ABSTRACT

GARCIA, STEPHEN KING. Toward a Social Network-Based Theory of Large-Group Interventions. (Under the direction of Julia Storberg-Walker.)

Increasing environmental complexity requires organizations to adapt and change at an accelerated pace (Burke, 2002). In response, organizations are employing new organization change approaches that promise more rapid, whole-system change (Dewey and Carter, 2003; Marshak, 2004). One such approach is large-group interventions (Bunker & Alban, 1992a, 1997, 2005). Large-group intervention proponents suggest that the methods are fast and effective because they engage greater numbers of organizational stakeholders, tap into the collective wisdom of the organization, and quickly generate broad-based commitment to change.

However, while large-group intervention practice is increasing (Worley and Feyerherm, 2003), many researchers contend that the theory underpinning large-group interventions is not adequately articulated (Austin & Bartunek, 2003; Bryson and Anderson, 2000; Weber & Manning, 1998). As a result, it difficult to say with certainty how large-group interventions work, in which situations they are appropriate, or how they might be integrated with other forms of organization development. This study was conducted to address this gap.

A social network perspective was adopted as an explanation for how large-group interventions work. In this view, large group interventions work because of the ability to restructure the networks of social relationships existing within organizations (Clarke, 2005; Garcia, 2007; Tenkasi & Chesmore, 2003). From this perspective, the study
conceptualized and operationalized "A Social Network-Based Theory of Large-Group Interventions" using Dubin’s (1978) eight-step theory building research methodology.

The theory generated by this study offers implications for large group intervention research and practice, as well as adds to the knowledge base of theory building research methods. Specifically, the study provided new theoretically-informed knowledge about what kinds of social network changes result from large-group interventions, under what circumstances these network changes occur, and how these network changes can generate organizational change. Researchers are also provided with theoretically-justified social network variables that could be used to operationalize Lewin's (1947) 3-Step Model of Change. Further, new opportunities to develop a mid-range theory of organizational change are presented through the social network perspective.

The study offers compelling evidence for understanding the limitations of applying Dubin's (1978) method to the development of new theory. The theory building research methods undertaken in the study exposed a critical shortcoming in developing a theory about a process. Dubin’s (1978) methodology was developed during a time when social scientific research was focused on explaining differences between, rather than processes of. Consequently, Dubin’s explanation of and methods for developing system states (e.g., theories in action) removed the process of change from the theory building process. Change, to Dubin, was moving from one system state to another, and his methods are not structured to explain movement between system states. Movement between system states was beyond the scope of theory building research at that time. This key finding offers future researchers a point of departure for future theory building research studies seeking to understand change processes.
Finally, the study offers theoretically justified opportunities for improving the practice of large group interventions. "A Social Network-Based Theory of Large-Group Interventions" provides specific recommendations for the design and implementation of large-group interventions including decision criteria to identify key social network change levers, steps to accelerate the collaboration and buy-in of those involved, and tactics to evaluate the degree of change generated by large group interventions.
Toward a Social Network-Based Theory of Large-Group Interventions

by
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CHAPTER ONE:
INTRODUCTION

This study focuses on employing a social network perspective to develop and operationalize a theory of large-group interventions. Through development, a conceptual model of the theory will emerge. Operationalization of the theory enables testing and refinement the empirical world. Thus, the findings of this study are the development and operationalization of “A Social Network-Based Theory of Large-Group Interventions.

This chapter introduces the study. It is divided into five parts. First, a broad overview and critique of the literature surrounding large-group interventions is used to set the stage for the study. Second, the problem and the need for the study are made explicit. Third, the research question for the study is stated. Fourth, the significance of the study to the field of human resource development (HRD) is explained. Finally, an overview of the each of the chapters in the study is presented.

Introduction

Forces such as globalization and the information revolution have dramatically increased the complexity of our environment (Axelrod and Cohen, 2000; Burke, 2002). Foster and Kaplan (2001) contend, for example, that the turnover of companies on the Forbes top-100 and the Standard and Poor’s 500 has accelerated due to greater environmental complexity. Increasingly, organizations are calling upon the human resource development (HRD) function to help manage this complexity by devising and implementing organizational responses (Dilworth, 2001; Grieves and Redman, 1999;

In response, HRD professionals as well as other change practitioners are looking to new organization development approaches that promise more rapid, whole-system change (Dewey and Carter, 2003; Marshak, 2004; Polanyi, 2001; Wheatley, 1999). Whole-system change is necessary given the current degree of environmental complexity; one must understand the organization as a system and intervene, accordingly, at the whole-system level (Manning & Binzagr, 1996; Wheatley, 1999). One such approach is large-group interventions (Bramson & Buss, 2002; Bryson & Anderson, 2000; Bunker & Alban, 1992a, 1997, 2005; Burke, 2002; Burke, Javitch, Waczlowski & Church, 1997; French & Bell, 1999; Manning & Binzagr, 1996; Weisbord, 1992). Like other approaches to planned organizational change, large-group interventions constitute a form of organization development (Burke, 2002; French & Bell, 1999; Weisbord, 1987). Bunker and Alban (1997) defined large-group interventions as a whole-system change process that:

allows a critical mass of people to participate in: (i) understanding the need for change; (ii) analyzing the current reality and deciding what needs to change; (iii) generating ideas how to change existing processes; (iv) and implementing and supporting change and making it work. (pp. xv-xvi).

Unlike change processes that focus on changes at the individual or group level, large-group interventions seek to affect whole-system change by simultaneously
engaging the entire organization in understanding the need for change, determining what to change, and implementing the change. As a result, large-group interventions can include hundreds, even thousands of participants, working together at the same time and in the same space. According to Weisbord and Janoff, large-group interventions provide an opportunity for “getting everybody improving whole systems,” (1995, p. 2).

Organization development scholars have classified a number of different organization development approaches as large-group interventions. Although scholars’ respective lists of large-group interventions differ, there is general agreement on which approaches can be called large-group interventions. For example, Bunker and Alban (1997), Manning and Binzagr (1996), Bryson and Anderson (2000), and Weber and Manning (1998) all identify Future Search, Open Space Technology, and Search Conference as large-group intervention approaches (please see Table 1.1).
## Table 1.1.

Identified Large-Group Intervention Organizational Change Methods

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<tr>
<th>Author(s)</th>
<th>Identified large-group intervention methods</th>
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<tr>
<td><em>Bunker and Alban, 1997</em></td>
<td>Fast Cycle Full Participation Work Design&lt;br&gt;Future Search&lt;br&gt;Institute of Cultural Affairs (ICA) Strategic Planning Process&lt;br&gt;Open Space Technology&lt;br&gt;Participative Design&lt;br&gt;Real-time Strategic Change&lt;br&gt;Real Time Work Design&lt;br&gt;Simu-Real&lt;br&gt;The Conference Model&lt;br&gt;The Search Conference&lt;br&gt;Work-Out</td>
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<td><em>Manning and Binzagr, 1996</em></td>
<td>Fast Cycle Full Participation and the Conference Model&lt;br&gt;Future Search&lt;br&gt;Large Scale Interactive Process Methodology&lt;br&gt;Open Space Technology&lt;br&gt;Search Conferences / Participative Design&lt;br&gt;Simu-Real</td>
</tr>
<tr>
<td><em>Bryson and Anderson, 2000</em></td>
<td>Future Search&lt;br&gt;Open Space Technology&lt;br&gt;Real-Time Strategic Change&lt;br&gt;Strategic Choice&lt;br&gt;Strategic Options Development and Analysis&lt;br&gt;Technology of Participation&lt;br&gt;The Search Conference</td>
</tr>
<tr>
<td><em>Weber and Manning, 1998</em></td>
<td>Future Search&lt;br&gt;Large-Scale Interactive Process Methodology (Real-Time Strategic Change)&lt;br&gt;Managing Organizational Change&lt;br&gt;Open Space Technology&lt;br&gt;Search Conferences/Participative Design&lt;br&gt;Self Design for High Involvement&lt;br&gt;Simu-Real&lt;br&gt;Technology of Participation&lt;br&gt;Total Transformation Management Process</td>
</tr>
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</table>
As the field of organization development shifts its focus away from incremental change toward whole-system change, the emphasis on large-group interventions has increased (Bunker & Alban, 2005; French & Bell, 1999; Weisbord, 1987; Worley & Feyerherm, 2003). For example, Worley & Feyerherm's (2003) research on the future of organizational development indicates that large-group fluency is a critical competency for the future of the field. Similarly, French and Bell write:

Phrases like ‘getting the whole system in the room’ are appearing with increasing frequency in OD practice. What OD professionals are talking about is the usefulness of getting all of the key actors of a complex organization or system together in a team-building, future-planning kind of session (1999, p. 204).

Proponents of large-group interventions identify numerous advantages to the approach. First, they contend that large-group participation taps the collective wisdom of the organization. That is, by involving more participants and giving everyone an equal chance to be heard, large group interventions generate a broader array of potential change strategies, which in turn enrich the change process (Bryson & Anderson, 2000; Bunker & Alban, 1992b, 1997; Weisbord, 1992). Second, because large-group interventions involve a large percentage of an organization’s employees, the approach reduces resistance and builds commitment to change (Axelrod, 1992; Bryson & Anderson, 2000; Weisbord, 1987, 1992). Simply put, people are more likely to embrace what they have helped to create. Third, by engaging the entire organization at once, participants are more apt to understand the organization as a complex system and their roles within it (Weisbord, 1987; Weisbord & Janoff, 2005). This improved understanding informs their
future decisions and increases the likelihood that they will make choices optimized for the organization as a whole. Finally, as a result of each of these factors, large-group interventions are said to allow more rapid organizational change than traditional organization development approaches (Bryson & Anderson, 2000; Manning & Binzagr, 1996).

The Problem and the Need

Researchers and practitioners from a variety of fields, including human resource development (Dewey & Carter, 2003; Nixon, 1998), organization development (Burke, 2002; Bunker & Alban, 1997; French & Bell, 1999; Worley & Feyerherm, 2003) and public administration (Bastianello, 2002; Bramsom & Buss, 2002; Bryson & Anderson, 2000) recognize the efficacy of large-group interventions in affecting organizational change. Many researchers contend, however, that the theoretical mechanisms that underlie these interventions are not well understood (Austin & Bartunek, 2003; Bryson & Anderson, 2000; Garcia, 2007; Weber & Manning, 1998; Weisbord & Janoff, 2005).

According to Bryson and Anderson:

We have seen many different kinds of [large-group interventions] work very successfully, often in very different circumstances … But most [large-group interventions] have been developed by practitioners who are less concerned with clarifying the theory supporting their methods (2000, p. 152-153).

Similarly, Weisbord and Janoff write: "We cannot say for sure how these processes work. We can see results," (2005, p. 80). In addition, while many claim that that large-
group interventions are an entirely new phenomenon, to date researchers have failed to look beyond conventional organizational theory to explain them (Marshak, 2004).

The lack of established large-group intervention theory causes several problems. In particular, it is difficult to say with certainty how large-group interventions work, under which circumstances they are appropriate, or how they might be integrated with other forms of organization development.

One promising explanation for how large-group interventions work is through their ability to restructure the networks of social relationships that exist within organizations (Clarke, 2005; Garcia, 2007; Tenkasi & Chesmore, 2003). According to Tenkasi & Chesmore:

It may be that the reported success of organization-development interventions, such as whole system design and search conferences, can be explained at least partially by social network theory, in that such forms enable the creation of networks and strong ties between networks of actors in the organization. An interesting area of future research would be to examine whether and what kinds of networks emerge as a result of whole system design interventions. (pp. 297-298).

Numerous qualitative case studies support the possibility that large-group interventions affect organizations change through the interventions’ capacity to restructure social networks (Garcia, 2007). This ability would represent a powerful change lever. Researchers increasingly appreciate the power of social networks to influence organizational outcomes (Kilduff & Tsai, 2003; Monge & Contractor, 2003). To date,
however, the potential that the success of large-group interventions is attributable to their ability to restructure social networks is largely unexplored.

**The Problem Statement and the Purpose**

The problem driving this study is the lack of large-group intervention theory (Austin & Bartunek, 2003; Bryson & Anderson, 2000; Garcia, 2007; Weber & Manning, 1998; Weisbord & Janoff, 2005). Furthermore, while some evidence suggests that the success of large-group interventions may be attributable to their ability to restructure social networks (Clarke, 2005; Garcia, 2007; Tenkasi & Chesmore, 2003), researchers have not sought to develop large-group intervention theory from a social network perspective.

This study is intended to address this gap. Specifically, the purpose of this study is to develop and operationalize large-group intervention theory from a social network perspective. Unlike a more empirical dissertation, the 'findings' of this dissertation generate theoretical as opposed to empirical knowledge. Specifically, the outcome of the study, "A Social Network-Based Theory of Large-Group Interventions," explains what kinds of social network changes result from large-group interventions and under what circumstances these changes occur. Thus, the knowledge generated in this study does not corroborate or disprove existing theory, but rather builds new theory.

To achieve this purpose the study employs a theory-to-research (Reynolds, 1971), functionalist theory-building strategy. Specifically, the study applies Dubin’s (1978) eight stage theory-building research methodology to data generated through a review of the existing literature and the researcher-theorist's own experience conducting large-
group interventions. This approach represents an accepted research model in HRD (Ardichvili, Cardozo & Ray, 2003; Chermack, 2003; Holton & Lowe, 2007; Lynham, 2002b; Torraco 2004, 2005) which has been used in other dissertations (Chermack, 2003; Lynham, 2000a, Storberg-Walker, 2004; Tuttle, 2003). Chapter Three describes the selection criteria and rational for the choice of this theory-building approach.

The Research Question

The following research question and associated sub-questions serve to guide this research:

Can social network theory be used as the basis to develop a theory of large-group interventions?

a. Can a social network-based theory of large-group interventions be conceptualized?

b. Can a social network-based theory of large-group interventions be operationalized?

The Significance of the Study to HRD

The field of HRD is increasingly engaging in organizational change activities (Garcia, 2007). Large-group interventions represent a promising method for achieving organizational change. However, the theory underlying large-group interventions has not been well established or adequately tested. As a result, it is difficult to understand how large-group interventions work, under which circumstances they are appropriate, or how they might be integrated with other forms of organization development. This study develops and operationalizes large-group intervention theory from a social network
perspective. By grounding large-group intervention practice in social network theory the study helps to fill the gap between theory and practice in an important area of HRD.

In addition to furthering HRD scholars’ and practitioners understanding of large-group interventions, the study builds new HRD theory. The development of HRD theory is one of the subjects most frequently discussed in the field (Holton, 2002; Kuchinke, 2000; Lynham, 2000b; Swanson, 2000; Torraco, 1997, 2004). In particular, Torraco (2004) advocates that (i) developing new theory for HRD, (ii) giving more attention to the theoretical foundation of HRD, (iii) conducting research on theory building methods and their uses in HRD, and (iv) generating published works that describe both the theory building process and the theory would advance the field of HRD. By building a theory of large-group interventions and describing the method by which the theory was developed this study addresses both the first and fourth issues raised by Torraco.

Finally, this study builds HRD theory from a social network perspective. Increasingly, HRD scholars are calling upon the field of to incorporate social network research, ideas, and methods (Hatala, 2006; Storberg-Walker & Gubbins, 2007). According to Hatala, "SNA promises to add significantly to theory building in the field of HRD," (2006, p. 46). The integration of the social network perspective into HRD is important because of its relevance to the field (Brass, 2003; Hatala, 2006; Lengnick-Hall & Legneick-Hall, 2003; Storberg-Walker & Gubbins, 2007) as well as because:

- using theory from other fields is laudable since it broadens the conceptual basis for framing HRD research questions and it helps to cast a wider net for collecting
and analyzing various kinds of data to answer these questions,” (Holton, 2003; Torracco, 2004, p. 7-8).

By building theory from a social network perspective the study furthers the introduction of social network research, ideas, and methods into the field of HRD.

**The Structure of the Study**

Chapter One of this study provides a brief introduction to the phenomenon of large-group interventions. In addition, an overview of the study’s purpose, its research questions, and its significance to the field of HRD is offered.

Chapter Two presents a review of the literature focusing on organizational change from a social network perspective. Also reviewed is the literature on large-group interventions and theory building research in HRD.

Chapter Three presents the study’s methodological considerations, including the study’s guiding research questions and the ensuing methodology and methods choices. Theory building research was selected as the primary methodology for addressing this study’s research questions because existing empirical research does not provide the conceptual tools for theory building research. Dubin’s (1978) eight-stage theory building research methodology was selected as the theory building research approach. It is in Chapter Three that the main steps in developing this theory of large-group interventions are described.

Chapter Four completes the first four steps in Dubin’s (1978) theory-building research methodology. Specifically, Chapter Four develops the theory’s units, identifies its laws of interaction, specifies the theory’s boundary conditions, and determines the
theory’s system states. The output of Chapter Four is a conceptual model of the theory that provides a clear conceptualization and description of the large-group intervention phenomenon from a social network perspective.

Chapter Five operationalizes the theory by completing steps five through seven in Dubin’s (1978) theory-building research methodology. Specifically, Chapter Five develops the theory’s propositions, identifies its empirical indicators, and develops hypotheses. While the eighth step in Dubin’s theory-building research methodology, testing, is outside the scope of this study, a research agenda specifically created to test the theory is proposed as a direction for future research.

Finally, Chapter Six evaluates the theory using Patterson’s (1986) criteria for evaluating theory, identifies the limitations of the study, and discusses the implications of this study. Implications of the theory of large-group intervention are considered for theory building research, for organizational change and social network research, for the practice of large-group interventions, and for the field of HRD.
CHAPTER TWO:
LITERATURE REVIEW

This study is focused on employing a social network perspective to develop and operationalize a theory of large-group interventions. The purpose of this chapter is to review the related literature. This literature review is important to the study because it helps to ensure a thorough understanding of both the phenomena under investigation and theory-building methods, both of which are important in theory building research (Lynham, 2002a).

The chapter is divided into four primary sections. Each section follows a similar format. The literature is presented and then, where relevant, the key implications for the study, or postulates, stemming from the literature review are identified. The first section describes the social network perspective at a high level and discusses the relevance of the social network perspective to organizations in general. The second section reviews the social network literature specifically related to planned organizational change. The third section reviews the broader literature on large-group intervention change methods. The fourth section then reviews the literature associated with theory and theory building research in the field of HRD. Finally, the chapter concludes with a summary of the key postulates resulting from the literature review and the study’s definition of core concepts and terms.
Social Network Perspective

This section of the chapter uses existing literature to describe the social network perspective and its relevance to organizations. This study’s intent is to develop a theory of large-group interventions from the social network perspective. Thus, it is important to understand the distinct social-network research perspective. While a complete discussion, covering all aspects and concepts of the social network perspective, is outside the scope of this review, an overview is provided to ground the reader. Readers interested in a full treatment of the social network perspective are referred to: Wasserman and Faust (1999) for a review of social network methods; Monge and Contractor (2003) for a review of social network theories; and Kilduff & Tsai (2005) for a review of social networks concepts related specifically to organizations.

This portion of the literature review is divided into two parts. The first part defines the social network perspective and identifies the principles that distinguish it. The second part discusses researchers’ application of the social network perspective to organizations.

The Social Network Perspective Defined

According to Wasserman & Faust (1999), the social network perspective is: a distinct research perspective within the social and behavioral sciences; distinct because social network analysis is based on an assumption of the importance of relationships among interacting units. The social network perspective encompasses theories, models, and applications that are expressed in terms of
relational concepts or processes. That is relations defined by linkages among units are a fundamental component of network theories (p. 4).

Viewed from the social network perspective, the social environment is represented as patterns of relationships among interacting actors (Brass, 2003; Kilduff & Tsai, 2003; Monge & Contractor, 2003; Scott, 2004; Wasserman & Faust, 1999). The social network perspective presumes that actors (whether they are individuals, groups, or organizations) exist within network of interrelationships with other actors (Brass, 2003; Kilduff & Tsai, 2003; Wasserman & Faust, 1999). The phrase “social network” refers to the set of actors and the presence or absence of social relationships among them (Wasserman & Faust, 1999).

According to the social network perspective, it is the structure, or pattern of social relationships, that facilitate or constrain behavior as much or more than the attributes of the actors themselves (Brass, 2003; Kilduff & Tsai, 2003; Monge & Contractor, 2003). Thus, network researchers would model the structure of relationships among individuals to understand a group’s social environment. One could then investigate the impact of this structure on the functioning of the group and its influence on the individuals within the group (Brass, 2003; Monge & Contractor, 2003; Wasserman & Faust, 1999).

In addition to the use of relational concepts, Wasserman and Faust (1999) identify the following principles as important to the social network perspective:

- Actors and their actions are viewed as interdependent rather than independent autonomous units;
• Relational ties (linkages) between actors are channels for transfer or “flow” of resources (either material or nonmaterial;

• Network models focusing on individuals view the network structural environment as providing opportunities for or constraints on individual action; and

• Network models conceptualize structure (social, economic, political, and so forth) as lasting patterns of relations among actors (p. 4)

The social network perspective differs fundamentally from other research perspectives (Wasserman & Faust, 1999). While standard social and behavioral research and methods give attention to the attributes of individual actors or sets of actors, social network research concentrates on the structure of relationships that exist among actors (Brass, 2003; Scott, 2004; Wasserman & Faust, 1999). Wasserman and Faust write:

Rather than focusing on attributes of autonomous individual units, the associations among these attributes, or the usefulness of one or more attributes for predicting the level of another attribute, the social network perspective views characteristics of the social units as arising out of structural or relational processes or focuses on properties of the relational systems themselves (1999, p. 7-8).

