, c) to refine categories, d) to define the relationships among various categories, and e) to gain a sense of confidence and competence in their ability to analyze data” (Charmaz 1998). Memos contain thoughts about codes and their relationships, the results of analysis, or ideas concerning what directions the researcher should take next (Strauss, Corbin 1998, Glaser 1978). Memos keep track of theoretical ideas and help to link them and develop them over the course of the research (Strauss, Corbin 1998).

Sifting through transcripts and memos leads to increasingly focused follow-on interviews and the adoption of theoretical coding as shown in steps six and seven. Theoretical sorting of memos is a key activity in GT. It starts to put the data previously analyzed during open coding into a theoretical framework in preparation for the writing stage of the research (Glaser 1992). During the sorting process connections are made between categories and properties. For example, memos concerning conditions affecting the phenomenon can be sorted together to help bring to the surface similarities in incidents (antecedents or consequences) based on comparable conditions. From such similarities, categories or properties of categories begin to emerge.

Often the sorting of memos generates more sorting at a higher conceptual level. Figure 4 provides a structural diagram of this evolutionary process. As the sorting proceeds to these higher levels, the theory becomes more dense and complex. These connections eventually result in an integrated model that explains behavior associated with the phenomenon under investigation (Glaser 1978). Memoing is an integral part of GT research.

-----INSERT FIGURE 4 ABOUT HERE-----

A common question asked of GT researchers deals with validation, or the validity of the GT findings. The quantitative researcher seeks deductive conclusions using survey based statistical models that support statistical validity and broad generalizability. This is because these quantitative methods look to previous research, propose hypotheses and then test those hypotheses that relate some construct (antecedent) to another construct (outcome) using statistical methodology. Grounded theory is that step *before* such hypothetical relationship can be proposed. Grounded theory is the method used to discover and relate those constructs based

upon field investigation; thus GT is concerned with theory validation (Charmaz 2006, Glaser, Strauss 1967).

The basis of GT validation, as shown in step six, is theoretical sampling (Charmaz 2006, Glaser 1992). Theoretical sampling entails testing previous relationships using subsequent interviews, as shown in step six. The subsequent interviews provide new samples to test the hypothesized relationships and validate the predicted relationship. Subsequent interviews, as shown in step six, test the hypothesized relationships and validate the predicted relationship (Charmaz 2006, Glaser 1992). This process of theoretical sampling continues until, as shown in step seven, constant comparison in these new samples raises codes to theoretical categories.

The final analytical process, shown in steps eight and nine, involves relating these categories in a theoretical framework (Charmaz 2006). Continuing to sort, make predictions, and validate those predictions using follow-on theoretical sampling ultimately leads to theoretical saturation. Theoretical saturation occurs when follow-on interviews fail to add to existing categories, properties, processes, and so on. That is, saturation is reached when predictions occur as predicted and no substantially relevant concepts emerge. To verify saturation, a number of member checking sessions are usually conducted with research participants. Member checking ensures that the researchers correctly interpreted what the participants are saying, that the findings are practically relevant, and that no new concepts will emerge from further investigation. If necessary, additional sampling (step ten) may need to be conducted to reach theoretical saturation.

## ASSESSING GROUNDED THEORY RESEARCH

All approaches to research have established ways of assessing the rigor and trustworthiness of a research. Glaser (1992; 2001) maintains that the criteria for evaluating GT studies are limited to fit, relevance, workability, easy modifiability, parsimony, and scope in explanatory power. His rationale for this statement is that the criteria established for good qualitative research (Lincoln and Guba 1985; Wallendorf and Belk 1989) are built into properly conducted GT method that is researchers who correctly follow GT guidelines have “automatic ‘built-in’ compliance with qualitative rigor requirements” (Glaser 2001, p. 41). The GT researchers therefore need to understand and ensure that these six criteria have been met in their research. The following sections provide a guide for step by step evaluation of “good” grounded theory.