From the social network perspective, attributes, such as race, or gender, or the productivity of organized entities, are understood in terms of the patterns of relationships among actors (Wasserman & Fasut, 1999). Thus, it is only because blacks and whites occupy different positions relative to each other in the social network that “race” becomes an important variable (Collins, 1988, p. 413 as cited in Wasserman & Faust, 1999).
Many researchers have come to recognize that the social network perspective can provide specific definition to aspects of the political, economic, or social structural environment. As a result, the social network perspective offers new leverage from which to address outstanding researcher questions in the social and behavioral sciences (Brass, 2003; Hatala, 2007; Wasserman & Faust, 1999). The use of social network methods has consequently increased dramatically. For example, Borgatti and Foster (2003) indicate that the number of published articles indexed by Sociological Abstracts that contain “social network” in the abstract or title has grown exponentially since 1970. Similarly, Monge and Contractor (2003) note that one third of all presentations at the Academy of Management annual conference now incorporate a network perspective.

Social Networks and Organizations

Since the Hawthorne Studies, in the 1920s and 1930s, organizational scholars have recognized the importance of social interaction on organizational outcomes (Scott, 2004). However, with a few notable exceptions (e.g. Pearce & David, 1983), it has been only recently that researchers have begun to seriously consider and investigate the impact of social relationships and social networks on organizations (Brass, 2003; Cross, Borgatti and Parker, 2002; Cross and Parker, 2004; Cross, Parker, Prusak, and Borgatti, 2001; Cohen and Prusak, 2001; Kilduff & Tsai, 2003; Krackhardt and Hanson, 1993; Monge and Contractor, 2003; Sparrowe, Liden, Wayne and Kraimer, 2001).

According to these researchers, the relationships that comprise social networks act as causal forces within and across organizations (Brass, 2003; Cross, Liedka, and Weiss, 2005; Kilduff and Tsai, 2003). This viewpoint is based on the assumption that the social
relationships that comprise network structure serve as conduits for the transfer of interpersonal resources, such as new ideas, work-related information, and emotional support (Balkundi and Harrison, 2006). According to Beer, Eisenstat, and Spector (1990):

> By changing how people work together around core tasks without changing the organizational chart, a commonly understood and legitimated ad hoc team organization emerges…This new organization…changes the extent and manner of coordination, commitment, and competence (p. 46).

From this perspective, just as an organization's formal organizational chart can be reorganized to better support an organization's objectives, so too can the configuration of the organization's social relationships.

Research on the influence of social networks within organizations has validated this viewpoint. For example, at the individual level, managers whose social relationships allow them to serve as go-betweens, linking otherwise disconnected groups, are more likely to receive positive performance evaluations and promotions (Burt, 2004). At the team level, the structure of social relationships that interconnect team members affects team performance and viability (Balkundi and Harrison, 2006). At the organizational level, the position of a firm within the larger, inter-organizational social network works in conjunction with the firm’s internal capabilities to affect innovativeness (Zaheer and Bell 2005).

In summary four key implications for this study, or postulates, emerge from this literature. These are:
• The social network perspective is a distinct research perspective within the social and behavioral sciences based on the assumption of the importance of relationships among interacting units (Wasserman & Faust, 1999);

• According to the social network perspective it is the structure, or pattern, of social relationships that facilitate or constrain behavior as much or more than the attributes of the actors themselves (Brass, 2003; Kilduff & Tsai, 2003; Monge & Contractor, 2003);

• The social network perspective can offer new leverage from which to address outstanding research questions (Brass, 2003; Garcia, 2007; Hatala, 2007; Storberg-Walker & Gubbins, 2007; Wasserman & Faust, 1999); and

• Social networks affect organizational outcomes by providing conduits for the transfer of interpersonal resources such as new ideas, work-related information, and emotional support (Balkundi & Harrison, 2006; Brass, 2003; Cross & Parker, 2004; Kilduff & Tsai, 2003; Krackhardt, 2003; Monge & Contractor, 2003).

The next section of this chapter examines the social network literature that is specific to organizational change.

The Social Networks Perspective on Planned Organizational Change

Having described the social network perspective at a high level in the preceding section, this section reviews the social network literature that specifically pertains to planned organizational change. Understanding of this literature is important because it
provides concepts and ideas that can serve as the building blocks for “A Social Network-Based Theory of Large-Group Interventions.”

The section begins with an overview of the social network perspective on organizational change. The section then uses Lewin's 3-Step Model of Change as a framework to identify and review the social network literature specifically related to planned organizational change.

**Overview of Social Network Perspective on Planned Organizational Change**

According to Porras and Robertson (1992), *planned organizational change* is: a set of behavioral science-based theories, values, strategies, and techniques aimed at the planned change of the organizational work setting for the purpose of enhancing individual development and improving organizational performance, through the alteration of organizational members’ on the job behaviors,” (Porras and Robertson, 1992, p. 723).

Porras and Robertson’s (1992) definition serves as the definition of planned organizational change for this study.

Given the impact of social networks on organizations, change theorists are increasingly looking to the social network perspective to help explain organizational change (Burke, 2002; Garcia, 2007; Krackhardt, 2003; McGrath and Krackhardt, 2003; Mohrman, Tenkasi, and Mohrman, 2003; Tenkasi and Chesmore, 2003). According to Mohrman, Tenkasi and Mohrman, Jr. (2003):

Lasting change does not result from plans, blueprints, and events. Rather, the changes must be appropriated by the participants and incorporated into their
patterns of interaction. It is through the interaction of the participants that the social system is able to arrive at a new network of relations and new ways of operating (2003, p. 321).

Similarly, Burke (2002) writes: “Now at the top of my list is organizational structure—but not hierarchical factors. Rather, I would like for us to understand more about self-directed groups, cells, and especially networks [emphasis added], the web that holds cells together,” (p. 293).

Two common assumptions underpin the social network perspective on organizational change. The first is that organizational change is an ideational process (McGrath and Krachardt, 2003). That is to say, organizational change is predicated on a change in peoples’ awareness, outlook, and beliefs about the change. The second is the view that organizational change is a dynamic process of social influence. From this perspective, organizational change involves a lengthy process of persuading organizational members, who in turn convince others, to adopt the change (McGrath and Krachardt, 2003; Rogers, 1995).

A number of researchers have examined organizational change from a social network perspective. One method for categorizing this literature is to consider the literature through the lens of an established organizational change framework (Creswell, 2003). In using an exiting framework to organizing the literature, the researcher categorizes studies depending upon which aspects of organizational change they address. This process helps to illuminate key themes in the literature and makes the review more accessible to readers.
Social Networks in Relation to Lewin’s 3-Step Model

Perhaps the most well known organizational change framework is Lewin’s (1947) 3-Step model of Change. For the majority of his life, Kurt Lewin focused on the resolution of conflict between groups. He believed that the key to resolving such conflict was to promote learning and thereby, enable individuals to restructure their understanding of the world around them (Burnes, 2004). Lewin further believed that efforts to change individual perceptions must be targeted at the group level:

As long as group standards are unchanged, the individual will resist change more strongly the further he is expected to depart from group standards. If the group standard itself is changed, the resistance which is due to the relation between the individual and group standards is eliminated (1958, p. 210 as cited in Burke, 2002).

Lewin was concerned, however, that changes to group behavior tended to be short lived and frequently returned to previous patterns. This concern led Lewin to develop his widely-known 3-Step Model of Change (Burnes, 2004). According to Lewin's 3-Step Model of Change, successful change entails three steps, or phases: unfreezing, moving, and refreezing.

Beginning in the 1980s some (e.g. Kanter, Stein & Jick, 1992 in Burnes, 1994; Wheatly, 1999) have suggested that Lewin's planned approach to organizational change is too simplistic and mechanistic. These critics have argued that Lewin's work focuses solely on top-down as opposed to bottom-up change initiatives; is relevant only to incremental change projects, ignores radical, transformational change; presumes that all
change is episodic rather than continual; and disregards the political aspects of
organizational life. More recently, other scholars reestablished the relevance of Lewin’s
work (e.g. Alas, 2007a; Burnes, 2004; Burke, 2002; Ford & Greer, 2005; Hendry, 1996).
Burnes (2004), for example, argues that criticisms are based on a misinterpretation and
narrow interpretation of Lewin's work. Burnes (2004) further contends that when, as
Lewin intended, the whole of Lewin's work is taken into account, including Field Theory,
Group Dynamics, Action Research, and the 3-Step Model of Change, many of the
criticisms prove unfounded. Similarly, Hendry argues that Lewin’s 3-Step Model serves
as the basis for virtually all subsequent work on organizational change:

Scratch any account of creating and managing change and the idea that change is
a three-stage process which necessarily begins with a process of unfreezing will
not be far below the surface (1996, p. 624 as cited in Burnes).

The prevalence of Lewin's 3-Step Change Model makes it well suited as a
framework with which to categorize literature related to planned organizational change.
The following subsections identify and review the social network literature pertaining to
each of three organizational change phases identified by Lewin. Table 2.1 summarizes this
literature.

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1 These critics may not have actually read Lewin or, worse yet, may lack imagination. It is true that
subsequent conceptualizations of organizational change (e.g. Wheatley) have expanded researchers’ and
practitioners thinking about the phenomenon. This does not negate Lewin’s contributions, however.
Critiques of Lewin are largely comparable to condemning Newton for not incorporating Relativity into his
theories. In truth, both perspectives are valid and if you want to predict the path of a cue ball, you are
better off with the 'mechanistic' but practical Newtonian view of the world.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description of Step</th>
<th>Applicable Literature</th>
</tr>
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| **Unfreezing** | Based on assumption that individuals seek a state of 'quasi-stationary equilibrium' in which they feel safe and a sense of control. Equilibrium must be disrupted before individuals are willing to disregard old behavioral patterns in favor of new ones. | Beer, Eisenstat and Spector (1990)  
Granovetter (1973)  
Hansen (1999)  
Macdonald (1995)  
Rogers (2003)  
Tsai (2001)  
Zaheer and Bell (2005) |
| **Moving** | Components of the organization are altered to move the organization in a particular direction. Iterative cycle of research, action, and more research facilitates individuals' and groups' transition to a new set of behaviors. | Krackhardt (2003)  
Krackhardt & Stern (1988)  
McGrath & Krackhardt (2003)  
Stephenson (2003)  
Tenkasi & Chesmore (2003) |
| **Refreezing** | Reinforces the new quasi-stationary equilibrium to prevent the organization from regressing to its previous behavior. Accomplished by bringing other aspects of the organization into alignment with the new, desired behavior. | Balkundi & Harrison (2006)  
Beer, Eisenstat and Spector (1990)  
Brass (2003)  
Cross, Borgatti & Parker, 2002  
Cross, Liedka, & Weiss (2005)  
Hansen (1999)  
Harrington (2002)  
Kilduff & Tsai (2003)  
Powell, Koput & Smith-Doerr, 1996 |
‘Unfreezing’ social network literature

Lewin maintained that during the first phase in organizational change, the organization, or social system, must be unfrozen. Lewin's concept of unfreezing is based on the assumption that individuals seek a state of 'quasi-stationary equilibrium' in which they feel safe and a sense of control over their environment. This is a comfortable state and individuals will resist any change that threatens it. For Lewin, unfreezing is fundamentally a learning process by which organizational members acquire new information that disrupts the status quo and mobilizes energy for change. This disruption unfreezes the existing equilibrium, enabling individuals to disregard old patterns of behavior in favor of new ones.

The social network literature suggests that new information, necessary for change or innovation, is often acquired from outside the existing social system. As stated by Macdonald:

Deliberate change-any change that is not entirely random—requires information. Inasmuch as the information available within the organization facilitates what the organization is already doing, it is unlikely to be able to make a major contribution to change. The organization must seek most of the new information required for change in the outside world. It must bring home this new information to be mixed with resident information to shape a novel pattern of knowledge into a package that can be used (1995, p. 562).

Moreover, the social network literature indicates that social relationships that bridge gaps in the social structure serve as the conduits for the acquisition of new
information (Burt, 2003, 2004; Granovetter, 1973; Hansen, 1999; Rogers, 2003; Tsai, 2001; Zaheer and Bell, 2005). This is because these bridging relationships connect individuals who reside in different social groups or network clusters. Within network clusters, members are interconnected by strong, reciprocal relationships characterized by familiarity and significant information sharing. As a result of their frequent interaction, members of the same cluster typically exchange redundant and less innovation information (Burt, 2003; Granovetter, 1973; Rogers, 2003). In contrast, members of different network clusters, separated by gaps in the social structure, or structural holes, tend to be more dissimilar. This diversity increases the likelihood that members of different network clusters will have access to different information and ideas (Burt, 2003; Granovetter, 1973; Rogers, 2003). According to Rogers:

One's intimate friends are usually friends of each other's forming a close-knit clique…Such an ingrown system is an extremely poor net in which to catch new information from one's environment. Much more useful as a channel for gaining such information are the individual's more distant (weaker) acquaintances; they are more likely to possess information that the individual does not already posses (2003, p. 154).

Relationships that connect members of different network clusters therefore provide each party with access to the information that resides in the other network cluster. This information tends to be new, or novel, and thereby has the potential to stimulate organizational change.
In addition to explaining the role of social networks in unfreezing, the social network literature also identifies steps that change practitioners can take to use social networks to carry out unfreezing. Cross and Parker (2004), for example, suggest that conducting a social network analysis—i.e., mapping the existing patterns of communication and interaction between organizational members—can stimulate learning that leads to change. In mapping the organizations social structure, often times previously unknown patterns of behavior are made explicit. Thus, employees may gain newfound insight into their own interactions and the interactions of these peers. This may have a transformational, or unfreezing, affect on employees that provides motivation for change.

Three key postulates for this study can be identified from the social-network literature associated with unfreezing. These postulates are:

- The starting point for planned organizational change is the acquisition of new information or knowledge (Lewin, 1947; MacDonald, 1995);
- Relationships that bridge gaps, or structural holes, in the social network provide access to the new information necessary for change (Burt, 2003; Garcia, 2007; Granovetter, 1973; Hansen, 1999; Kilduff & Tsai, 2003; Rogers, 2003); and
- Social network analysis can be used by change practitioners to simulate transformational learning on the part of participants that can generate motivation to change (Cross & Parker, 2004).
‘Moving’ social network literature

The second phase in Lewin's 3-Step model of change is movement. While unfreezing creates motivation for change, movement is the process by which organizational members examine all of the forces operating on the situation and determine the appropriate course of action through trial and error (Lewin, 1947 as cited in Burnes, 2004). This iterative cycle of research, action, and more research facilitates individuals' and groups' transition to a new set of behaviors (Burnes, 2004). According to Lewin, movement is a journey during which participants may proceed through multiple stages of misunderstanding and disagreement before collectively determining and agreeing upon their goal.

The literature on social networks and organizations suggests that strong social relationships, or strong ties, characterized by trust and frequent, rich interaction, are crucial to the process of moving. This is because strong ties serve to overcome misunderstanding and build agreement to organizational change (Krackhardt, 2003; McGrath and Krackhardt, 2003; Tenkasi and Chesmore, 2003). This strong tie view rests on the assumption that organizational change efforts, particularly large-scale change efforts, are systemic and multifaceted, requiring the diffusion of complex knowledge on the purpose and nature of the change (Mohrman, Tenkasi, and Mohrman, 2003; Tenkasi and Chesmore, 2003). Moreover, organizational change information is often tacit in nature, and dependent on a larger system of interdependent knowledge. As a result, the knowledge is more difficult to transfer because it is non-codified and requires that the recipient have an understanding of the larger knowledge system in which the complex
knowledge is embedded (Hansen, 1999). Strong ties, which provide frequent and richer communication, affords greater opportunity for explanation and feedback between parties and leads to shared understanding (Hansen, 1999; Mohrman, Tenkasi, & Mohrman, 2003; Tenkasi and Chesmore, 2003). Thus, from this perspective, strong ties are critical paths for the diffusion of organizational change information. Additionally, strong ties reduce resistance by serving as a foundation for trust (Krackhardt, 2003). As described by Krackhardt:

If change were simply dependent on new information, then weak ties would be preeminent. But when it comes to major change, change that may threaten the status quo…then resistance to that change must be addressed before predictions can be made about the success of that change effort. A major resource that is required to bring about such change is trust in the propagators of that change. Change is the product of strong affective and time-honored relationships (2003, p. 104).

As well as using social networks to explain moving, the social network literature also describes how practitioners can use social networks to help an organization to move. Specifically, the literature suggests that practitioners conduct a social network analysis to identify stakeholders affected by the change and high-potential change agents (Krackhardt, 2003; McGrath & Krackhardt, 2003). As described by McGrath and Krackhardt:

Networks are a natural focus for change agents. We often look for central opinion leaders to be the leverage point for change. Once we have identified them, we
focus our change efforts on them, and according to the theory, the rest of the organization follows (2003, p. 324).

Three additional postulates for this study can be added based on the social network literature associated with moving. These postulates are:

- Overcoming employees’ resistance to change is required for successful change efforts (Burke, 2002; French & Bell, 1999);
- Strong ties serve as a foundation for diffusing change information and overcoming resistance to change (Krackhardt, 2003; McGrath & Krackhardt, 2003; Mohrman, Tenkasi & Mohrman, 2003; Tenkasi & Chesmore, 2003); and
- Social network analysis can be used by change practitioners to identify important stakeholders or influential change agents (Krackhardt, 2003; McGrath & Krackhardt, 2003).

‘Refreezing’ social network literature

Refreezing is the final phase in Lewin's 3-Step model. The purpose of refreezing is to reinforce the new quasi-stationary equilibrium achieved during moving. Thus refreezing prevents the organization from regressing to its previous behavior. Refreezing is accomplished by bringing other aspects of the organization into alignment with the new, desired behavior. For example, the organization might modify its culture, norms, policies, and practices to promote the new behaviors. The adaptation of these cultural aspects gives life to the change. They provide a mechanism through which the change influences organizational members' behavior. This is why Lewin viewed successful
change as a group exercise. Unless group norms and practices are congruent with the desired behavior, individual behavioral changes will not be sustained.

As a component of organization, social networks represent a cultural aspect that can be leveraged to refreeze the organization. Network researchers indicate that the configuration, or structure, of social relationships within an organization can promote or constrain the achievement of specific organizational outcomes (Brass, 2003; Cross, Liedka, and Weiss, 2005; Kilduff and Tsai, 2003). According to Brass (2003) for example:

...we note that established patterns of interaction become institutionalized and take on the quality of social shared, structural facts. Thus network patterns emerge, become routinized, and act as both constraints and facilitators of behavior (p. 299).

This viewpoint is based on the assumption that social relationships serve as conduits for the transfer of interpersonal resources (Balkundi and Harrison, 2006). From this perspective, just as an organization's formal organizational chart can be reorganized to better support an organization's objectives, so too can the configuration of the organization's social relationships. As described by Stephenson (2003):

One significant reason for the failure of planned change attempts, particularly attempts at structural change, may be the neglect of the informal structure of existing relationships among organizational members. There relatively stable relations, based on work or social relationships such as friendship or advice giving, form patterns of networks among organizational actors. The ties in these
networks can provide valuable resources such as information, power, or trust between individuals and groups, and actors can have strong incentives not to sever those ties. Planned change attempts, particularly organizational restructuring efforts, can result in the disruption of these ties and lead to resistance to change. Alternatively, ties between individuals and groups can provide conduits of information, power, or trust that can facilitate change (2002, p. 239). Thus, alignment of the organization's social network with the intended change can help to refreeze the organization.

In particular, the connectivity of the networks' structure, defined as the degree to which actors within the network are linked to one another through direct or indirect ties, appears to affect organizational outcomes (Balkundi and Harrison, 2006; Cross, Borgatti and Parker, 2002; Kilduff and Tsai, 2003; Powell, Koput and Smith-Doerr, 1996). Disconnectedness in the network signifies division in the social system and may limit the organization's ability to integrate its members' expertise (Kilduff and Tsai, 2003). Alternatively, connectedness may facilitate increased resource sharing and collaboration (Balkundi & Harrison, 2004; Cross, Borgatti and Parker, 2002; Kilduff and Tsai, 2003) as well as promote alignment in norms and values (Kilduff and Tsai, 2003).

In addition to suggesting that social networks should be aligned to planned organizational change, the social network literature suggests that change practitioners can use social networks analysis to assess the progress of refreezing. An advantage of social network methods is that they provide a means of quantifying organizational phenomena (Garcia & Shin, 2008). Practitioners can therefore use social network analysis
longitudinally to track the impact of change interventions. Specific network metrics (e.g. density or cohesion) can be applied to determine if organizational members have modified their communication patterns in accordance with an intended change.