### *Fit*

The GT fit means garnering independent source interpretation of the data and consistency across incidents (Flint, Woodruff, and Gardial 2002). Whenever feasible, content experts are asked to independently analyze interpretations and documents, and interpretations are refined based on reconciliation of differing interpretations. Member checking sessions are routinely incorporated to ensure fit.

These follow-on fit activities ensure that participants are involved to verify that the theory is derived from data that actually fits what is going on in the environment, and that the findings are consistent with the experiences of the practitioners. This is accomplished by providing participants with summaries of initial interpretations. These practitioners are then asked to review these interpretations and comment as to whether they accurately reflect the

participants' meaning. Interpretations are then discussed and squared with or adjusted to this input. For example, the final theory structure and the proposed theory could be presented at practitioner conferences at which industry experts are asked to confirm, disconfirm, or amend the interpretation, organization, and theoretical relationships in the findings.

### *Workability*

Participants should recognize their actions, reactions, strategies, etc., and those of other actors in the phenomenon represented in the theory. This is what Glaser (1978) terms “getting the facts” straight by doing systematic research. This is not to say that participants will necessarily understand the aggregate level theory, since the theory may encompass interpretations based on concepts derived from academic theories. For example, the concept of informal control may not be fully comprehended by a terminal manager but the application of instilling the culture of the company in the carrier's dock workers likely will be understood. As a check for the criteria of workability, the theoretical interpretations are shared with the participants for the purpose of ensuring that the researcher has faithfully reported the facts of incidents as reported by participants. Any discrepancies are resolved in a manner that reconciles concerns of participants with what the researcher reports.

### *Relevance*

Grounded theory is relevant to practitioners when it addresses core problems that they deal with on a regular basis. Further, GT is relevant when it conveys constructs and relationships in a manner that is quickly recognizable by those practitioners. Grounded theory is relevant to researchers when it offers a new or alternative explanation for behavior that goes

beyond that offered in extant literature. Therefore, to ensure that this research is relevant, participants are invited to comment on how well the research addresses the core issues of the phenomenon. This can be accomplished by providing participants with a summary of the results of the research after the initial draft of the results is written up. Input from the participants is used to judge whether the theory addresses core issues in the phenomenon. Additionally, member checks from other academic researchers can be solicited to assess how relevant the results of this research are to the academic field of supply chain management.

### *Modifiability*

In order to meet the modifiability requirement, the researcher should be able to demonstrate that negative cases or incidents that do not fit the emerging theory have been appropriately handled with modification to that theory. For example, theoretical sampling may direct the research to look for conditions different from those already encountered in the research. Such conditions may require a modification of the theory in order to account for variation in conditions. To demonstrate that this modification occurred, an audit trail is established that shows how and why the theory was modified. Careful tracking of changes to the emerging theory can be accomplished through the use of memos that chronicle the steps in the theory's development.

### *Parsimony and Scope*

Glaser (1992, 1978) maintains that the two prime criteria of inductive theory are parsimony and scope. Grounded theory researchers seek to build substantive theory around a phenomenon. To achieve parsimony, categories and their properties are limited to those that best

help to explain the behavior within that phenomenon, with the objective of providing a process model that utilizes the minimum number of categories and properties salient to the phenomenon. Additionally, parsimony is achieved through the selection of a core category that considers the central issues with the phenomenon, and which organizes the other categories by continually resolving the main concern of the actors (Glaser 2001). Member checks are conducted to assess how well the core category parsimoniously explains activities within the phenomenon.