Four key postulates can be drawn from the social network literature associated with refreezing. These are:

• Successful organizational change requires that aspects of the organization’s culture must be brought into alignment with the intended change (Burke, 2002; Lewin, 1947);

• An organization’s social network represents an aspect of organizational culture that, like other cultural dimensions, can facilitate or constrain organizational change efforts (Beer, Eisenstat & Spector, 1990; Brass, 2003; Cross, Liedka & Weiss, 2005; Kilduff & Tsai, 2003; Mohrman, Tenkasi & Mohrman, Jr., 2003; Stephenson, 2003);

• Connectivity within a social network increases task performance. (Balkundi & Harrison, 2006; Cross, Borgatti & Parker, 2002; Kilduff & Tsai, 2003; Powell, Koput & Smith-Doerr, 1996); and

• Social network analysis can be used by change practitioners to assess efforts to refreeze the organization (Cross & Parker, 2004; Garcia & Shin, 2008).

This section of the chapter has presented the social-network literature on organizational change. The section began by providing an overview of the social network perspective on planned organizational change. It then employed Lewin's 3-Step
Model of Change as a framework to identify and categorize the literature. For each phase in Lewin's model--unfreezing, moving, and refreezing--key postulates for this study were identified. The following section of this chapter reviews the literature associated with large-group intervention methods.

**Large Group Interventions**

This section of the chapter reviews the literature pertaining to large-group interventions. This study’s purpose is to develop and operationalize “A Social Network-Based Theory of Large-Group Interventions”. Thus, this section provides understanding of and insight into the phenomena under investigation. This understanding is critical to the study because theory building research requires knowledge of the phenomena being investigated in addition to the theory-building methods (Lynham, 2002a).

The section is divided into three parts. The first part provides an overview of large-group interventions. The second part discusses scholars’ efforts to identify the theory that underpins large-group interventions. Finally, the third part reviews empirical data related to large-group interventions and social networks.

**Large-group Intervention Overview**

Like other approaches to planned organizational change, large-group interventions constitute a form of organization development (Burke, 2002; French and Bell, 1999; Weisbord, 1987). Organization development scholars have classified a number of different organization development (OD) approaches as large-group interventions. While scholars' respective lists of large-group interventions differ, there is general agreement on which approaches can be called large-group interventions. For
example, Bunker and Alban (1997), Manning and Binzagr (1996), Bryson and Anderson (2000), and Weber and Manning (1998) all identify Future Search, Open Space, as large-group intervention methods.

**Defining large-group interventions**

Scholars have defined large-group interventions in a variety of ways. Bryson and Anderson define large-group interventions as:

…the structured processes for engaging large numbers of people to enhance the amount of relevant information brought to bear on a problem; to build commitment to problem definitions and solutions; to fuse planning and implementation; and to shorten the amount of time needed to conceive and execute major policies, programs, services, or projects (2000, p. 143).

Holman and Devane (1999) identify six criteria which they use to define large-group interventions. According to Holman and Devane (1999), each method: (i) involves people in a meaningful way; (ii) discovers and creates shared assumptions; (iii) has an underlying research base; (iv) has been practiced for at least five years; (v) provides a systematic approach to change; and (vi) is capable of dramatic results with a moderate amount of resources. Manning and Binzgar (1996) indicate that each large-group intervention method engages a critical mass of individuals, representing all organizational stakeholder groups, who come together in a two or three day-conference to collect and analyze data, make strategic decisions, and formulate actions plans. Manning and Binzgar also note that in many cases the work of large-group interventions was previously reserved for small groups at senior levels in the organizational hierarchy. This
study uses Bunker and Alban (1997; 1992a) definition for large-group interventions, which is the most frequently cited in the literature. Bunker and Alban define *large group interventions* as:

methods for involving the whole system, internal and external, in the change process. These methods may go by different names…but the key similarity is that these methods deliberately involve a critical mass of the people affected by the change, both inside the organization (employees and management) and outside it (suppliers and customers). This whole-system change process allows a critical mass of people to participate in: (i) understanding the need for change; (ii) analyzing the current reality and deciding what needs to change; (iii) generating ideas how to change existing processes; and implementing and supporting change and making it work,” (1997, p. xv-xvi).

The above definitions imply several characteristics of large-group interventions, which differentiate the method from other forms of OD. The most basic of these is an emphasis on whole-system change as opposed to more modest, incremental change (Bramson & Buss, 2002; Bunker and Alban, 1997; Manning and Binzagr, 1996; Weber and Manning, 1998). Scholars are increasingly using this “depth of intended change” distinction as a criterion with which to classify organizational change methods (French and Bell, 1999). Porras and Robertson (1992), for example, distinguish between first and second order change, while Burke (2002) refers to “transformation” versus “transactional” change methods.
Large-group interventions’ emphasis on changing whole systems leads to a requirement that the methods be highly participative (Bramson & Buss, 2002; Bryson and Anderson, 2000; Bunker and Alban, 1997; Manning and Binzagr, 1996; Weber and Manning, 1998). A fundamental belief underpinning large-group interventions is that to affect whole-system change, the approach must intervene accordingly at the whole system level (Manning and Binzagr, 1996). As described by Burke:

A transformation requires the immediate attention of all organizational members, whereas a continuous improvement action may require the attention of only a certain segment of the organizational population or a phased involvement of all organizational members over time (2002, pp. 12).

To achieve this transformational effect, large-group interventions seek to bring together everyone affected by the change, including organizational members from multiple organizational functions and hierarchical levels. Large-group interventions can therefore include hundreds, even thousands, of participants working together at the same time and in the same space.

Also stemming from large-group interventions' focus on whole-system change is an emphasis on mutual understanding and dialogue among organizational members (Manning and Binzagr, 1996). If organizations represent whole systems, then effective organization development requires an understanding of how all the elements in the system interrelate. Large-group interventions engage participants in organizational sensemaking activities to achieve a system level understanding. For example the approaches emphasize collective dialogue, in which participants conduct a shared inquiry
into the processes and assumptions that comprise experience within the organization. Additionally, large-group interventions utilize future visioning, in which participants collectively define the organization's preferred future.

Finally, large-group interventions rest on an assumption that the collective perceptions held by members of the organization greatly influence the organization’s reality (Manning and Binzagri, 1996). Thus, large-group interventions endeavor to modify organizational outcomes by reshaping individuals’ mental models. To this end, large-group interventions minimize organizational diagnosis, the first step in many organization development approaches. Instead of focusing on existing problems, large-group interventions emphasize the creation of a future vision for the organization that organizational members collectively share (Bramson & Buss, 2002).

Bunker and Alban (1992a; 1997) identify three sub-processes of large-group interventions: (1) Understanding the Need for Change, (2) Creating a Future Vision; and (3) Generating Implementation Plans. These sub-processes occur sequentially and each of the sub-processes can be perceived of as a separate phase within the large-group intervention. During phase one, Understanding the Need for Change, participants share their perceptions of the need for change and agree upon which needs to focus the change efforts. During phase two, Creating a Future Vision, participants jointly develop a view of the organization’s preferred future. Finally, during phase three, Generating Implementation Plans, participants share and agree on specific action plans to achieve the preferred vision. Figure 2-1 depicts these three phases that comprise large-group interventions.
Large-group intervention practice

As the field of organization development shifts its focus away from incremental change toward whole-system change, the emphasis on large-group interventions has increased (Bramson & Buss, 2002; Bunker and Alban, 2005; French and Bell, 1999; Weisbord, 1987; Worley and Feyerherm, 2003). For example, Worley & Feyerherm's (2003) identify large-group fluency as a competency that is critical to field of organizational development's future. Similarly, French and Bell write:

Phrases like ‘getting the whole system in the room’ are appearing with increasing frequency in OD practice. What OD professionals are talking about is the usefulness of getting all of the key actors of a complex organization or system together in a team-building, future-planning kind of session (1999, p. 204).

It is not surprising, therefore, that the use of large-group interventions is growing rapidly throughout the world, most notably in the United States, Canada, the United Kingdom, the Netherlands, Germany, Scandinavia, Australia and Brazil (Austin & Bartunek, 2003; Bryson & Anderson 2000). The range of published large-group intervention case studies, including cases involving large, multinational corporations
(Dannemiller & Jacobs; 1992; Bunker & Alban, 1992b; Bunker & Alban, 1997; Axelrod, 1992), smaller, private firms (Weisbord, 1992), federal and state government agencies (Arena, 2001; Weisbord, 1992), and nonprofits (Coghlan, 1998; Arena, 2001; Weisbord, 1992), would suggest that practitioners have used large-group interventions in a wide variety of industries and sectors.

Proponents of large-group interventions identify numerous advantages to the approach. First, they contend that large-group participation taps the collective wisdom of the organization. That is, by involving more participants and giving everyone an equal chance to be heard, large-group interventions generate a broader array of potential change strategies, which in turn enrich the change process (Bramson & Buss, 2002; Bryson and Anderson, 2000; Bunker and Alban, 1992a, 1997; Weisbord, 1992). Second, because large-group interventions involve a large percentage of an organization’s employees, the approach reduces resistance and builds commitment to change (Bramson & Buss, 2002; Bryson and Anderson, 2000; Axelrod, 1992; Weisbord, 1987, 1992). Simply put, people are more likely to embrace what they have helped to co-create. Third, by engaging the entire organization at once, participants are more apt to understand the organization as a complex system and their roles within it (Weisbord, 1987; Weisbord & Janoff, 2005). This improved understanding informs their future decisions and increases the likelihood that they will make choices optimized for the organization as a whole. Finally, as a result of each of these factors, large-group interventions are said to allow more rapid organizational change than traditional organization development approaches (Bramson & Buss, 2002; Bryson and Anderson, 2000; Manning and Binzagr, 1996).
In summary, this subsection of the literature review has presented the general literature on large-group interventions. Six postulates for this study are derived from this literature:

• Large-group interventions are focused on whole system, transformational change (Bramson & Buss, 2002; Bunker & Alban, 1997; Manning & Binzagr, 1996; Weber & Manning, 1998);

• Large-group interventions bring together representative participants from all of the stakeholder groups affected by the change (Bramson & Buss, 2002; Bryson & Anderson, 2000, Bunker & Alban, 1997; Manning & Binzagr, 1996; Weber & Manning, 1998);

• Large-group interventions engage participants in organizational sensemaking to create a collective, system-level view of the organization (Holman & Devane, 1999; Manning & Binzagr, 1996);

• Large-group interventions engage people in a structured conference lasting one to three days (Bunker & Alban, 1997; Manning & Binzagr, 1996).

• Large-group interventions are comprised of three phases: (1) Understanding the Need for Change; (2) Created a Preferred Future Vision; and (3) Generating Implementation Plans (Bunker & Alban, 1992a; 1997; Manning & Binzagr, 1996); and

• Large-group interventions have been successfully used in a variety of settings and the practice of large-group interventions is increasing (Bunker & Alban, 2006; Holman & Devane, 1999).
In the following subsection, the literature related theory underpinning the practice of large-group interventions is presented.

**Theory Underpinning Large-Group Interventions**

While the practice of large-group interventions is on the rise, scholars disagree on the extent to which the theoretical mechanisms that underpin these interventions are adequately understood. While some suggest that large-group interventions are rooted in a strong theoretical basis (Bunker and Alban, 1997; Dewey and Carter, 2003; Weisbord, 1987), others suggest that the specific theoretical mechanisms by which these interventions work have not been adequately articulated or tested (Austin and Bartunek, 2003; Bryson and Anderson, 2000; Manning and Binzagr, 1996; Polanyi, 2001; Weber and Manning, 1998; Waclawski, 2002). According to Weisbord and Janoff, "we cannot say for sure how these processes work. We can see results," (2005, p. 80). Similarly, Bryson and Anderson write:

> We have seen many different kinds of [large-group interventions] work very successfully, often in very different circumstances … But most [large-group interventions] have been developed by practitioners who are less concerned with clarifying the theory supporting their methods (2000, p. 152-153).

To date, researchers’ efforts to link large-group intervention practice to theory have predominately entailed analyzing large-group intervention practices to induct theoretical constructs. For example, based upon their analysis of the methodologies defined by large-group intervention practitioners, Austin and Bartunek (2003) suggest that the methods operate via three change process motors: the Telelogical motor (i.e.
change is results from the identification of specific goals); the Life-cycle motor (i.e. change is evolutionary and results from following a predetermined sequence of steps; and the motor Dialectic (i.e. change results from the conflict between opposing viewpoints).

Manning and Binzagr (1996) attempted to “clarify the conceptual and theoretical foundation upon which large-scale change is based” (p. 270) by identifying six assumptions that are common to large-group intervention methodologies. These assumptions include: (i) organizations must be viewed conceptually as whole systems, which cannot be reduced to individual subcomponents and analyzed at this level.; (ii) viewing organizations as whole systems requires dialogue among all organizational members to ensure that everyone has a collective understanding of the entire organization; (iii) organizations, as static entities, do not exist, and thus organizational change efforts must be focused on organizing processes and procedures, which, in reality are what organizations are comprised of; (iv) organizational outcomes can be changed by modifying the dominant mental models held by individuals within the organization; (v) organizational members have the capacity to self organize and in doing so redefine the organization’s reality; and finally; (vi) organizational members are fundamentally ‘good’ and will engage in voluntary collective action.

In their analysis of several large-group intervention cases, Bunker and Alban (1992b) asserted that many of the cases entailed a collective analysis of the organization’s past to create a common ground from which to build the organization’s future. Bunker and Alban (1992b) suggest that this progression from the past to the present to the future creates energy for change in the organization. The authors link this
practice to the theoretical work of Robert Fritz who asserted that “change occurs as a result of the tension between the awareness of current reality and the desired future state,” (1984 as cited in Bunker and Alban, 1992b, p. 582).

Coghlan (1998) examined the specific case of a monastic order through the lens of the Lewin-Schein Change Process Model. The Lewin-Schein Change Process Model conceptualizes change as consisting of three stages: unfreezing, moving, and refreezing. Coghlan suggested that the successful completion of the unfreezing stage requires striking a balance between creating the disconfirmation and anxiety necessary to stimulate change with the psychological safety such that participants need not become paralyzed by their discomfort. According to Coghlan, the large-group intervention helped to achieve this balance:

The assembly appears to have been successful in unfreezing the region. It did this by focusing on disconfirmation information and maintaining a sense of anxiety while creating an atmosphere of psychological safety in which the participants could look at difficult questions, map out general directions in which the region would go, and create a supportive climate in which the ongoing work of change could continue after the assembly,” (Coghlan, 1998, p. 114).

Thus, Coghlan suggests that large-group interventions may work through their ability to unfreeze participants.

Dewey & Carter (2003) identified links between specific large-group change methods and the methods’ respective theoretical traditions. They indicate that Search conference methods are indebted to Lewin’s (1947) insights into the importance of
engaging stakeholders; that Whole System ideas are based on general systems theory; and that Future search methods have theoretical ties to Emery and Trist’s work at the Bristol/Siddeley aircraft engineering company in the late 1950s.

Although each of these researchers’ efforts is informative in suggesting hypotheses about cause and effect, their perspectives vary considerably. Thus, there remains a great deal to understand about the theory underpinning large-group interventions. For example, to date researchers have not sought to test the proposed linkages between large-group intervention practice and theory. Nor have they provided quantitative evidence to support their hypotheses, which Creswell (2003) indicates is preferable for theory validation. As a result, it is difficult to say with certainty how large-group interventions work, in which circumstances they are appropriate, and how they might be integrated with other forms of organization development (Garcia, 2007).

In addition, while many of these studies claim that large-group interventions are an entirely new phenomenon, they make little effort to look beyond conventional organizational theory to explain them (Marshak, 2004). In particular, with a few notable exceptions (Clarke, 2005; Tenkasi & Chesmore, 2003) researchers have not sought to tie large-group interventions to social network theory. This is unfortunate, as scholars increasingly view social networks as an important metaphor for organizations and are calling upon HRD scholars to employ social network research methods to investigate organizational phenomena (Borgatti & Foster, 2003; Brass, 2003; Hatala, 2006; Storberg-Walker & Gubbins, 2007). Moreover, a significant body of case-based evidence suggests
the success of large-group interventions may be attributable to their ability to restructure social networks (Garcia, 2007).

In summary this subsection has reviewed the literature concerning the theory underpinning large-group intervention practices. Two key postulates are drawn from this review:

• Researchers differ on the degree to which large-group intervention theory is established and many contend that the theoretical mechanisms by which large-group interventions work are not adequately defined (Austin & Bartunek, 2003; Bryson & Anderson, 2000; Manning & Binzagri, 1996; Polanyi, 2001; Weber and Manning, 1998; Waclawski, 2002); and

• This lack of theoretical clarity means that it is difficult to say with certainty how large-group interventions work, in which circumstances they are appropriate, or how they might be integrated with other forms of organization development (Garcia, 2007).

The following subsection discusses one promising explanation for how large-group interventions work; through an ability to restructure social networks.

**Large-Group Interventions and Social Networks**

Tenkasi and Chesmore (2003) were two of the first researchers to suggest that the efficacy of large-group interventions may be attributable to the capacity to modify social networks. According to these authors:

It may be that the reported success of organization development interventions, such as whole system design and search conferences, can be explained at least
partially by social network theory, in that such forms enable the creation of networks and strong ties between networks of actors in the organization. An interesting area of future research would be to examine whether and what kinds of networks emerge as a result of whole system design interventions (2003, p. 297-298).

This author is aware of only one study, however, that attempted to test this proposed relationship empirically. Clarke (2005) examined the impact of a Transorganization Development intervention on the communication network of 12 county-level mental health agencies. Specifically, Clarke investigated the intervention's 2 1/2-day convention stage, which Clarke described as a form of Search Conference. Clarke found that, as a result of the convention stage, a new set of agencies emerged as central players in the agencies' communication network. While Clarke's research supports the hypothesis that large-group interventions can modify social networks, several questions remain. It is unclear from Clarke's study whether the changes in the communication network of mental health agencies were a central, causal element in the change process or whether they were are exogenous to the change process. In addition, Clarke's study examined network changes at the inter-organizational level. In contrast, the majority of large-group interventions are designed to take place within a single organization. As a result, Clarke's findings may not be applicable to many types of large-group interventions.

A number of published case studies, however, provide case-based evidence in support of the idea that large-group interventions can modify intra-organizational social
relationships (Arena, 2001; Bunker and Alban, 1992b; Dannemiller and Jacobs, 1992; Dewey and Carter, 2003; French and Bell, 1999; Weisbord and Janoff, 2005; Whittaker and Hutchcroft, 2002). These case studies examined large-group interventions in a variety of organizational settings. While none of the case studies focused on relationships as the unit of analysis, each independently suggested that large-group interventions change the nature or the structure of social relationships within the host organization. French and Bell (1999), for example, describe the case of a 12,000-person manufacturing organization that engaged in a large-group intervention to improve product quality and customer relations. According to French and Bell, as a result of the intervention, cross-divisional communication increased, inter-unit cooperation increased, and changes in interaction patterns were immediate and positive. Table 2.2 provides a review of these case studies.

Table 2.2.

Case-Based Support for Idea that Large-Group Interventions Affect Social Networks

<table>
<thead>
<tr>
<th>Authors</th>
<th>Case Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arena (2001)</td>
<td>The ability to restructure informal social networks was a key enabler of the interventions' success. According to Arena, &quot;these large-group interventions provided the opportunity for connections to evolve…These relationships helped to unify the organization,&quot; (2001, p. abstract).</td>
</tr>
<tr>
<td>Dannemiller and Jacobs (1992)</td>
<td>Increased cross-functional communication, with senior leadership reporting that the intervention dramatically improved employees' work relationships with internal counterparts, up, down, and across the organization.</td>
</tr>
</tbody>
</table>
Table 2.1 Continued

<table>
<thead>
<tr>
<th>Study</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dannemiller and Jacobs (1992)</td>
<td>Increased cross-functional communication, with senior leadership reporting that the intervention dramatically improved employees’ work relationships with internal counterparts, up, down, and across the organization.</td>
</tr>
<tr>
<td>French and Bell (1999)</td>
<td>Cross-divisional communication increased, inter-unit cooperation increased, and changes in interaction patterns were immediate and positive.</td>
</tr>
<tr>
<td>Weisbord and Janoff (2005)</td>
<td>It is possible that intervention enables something not otherwise available, “a gestalt of the whole in all participants that dramatically improves their relationship to their work and their coworkers,” (2005, p. 80).</td>
</tr>
<tr>
<td>Whittaker and Hutchcroft (2002)</td>
<td>The intervention was beneficial for initiating dialogue and stimulating networks.</td>
</tr>
</tbody>
</table>

In summary, this subsection has reviewed literature suggesting that the success of large-group interventions may be attributable to the intervention’s capability to restructure social networks. Two key postulates for this study emerge from this literature:

- Researchers have suggested (Clarke, 2005; Garcia, 2007; Tenkasi & Chesmore, 2003) and case-based research supports the possibility that the success of large-group interventions may be attributable to their ability to restructure social networks (Arena, 2001; Bunker & Alban, 1992a; Dannemiller & Jacobs, 1992; French & Bell, 1999; Weisbord & Janoff, 2005; Whittaker & Hutchcroft, 2002); and

- Despite the above evidence, however, little research has been done to validate the possibility or to understand the ways in which large-group interventions
affect social networks or the types of network changes that result (Garcia, 2007).

The next section of this chapter reviews the literature concerning theory and theory building research.

**Theory and Theory Building Research**

This section of the chapter reviews the literature related to theory and theory building research. An understanding of these topics is critical to this study’s intent to develop and operationalize “A Social Network-Based Theory of Large-Group Interventions.” In addition to understanding the phenomena under investigation, theory building research requires an understanding of theory and theory building methods (Lynham, 2002a).

The section is divided into five parts. The first provides an overview of theory and theory building research and, in particular, provides this study’s working definitions of both concepts. The second part of the section reviews the literature related to theory building research within the field of human resource development (HRD). The third part discusses a selection of the most highly-cited theory-building research methods. The fourth part discusses the challenges inherent in theory-building research in an applied field such as HRD. Finally, the fifth part describes the guidelines scholars have used to evaluate theory.

**Theory and Theory Building Research—An Overview**

Kurt Lewin’s (1945 as cited in Van de Ven, 1989) statement that “nothing is so practical as a good theory,” is as true today as it was then. In his seminal book Dubin
(1978) stated that the purpose of theory is to make the world simpler to understand. Cohen (1989; as cited in Holton III, 2002) contended that theory is the basis of science; that scientific knowledge without theory is merely a collection of facts. Kaplan (1964) argued that theory is not only the domain of science, but of humans in general. According to Kaplan theory helps to identify patterns in our experiences, adding meaning to them. Notwithstanding scholars’ appreciation for the importance of theory, what everyone calls theory is not necessarily the same thing (Lynham, 2000b).

**Definition of theory**

Through a comparative review of definitions of the theory, Thomas (1997) concluded, that scholars disagree on the meaning of theory. Dubin (1978) defined theory as “the attempt of man to model some theoretical aspect of the real world,” and indicated that the purpose of theory “is to make sense of the observable world by ordering the relationships among elements that constitute the theory’s focus of attention in the real world,” (p. 26). Torraco (1997, 2004) refined Dubin’s definition for the purpose of describing theory in the context of HRD. For Torraco, a theory “explains what a phenomena is and how it works,” (2004, 12). For Bacharach (1989) theory is a “statement of relationships between units observed or approximated in the empirical world,” (p. 496). Senge, Roberts, Ross, Smith, and Kleiner (1994) contend that theory represents “a fundamental set of propositions about how the world works, which has been subject to repeated tests and in which we have gained some confidence” (p. 29). In an effort to encompass alternative theory-building paradigms, others have defined theory
more broadly as “a coherent description or explanation of observed or experienced phenomena,” (Gioia & Pitre, 1990, p. 587; Lynham, 2000b, 2002a).

The choice of a definition of theory in theory-building research is fundamental to theory building because it establishes the researcher-theorist's philosophical framework (Lynham, 2000b). This philosophical framework makes explicit the assumptions used by the researcher-theorist in building new theory. An understanding of one's own philosophical framework forces the researcher-theorist to critically assess his or her own assumptions, which in turn, improves the resulting theory. In addition, it makes the resulting theory more accessible and expands the basis for evaluation.

The preferred definition of *theory* selected for this study is “an explanation of a certain set of observed phenomena in terms of a system of constructs and laws that relate these constructs together,” (Gall, Borg & Gall, 1996, p.8; Tuttle, 2003). This definition was selected for two reasons. First, the choice is in alignment with other theory-building research in HRD (e.g. Tuttle, 2003). Second, in line with Dubin’s (1978) definition of theory, this definition highlights the requirement for theory to not only describe the phenomena in a coherent manner, but also to explain the elements involved and how they interact. While the definition does not eliminate the possibility that different theories can be developed for the same phenomenon, it does presume a level of logical rigor (Tuttle, 2003). This is in accordance with Reynolds (1971) belief that a desirable characteristic of scientific knowledge is that it achieves intersubjective agreement on what the logical rigor should be, independent of the phenomenon under scrutiny (Tuttle, 2003).
**Definition of theory building research**


As with the concept of theory, specific definitions of theory-building research vary. Torraco (1997) defined theory building as the process of modeling real-world phenomena,” (cited in Lynham, 2000a, p. 126). Lynham (2000b) subsequently described theory building as the “process or recurring cycle by which coherent descriptions, explanation, and representations of observed or experienced phenomena are generated, verified, and refined,” (p. 161). Lynham’s definition of theory building serves as the definition of theory building for this study. One commonality across all definitions is the idea that theory-building is a scholarly method of rigorous scientific inquiry (Gall, Borg, & Gall, 1996; Kaplan, 1964; Lynham, 2002a; Swanson, 1997, 2000; Torraco, 2000).

**Theory Building Research in HRD**

Authors in the field are unanimous in their view that theory and theory building are critical in guiding HRD practice and in advancing the HRD profession in its entirety
According to Swanson (2000), “At this point in the history of the HRD profession I believe that theory building is the single most significant means of advancing the discipline and the profession,” (p. 274).

Scholars offer three primary arguments to support the importance of theory to the field of HRD. The first is that theory building research furthers professionalism and maturity in the field of HRD. HRD is still an emerging filed and theory-building protects HRD research and practice by minimizing atheoretical practice and unscientific research (Holton III, 2002; Lynham, 2000b, 2002a; Swanson, 1997, 2000). The second argument is that theory building helps to resolve the tension between research and practice in HRD (Lynham, 2000b, 2002a). HRD is an applied field. Thus, discussions in the field often address the how without exploring the what and the why (Lynham, 2000b; Ruona & Lynham, 1999). Theory-building helps researchers and practitioners alike better understand HRD phenomena and it therefore informs and improves HRD practice (Holton III, 2002; Lynham, 2000b). Finally, a third argument is that theory building can expand the methods used by HRD researchers and practitioners (Lynham, 2000b, 2002a; Storberg-Walker, 2006). Research on theory building makes explicit the multiple methods and paradigms that inform knowledge creation.

In addition, Torraco (1997) identified seven roles that theory can play within the field of HRD. These roles include: (i) to interpret old data in new ways, (ii) to interpret new research findings, (iii) to define applied problems, (iv) to evaluate solutions to problems, (v) to determine research priorities, (vi) to identify new research directions,
and (vii) to respond to new problems that have no previously identified solutions.

According to Torraco (1997), these roles have specific research implications. Theory enables us to keep from recreating the wheel in our research (roles i, ii, and iv); theory offers a vantage point from which to tackle new research opportunities (roles iii and vii); and theory can illuminate new intellectual perspectives to catalyze research (roles v and vi) (Torraco, 2004).

**Theory-Building Research Methods**

Multiple theory building research methods exist. Reynolds (1971) distinguished between deductive and inductive *theory building strategies*, which he referred to as “theory-to-research” and “research-to-theory.” The research-to-theory strategy entails deducting the laws of nature from an analysis of empirical data (Reynolds, 1971). In essence, the research-to-theory strategy assumes that patterns in nature are discernable if measurement and observation methods are accurate enough (Tuttle, 2003). Alternatively, in the theory-to-research strategy the researcher first conceptualizes the theory and then uses the results of empirical tests to refine it (Kaplan, 1964; Lynham, 2002b; Reynolds, 1971). The theory-to-research strategy does not presume there is a single truth or reality. Instead it “leans on the logic of the conceptual nature of the theory until research can show that the theory reflects the nature of what is observed,” (Tuttle, 2003, p. 80).

In his comparative review of theory-building methods for HRD, Torraco (2002) identified and provided a summary of five specific theory-building methodologies, including: (i) Dubin’s Theory Building methodology; (ii) Grounded theory building; (iii) Meta-Analytic theory building; (iv) Social Constructionist Theory Building, and ; (v)
Theory Building from case study research. Each of these theory-building methods is described in turn.

**Dubin’s theory building research methodology**

Torraco (2002) indicates that Dubin’s (1978) Theory Building Methodology adheres to the quantitative tradition and employs a hypothetic-deductive approach to knowledge creation. According to Torraco (2002), a key advantage of Dubin’s method is that it provides a specific eight-phase process for theory building that encompasses both the initial development of theory and the subsequent theory verification.

**Grounded theory building**

In contrast to Dubin’s methodology, grounded theory uses an inductive approach to creating knowledge. In the context of grounded theory building, theory evolves through a continuous interaction between data collection and data analysis. During the grounded research process, theory is intermittently validated through ongoing matching of theory against data. As a result, unlike other theory-building approaches, grounded theory allows for new theoretical understandings to emerge from the data (Torraco, 2002). According to Dubin (as cited by Torraco, 2002), grounded theory building is particularly useful for generating new theoretical understandings and initial hypotheses about the phenomenon of interest.

**Meta-analytic theory building**

Meta-analysis as a form of theory building research, employs statistical procedures to aggregate a number of distinct, but similar empirical studies. Meta-analysis is intended to synthesize empirical findings from multiple studies to discern a set
of common conclusions as the foundation for theory building (Torraco, 2002). While theory may not be fully validated using meta-analysis, the approach’s ability to harmonize empirical studies offers a valuable benefit to theory (Torraco, 2002).

**Social constructionist theory building**

Theory building from the social constructionist perspective is based on the premise that knowledge is “constructed situationally through social interaction within communities or organizations,” (Turnbull, 2002, p. 319.) As a result, theory for social constructionists is not about identifying a universal truth, but about modeling the sense that people make of their everyday lives (Torraco, 2002). A unique feature of social constructionist theory building is its focus on the specific, the situational, and the particular in an effort to understand and represent the experience of those studied (Torraco, 2002, Turnbull, 2002).

**Theory building from case study research**

Case study research for theory building focuses on exploring specific instances of a phenomenon. The results are specific theoretical statements that explain the dynamics of a phenomena occurring with an individual case. (Torraco, 2002) One advantage of case study research for theory building is that the method is not constrained by existing literature or previous empirical findings (Torraco, 2002). As a result, the methodology is particularly well suited in instances where little is known about a phenomenon or current views are insufficient due to a lack of supporting evidence or because they are in conflict with each other or simply do not make sense (Eisenhardt, 1989; Torraco, 2002). A second benefit of case study research is that it “is consistent
with positivistic, naturalistic, or both paradigmatic approaches to the” creation of knowledge (Torraco, 2002, p. 6). This aspect of case study research is particularly useful when developing theory in new, uninvestigated areas or for inconsistent organizational phenomenon, (Torraco, 2002, p. 6).

**Different Theory-Building Paradigms**

Each of the above theory-building methodologies rests on a research paradigm or worldview (Gioia & Pitre, 1990; Holton & Lowe, 2007; Kuhn, 1970; Lynham, 2000b; Torraco, 2002, 2004, 2005). Identifying the paradigm on which a theory-building method rests grounds makes explicit its assumptions. Gioia & Pitre (1990) define a *paradigm* as, “a general perspective or way of thinking that reflects fundamental beliefs and assumptions about the nature of organizations,” (p. 585). Research paradigms are grounded in “differing fundamental assumptions about the nature of phenomena (ontology), the nature of knowledge about those phenomena (epistemology), and the nature of ways of studying those phenomena (methodology),” (Gioia and Pitre, 1990, p. 585; Lynham, 2000; Storberg-Walker, 2006). Because different paradigms are based on fundamentally different assumptions, they produce markedly different ways of approaching the building of theory (Holton & Lowe, 2007; Lynham, 2000b; Storberg-Walker, 2006).

Torraco (2004) distinguished between positivistic, naturalistic, and multi-paradigm theory-building methods. According to Torraco (2004), older theory-building methodologies, developed in the 1960s and 1970s, tend to take a more traditional, positivistic (i.e. quantitative) approach to theory development. Torraco (2005) indicates
that Dubin’s theory building research methodology and Meta-analytic theory building represent examples of the positivistic paradigm.

Many scholars contend, however, that these traditional, positivistic approaches to theory building are too regimented and do not reflect the “multifaceted nature of organizational reality,” (Gioia & Pitre, 1990, p. 584; Torraco, 2004; Van de Ven, 1989). As a result, scholars created naturalistic (i.e. qualitative) approaches to theory building research. These naturalistic approaches emphasize the need for the researcher to clearly articulate his or her theoretical logic and conceptual reasoning. For example, researchers employing naturalistic methods may include word-for-word data or explicitly detail their procedure for content analysis to make their theory development process transparent to their reader (Torraco, 2004). Torraco (2005) highlights Grounded theory, Phenomenological theory building, and Social constructionist theory building, as examples of this naturalistic approach.

Theory building research that adopts a multi-paradigm approach is distinct from positivistic and naturalistic approaches (Torraco, 2005). Torraco (2005) indicates that multi-paradigm theory-building bridges and synthesizes the positivistic and naturalistic paradigms to develop deeper levels of understandings of a phenomenon. Multiparadigmatic approaches to theory building research include theory building from case study research, the use of paradox for theory building, and theory building from multiple paradigms through metatriangulation.
Table 2.3 provides a summary of Torraco’s (2004, 2005) discussion of theory-building methods. In addition, the table includes Torraco’s list of theory-building research in each paradigm.

Table 2.3.
Theory-Building Methods and Related Literature Categorized by Research Paradigm
(adapted from Torraco 2004, 2005)

<table>
<thead>
<tr>
<th>Research paradigm</th>
<th>Description</th>
<th>Summary of theory-building methods</th>
<th>Relevant literature (as cited in Torraco, 2005)</th>
</tr>
</thead>
</table>
| **Positivistic**  | Traditional, quantitative approach to theory development | ▪ Dubin’s method  
▪ Meta-analytic theory building | 1964 – 1980  
▪ Kaplan (1964)  
▪ Stinchcombe (1968)  
▪ Blalock (1969)  
▪ Reynolds (1971)  
▪ Kerlinger (1973)  
▪ Dubin (1978)  
▪ Freese (1980)  
1980 – Present  
▪ Cohen (1989)  
▪ Klimoski (1991)  
▪ Yang (2002) |
| **Naturalistic** | Emphasizes the need for the researcher to clearly articulate his or her theoretical logic and conceptual reasoning | ▪ Grounded theory  
▪ Phenomenological theory building  
▪ Social constructionist theory building | ▪ Corbin and Strauss (1990)  
▪ Glaser and Strauss (1967)  
▪ Moustakas (1994J)  
▪ Strauss and Corbin (1998)  
▪ Turnbull (2002) |
Alternatively, other scholars have classified paradigmatic differences in theory building research methods along objective-subjective and regulation-radical change dimensions (Gioia & Pitre, 1990; Holton & Lowe, 2007; Lewis & Grimes, 1999; Lynham, 2000; Storberg-Walker, 2004). This approach yields four different research paradigms for analysis of social theory: (i) interpretivist (i.e. oriented toward a subjectivist view with less concern for changing the status quo); (ii) radical humanist (i.e. also oriented toward a subjectivist view but focused on critiquing the status quo with the goal of changing it); (iii) radical structuralist (i.e. typified by an objectivist perspective with an ideological concern for radical change; and (iv) functionalist (i.e. typified by an objectivist perspective with an orientation toward maintaining the status quo). These four paradigms are each mutually exclusive; researchers cannot operate from more than one paradigm at a time, because accepting the assumptions of one defies the assumptions of all the others (Holton & Lowe, 2007).

**The General Method Theory Building in Applied Disciplines**

As is clear from the above discussion, there is a number of different theory building research methodologies. Moreover, these various methodologies rest on

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Table 2.3 Continued

<table>
<thead>
<tr>
<th>Multi-paradigm</th>
<th>Bridge positivistic and naturalistic paradigms to create deeper understandings of phenomena than may be otherwise possible.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory building from case study research</td>
</tr>
<tr>
<td></td>
<td>Using paradox for theory building</td>
</tr>
<tr>
<td></td>
<td>Theory building through metatriangulation</td>
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<td></td>
<td>Eisenhardt (1989)</td>
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<td>Gioia and Pitre (1990)</td>
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<td></td>
<td>Langley (1999)</td>
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<tr>
<td></td>
<td>Lewis and Grimes (1999)</td>
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<td>Lynham (2002)</td>
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<tr>
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<td>Pentland (1999)</td>
</tr>
<tr>
<td></td>
<td>Weick (1989)</td>
</tr>
</tbody>
</table>
different research paradigms. According to Storberg-Walker (2006) each of these theory-building methodologies represents a single piece—albeit an important contribution—to the overall theory-building puzzle. While some methodologies may address the complete theory-building process (i.e. imagination through validation and application), they do not encompass multiple research paradigms. Alternatively, other methodologies may encompass multiple research paradigms (i.e. bridge positivistic and naturalistic approaches) but do not address the complete theory-building process.

Through her analysis of theory building research methods, Lynham (2002a) developed The General Method of Theory Building in Applied Disciplines (hereafter the General Method) of theory building. The General Method is an overarching theory-building framework that covers the full theory-building research process—from imagination to application—while encompassing multiple research paradigms (Storberg-Walker, 2006). The General Method represents the core structure of the theory-building process (Storberg-Walker, 2004). It involves five necessary phases of applied theory-building research: (i) conceptual development (i.e. the theorist develops an informed conceptual framework that provides an initial understanding of the phenomena); (ii) operationalization (i.e. the theorist links the conceptual framework to practice by translating the conceptual framework into elements that can be confirmed in the real world); (iii) confirmation or disconfirmation (i.e. the theorist tests the theoretical framework to determine its trustworthiness) (iv) application (i.e. the theorist applies the theory to a problem, phenomenon, or issue in the world of practice, which further informs the theory); and (v) continuous refinement and development of the theory (i.e. the theorist
refines the theory accordingly) (Lynham, 2002a; Storberg-Walker, 2003, 2006). Figure 2.2 provides an illustration of the General Method.

![Diagram of General Method of Theory Building in Applied Disciplines](image-url)

*The environment in which we live, observe and experience the world.*

Figure 2.2. The General Method of Theory Building in Applied Disciplines (Lynham, 2002a)

An important distinction of the General Method is that it does not prescribe a specific theory-building process or procedure. Instead, specific processes, such as
Dubin’s Theory Building Method, can be situated within the General Method’s phases as required and deemed appropriate by the researcher (Storberg-Walker, 2006). The General Method affords scholars several benefits including: its clear articulation of the relationship between theory and practice (Lynham, 2002a); it encouragement of multi-paradigm theory building (Lynham, 2002a; Storberg-Walker, 2006); and its explicit articulation of the theory-building research skills needed to develop theory (Lynham, 2002a; Storberg-Walker, 2006).

**Issues in Applied Theory-Building Research**

Would-be researcher-theorists must confront several issues when building theory in applied disciplines, such as HRD. These include: (i) selecting from multiple theory-building research methods; (ii) managing the inherent tension in the researcher-practitioner relationship; (iii) recognizing the value of multiple theory-building research paradigms; (iv) and evaluating theory. Each of these issues is described in the following subsections and connected back to this study.

**Choosing among theory-building research methods**

Given the number of different theory building research methods, how does the would-be researcher-theorist choose? Scholars overwhelmingly contend that the selection of a theory-building research method must be based on the nature of the theory building engaged in (Lynham, 2002a; Torraco, 2002). According to Torraco:

An important convention for all research is that the problem, opportunity, or need to be addressed by the research determines the methodology and design of the research…For example, theory building using case study research may be the
method of choice when little is known about the phenomenon of interest or when current perspectives in the literature and prior empirical evidence are inadequate. On the other hand, when extensive research exists on a topic, a meta-analytic approach may be the most effective method for synthesizing current empirical studies on an issue as the basis for theory development (2002, p. 7).

In alignment with this guidance, Chapter Three in this study identifies the relevant criteria for selecting among theory-building research methods. It then compares available methods to these criteria to select the appropriate theory-building research method for this study.

**Managing tension in the researcher-practitioner relationship**

As an applied field, HRD is concerned, first and foremost, with application (Dubin, 1976; Lynham, 2000b). The ultimate judge of theory is its application (Dubin, 1978; Lynham, 2002a; Van de Ven, 1989). This role of practice in the evaluation of theory makes for an interesting relationship between the researcher and practitioner (Lynham, 2000b; Storberg-Walker, 2006). It requires that the researcher develop a rich understanding of the phenomenon of interest from an empirical perspective (to maximize connectivity between abstractions and the real world). At the same time, it requires the practitioner to help define the problem and to choose empirical indicators for testing the theory.

The ability of researcher and practitioner to engage in the other’s domain is made difficult by their different orientations, interests, and objectives. Dubin (1976) contended that the divide between researcher and practitioner stems from a difference in
their respective requirements of theory. Researchers tend to be focused on intellectual outcomes—they look to theory to understand the nature and characteristics of the phenomenon under investigation. Alternatively, practitioners tend to focus on practical outcomes—they look to theory to provide explanation and prediction (Dubin, 1976; Lynham, 2000b).

The articulation of the inherent tension in the practitioner-researcher relationship helps the researcher-theorist to manage it by making it explicit. This raises awareness of the issue and compels the researcher-theorist to consider the impact of tension throughout the theory-building research process. In particular, in Chapter Four and Five of this study, the researcher-theorist sought to manage the tension by integrating his practical experience conducting large-group interventions as an organization development practitioner with the relevant scholarly literature to build "A Social Network-Based Theory of Large-Group Interventions."

**Recognizing the value of multiple theory-building research paradigms**

Another issue identified by Lynham (2000b) related to theory building research in applied disciplines is in recognizing the value of applying multiple theory-building research paradigms. Multi-paradigm research is beneficial because it provides multiple perspectives from which to understand complex and multifaceted organizational and social phenomena (Gioia & Pitre, 1990; Lynham, 2000b; Storberg-Walker, 2006; Torraco, 2004).