The criterion of scope requires the theory to be flexible enough to clarify a wide variety of situations and to “discover multiple aspects of the phenomenon” (Flint, Woodruff, and Gardial 2002, p. 106). The theory must therefore be general enough to apply to changing conditions and have broad practical use. Scope is achieved through theoretical sampling procedures that lead the researcher to a wide variety of circumstances in which the phenomenon is played out. Depending on what emerges from the research, this could mean that a number of conditions, strategies, actions, consequences, or other salient aspects surrounded the phenomena as experienced in the environment. Additionally, long interviews that are open in nature are used to draw out as many facets and nuances of the phenomenon as possible (Flint, Woodruff, and Gardial 2002), and participant observation may be employed whenever possible to help the researcher fill in details that may be left out of other methods.

## **SUMMARY**

SCM is maturing as a discipline. Further SCM is on the rise as firms continually change business models toward forming collaborative network relationships. Through these collaborative relationships firms are able to focus on core capabilities and competitive advantage. Yet what singular theory explains and predicts supply chain based competitive

success? We believe that the foundation of a supply chain theory structure is there, it simply has yet to be revealed. We feel that revelation will require an aggregate approach that relies, at least in part, on inductive techniques. Grounded theory is an appropriate method for inductively developing such a foundational supply chain theory. Grounded theory provides an inductive method for creating an aggregate level theory based upon in-depth investigations within and across organizations (Charmaz 2006, Glaser 1992, Glaser, Strauss 1967). In this paper we have shown why inductive methods are appropriate for conducting supply chain research. In doing so we have provided an overview of the GT technique and have given a basic understanding of why GT works, and where it might be applied. More importantly, we provide a step-by-step guide of how the GT technique should be employed and assessed. This guide should help serve as the basis for understanding GT techniques in supply chain research. Lastly we have provided a method for assessing “good” GT research.

In this paper we have attempted to distill the essential elements of “good” grounded theory. Yet this work is by no means exhaustive or comprehensive. Like any good GT, this work is merely a foundation. For readers interested in furthering their understanding of GT we offer a suggested reading list (see appendix 1). While a unified theory of SCM has yet to be found (Mentzer, Min & Bobbitt 2004), we believe GT may provide the holistic approach through which that theory may be developed. We hope that our work, creating a framework for GT research in supply chain management research, provides those researchers seeking to discover and document the theoretical Rosetta Stone of supply chain management the tools they need to achieve that goal.

## FIGURES AND TABLES

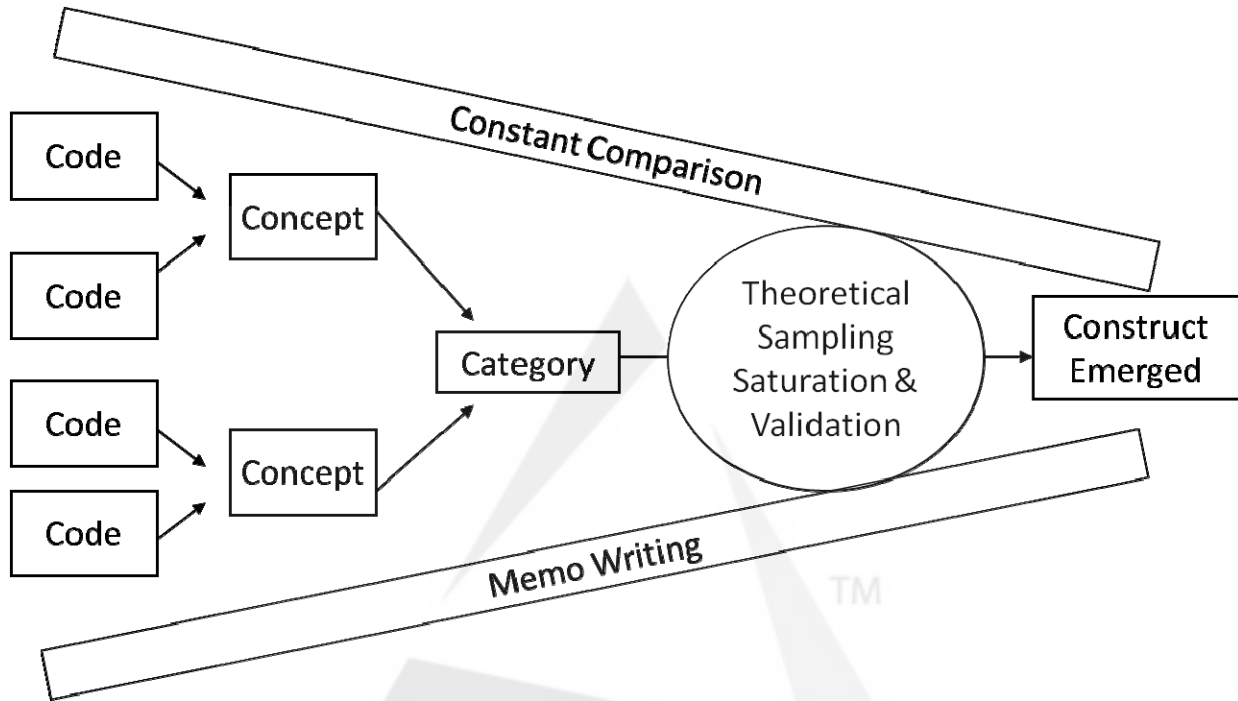
**TABLE 1: GLOSSARY OF GROUNDED THEORY TERMS**