While HRD scholars widely support the use of multiple and inclusive theory building research methods in HRD (Lynham, 2000b), HRD theorists typically employ a
small number of theory building approaches (Lynham, 2000b; Torraco, 2004). In particular, HRD scholars tend to depend largely on grounded theory building to develop naturalistic theory and Dubin’s theory building methodology to develop positivistic theory (Torraco, 2004). It is likely that HRD scholars favor these approaches because each offers “explicit methodological guidance for working through the phases and procedures for building theory,” (Lynham, 2000b; Torraco, 2004, p. 14). Gioia and Pitre (1990) contend that scholars’ emphasis on the positivistic paradigm is in conflict with their espoused views regarding the value of the alternative research paradigms that are now gaining prominence in organizational and social studies.

To help address this issue in this study, the researcher-theorist considered theory-building research methods from each of the major research paradigms (positivistic, naturalistic, and multi-paradigm) in Chapter Three. Only after each of these potential research paradigms were considered was the final choice of theory-building research method made. In addition, the assumptions of the underlying research paradigm for the selected theory-building research method are made explicit in Chapter Three.

**Evaluation of theory and theory building research**

Scholars have identified a number of different guidelines with which to evaluate applied theory (Torraco, 2004). As previously described, one common theme in applied fields, such as HRD, is that the final judge of good theory is its practice,” (Dubin, 1978; Lynham, 2002a; Van de Ven, 1989). According to Van de Ven (1989):
Good theory is practical precisely because it advances knowledge in a scientific discipline, guides research toward crucial questions, and enlightens the profession of management (p. 486).

Many scholars have also suggested that good theory and theory building research should reflect two critical characteristics: rigor (i.e. the degree to which the theory-building is complete and thorough) and relevance (i.e. the degree to which the theory-building is applicable in the real world) (Marsick, 1990). Van de Ven (1989) termed these qualities validity and utility while Bacharach (1989) referred to them as falsifiability and utility.

Whetten (1989) identified four fundamental elements necessary for a complete theory: what (i.e. what factors should be part of the explanation of the phenomena of interest); how (i.e. how are these factors related); why (i.e. why should one believe the particular representation of the phenomena); and who, where, and when (i.e. what conditions place limitations on the propositions created from the theoretical model).

Finally, Patterson (1986) offered eight criteria for evaluating theory. Regularly cited by HRD scholars, and recommended by Toraco (1994 as cited by Holston & Lowe, 2007) these criteria include: (i) importance (i.e. the theory should not be limited to restricted situations; (ii) precision and clarity (i.e. the theory should be understandable, internally consistent, and free from ambiguity); (iii) parsimony or simplicity (i.e. the theory should contain a minimum of complexity and few assumptions; (iv) comprehensiveness (i.e. the theory should be complete, covering the area of interest and encompassing all known data in the field; (v) operationality (i.e. the theory’s concepts
must be adequately defined so as to be measurable; (vi) empirical validity or verifiability (i.e. the theory must be supported by experience and empirical data); (vii) fruitfulness (i.e. the theory should lead to new knowledge); and finally (viii) practicality (i.e. the theory should be of benefit to practitioners in organizing their understanding and practice.

Finally, Dubin (1976) indicated that good theory building should result in two types of knowledge. The first is outcome knowledge, which typically takes the form of explanatory and predictive knowledge. The second is process knowledge, which typically takes the form of increased understanding of how something works and what it means. Tuttle (2003) adapted Dubin’s description to define the outcome of theory building as:

Understanding is an intellectual and/or aesthetic product of a theoretical model (knowledge of process). Accurate prediction is the practical product of the theory (knowledge of outcomes) (p. 79).

To evaluate the theory developed in this study, Chapter Six applies Patterson's eight criteria for evaluating theory to "A Social Network-Based Theory of Large-Group Interventions. In the instances where the theory does not fully meet Patterson's criteria, limitations of the studies research are identified.

Summary of Theory and Theory Building Research Literature

In summary, this section has reviewed the literature related to theory and theory building research. From this review, six key postulates for this study emerge. These are:
• Theory building research is a scholarly method of rigorous scientific inquiry (Dubin, 1978; Gall, Borg, & Gall, 1996; Kaplan, 1964; Lynham, 2002b; Storberg-Walker, 2006; Swanson, 1997, 2000; Torraco, 2000);

• Theory building is critical to HRD practice and research (Holton III, 2002; Lynham, 2000a, 2002a; Storberg-Walker, 2006; Swanson, 2000; Torraco, 1997, 2002, 2004);


• Multi-paradigm theory building research is preferable to single paradigm theory building research because it provides multiple perspectives from which to understand a phenomenon (Gioia & Pitre, 1990; Lynham, 2000b; Storberg-Walker, 2006; Torraco, 2004, 2005);

• The decision regarding theory-building research approach should be based on the nature of the theory building engaged in (Lynham, 2002a; Torraco, 2002); and

• Theory can be evaluated using the following criteria (1) importance; (2) precision and clarity; (3) parsimony; (4) comprehensiveness; (5) operationality; (6) empirical validity or verifiability; (7) fruitfulness; and (8) practicality (Holton & Lowe, 2007; Patterson, 1986).
Conclusion

This chapter reviewed the literature pertaining to this study. Four bodies of literature were presented: literature relating to the social network perspective; literature applying the social network perspective to organizational change; large-group intervention literature; and literature on theory and theory building research. Throughout the chapter, key implications for the study, or postulates, were identified. These postulates are important because they inform the study’s understanding of the phenomena under investigation—large-group interventions—as well as of the theory building research process. These key postulates are summarized in Table 2.4.

Table 2.4.

Summary of Key Postulates Resulting from the Literature Review

<table>
<thead>
<tr>
<th>Section of Literature Review</th>
<th>Key Postulates</th>
</tr>
</thead>
</table>
| **Social Network Perspective** | • The social network perspective is a distinct research perspective within the social and behavioral sciences based on the assumption of the importance of relationships among interacting units (Wasserman & Faust, 1999).  
  • According to the social network perspective it is the structure, or pattern, of social relationships that facilitate or constrain behavior as much or more than the attributes of the actors themselves (Brass, 2003; Kilduff & Tsai, 2003; Monge & Contractor, 2003).  
  • The social network perspective can offer new leverage from which to address outstanding research questions (Brass, 2003; Garcia, 2007; Hatala, 2007; Storberg-Walker & Gubbins, 2007; Wasserman & Faust, 1999). |
Table 2.4 Continued

<table>
<thead>
<tr>
<th>Social Network Perspective on Organizational Change</th>
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<tbody>
<tr>
<td>• Social networks affect organizational outcomes by providing conduits for the transfer of interpersonal resources such as new ideas, work-related information, and emotional support (Balkundi &amp; Harrison, 2006; Brass, 2003; Cross &amp; Parker, 2004; Kilduff &amp; Tsai, 2003; Krackhardt, 2003; Monge &amp; Contractor, 2003).</td>
</tr>
</tbody>
</table>

| • The starting point for planned organizational change is the acquisition of new information or knowledge (Lewin, 1947; MacDonald, 1995). |
| • Relationships that bridge gaps, or structural holes, in the social network provide access for the new information necessary for change (Burt, 2003; Granovetter, 1973; Hansen, 1999; Kilduff & Tsai, 2003; Rogers, 2003). |
| • Social network analysis can be used by change practitioners to simulate transformational learning on the part of participants that can generate motivation to change (Cross & Parker, 2004). |
| • Overcoming employees’ resistance to change is required for successful change efforts (Burke, 2002; French & Bell, 1999). |
| • Strong ties serve as a foundation for diffusion change information and overcoming resistance to change (Krackhardt, 2003; McGrath & Krackhardt, 2003; Mohrman, Tenkasi & Mohrman, 2003; Tenkasi & Chesmore, 2003). |
| • Social network analysis can be used by change practitioners to identify important stakeholders or influential change agents (Krackhardt, 2003; McGrath & Krackhardt, 2003). |
| • Successful organizational change requires that aspects of the organization’s culture must be brought into alignment with the intended change; (Burke, 2002; Lewin, 1947). |
Table 2.4 Continued

- An organization’s social network represents an aspect of organizational culture that, like other cultural dimensions, can facilitate or constrain organizational change efforts (Beer, Eisenstat & Spector, 1990; Brass, 2003; Cross, Liedka & Weiss, 2005; Kilduff & Tsai, 2003; Mohrman, Tenkasi & Mohrman, Jr., 2003; Stephenson, 2003).

- Connectivity within a social network increases task performance (Balkundi & Harrison, 2006; Cross, Borgatti & Parker, 2002; Kilduff & Tsai, 2003; Powell, Koput & Smith-Doerr, 1996).

- Social network analysis can be used by change practitioners to assess efforts to refreeze the organization (Cross & Parker, 2004; Garcia & Shin, 2008).

Large-Group Interventions

- Large-group interventions are focused on whole system, transformational change (Bramson & Buss, 2002; Bunker & Alban, 1997; Manning & Binzagr, 1996; Weber & Manning, 1998).

- Large-group interventions bring together representative participants from all of the stakeholder groups affected by the change (Bramson & Buss, 2002; Bryson & Anderson, 2000, Bunker & Alban, 1997; Manning & Binzagr, 1996; Weber & Manning, 1998).

- Large-group interventions engage participants in activities that foster mutual understanding and dialogue to create a collective, system-level view of the organization (Holman & Devane, 1999; Manning & Binzagr, 1996).

- Large-group interventions engage people in a structured conference lasting one to three days (Bunker & Alban, 1997; Manning & Binzagr, 1996).

- Large-group interventions are comprised of three phases: (1) Understanding the Need for Change; (2) Created a Preferred Future Vision; and (3) Generating Implementation Plans (Bunker & Alban, 1992a; 1997; Manning & Binzagr, 1996).
Table 2.4 Continued

- Large-group interventions have been successfully used in a variety of settings and the practice of large-group interventions is increasing (Bunker & Alban, 2006; Holman & Devane, 1999).

- Researchers differ on the degree to which large-group intervention theory is established and many contend that the theoretical mechanisms by which large-group interventions work are not adequately defined (Austin & Bartunek, 2003; Bryson & Anderson, 2000; Manning & Binzagri, 1996; Polanyi, 2001; Weber and Manning, 1998; Waclawski, 2002).

- This lack of theoretical clarity means that it is difficult to say with certainty how large-group interventions work, in which circumstances they are appropriate, or how they might be integrated with other forms of organization development (Garcia, 2007).

- Researchers have suggested (Clarke, 2005; Garcia, 2007; Tenkasi & Chesmore, 2003) and case-based research supports the possibility that the success of large-group interventions may be attributable to their ability to restructure social networks (Arena, 2001; Bunker & Alban, 1992a; Dannemiller & Jacobs, 1992; French & Bell, 1999; Weisbord & Janoff, 2005; Whittaker & Hutchcroft, 2002).

- Despite the above evidence, however, little research has been done to validate the possibility or to understand the ways in which large-group interventions affect social networks or the types of network changes that result (Garcia, 2007).

Theory and Theory Building Research

- Theory building research is a scholarly method of rigorous scientific inquiry (Dubin, 1978; Gall, Borg, & Gall, 1996; Kaplan, 1964; Lynham, 2002b; Storberg-Walker, 2006; Swanson, 1997, 2000; Torraco, 2000).

In addition, this chapter defined the study’s core terms and concepts. Defining these terms and concepts is important because it ensures common understanding and consistency in how the terms and concepts are employed throughout the study. A summary of these definitions appears in Table 2.5.
Table 2.5.  
Summary of Definitions of the Study’s Core Terms and Concepts.

<table>
<thead>
<tr>
<th>Core Methodological Terms &amp; Concepts</th>
<th>Working Definitions</th>
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</thead>
<tbody>
<tr>
<td><strong>Planned Organizational Change</strong></td>
<td>“a set of behavioral science-based theories, values, strategies, and techniques aimed at the planned change of the organizational work setting for the purpose of enhancing individual development and improving organizational performance, through the alteration of organizational members’ on the job behaviors,” (Porras and Robertson, 1992, p. 723).</td>
</tr>
<tr>
<td><strong>Social Network Perspective</strong></td>
<td>A distinct research perspective within the social and behavioral sciences; distinct because social network analysis is based on an assumption of the importance of relationships among interact units. The social network perspective encompasses theories, models, and applications that are expressed in terms of relational concepts or processes. That is relations defined by linkages among units are a fundamental component of network theories (Wasserman &amp; Faust, 1999, p. 4).</td>
</tr>
<tr>
<td><strong>Large-Group Intervention</strong></td>
<td>A whole-system change process that allows a critical mass of people to participate in: (i) understanding the need for change; (ii) analyzing the current reality and deciding what needs to change; (iii) generating ideas how to change existing processes; (iv) and implementing and supporting change and making it work,” (Bunker &amp; Alban, 1997, p. xv-xvi).</td>
</tr>
<tr>
<td><strong>Theory</strong></td>
<td>A theory is an explanation of a certain set of observed phenomena in terms of a system of constructs and laws that relate these constructs together (Gall, Borg &amp; Gall, 1996, p. 8).</td>
</tr>
<tr>
<td><strong>Theory Building Research</strong></td>
<td>The process or recurring cycle by which coherent descriptions, explanations and representations of observed or experienced phenomena are generated, verified, and refined (Lynham, 2000b, p. 161).</td>
</tr>
</tbody>
</table>
Table 2.5 Continued

| Outcomes of Theory Building | Understanding is an intellectual and/or aesthetic product of a theoretical model (knowledge of process). Accurate prediction is the practical product of the theory (knowledge of outcomes (Tuttle, 2003, p. 79). |
| Theory Building Strategy | One of two different approaches to theory building: research-to-theory (i.e. inductive) or theory-to-research (deductive). Adapted from Reynolds (1971). |
| Paradigm | A general perspective or way of thinking that reflects fundamental beliefs and assumptions about the nature of organizations,” (Gioia & Pitre, 1990, p. 585). |

The next chapter in this study, Chapter Three, presents the study’s research direction, the methodology chosen for this study, and the specific steps to be carried out in developing and operationalizing “A Social Network-Based Theory of Large-Group Interventions.”
CHAPTER THREE: METHODOLOGY

The intent of this chapter is to present the methodology chosen for this study and to explain the rational for this decision. The chapter will: (1) reiterate the study’s research direction; (2) describe the study’s methodological considerations; (3) discuss the criteria for identifying a specific theory-building methodology; (4) explain why Dubin’s (1978) theory building research method was selected; and, finally, (5) discuss the boundaries and scope of the theory-building research and the specific steps used in the development of "A Social-Network Based Theory of Large-Group Interventions."

Research Direction

As described in Chapter One, researchers and practitioners from a variety of fields, including HRD (Dewey & Carter, 2003; Nixon, 1998), organization development (Burke, 2002; Bunker & Alban, 1997; French & Bell, 1999; Worley & Feyerherm, 2003) and public administration (Bastianello, 2002; Bramson & Buss, 2002; Bryson & Anderson, 2000) appreciate the efficacy of large-group interventions in affecting organizational change. Many researchers contend, however, that the theoretical mechanisms that underlie these interventions are not well understood (Austin & Bartunek, 2003; Bryson & Anderson, 2000; Garcia, 2007; Weber & Manning, 1998; Weisbord & Janoff, 2005).

The lack of established large-group intervention theory causes several problems. In particular, it is difficult to say with certainty how large-group interventions work,
under which circumstances they are appropriate, or how they might be integrated with 
other forms of organization development.

One promising explanation for how large-group interventions work is through 
their ability to restructure the networks of social relationships that exist within 
organizations (Clarke, 2005; Garcia, 2007; Tenkasi & Chesmore, 2003). Numerous 
qualitative case studies support the possibility that large-group interventions affect 
organizations change through the interventions’ capacity to restructure social networks 
(Garcia, 2007). To date, however, the possibility that the success of large-group 
interventions is attributable to their ability to restructure social networks is largely 
unexplored.

This study is intended to address this gap. Specifically, the purpose of this study 
is to develop and operationalize “A Social Network-Based Theory of Large-Group 
Interventions.” The findings of this study explain what kinds of social network changes 
result from large-group interventions and under what circumstances these changes occur.

Methodological Considerations

Since the literature on large-group interventions does provide some theoretical 
contributions, one option to better understand the phenomenon would be to identify an 
existing theory of large-group interventions and to test the specific components of that 
theory. Unfortunately, existing data suggesting that the success of large-group 
interventions may be attributable to the interventions’ ability to restructure social 
networks comes from case-based, descriptive studies which have not sought to build or 
extend theory. As a result, the large-group intervention literature does not appear to
include a conceptual framework based on a social network perspective. Tests of existing theory are therefore not feasible for this study.

As a result, the conceptualization and operationalization of “A Social Network-Based Theory of Large-Group Interventions” appears warranted. Thus, the guiding research question and sub-questions for this study are:

Can social network theory be used as the basis to develop a theory of large-group interventions?

c. Can a social network-based theory of large-group interventions be conceptualized?

d. Can a social network-based theory of large-group interventions be operationalized?

In addition, while this study will not validate the theory through empirical testing, it will propose a research agenda that if undertaken would test the theory’s hypotheses and allow for validation and refinement.

The intent of the study, to develop and operationalize a new theory, represents an accepted research model in HRD (Ardichvili, Cardozo & Ray, 2003; Holton & Lowe, 2007; Lynham, , 2000b, 2002a, 2002b; Torraco 2004, 2005) that has been used in numerous dissertations (Chermack, 2003; Lynham, 2000a, Storberg-Walker, 2004; Tuttle, 2003). An advantage of the approach is that, in addition to bridging the gap between large-group intervention theory and practice, the study will build new HRD theory. Numerous HRD scholars (Holton, 2002; Kuchinke, 2000; Lynham, 2000a,
2000b, 2002a; Swanson, 2000; Torraco, 1997, 2004) have indicated that the development of new theory and the description of theory-building process would benefit the field.

**Criteria for Identification of Preferred Theory-Building Strategy**

After determining that the conceptualization and operationalization of “A Social Network-Based Theory of Large-Group Interventions” was warranted, the appropriate theory-building research methodology with which to carry out the study had to be selected. HRD scholars recommend a number of criteria with which to select a theory-building research method. The first is the extent to which the theory-building research method’s strategy (i.e. theory-to-research vs. research-to-theory) is in alignment with the study's purpose (Lynham, 2002a; Torraco, 2002). A second criterion is degree to which the theory-building research method's conceptual paradigm (i.e. functionalist, interpretivist, radical structuralist, and radical humanist) is in alignment with the study's purpose. A third criterion is a desire for the research to be accessible and immediately applicable to the field of HRD (Tuttle, 2003, Storberg-Walker, 2004). Finally, a fourth is the completeness of each theory building research method (Storberg-Walker, 2004). A description of how each of these four criteria was used to identify requirements for the study's theory-building research methods follows.

**Theory-Building Research Strategy Criterion**

As described in Chapter Two, Reynolds (1971) distinguishes between ‘theory-to-research’ (i.e. deductive) and ‘research-to-theory’ (i.e. inductive) strategies for theory building research. In the case of this study, limited empirical data is available. While multiple, published cases studies suggest the possibility that the success of large-group
interventions may be attributable to their capacity to restructure social networks, the supporting data is largely anecdotal. Given the lack of empirical research to draw on, a theory-to-research strategy is most appropriate (Holton & Lowe, 2007; Tuttle, 2003). Holton and Lowe (2007) make this case:

Traditional scientific research would require justification from prior research for proposed relationships. Yet, the deductive theorist has license to propose constructs and relationships that are unproven, untested, and perhaps completely original. In fact, the fundamental value of deductive theory building research is that it advances knowledge by proposing things that are unknown and unproven (p. 304).

Consequently, this study will employ a theory-building method that is based on a theory-to-research strategy.

**Theory-Building Research Conceptual Paradigm Criterion**

As discussed in Chapter Two, Gioia and Pitre (1990) identified four conceptual paradigms upon which theory-building methods are based. These include: interpretivist, radical structuralist, radical humanist, and functionalist. The intent of this study is to develop and operationalize a theory of large-group interventions from a social network perspective. The decision to employ a social network perspective presupposes a specific paradigm. Social network research methods are quantitative in nature and based on an assumption that the nature of phenomena is objective, awaiting impartial exploration and discovery (Kilduff & Tsai, 2005; Scott, 2004; Wasserman & Faust, 1999). Social network methods, therefore, fall into the functionalist paradigm. This in turn suggests
that this study’s theory-building methodology should likewise be oriented towards a functionalist perspective. Thus, the study will employ a theory-building method based on the functionalist paradigm.

**HRD Application Criterion**

A key criterion for evaluating theory is the degree to which that theory can be applied in practice. Thus, it is important that the results of this study be immediately accessible to both HRD scholars and practitioners. This requirement suggests the use of a theory-building method that is in wide-spread use. Such a method is more likely to produce outcomes that are understood and can be readily applied by HRD scholars and practitioners in the near term. Consequently, this study will employ a well-known theory-building method.