Term	Definition
<b>Axial coding</b>	Process by which categories are related to subcategories at the level of properties and dimensions. This type of coding consists of intense analysis done around one category a time, in terms of the Strauss and Corbin paradigm items (e.g., conditions, actions/interactions, and consequences).
<b>Basic social processes (BSP's)</b>	One type of core category, often best visualized when the category involves multiple concepts linked together in a larger social process - all BSP's are or involve core variables, but not all core variables are or are part of BSP's. The primary distinction between the two is that BSP's are processural- they have two or more clear emergent stages in a temporal sense.
<b>Coding paradigm</b>	Analytic tool Strauss and Corbin devised to help integrate structure with process. When using the paradigm one codes for core phenomena, <i>conditions</i> , <i>actions/interactions</i> , and the <i>consequences</i> of those actions/interactions.
<b>Categories</b>	Abstract, higher order concepts under which other concepts can be grouped through an underlying, shared uniformity. Categories name patterns in the data. They have analytic power because they can be used to explain and predict behavior in a phenomenon.
<b>Coding families</b>	Sets of interrelated theoretical codes. For example, the “cultural family” includes social norms, social values, social beliefs, and social sentiments.
<b>Conditions</b>	Term used in grounded theory to refer to context. Sets of events that create the situations, issues, and problems within which a phenomenon is manifest and help explain the behavior of individuals or groups. Types of conditions include causal, intervening, and contextual conditions.
<b>Conceptual ordering</b>	Organization of data into categories according to their properties and dimensions.
<b>Conditional matrix</b>	A diagram used to track or contemplate the various levels of influence on a phenomenon as well as the implications on those levels of the phenomenon.
<b>Constant comparison</b>	Investigation of similarities and differences across incidents recorded in the data. A technique used to generate concepts and their properties based on repeated patterns of behavior. Comparisons are made within and across data sources.
<b>Core category</b>	Central category of the phenomenon about which the theory is concerned. May not necessarily be a category originally sought at the beginning of the research study. Explains the majority of the behavior in a phenomenon.
<b>Dimension</b>	Range along which properties of a category vary. Used to provide parameters for the purpose of comparison between categories.
<b>Formal theory</b>	Theory that is developed for a conceptual area of inquiry at a high level of generality (scope). Formal theory develops through the generalization and modification of substantive theory as it is applied to different areas of inquiry.
<b>Process</b>	Sequences of evolving action/interaction taking place over time and that are related to changes in structural conditions.