**Completeness Criterion**

As discussed in Chapter Two, theory-building methods vary in the degree to which they address the entire theory-building process. This study’s purpose is to develop and operationalize “A Social Network-Based Theory of Large-Group Interventions.” In addition, the researcher-theorist’s intent is to ultimately validate and refine this theory. Thus, a theory-building method that encompasses the complete theory-building process, from conceptualization through empirical testing, is preferable. This study will therefore employ a complete theory-building method; one that provides direction for all phases of the theory-building process.
Selection of Dubin’s Theory-Building Methodology

Having identified the requirements—theory-to-research strategy, functionalist conceptual paradigm, immediate HRD application, and completeness—with which to select a theory-building method, a review of theory-building methods was undertaken. Specifically, the researcher assessed the theory-building methods discussed in Chapter Two—Dubin’s Theory-Building Method, Grounded Theory-Building, Meta-analytic Theory-Building, Social Constructionist Theory Building, and Theory Building from Case Study Research—against the selection criteria. This analysis revealed that Dubin’s Theory Building Method was best suited for this study (please see Table 3.1).

Table 3.1.
Analysis of Theory-Building Methods Against Study Criteria

<table>
<thead>
<tr>
<th>Theory Building Method</th>
<th>Theory-Building Strategy</th>
<th>Conceptual Paradigm</th>
<th>Extent of Use within Field of HRD</th>
<th>Completeness</th>
</tr>
</thead>
</table>
In line with the study’s criteria, Dubin’s theory building research method is based on a deductive, theory-then-research strategy (Dubin, 1978; Holton & Lowe, 2007; Tuttle, 2003). In Dubin’s method theory is developed as a hypothesis based on logic and what is known about the constructs and then tested and validated with empirical data. Also, in accordance with this study’s requirements, Dubin’s (1978) method best fits within the functionalist paradigm (Dubin, 1978; Holton & Lowe, 2007). Dubin’s approach to theory building research is to make sense of the observable world by identifying a phenomenon’s key constructs and determining the relationships among them. In regards to immediacy of HRD application, Dubin’s method is widely used (e.g. Lowe & Holton, 2005; Tuttle, 2003) and, in fact, has been described as the leading hypothetico-deductive method by HRD scholars (Holton & Lowe, 2007; Lynham, 2002b; Storberg-Walker, 2003; Torraco, 2005).

Finally, Dubin’s method encompasses the complete theory-building process (Lynham, 2002b, Tuttle, 2003; Storberg-Walker, 2007). According to Lynham (2002),
“Following the form and and substance of [Dubin’s method] is considered necessary and sufficient to ensure both rigor and relevance in the resulting theory,” (p. 244). Dubin’s method includes eight steps that progress through and address each of the five phases Lynham (2002b) describes as necessary for theory building research. The first four of Dubin’s eight research steps comprise the first part of the theory building research process, which entails development of the theoretical model. The steps in this part of the theory-building process, include: (i) identification and definition of the units of the theory (i.e. the elements that interact to create the phenomenon); (ii) determination of the laws of interaction that state the relationships between the units of the theory; (iii) definition of the boundaries of theory to help focus attention on forces that might impact the interplay of the units; (iv) definition of the theory’s system states (i.e. different situations which may affect the interaction of the theory’s units). After completing part of one the theory-building process, the research begins part two, research operation. This part of the theory building research process entails operationalizing and testing the theory. The steps involved in this part of the theory building research process include: (v), defining propositions from the theoretical model that are to be considered logical and true; (vi) identifying empirical indicators, which can be measured, for each key point to be tested; (vii) generating testable hypotheses or research questions; and, finally (viii) testing. Figure 3.1 provides an illustration of Dubin’s method and indicates how it can be integrated with the phases in Lynham’s (2002a) General Method.
Figure 3.1. Lynham’s (2002b) General Method Integrating Dubin’s Eight Steps of Theory Building Research (Adapted from Tuttle, 2003)

**Theory Building Research Steps Followed for this Study**

This study will use Dubin’s eight-step theory building research methodology.

The boundaries of the theory, the scope of the study’s theory-building process, and the steps followed are described below.
Boundaries of this Theory

Identifying the boundaries of the theory allows the theorist to clearly define the aspects of the real world that the theory is attempting to model (Dubin, 1978; Lowe & Holton, 2005). The intent of this study is to develop a theory of large-group interventions from a social network perspective. Thus, the theory is first bounded by the definition of large-group intervention change methods. Drawing from the review of the large-group intervention in Chapter Two, several conclusions about the nature of large-group interventions bound this theory-building research effort:

1. Large-group interventions are focused on whole system, transformational change;
2. Large-group interventions include representative participants from all of the stakeholder groups affected by the change;
3. Large-group interventions engage a critical mass of the people involved in the change;
4. Large-group interventions engage people in a structured conference lasting one to three days; and
5. During large-group interventions, participants engage in strategic decision making and develop corresponding implementation plans.

The use of a social network perspective to develop a theory of large-group interventions provides additional boundary conditions on the theory. As defined in Chapter Two, the social network perspective is based on an assumption of the importance of relationships among social entities. From this perspective, the nature and structure of
relationships in a social network can influence organizational outcomes. Thus, the application of a social network perspective in developing a theory of large-group interventions bounds the theory by prescribing the types of concepts, such as network structure and type of social relationship, that the theory will focus on. In contrast other potential perspectives from which to develop large-group intervention theory, such the evolutionary or systems perspective are excluded. Please see Figure 3.2 for an illustration of the study’s theory-building research boundaries.

*Representative examples of alternative perspectives that are not in the scope of this study

Figure 3.2. Boundaries of Study’s Theory-Building Research
Scope of this Theory Building Research Process

Robust and valid theories have typically been subjected to multiple iterations of the conceptual development and application phases of theory building and have progressed through an ongoing evolution such that they more closely reflect the properties of the world (Dubin, 1978; Tuttle, 2003). This evolution can, in fact, be a career-long endeavor (Tuttle, 2003). Thus, although eventual completion of both the theory development and research operationalization portion of the theory-building research process are critical to the development of the theory; each component plays a distinct yet interdependent role in the process (Holton & Lowe, 200; Lynham, 2002b; Tuttle, 2003). As a result, the theorist is able to enter and exit the theory-building research process at different points depending upon the current understanding of the phenomena of interest (Tuttle, 2003). According to Lynham (2002b), for example:

Although it is important for researcher-theorists to consider the entire scope of Dubin’s model for effective theory building, the theoretical and research operation side of the methodology are often separated in the theory building process” (p. 36).

This is the case in this study. This study will enter the theory-building process at the start of the Conceptual Development Phase and thus will begin by identifying the theory’s units, laws of interaction, the boundaries of the theory, and its system states. This portion of the study will complete part one, the theory development part, of the theory building research cycle. The outcome of part one is a theoretical model or, what Lynham (2002b) and Tuttle (2003) refer to as a conceptual framework of the theory.
Some theory-building research studies end after this first part of the theory building research process (e.g. Lowe & Holton, 2007). This study, however, will also begin to move the social network-based theory of large-group interventions into the research operationalization part of the theory-building process. Specifically, the study will develop propositions for the theoretical model and a clear research agenda for testing the theory in the real-world. This is in accordance with other contributions to the theory-building literature (e.g. Storberg-Walker, 2004; Tuttle, 2003). Figure 3.3 illustrates the study’s entrance and exit points in the overall theory.

Figure 3.3. Entrance and Exit Points for Study’s Theory-Building Research Process
**Steps in this Theory Building Research Process**

The following section describes each of the theory-building research steps within the scope of this study. A more detailed discussion of each step is provided in Chapters Four and Five. It is important that the more detailed description of each theory-building research step is presented in conjunction with the output of the step so that the process by which the step was developed is fresh in the reader's mind. This approach is in accordance with the work of previous researchers (e.g. Lynham, 2000a; Tuttle, 2003).

Before describing each step it should be noted that during the conceptual development phase of the theory-building process--steps one through four--the researcher applied Weick (2001)’s process of disciplined imagination. The application of disciplined imagination for the conceptual development phase of theory building research has been validated by HRD scholars (e.g. Holton & Lowe, 2007; Storberg-Walker and Chermack, 2007). Weick (2001) argued that theorizing should be separated from methodological processes that focus on validation and testing. Weick (2001) contended that too often validation processes get in the way of theorizing by deemphasizing the creative, intuitive nature of the theory-building process. Weick (2001) offered disciplined imagining as an alternative to mechanistic theory-building process. Disciplined imagining calls for the theorist to conduct a “series of thought trials much like other researchers conduct experiments,” (Holton & Lowe, 2007, p. 310). These thought trials represent informed speculations about ways to address the problem on which the theory focuses. The conjectures are then evaluated based on their plausibility
as opposed to their validity, which the researcher subsequently tests after the theory is
developed.

In line with the process used by Holton and Lowe (2007) to develop their *theory
of computer based instruction for adults*, the researcher will continue to conduct thought
trials until the resulting theory meets Patterson’s (1986) criteria for evaluating theory (see
Chapter Two for a review of Patterson’s criteria). The use of Patterson’s criteria to
evaluate the study’s theoretical model is appropriate because Patterson’s criteria were
specifically developed to evaluate theory in the behavioral sciences (Holton & Lowe,
2007; Torraco, 1997); have a high degree of overlap with criteria from other sources
(Holton & Lowe, 2007; Torraco, 1997); and have been previously used to evaluate theory
in the field of HRD (e.g. Holton & Lowe, 2007). Table 3.2 indicates which of
Patterson’s (1986) criteria are relevant to each step in Dubin’s (1978) theory-building
research methodology.

Table 3.2.
Alignment of Patterson’s Criteria for Evaluating Theory to Dubin’s Theory-Building
Research Methodology

<table>
<thead>
<tr>
<th>Dubin’s Step</th>
<th>Patterson’s Relevant Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Developing Units</td>
<td>• Precision and clarity</td>
</tr>
<tr>
<td></td>
<td>• Parsimony</td>
</tr>
<tr>
<td></td>
<td>• Comprehensiveness</td>
</tr>
<tr>
<td>Step 2: Developing Laws of</td>
<td>• Precision and clarity</td>
</tr>
<tr>
<td>Interaction</td>
<td>• Parsimony</td>
</tr>
</tbody>
</table>
Table 3.2 Continued

Step 3: Determining Boundary Conditions
- Precision and clarity
- Importance
- Comprehensiveness

Step 4: Specifying System States
- Precision and clarity
- Parsimony

Step 5: Developing Propositions
- Precision and clarity
- Parsimony
- Practicality
- Fruitfulness

Step 6: Identifying Empirical Indicators
- Precision and clarity
- Parsimony
- Operationality

Step 7: Developing Hypotheses
- Precision and clarity
- Parsimony
- Practicality
- Fruitfulness

Step 8: Testing and Refinement
- Empirical validity

**Step 1: Defining the units of this theory**

Concepts refer to the things about which science is trying to make sense.

According to Holton & Lowe (2007, p. 311), “Concepts and their labels allow individuals to think about their experiences without necessarily having to consider all their concrete, perceptual aspects.” Concepts therefore help to reduce the world’s complexity. Dubin (1978) indicated that there is confusion regarding the specific meaning of concepts and he therefore use the more neutral term “units” to designate the things out of which theories are built. For Dubin (1976), the units of the theory are “the things out of which the theory is built,” (p. 26).
This study will ground the development of units of "A Social Network-Based Theory of Large-Group Interventions" in several areas of the literature. It will identify units from the prior knowledge base related to large-group interventions as well as social networks and organizational change. In addition, the researcher will draw on his personal experience conducting a large-group intervention in practice. The use of practical experience to aid in the concept development portion of the theory-building process is in line with theorists’ guidance (Lynham, 2000b) who state that the “focus of theory and theory building research in an applied field like HRD is to be informed, guided, and judged by practice,” (p. 166). To determine which elements will result in actual units for the theory, Dubin’s (1978) unit classifications, unit properties, and rules for including and excluding units will be applied. Thus, the output of this step will answer the question, “What are the units in the social network-based theory of large-group interventions?” To illustrate how the process has been completed in previous published research, Lowe and Holton’s (2005) work will be referenced. Readers are thus given the opportunity to see each completed step.

One example of units of a theory was developed by Lowe and Holton (2005) in their theory of effective computer-based instruction for adults. The units identified for their theory were (1) learning outcome, (2) external support (3) computer programming of content and lesson design, (4) instructional design strategy, (5) self directedness, (6) computer self efficacy, and (7) learning goal level.
Step 2: Defining the laws of interaction of this theory

The second step in this study’s theory building research process will be to define the theory’s laws of interaction. A law of interaction is a statement by the researcher of the way in which the theory’s units are related to one another (Dubin, 1978; Lynham 2002b). This step is critical because until this step is undertaken, the theory is merely a taxonomic model of the units involved (Dubin, 1987; Lynham, 2002b; Tuttle, 2003).

In the case of this study and in accordance with the literature, the laws of interaction were developed based on empirical and anecdotal evidence from the literature and from the researcher’s previous, ongoing practical experience with large-group intervention phenomenon. Once again, Dubin’s (1978) theory building research methodology outlines specific processes for identifying laws of interaction between units and for defining the features of these laws. Furthermore, the study will follow the example of Holton and Lowe (2007) who developed laws of interaction for their theory of effective computer-based instruction for adults using a systems approach. These theorists conceptualized the units of their theory as inputs, processes, and outputs within a macrosystems model. They contended that from this conceptualization, the laws of interaction became more easily discernable. Thus, the output of this step will answer the question, “What are the laws of interaction that govern the units in the social network-based theory of large-group interventions?”

An example of laws of interaction can be seen in Lowe and Holton’s (2005) theory of effective computer-based instruction for adults. Lowe and Holton identified seven laws in their theory:
Law 1: The units of self-directedness, external support, computer self-efficacy, instructional strategy design, learning goal level, and CBI design are required for the output of the desired learning outcome.;

Law 2: The units of self-directedness and computer self-efficacy influence external support;

Law 3: The units of self-directedness, external support, computer self-efficacy, instructional strategy design, and learning goal level influence CBI design;

Law 4: Self-directedness, computer self-efficacy, and learning goal level are inputs into the process of CBI design;

Law 5: Learning goal level is input into the process of instructional strategy design;

Law 6: External support and CBI design support have a two-way relationship: (a) Strong external support will influence the amount of CBI design support, and (b) strong CBI design support will influence the amount of external support; and

Law 7: Instructional strategy design precedes CBI design as processes that are required for an output of the desired learning outcome.

**Step 3: Defining the boundaries of this theory**

The third step in this study’s theory building research process is defining the boundaries of the theory. The boundaries of a theory identify the real-world limits or domain of the theory (Dubin, 1978; Holton & Lowe, 2007). It is within these boundaries that the theory is anticipated to hold up and apply (Lynham, 2002b; Tuttle, 2003).
As discussed in the preceding section, Boundaries of this Theory, the social network-based theory of large-group interventions is bounded by its focus on the specific practice of large-group interventions and by its orientation toward a social network perspective. Additional boundaries will be identified and applied as required based on the completion of the first two theory-building steps.

Thus, the outcome of the third step in the study’s theory building research process will be an answer to the question, “What are the boundaries of the social network-based theory of large-group intervention?”

An example of boundaries can be seen in Lowe and Holton’s (2005) *theory of effective computer-based instruction for adults*. Lowe and Holton (2005) first bounded their theory by the distinguishing between all human activity and adult learning; their theory was specifically applies to adult learning environments. Within the domain of adult learning, their theory is next bounded by a focus on computer-based instruction as opposed to other forms of adult learning (see Figure 3.4).
Step 4: Defining the system states of this theory

The fourth step in the study’s research process is defining the system states of the theory. Over time, according to Dubin (1978) the units and laws of interaction described in the theoretical framework may shift into different states of functioning. These different states may alter the nature of theory’s units and laws of interaction and therefore must be described and explained (Dubin, 1978; Tuttle, 2003). H₂O provides an illustrative analogy for the concept of system states. Water molecules, H₂O, can exist in three different system states: water, ice, and steam. During each of these different system states water molecules act and interact with each other differently. Likewise, Dubin
suggests that social phenomena may also have different system states, and that theorists need to consider the potential for system states in the development of their theories.

Dubin (1978) indicated that three criteria must be present in order for a system state to exist: inclusiveness; persistence; and distinctiveness. Inclusiveness requires that all of the theory’s units be included in the system states of the theory. Persistence refers to need for the system states to persist through a significant period of time. Finally, distinctiveness necessitates that all of the units take on measurable and distinct values for the system states (Holton & Lowe, 2007).

The system states for the social network-based theory of large-group interventions will be drawn from relevant scholarly literature and from the researcher’s applied experience. Thus, the result of this step will be an answer to the question, “What system states exist for the social network-based theory of large-group interventions?”

An example of system states is provided by Lowe and Holton (2005) in their theory of effective computer-based instruction for adults. The system states identified for their theory were (1) effective system state, (2) ineffective system state, and (3) moderately effective system state. These three system states are analogous to ice, water, and steam in the previous analogy Lowe and Holton (2007) posit that the units of the theory of effective computer-based instruction for adults will interact differently during each of these three system states.

**Step 5: Developing propositions for this theory**

The fifth step in the study’s theory building research process is developing propositions. Propositions are logically derived from the theoretical model’s ascribed
units, laws of interaction, boundaries and system states (Dubin, 1978; Holton & Lowe, 2007; Lynham, 2002b; Tuttle, 2003). Propositions are critical to the theory building research process because they lay the groundwork for empirical testing (Holton & Lowe, 2007; Tuttle, 2003).

The propositions for the social network based theory of large-group interventions were developed from the theoretical framework developed in steps one through four. The identified propositions were exhaustive, however, as the number of truth statements stemming from a theoretical model can be infinite (Dubin, 1978; Tuttle, 2003). Instead, the proposed propositions will represent those considered most important for testing and refining the theory (Dubin, 1978).

Thus, the outcome of this step will be an answer to the question, “What are the propositions of a social network-based theory of large-group interventions?”

**Steps 6-8: Proposing a research agenda to test this theory**

The final three steps in the study’s theory-building research process complete its research operation component. The steps include determining key indicators to measure one or more of the identified propositions and developing hypotheses to test one or more of the identified propositions. Although the scope of this study’s theory-building process does not include empirical testing of theory’s propositions, the final chapters will develop and present a research agenda that includes: key empirical indicators developed from the propositions, specific hypotheses, and a potential research design for use testing the theory’s hypotheses.
Chapter Three began by presenting the study’s research direction, research questions, and methodology considerations. Next, the chapter described the criteria used for selecting a specific theory-building methodology and the rationale for the decision to employ Dubin’s (1978) theory-building research methodology. Finally, the chapter concluded by discussing the boundaries, scope and steps that the researcher will carry out in the study’s theory building research process. The following chapter, Chapter Four, describes the conceptual development phase of this study’s theory building research process.
CHAPTER FOUR:
THEORY BUILDING PART ONE – CONCEPTUAL DEVELOPMENT

Having reviewed the relevant literature in Chapter Two and specified the theory-building methodology in Chapter Three, Chapter Four begins the theory-building research process by conceptualizing “A Social Network-Based Theory of Large-Group Interventions.” This conceptualization includes developing the theory’s units, laws of interaction, system states, and boundaries. These initial four steps comprise Part One of Dubin’s methodology for theory building research (see Figure 4.1).

Figure 4.1. Scope of Chapter Four: Conceptual Development of the Theory
The successful completion of Part One of the theory-building research process results in an informed, conceptual model of the theory (Dubin, 1978). Thus, this chapter addresses the first of the study’s first research sub-questions: Can “A Social Network-Based Theory of Large-Group Interventions” be conceptualized?

This chapter begins by articulating foundational premises of the theory. Next the chapter presents the major outputs of the theoretical model, including: its units, its laws of interaction among the units, its system states, and its boundaries. For each of these outputs the chapter follows the same general format. A brief description of the theory building research step is provided, followed by a presentation of the output itself (i.e. the units, the laws of interaction, the system states, and the boundaries). The chapter concludes with an integrated presentation of all of the outputs of Part One, which together comprise the conceptual model for “A Social-Network Based Theory of Large-Group Interventions.”

**Foundational Premises of the Theory**

This section of Chapter 4 discusses the premises that underlie "A Social-Network Based Theory of Large-Group Interventions.” The development of the theory is based on two premises. These premises are core to the foundation and meaning of the theory. The first premise, the *social network perspective*, is that social structure, or the content and configuration of relationships between network actors, is a key determinate of organizational outcomes. The second premise, *Lewin’s 3-Step Model of Change*, posits
that successful organizational change proceeds through a series of three steps: unfreezing, moving, and refreezing. The two premises are discussed in turn.

**Premise #1: Social Network Perspective**

The social network perspective was discussed in detail in Chapter Two. In short, the social network perspective is defined as

a distinct research perspective within the social and behavioral sciences; distinct because social network analysis is based on an assumption of the importance of relationships among interacting units. The social network perspective encompasses theories, models, and applications that are expressed in terms of relational concepts or processes. That is relations defined by linkages among units are a fundamental component of network theories (Wasserman & Faust, 1999p. 4).

From a review of the literature relevant to this study, four postulates, or key implications for this study from the social network perspective were identified. The postulates are:

- The social network perspective is a distinct research perspective within the social and behavioral sciences based on the assumption of the importance of relationships among interacting units (Wasserman & Faust, 1999);
- According to the social network perspective it is the structure, or pattern, of social relationships that facilitate or constrain behavior as much or more than the attributes of the actors themselves (Brass, 2003; Kilduf & Tsai, 2003; Monge & Contractor, 2003);
The social network perspective can offer new leverage from which to address outstanding research questions (Brass, 2003; Garcia, 2007; Hatala, 2007; Storberg-Walker & Gubbins, 2007; Wasserman & Faust, 1999); and

Social networks affect organizational outcomes by providing conduits for the transfer of interpersonal resources such as new ideas, work-related information, and emotional support (Balkundi & Harrison, 2006; Brass, 2003; Cross & Parker, 2004; Kilduff & Tsai, 2003; Krackhardt, 2003; Monge & Contractor, 2003).

The social network perspective informs the theory-building research process by providing a lens through which the researcher-theorist conceives of and develops “A Social-Network Based Theory of Large-Group Interventions.” Consequently, concepts derived from the social network perspective are utilized throughout the development of the theory’s units, laws of interaction, boundaries, and system states. Moreover, concepts outside the scope of the social network perspective, for examples those relating to the characteristics of individual network actors, such as individual motivation, are excluded from the study’s theory-building process.

Premise #2: Lewin’s 3-Step Model of Change

As described in Chapter Two, Kurt Lewin developed a 3-Step Model of Change. According to Lewin's model, successful change at the group or organizational level entails three steps, or phases: unfreezing, moving, and refreezing. Lewin maintained that during the first phase, the organization, or social system, must be unfrozen. Lewin's concept of unfreezing is based on the assumption that individuals seek a state of ‘quasi-
stationary equilibrium in which they feel safe and a sense of control over their environment. For Lewin, unfreezing is fundamentally a learning process in which organizational members acquire new information that disrupts the status quo and mobilizes energy for change. The second phase in Lewin's 3-Step model of change is movement. While unfreezing creates motivation for change, movement is the process by which organizational members examine all of the forces operating on the situation and determine the appropriate course of action through trial and error (Lewin, 1947). Lewin, states that movement is a journey during which participants may proceed through multiple stages of misunderstanding and disagreement before collectively determining and agreeing upon their goal. The final phase in Lewin's 3-Step Model of Change is refreezing. During refreezing the new quasi-stationary equilibrium achieved during moving is reinforced. Refreezing is accomplished by bringing aspects of the organization (e.g. business processes, systems, and organizational structure) into alignment with the new, desired behavior.

The end-to-end nature and ubiquity of Lewin’s 3-Step Model of Change makes it valuable as a framework from which to build new theory. Lewin’s Model ensures that the would-be theory builder considers aspects of the change process from unfreezing through refreezing. In addition, the ubiquity of Lewin’s model makes extensions to it more immediately accessible to other researchers.

In Chapter Two, Lewin's 3-Step Model of Change was used as a framework to classify the social network literature pertaining to planned organizational change. Several postulates were derived from this review. These postulates included:
• The starting point for planned organizational change is the acquisition of new information or knowledge (Lewin, 1947; MacDonald, 1995);

• Relationships that bridge gaps, or structural holes, in the social network provide access for the new information necessary for change (Burt, 2003; Granovetter, 1973; Hansen, 1999; Kilduff & Tsai, 2005; Rogers, 2003);

• Social network analysis can be used by change practitioners to simulate transformational learning on the part of participants that can generate motivation to change (Cross & Parker, 2004);

• Overcoming employees’ resistance to change is required for successful change efforts (Burke, 2002; French & Bell, 1999);

• Strong ties serve as a foundation for the diffusion change information and overcoming resistance to change (Krackhardt, 2003; McGrath & Krackhardt, 2003; Mohrman, Tenkasi & Mohrman, 2003; Tenkasi & Chesmore, 2003);

• Social network analysis can be used by change practitioners to identify important stakeholders or influential change agents (Krackhardt, 2003; McGrath & Krackhardt, 2003);

• Successful organizational change requires that aspects of the organization’s culture must be brought into alignment with the intended change (Burke, 2002; Lewin, 1947);

• An organization’s social network represents an aspect of organizational culture that, like other cultural dimensions, can facilitate or constrain organizational change efforts (Beer, Eisenstat & Spector, 1990; Brass, 2003;
Cross, Liedka & Weiss, 2005; Kilduff & Tsai, 2003; Mohrman, Tenkasi & Mohrman, Jr., 2003; Stephenson, 2003);

- Connectivity within a social network increases task performance (Balkundi & Harrison, 2006; Cross, Borgatti & Parker, 2002; Kilduff & Tsai, 2003; Powell, Koput & Smith-Doerr, 1996); and

- Social network analysis can be used by change practitioners to assess efforts to refreeze the organization (Cross & Parker, 2004; Garcia & Shin, 2008).

As will be seen, many of these postulates were utilized throughout the development of this theory’s units, laws of interaction, boundaries, and system states.

This section summarized the two major premises on which “A Social Network-Based Theory of Large-Group Interventions” rests. These two premises are the social network perspective and Lewin’s 3-Step Model of Change. The next section begins the theory-building process by developing the theory’s units.

**Theory Building Research Step One: Developing Units**

This section of Chapter Four identifies the units in this theory. The units presented in this section represent the building blocks out of which a “Social-Network Based Theory of Large-Group Interventions” is constructed. Thus, the output of this section provides an answer to the question, “What are the units of theory?” In answering this theory-development question, the researcher-theorist completes step one of Dubin’s theory building research methodology and begins to answer the first research sub-question of this study, namely, Can “A Social-Network Based Theory of Large-Group Interventions” be conceptualized?
The section begins with a description of the methodology used for developing units. Next the section presents the seven units that comprise this theory.

**Dubin’s Methodology for Developing Units**

The following descriptions of Dubin’s methodology do not encompass all aspects and details of his theory-building research process. Alternatively, Dubin’s methodology is presented with the intent of providing the reader with a fuller understanding of the research process used in this study. Readers interested in a complete treatment of Dubin’s research method are referred to his book on theory building research (Dubin, 1978).

Science deals with things, and all sciences must have a way of designating its subject matter (Dubin, 1978). Within a given science, the terms used to designate the relevant subject matter are the science’s concepts (Dubin, 1978). If the term concept was only applied in this manner, it would be employed to mean the things out of which theories are built. However, the term concepts can also refer to whole theories, or scientific laws or conceptual frameworks (Dubin, 1978). This confusion led Dubin (1978) to use the more neutral term *unit* to describe the properties of things out of which we build theories. It is important to point out that units, by themselves, are not theories. It is only when units are combined in models of the perceived world that theories materialize (Dubin, 1978).

Dubin (1978) identified four properties of units. These properties are important because they affect how the unit may be employed in theory building. The first unit property identified by Dubin (1978) is a distinction between attribute and variable units.
A unit is an attribute if it is always present (e.g. gender). Alternatively, a unit is a variable if it may be present to a degree (e.g. age or income). In the case of variable units, the degree of presence can be expressed on either a cardinal or ordinal scale. The distinction between attribute and variable units is important because it influences the structure of tests that can be performed when validating a theory with empirical data (Dubin, 1978). The second property of units identified by Dubin (1978) is a distinction between real and nominal units. Real units are units for which there is a high probability that empirical indicators exist. In contrast, nominal units are units for which no empirical indicators exist today nor are likely to exist in the future. The lack of empirical data with which to test a theory has led some theorists to discount nominal units. Dubin disagrees:

This argument may be countered in a very simple way. The working scientist says that at some point, when confronting the empirical world, he needs indicators for the things he finds “out there.” But, and this is critical, if he cranks up his curiosity only with those things for which he already has empirical indicators, then (1) he probably will never attempt to discover new empirical indicators (as he cannot think of looking for new things if his only tools of imaginging are the representations of what he knows already), and (2) he probably will devote a majority of this research to wholly trivial problems (1978, p. 51).

The third property of units identified by Dubin (1978) is a distinction between sophisticated and primitive units. Sophisticated units represent well defined units. Primitive units, in contrast, are not yet fully defined. While some researchers have argued that primitive units have no place in theory building research, Dubin (1978) again
disagrees. Dubin’s (1978) position is that primitive units are relevant under several circumstances such as when there is an empirical finding that is not yet attached to a theory or when a new theory is emerging. Finally, the fourth property of units identified by Dubin (1978) is a distinction between collective and member units. Collective units are those that describe an entire class or set of things. Member units describe only individual things. The distinction between collective and member units is important because logical errors can result from dealing simultaneously with collective and member units in the same theory (Dubin, 1978).

In addition to properties of units, Dubin (1978) also identified five different classes, or categories of units. These include: (i) enumerative units; (ii) associative units; (iii) relational units; (iv) statistical units; and (v) summative units. An enumerative unit is a property of a thing that is always present. That is, despite the condition of the thing, it will always have the specific property. Alternatively, associative units represent properties of a thing that are only present under certain circumstances. Associate units are identical to enumerative units with one critical exception. Associative units can have a zero or non-existent value. Thus, while age is an enumerative unit (people always have a specific age), income level is an associative unit (people may have a zero, or even, negative income level). Relational units present properties of a thing that can be discerned only by the relation among two other properties. For example, the unit sex ratio is based on the interaction of two properties: male and female. The price theorists pay for this complexity is the risk of ignoring the “summing-up feature of the unit, which in turn may lead to an incomplete an inaccurate theory,” (Dubin, 1978, p. 63). A
statistical unit is a property of a thing that “summarizes the distribution of that property in the thing. Statistical units can be categorized into three classes: (i) units describing a central tendency in the distribution of a property (ii) units indicating the dispersion of a property; and (iii) units identifying things by their relative position in a distribution of a property (Dubin, 1978). Finally, summative units are those which stand for an entire complex thing comprised of multiple properties (Dubin, 1978). Summative units are thus the most complicated units. While they describe a great deal they are often poorly defined and unspecified. For this reason, Dubin (1978) contends that summative units, although useful for communication, may not be used in theory building. Please see Table 4.1 for a summary of the properties and classes of units identified by Dubin.

Table 4.1.
Classes and Properties of Units (adapted from Tuttle, 2003)

<table>
<thead>
<tr>
<th>Classes of Units</th>
<th>Enumerative</th>
<th>Associative</th>
<th>Relational</th>
<th>Statistical</th>
<th>Summative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties of Units</td>
<td>• Attribute vs. Variable</td>
<td>• Real vs. Nominal</td>
<td>• Sophisticated vs. Primitive</td>
<td>• Collective vs. Member</td>
<td></td>
</tr>
</tbody>
</table>

Units employed in theory building may, in fact, fit the definition of two or more classes of units simultaneously (Dubin, 1978). For example, E-I Index, the ratio of inter-group relationships to intra-group relationships, is clearly a relational unit. The same unit
might fall into the enumerative class if we assume that E-I Index stands for a specific attribute of a group, or it might fall into the associative class if we allow for the possibility that a group’s E-I index may be equal to zero. Furthermore, E-I Index might act as a statistical unit if we were to compare groups according to the E-I Index of each.

Although units may fit multiple classifications, it is important that the theorist recognize how a given unit is applied in his or her own theory as the unit’s class dictates specific rules regarding how the unit is employed. For example, while enumerative and associative units may be employed without limitation within the same theory, either individually or in combination, other units may not (Dubin, 1978). Specifically, Dubin (1978) states:

- “A relational unit is not to be combined in the same theory with either enumerative or associative units that are themselves properties of that relational unit,” (p. 73);
- “Where a statistical unit is employed it is by definition a property of a collective. In the same theory, do not combine such a statistical unit with any kind of unit (enumerative, associative, or relational) describing a property of members of the same collective,” (p. 73-74); and
- “Summative units have utility in education of and communication with those who are naïve in the field. Summative units are not employed in scientific models,” (p. 78).

In deciding which units to include in a theory the goal is to mirror the real world (Dubin, 1978; Tuttle, 2003). That said, the theorist’s initial understanding “should not be
overly constricted by the desire to ensure close correspondence between concepts and operations,” (Tuttle, 2003, p. 114). Weick (1989) contends that the conceptual development process must be distinct from methodological processes that focus on testing and validation. He argues that too much emphasis on validation weakens conceptual development because it “deemphasizes the contribution that imagination, representation, and selection make to the process, and they diminish the importance of alternative theorizing activities such as mapping, conceptual development, and speculative thought” (p. 516). While operationalizing and validating theory is an important component of theory-building, it is during Part Two of the theory-building research process, research operation, in which the theory will be tested and modifications made to better reflect reality (Lynham, 2002b; Tuttle, 2003).

During conceptual development phase of theory building research, the discipline comes from the logical rigor of concept development (Tuttle, 2003; Weick, 1989). Weick (1989) refers to this process as “disciplined imagination.” Disciplined imagination is based on the idea that theorists conduct thought trials in the same manner that other researchers conduct experiments. These thought trials entail a series of conjectures about ways to address the problem at the heart of the theory. The theorist uses plausibility not external validity as the criteria against which to test and select among the conjectures (Holton & Low, 2007).

In developing “A Social Network-Based Theory of Large-Group Interventions,” disciplined imagination was employed as the process for generating possible units. As an initial step, the research drew on the large-group intervention literature, the social
network-based change literature, and personal experiences conducting large-group interventions as a practitioner to brainstorm a list of potential units. The researcher-theorist reviewed the list multiple times to ensure its comprehensiveness. Next, the researcher-theorist considered each of these possible units through the lens of Dubin's theory-building research method to ensure the units' suitability as theoretical building blocks. For example, as prescribed by Dubin (1978) summative units were removed from the list. Similarly, units that did not fit within the theory's boundaries were discarded. In addition, a number of overlapping units were synthesized to achieve parsimony. The selected units were further refined throughout the theory building research. Theory-building research is an iterative process and, much to the frustration of the researcher-theorist, subsequent decisions regarding the theory's laws of interaction or system states required that the theory's units be reconsidered and adapted.

Seven total units in “A Social Network-Based Theory of Large-Group Interventions” were identified: (1) large-group intervention phase, (2) bridging relationships, (3) strong ties, (4) configuration of network ties, (5) change-oriented learning, (6) response to change, and (7) change execution. The presentation of each unit follows the same format. First, the unit is defined and key attributes are described. Next, the validity of the unit is discussed. In this context validity represents evidence of the unit's previous use in theoretical and empirical research. Finally, the methodological logic of the unit within Dubin's framework for classifying units is described. An understanding of each the methodological logic of each unit is important because, as described previously, Dubin places constraints on how each type of unit may be
employed in theory building (Dubin, 1978). The explicit articulation of the unit's validity and methodological logic as well as the use of parallel construction in presenting the units is akin to empirical procedures, such as random sampling or the correct use of statistical analysis, in that it helps to establish the trustworthiness of the resulting theory.

**Unit One: Large-Group Intervention Phase**

**Definition**

Large-group interventions are a form of organization development. Bunker & Alban defined large-group interventions as:

methods for involving the whole system, internal and external, in the change process. These methods may go by different names…but the key similarity is that these methods deliberately involve a critical mass of the people affected by the change, both inside the organization (employees and management) and outside it (suppliers and customers). This whole-system change process allows a critical mass of people to participate in: (i) understanding the need for change; (ii) analyzing the current reality and deciding what needs to change; (iii) generating ideas how to change existing processes; and implementing and supporting change and making it work,” (1997, p. xv-xvi).

As described in Chapter Two, large-group interventions are comprised of three sub processes: (1) Understanding the Need for Change, (2) Creating a Future Vision; and (3) Generating Implementation Plans. These sub-processes occur sequentially and, in accordance with Lewin's concept of organizational change as a phased process, each of the large-group intervention sub-processes can be conceived of as a separate phase of
activity. During phase one, Understanding the Need for Change, participants share their perceptions regarding the need for change and collectively agree on which aspects of the organization need to change. During phase two, Creating a Future Vision, participants work collaboratively to develop a vision of the organization’s preferred future. Finally, in phase three, Generating Implementation Plans, participants develop specific action plans aimed at achieving the preferred vision.

Large-group interventions, therefore, can be described by the phase in which they are currently operating. The phased nature of large-group interventions represents a property of the phenomenon (e.g., large-group interventions). This property, large-group intervention phase, is the first unit in “A Social-Network Based Theory of Large-Group Interventions.”

The description of three attributes of large-group intervention phase help to flesh out the unit and have specific bearing of the theory. The first is the temporal nature of the unit large-group intervention phase. The value of the unit large-group intervention phase evolves over time as the large-group intervention progresses from one phase to the next.

The second attribute of the unit is whole system participation. A fundamental belief underpinning the large-group interventions is that to affect whole-system change, large-group interventions must intervene accordingly at the whole system level (Manning and Binzagr, 1996). To achieve this transformational effect, the approach seeks to bring together everyone affected by the change, including organizational members from multiple organizational functions and hierarchical levels. The approach can therefore
include hundreds, even thousands, of participants working together at the same time and in the same space. This characteristic, whole-system participation, is present throughout each of the three large-group intervention phases.

Finally, the third attribute worthy of note and again applicable during all three large-group intervention phases is organizational sensemaking. Organizational sensemaking is the process by which individuals collectively develop common meaning of their surroundings and act accordingly (Stensaker, Falkenberg & Gronhaug, 2008; Nonaka, 2007). If organizations represent whole-systems then it is important that the members of those organizations develop a common understanding of how the elements in the system operate and interrelate (Manning and Binzagr, 1996). This collective understanding allows members to agree on cause and effect, to align on a course of action, and to coordinate their activities. Large-group interventions use a variety of sensemaking techniques to help participants to develop common understandings. For example, large-group interventions engage participants in collective dialogue, in which participants conduct a shared inquiry into the processes and assumptions that comprise experience within the organization. As with whole-system participation, organizational sensemaking occurs throughout the three phases of large-group interventions.

Validity

Planned organizational change processes are frequently described as a series of sequential phases (Alas, 2007a; Beer, Eisenstat & Spector, 1990; Burke, 2002; Ford & Greer, 2005; Lewin, 1947). As previously described, Lewin's 3-Step Model of Change is, in fact, based on the concept of group or organizational change as a three phase
process. Large-group interventions are no different. While, the specific unit *large-group interventions phases* has not been employed by researchers, Bunker and Alban (1992a, 1997) describe the interventions as entailing three sub-processes, which can be conceived of as separate phases. Similarly, Coghlan (1998) and Manning & Binzagr (1996) have characterized large-group interventions as incorporating phased activities. Moreover, organizational development practitioners frequently employ the concept of steps or phases of activities in their descriptions of large-group intervention methods (e.g. Bunker & Alban, 1997; Ulrich, Kerr & Ashkenas, 2002; Weisbord, 1992). From the scholarship and practice of large-group interventions, and from an understanding of organizational change interventions in general, it is therefore reasonable and appropriate to consider the ‘phase’ of implementation as a key consideration in building a theory of the phenomenon.

**Methodological Logic**

Dubin (1978) emphasized the importance of characterizing and classifying the nature of units used in a theory. Units, he argued, must be differentiated “in order to draw out their consequences” (p. 37). Units can be differentiated by both their properties, which represent dichotomous characteristics (i.e. attribute versus variable, real versus nominal, primitive vs. sophisticated, and collective versus member), as well as by their class (i.e. enumerative, associative, relational, statistical, and summative).

Based on Dubin's logic, the unit *large-group intervention phase* is an attribute unit of the enumerative class. Dubin (1978) defined attribute units as a property of a thing distinguished by the quality of always being fully present. In the case of this study, the thing under investigation is large-group interventions. As a property of large-group
interventions, *large-group intervention phase* is always fully present. Large-group interventions will always exist in one of three phases and thus the property *large-group intervention phase* cannot be present in degree. *Large-group intervention phase* is therefore an attribute unit. Second, the unit *large-group intervention phase* is enumerative in its class. Dubin (1978) stated that “an enumerative unit is a property characteristic of a thing in all its conditions. That is, regardless of the condition of the thing that can be observed or imagined, it will always have that property” (p. 58-59). As a result, enumerative units can never have a zero or absent value. Since the unit *large-group intervention phase* cannot have a value of no phase, the unit is enumerative in its class.

Dubin’s (1978) methodology also requires that units be characterized by whether they are real versus nominal, sophisticated versus primitive, and individual versus collective. The implications of these characteristics for each unit will be further developed in Chapter Five with the specification of empirical indicators for the units. In short, application of Dubinion logic on to the unit *large-group intervention phase* illuminates that the unit is real, sophisticated, and individual.

**Unit Two: Bridging Relationships**

**Definition**

*Bridge relationships* are most easily defined in relation to structural holes. Burt (2003) coined the term structural holes to refer to spaces, or gaps, in a social structure across which no relationships exist. According to Burt (2003), structural holes are:
Nonredundant contacts are connected by a structural hole. A structural hole is a relationship of nonredundancy between two contacts. The hole is a buffer, like an insulator in an electric circuit. As a result of the hole between them, the two contacts provide network benefits that are in some degree additive rather than overlapping (2003, p. 22).

Bridging relationships are those relationships that come to span, or bridge, a structural hole (Burt, 2003; Kilduff & Tsai, 2003; Monge & Contractor, 2003). The number of bridging relationships is a property of large-group interventions. This property is the second unit of this theory.