<b>Term</b>	<b>Definition</b>
<b>Properties</b>	General or specific characteristics or attributes of a category which allow a category to be defined and given meaning.
<b>Selective coding</b>	To delimit coding to only those variables that relate to the core variable that has emerged from the study. The analyst links related and subordinate categories to a core category in sufficiently significant ways to assist in the formulation of theory.
<b>Structure</b>	Social conditional context in which a phenomenon is located. Social structure creates the context for action and interaction, and as such is inexorably linked to process.
<b>Substantive theory</b>	Theory that is specific to time and place. May eventually be extended to a formal theory if becomes supported across multiple contexts.
<b>Theoretical memos</b>	Written ideas of the researcher concerning codes and their inter-relationships within a phenomenon.
<b>Theoretical sampling</b>	Process of data collection where the analyst collects, codes, and analyzes data and decides what data to collect next and where to find them based entirely upon the emergent theory.
<b>Theoretical saturation</b>	Point at which no new information appears to emerge during coding and subsequent data collection; i.e., when no new properties, conditions, and so on can be attributed to a category.
<b>Theoretical sensitivity</b>	Researcher's knowledge, understanding, and skill which foster the generation of categories and properties and increase the ability to relate them to emergent theoretical codes.



**FIGURE 1: EMERGENCE OF A CONSTRUCT**



**TABLE 2: A CATEGORY AND ITS PROPERTIES**

**Category:** Decision-Making Inputs

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**Properties:**

Cognitive – the evaluation of “actions by means of a process of thought and cognitive deliberation, possibly supported by calculations” to make decisions (de Boer, Gaytan & Arroyo 2006, p.451).

Experiential – “a process in which alternatives are evaluated as a result of actual, on-line experimentation” by which future courses of action are determined (de Boer, Gaytan & Arroyo 2006).

Cultural - recognition of patterns of shared values, beliefs, and behavioral norms of an organization that are commonly applied to solving problems (Deshpande, Webster 1989).

Personal – the determination of actions based on the personal experiences, or self-interest, of individuals.

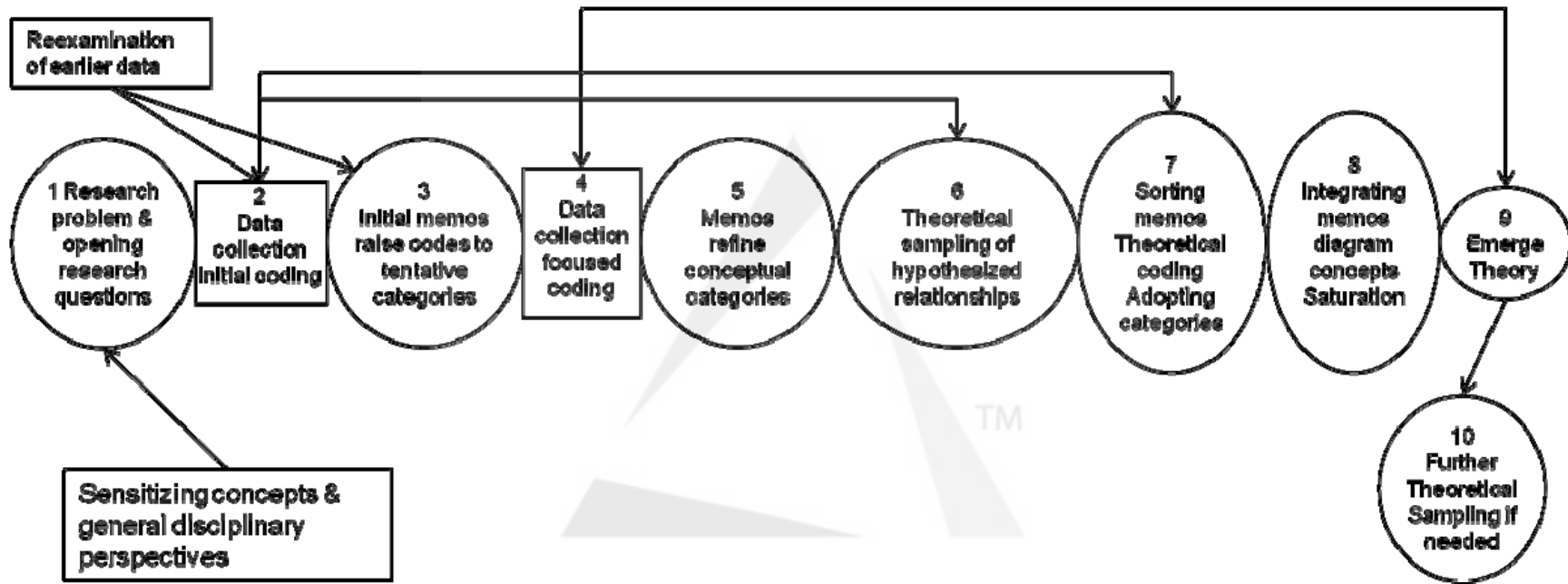
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**FIGURE 2: THE RESEARCH EVOLUTIONARY MODEL**  
(Adapted from Swartz 2005)

Objective/Phase	Paradigm	Logic/Theory	Hypotheses	Data	Method	Causality
OBSERVATION "Facts"	Qualitative	Inductive	"Presence of A"	Field or Natural	Pre-Experiments Ethnography Phenomenology Case Study	Construct Validity - Convergent
CATEGORIZATION "Characteristics"	"Descriptive"	T Building	"Presence of A distinct from B"	Setting	Content Analysis <b>Grounded Theory</b> Historical	- Divergent Rationality - A priori - Falsifiability
CORRELATION "Associations"	Quantitative	Deductive	"Covariance between amount of A and amount of B"	Lab or Designed Experiment	Observational Developmental Correlational Surveys	- Parsimony Correlation - Statistical sig - Practical sig
CAUSALITY "Relationships"	"Prescriptive"	T Validating	"A causes B"		Designed Experiments - True - Quasi	Temporal Precedence Exclusivity

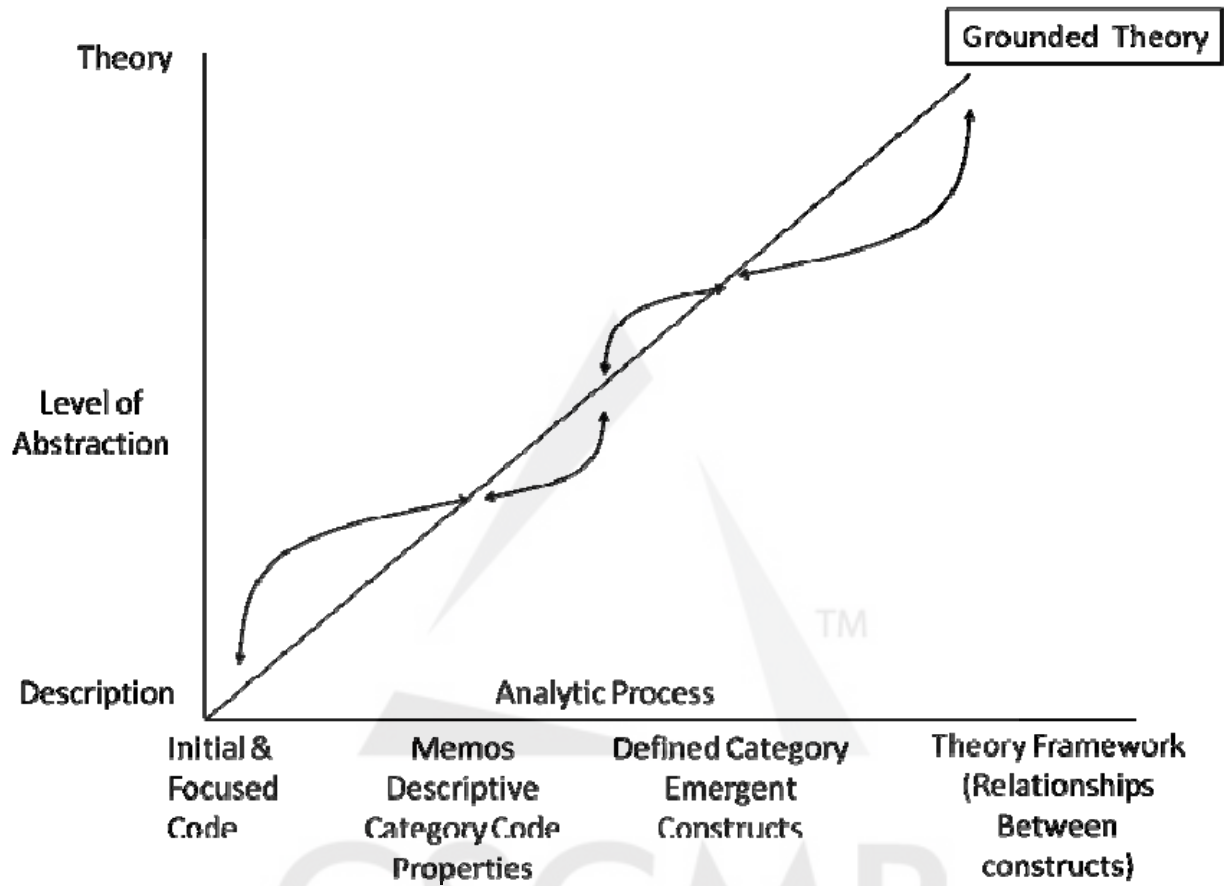
CSCMP

**FIGURE 3: GROUNDED THEORY PROCESS**



CSCMP

**FIGURE 4: EVOLUTION OF A THEORY**



## APPENDIX 1

### SUGGESTED READINGS

Readings	Comments
Flint, Daniel J., Robert B. Woodruff, and Sarah Fisher Gardial (2002), "Exploring the Phenomenon of Customer's Desired Value Change in a Business-to-Business Context, <i>Journal of Marketing</i> , Vol. 6, No. 4, p.p. 102-117.	An example of application of grounded theory to business phenomena.
Glaser, Barney G. (1978), <i>Theoretical Sensitivity: Advances in the Methodology of Grounded Theory</i> . Mill Valley, CA: The Sociology Press.	Detailed extension of Glaser's view of how grounded theory should be conducted.
Glaser, Barney G. (1992), <i>Basics of Grounded Theory Analysis</i> , Mill Valley, Ca: The Sociology Press.	Initial work by Glaser that refutes some of Strauss's direction for grounded theory.
Glaser, Barney G. (2001), <i>The Grounded Theory Perspective: Conceptualization Contrasted with Description</i> , Mill Valley, CA: Sociology Press.	Continuation of Glaser's attack on Straussian methods.
Glaser, Barney G. and Anselm L. Strauss (1965), <i>Awareness of Dying</i> . New York: Aldine Publishing Company.	Original collaboration between Glaser and Strauss.
Glaser, Barney G. and Anselm L. Strauss (1967), <i>The Discovery of Grounded Theory: Strategies for Qualitative Research</i> , New York: Aldine De Gruyter.	Initial delineation of grounded theory methodology.
Goulding, Christina (2002), <i>Grounded Theory: A Practical Guide for Management, Business and Market Researchers</i> , Thousand Oaks, CA: Sage Publications.	A well written overview of grounded theory.
Strauss, Anselm L. (1987), <i>Qualitative Analysis for Social Scientists</i> , Cambridge: Cambridge University Press.	Excellent, detailed explanation of Strauss's techniques
Strauss and Corbin (1998), <i>Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory</i> , Thousand Oaks, CA: Sage Publications.	Further extension of Strauss's techniques; in collaboration with Corbin.

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