A key attribute of bridging relationships for this theory is their role in the acquisition of new knowledge. As discussed in Chapter Two, research on bridging relationships indicates that these relationships often provide access to new ideas and stimulate organizational innovation (Burt, 2004; Hansen, 1999; Tsai, 2001; Zaheer and Bell, 2005). This is because bridging relationships connect individuals who dwell in different network clusters. As a result of residing in different portions of the network, the information these individuals are exposed to is different. When a bridging relationship forms linking individuals in two different network clusters, the parties to that relationship each has the opportunity to acquire new knowledge.

Validity

Bridging relationships are one of the most widely studied concepts in social network research (Monge & Contractor, 2003; Kilduff & Tsai, 2003). At the individual level, bridging relationships have been shown to influence individual’s compensation,
performance evaluations, and the ability to generate good ideas (Burt, 2004). At the group level, bridging relationships have been related to team performance (Balkundi, Kilduff, Barsness, and Michael, 2006). Finally, at the organizational level, bridging relationships have been shown to increase firm's innovativeness and performance (Zaheer & Bell, 2005). The quantity of existing research on bridging relationships testifies as to the validity of the unit.

**Methodological Logic**

Bridging relationships is a variable unit of the associative class. Bridging relationships is a variable unit because as a property of large-group interventions bridging relationships can be present to a degree. A large-group intervention may result in a few bridging relationships or many. According to Dubin (1978):

A variable is a property of a thing that may be present in degree. There may be some of the property present or a lot of it. We may express the degree of presence of the variable property by either a cardinal or an ordinal scale. What is significant when we employ a variable unit in a theory is that our attention becomes focused upon the amount or degree to which this property is present in the thing (p. 44-45).

Second, the unit bridging relationships is associative in its class. Associative units represent the properties of a thing that are only present under certain circumstances. Associative units can therefore have a zero or non existent value. Dubin (1978) states:
An associative unit is a property characteristic of a thing in only some of its conditions. In all respects save one it is identical to an enumerative unit. The one difference is that there is a real zero or absent value for associative units (p. 60).

In accordance with the definition of associative units, *bridging relationships* can have a value of zero if no bridging relationships exist within a social network. Thus, *bridging relationships* is associative in its class. Finally, the unit *bridging relationships* is real, sophisticated and collective.

**Unit Three: Strong Ties**

**Definition**

While *bridging relationships* are defined by the structure of the relationships within the network, *strong ties* refers to the content of the relationship itself. The concept of tie strength refers to a “combination of the amount of time, the emotional intensity, the intimacy (mutual confiding, and the reciprocal services which characterize the tie),” (Granovetter, 1973, p. 1361). Tie strength ranges from weak to strong (Kilduff & Tsai, 2003). Weak ties are characterized by minimal affinity for and limited interaction between individuals. In contrast, *strong ties* are characterized by a high degree of trust and frequent, rich interaction (Krackhardt, 2003).

Large-group interventions are social activities with social structure. Consequently, the number of *strong ties* in the social structure of the large-group intervention is a property of that large-group intervention. This property represents the third unit of this theory.
A key attribute of *strong ties* for this theory is their role as conduits through which information on change initiatives flows between organizational members (Krackhardt, 2003; Krackhardt and Stern, 1988; McGrath and Krackhardt, 2003; Mohrman, Tenkasi, & Mohrman, 2003; Tenkasi & Chesmore, 2003). According to Krackhardt:

If change were simply dependent on new information, then weak ties would be preeminent. But when it comes to major change, change that may threaten the status quo…then resistance to that change must be addressed before predictions can be made about the success of that change effort. A major resource that is required to bring about such change is trust in the propagators of that change. Change is the product of strong affective and time-honored relationships (2003, p. 104).

As detailed in Chapter Two, this perspective presumes that organizational change efforts, particularly large-scale change efforts, are systemic and multifaceted, requiring the diffusion of complex knowledge on the purpose and nature of the change (Mohrman, Tenkasi, and Mohrman, 2003; Tenkasi and Chesmore, 2003). *Strong ties* provide more frequent and richer communication channels, which provides for greater opportunity for explanation and feedback between parties and leads to common understanding (Hansen, 1999; Mohrman, Tenkasi, & Mohrman, 2003; Tenkasi and Chesmore, 2003).

**Validity**

*Strong ties* is a foundational concept within the social network literature (Kilduff & Tsai, 2003; Krackhardt, 2003; Monge & Contractor, 1999). Moreover, as discussed,
the unit *strong ties* has been specifically linked with organizational change (e.g. Krackhardt, 2003; Mohrman, Tenkasi, & Mohrman, 2003; Stevenson, 2003; Tenkasi & Chesmore, 2003). Tenkasi and Chesmore's (2003) research found, for example, a positive correlation between an organization’s greater density of *strong ties* and faster, more successful organizational change. The abundance of amount of research on *strong ties* and tie strength in general as well as the units’ connection to organizational change establishes the unit’s validity for this theory and its relevance to large-group interventions.

*Methodological Logic*

The unit *strong ties* is variable unit of the associative class. *Strong ties* is a variable unit because, like the unit bridging ties it can be present to a degree. A large-group intervention's social structure may be comprised of a varying number of *strong ties*. Second, *strong ties* is associative in its class. This is because the unit *strong ties* can have a zero value in an instance when no *strong ties* exist. Finally, the unit *strong ties* is real, sophisticated and collective.

**Unit Four: Configuration of Network Ties**

*Definition*

Every social network has a structure. A key component of network structure is the configuration, or pattern, of network ties that exist between participants in the network. This *configuration of network ties* indicates which network participants share a social relationship and which do not (Brass, 2003; Kilduff & Tsai, 2003; Wasserman & Faust, 1999). Researchers (e.g. Brass, 2003) have identified a number of measures with
which to characterize the *configuration of network ties*. These measures include density (i.e. ratio of the number of actual ties to the number of possible ties in the network), connectivity (i.e. ratio of pairs of actors that are mutually reachable to total number of pairs of nodes), and symmetry (i.e. ratio of the number of symmetric to asymmetric relationships in a network). Any social group setting, including large-group interventions, will have a *configuration of network ties*. Thus, *configuration of network ties* is a property of large-group interventions and it is the fourth unit in this theory.

A key attribute of *configuration of network ties* is its ability to affect organizational outcomes (Balkundi and Harrison, 2006; Brass, 2003; Cross, Liedka, and Weiss, 2005; Kilduff and Tsai, 2003; Krackhardt, 2003). As discussed in Chapter Two, this viewpoint is based on the assumption that social relationships act as conduits for the transfer of interpersonal resources, which in turn facilitate or limit the ability of the organization to achieve its goals.

Kilduff and Tsai (2003) distinguish between two different ways in which social relations can be configured within a social network. They term these network structures goal directed and serendipitous network trajectories. These network structures are ideal types with fundamentally different operational and structural dynamics (Kilduff & Tsai, 2003). Networks that are configured in a goal-directed manner evolve to support the achievement of a specific goal or set of goals (Kilduff & Tsai, 2003). The network actors share this common goal and the relationships that form and develop are structured to achieve that goal. Kilduff and Tsai write:
The goal-directed network trajectory exhibits purposive and adaptive movement towards an envisioned end state (Van de Ven and Poole, 1995: 515). A network energized by such a goal has a purpose that enables it to organize members, facilitate meetings and pursue resources. New members are attracted to the network by the promise of goal-fulfillment, so there is a pre-selection process that screens possible members on the basis of fit with the goals of the existing network (2003, p. 92).

As a result of these characteristics, goal directed networks coordinate members’ activities and improve the probability of these members achieving common goals.

In contrast, to goal-directed networks, serendipitous networks are based on the happenstance of individuals interacting and liking each other (Kilduff & Tsai, 2003). Serendipitous network structures lack an underlying, task orientation that drives the network toward a particular end-state. While goal-directed networks are driven by purposiveness, serendipitous networks are driven by processes of chance and opportunism. Thus, unlike goal directed networks, serendipitous networks are less likely to foster the achievement of common objectives. Table 4.2 highlights the differences between goal-directed and serendipitous networks structures.
Table 4.2.

Characteristics of Goal-Directed and Serendipitous Network Trajectories (Kilduff & Tsai, 2003)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Goal-directed network trajectory</th>
<th>Serendipitous network trajectory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Underlying assumptions</strong></td>
<td>• Teleological and instrumental &lt;br&gt; • Actors share a goal. Network is formed to achieve this goal &lt;br&gt; • Success is measured against this goal</td>
<td>• No pre-existing goal &lt;br&gt; • Network evolves through random variation, selection, and retention processes</td>
</tr>
<tr>
<td><strong>Typical network growth</strong></td>
<td>• Fast for form around shared goals &lt;br&gt; • Survival threatened by both success and failure &lt;br&gt; • New goal discovery prolongs life span</td>
<td>• Slower to form &lt;br&gt; • Grows through dyadic ties &lt;br&gt; • Long-lived, robust survival in times of change</td>
</tr>
<tr>
<td><strong>Structural dynamics</strong></td>
<td>• Centralized structure with a leader: core-periphery &lt;br&gt; • Minimizes structural holes &lt;br&gt; • Tight coupling &lt;br&gt; • Clear boundary &lt;br&gt; • Growth based on eligibility &lt;br&gt; • Less likely to survive sub-network formation</td>
<td>• Decentralized structure with no single leader &lt;br&gt; • Produces structural holes &lt;br&gt; • Loose coupling &lt;br&gt; • Diffuse boundary &lt;br&gt; • Growth based on dyadic match &lt;br&gt; • More likely to create sub-networks over time</td>
</tr>
<tr>
<td><strong>Conflict</strong></td>
<td>• If conflict arises over goals, probable break-up of network</td>
<td>• Sub-groups, each with internal solidarity, can survive in the same network</td>
</tr>
</tbody>
</table>

**Validity**

*Configuration of network ties* refers to the pattern of social relationships within a social structure. It is a foundational concept of the social network perspective (Brass,
2003; Kilduff & Tsai, 2003; Wasserman & Faust, 1999) and thus valid and relevant for this theory. Further supporting the validity and relevance of the unit is the fact that organizational change theorists are increasingly employing the configuration of networks as a means to explain organizational change (Burke, 2002; Garcia, 2007; Krackhardt, 2003; McGrath and Krackhardt, 2003; Mohrman, Tenkasi, and Mohrman, 2003; Stephenson, 2003; Tenkasi and Chesmore, 2003).

**Methodological Logic of the Unit**

*Configuration of network ties* is an attribute unit of the enumerative class. *Configuration of network ties* is an attribute unit because it is a property of large-group interventions that is always fully present. *Configuration of network ties* does not vary in degree. *Configuration of network ties* is a unit of the enumerative class because there is no possibility for the property *configuration of network ties* to have a zero value. Any large-group intervention will involve participants among whom a pattern of relationships will exist. Finally, the unit *configuration of network ties* is real, sophisticated and individual.

**Unit Five: Change-Oriented Learning**

**Definition**

The unit *Change-oriented learning* is based on the concept of learning. Learning is a central aspect of human behavior. Research on learning has resulted in different assumptions about the nature of learning and the ways in which people learn (Merriam & Caffarella, 1999).
Up until the 1950s, psychologists defined learning as a change in behavior (Merriam & Caffarella, 1999). More recently researchers have expanded the definition of learning to include the potential for behavioral change (Kolb, 2003; Hergenhahan, 1988; Merriam & Caffarella, 1999; Sanchez & Hennes, 2003). For these researchers, learning is a process of knowledge creation through the transformation of experience that leads to the potential for behavioral change. Sanchez and Hennes' (2003) definition reflects this perspective:

Learning is a process which changes the state of knowledge of an individual or organization. A change in state of knowledge may take the form of the adoption of a new belief about new causal relationships, the modification of an existing belief, the abandonment of a previously held belief, or a change in the degree of confidence with which an individual or individuals within an organization hold a set of beliefs,” (p. 26).

The definition for the unit change oriented learning is based on Sanchez and Hennes' (2003) definition of learning. Change-oriented learning is learning in which the knowledge that is created deals with need for organizational change or with specific organizational change proposals. During large-group interventions, participants share and acquire knowledge regarding the organization’s need to change. Thus, change-oriented learning is a property of large-group interventions. This property is the theory’s fifth unit.

A key attribute of change-oriented learning is the role it plays in organizational change. The first step in Lewin’s 3-Step Model of Change, unfreezing, is fundamentally
a learning process (Burnes, 2004). During unfreezing, individuals acquire new knowledge that disrupts the status quo and mobilizes energy for change. Through learning, organizational members can disregard old patterns of behavior in favor of new ones. Only through learning, then, can organizational change occur. The unit *change-oriented learning* is defined by the creation of knowledge necessary, but not sufficient, for such change.

**Validity**

The concept of learning has been studied for centuries (Merriam & Caffarella, 1999). Moreover, researchers agree that learning underpins organizational change (Alas, 2007a; Krackhardt, 2003; Fiol and Lyles, 1985; Lewin, 1947; Macdonald, 1995; Senge, 2006). Organizations that do not learn cannot change, at least not deliberately (Macdonald, 1995). While the change literature does not use the specific term *change-oriented learning*, the property that the unit embodies is well established in the learning literature described above. This foundation provides support for the validity and relevance of the unit in this theory.

**Methodological Logic**

The unit *change-oriented learning* is a variable unit of the associative class. *Change-oriented learning* is a variable unit because, as a property of large-group interventions, *change-oriented learning* can be present to a degree. One can conceive of large-group interventions resulting in varying amounts of *change-oriented learning*. Second, because we can imagine the condition in which a large-group intervention does not have the property *change-oriented learning*, the instance in which no learning
whatsoever takes place, the unit *change-oriented learning* is of the associative class.

Finally, the unit *change-oriented learning* is real, sophisticated and collective.

**Unit Six: Response to Change**

*Definition*

The concept of resistance to change has been widely studied (Ford, Ford & D’Amelio, 2008, Dent & Goldberg, 1999; Piderit, 2000). According to Dent and Goldberg, the idea that organizational members resist change “is found in nearly every textbook about management or organizational behavior,” (1999, p. 25.). While widely referenced, ‘resistance to change’ is rarely defined (Dent & Goldberg, 1999). In most work on resistance to change, scholars make use of the view from physics that resistance is a restraining force moving in the direction of maintaining the status quo (Ford, Ford & D’Amelio, 2008; Piderit, 2000).

Kurt Lewin is credited with developing the concept of resistance to change (Dent & Goldberg, 1999). Lewin initially conceptualized resistance to change as a systemic phenomena (Ford, Ford & D’Amelio, 2008). He based his view on the idea that work occurs within a complex system of roles, attitudes, behaviors, norms and other factors. Attempts to change the system could result in resistance from any and one of the factors within the total system. While individuals’ psychological state could result in resistance, for Lewin this psychological aspect represented just one element in a larger system (Dent & Goldberg, 1999).

Since Lewin’s initial conceptualization, the notion of resistance to change has been largely pared down from a systems concept to a purely psychological one (Dent &
Goldberg, 1999; Ford, Ford & D’Amelio, 2008). The term has evolved to suggest that the primary source of resistance to change efforts stems from the individuals within the organization who will be impacted by the change. From this perspective, the role of change agents is to anticipate and overcome resistance (Burke, 2002; Dent & Goldberg, 1999; Ford, Ford & D’Amelio, 2008; Piderit, 2000).

More recently, researchers have called into question the validity and usefulness of resistance to change as a concept (Ford, Ford & D’Amelio, 2008; Dent & Goldberg, 1999; Piderit, 2000). These critics contend that the concept has been defined solely from the perspective of change agents and ignores the potentially valid perspective of change recipients. As described by Ford, Ford and D’Amelio:

Studies of change appear to take the perspective, or bias, of those seeking to bring about the change, in which it is presumed change agents are doing the right thing and proper things while change recipients throw up unreasonable obstacles or barriers intent on doing in or ‘screwing-up’ the change…This ‘change agent-centric’ view presumes that resistance is an accurate report by unbiased observers (change agents) of an objective reality (resistance by change recipients) (2008, p. 362).

Change recipients may have legitimate concerns. By labeling change-recipients negative response to change ‘resistance,’ change agents invalidate these responses (Piderit, 2000). Unfortunately, such invalidation may reduce the effectiveness of change efforts as resistance is a form of conflict and conflict has been shown to strengthen and improve decision making. In addition, in de-legitimizing change recipients’ responses to
the change, change-agents lose an opportunity for dialogue and trust building that might serve to strengthen the change (Ford, Ford & D'Amelio, 2008; Piderit, 2000). Finally, critiques contend that resistance to change has become a monolithic concept that fails to address the complexities of individuals’ actual responses (Dent & Goldberg, 1999). People may resist loss of status, loss of compensation, and loss of comfortable and known routines, but these are not the same as resisting change (Dent & Goldberg, 1999). A failure to recognize the specifics of individuals’ responses impedes change efforts by minimizing the potential to identify and address the root cause of employees’ concerns.

To address these critiques, Piderit (2000) advocates a new approach to understanding employee responses to change, conceptualized as multidimensional attitudes. Piderit (2000) maintains that employees’ cognitive state (i.e. beliefs about the change), emotional state (i.e. feelings about the change) and intentions (i.e. what one intends to do regarding the change) combine to form their response to change. Moreover, along each of these three dimensions, employees’ response can range from negative to positive (see Figure 4.2).
Thus, within Piderit’s (2000) conceptualization ‘resistance to change’ is described by the set of responses to change that are negative along all three dimensions, and ‘support for a change’ is described by the set of responses that are positive along all three dimensions.

Piderit’s multi-dimensional conceptualization represents the definition of responses to change for this study. Large-group interventions are an organization development method aimed at achieving organizational change. Organizational members will therefore have responses to change in the context of large-group interventions. Consequently, responses to change is a property of large-group interventions. This property serves as the study’s sixth unit.

The use of the unit responses to change has two benefits. First, by conceptualizing each dimension as a separate continuum, Piderit’s multi-dimensional
definition allows for different employee reactions along the different dimensions. This provides a more detailed understanding of employee responses to change and creates the opportunity for more specific, tailored interventions. Second, Piderit’s multi-dimensional definition allows for employee ambivalence. Responses to a change initiative that are neither consistently positive or consistently negative across the three dimensions can be analyzed as cross-dimension ambivalence. While previously ignored in the literature, ambivalence may, in fact, be the most common initial response to change efforts (Piderit, 2000).

A key attribute of responses to change for this study is its impact on change efforts. As described in Chapter Two, scholars and practitioners alike maintain that employees’ responses, or resistance, to change are pivotal to success of organizational change efforts (Burke, 2002; French & Bell, 1999). Thus to the degree that organizational members’ responses can be made positive the chances for successful organizational change increase.

**Validity**

Resistance to change is one of the most studied and considered topics in the field of organizational change (Dent & Goldberg, 1999; Piderit, 2000). More recently, researchers have called into question the validity of resistance to change and advocated for a more holistic concept to describe the phenomenon (Dent & Goldberg, 1999; Ford, Ford and D’Amelio, 2008; Piderit, 2000). In response, Piderit (2000) introduced the concept of response to change. The concept of response to change does not yet appear widely in the literature. However, its roots in the concept of resistance to change and its
direct attempt to address to the challenges pertaining to resistance to change lend validity
and relevance to the use of the unit *response to change* in this theory.

**Methodological Logic**

The unit *response to change* is an attribute unit of the associative class. *Response
to change* is an attribute unit because it has the quality of always being present.
Employees will always have some form of response to change even if that response is
ambivalence. Second, *response to change* is an associative unit because the range of
values for the unit can range from negative to positive. Finally, the unit *response to
change* is real, sophisticated and collective.

**Unit Seven: Change Execution**

**Definition**

Large-group interventions are a type of change initiative. During large-group
interventions participants establish goals for the change. For example, these goals might
state that employees will have the knowledge and skills to carry out a particular role, or
that a business process will be redefined and committed to by all relevant stakeholders, or
that a division of the organization will be restructured in six months with minimal
employee turnover. Some of these goals may be achieved, other may not.

The degree to which the intervention's change goals are carried out is *change
execution*. Thus, the specific content of the change goals for the unit *change execution* is
important only in that it defines a goal. *Change execution* is the extent to which that goal
is accomplished on time, in scope, and within budget. It is the seventh and final unit in
the theory and serves as a key dependent variable in the "A Social Network-Based Theory of Large-Group Interventions."

Validity

There is support in the literature for the idea that change efforts should focus on the achievement of specific goals, or tasks, that address critical business challenges or opportunities (Beer, Eisenstat & Spector, 1990). While change researchers have used the success of change interventions against these goals as a dependent variable with which to evaluate organizational change efforts (Beer, Eisenstat & Spector, 1990; Roberts & Porras, 1992), the specific unit change execution is new. More frequently, change researchers examine bottom-line criteria (e.g. profitability or market share), individual task behavioral, and individual affect as outcome variables (Armenakis & Bedeian, 1999; Roberts & Porras, 1992).

These more-frequently employed dependent variables present several challenges as units for this theory, however. In the case of bottom-line indicators, a number of situational factors outside the control of a given change initiative may affect the outcome (Beer, Eisenstat & Spector, 1990). Consequently, it can be difficult to determine the degree to which they truly measure change outcomes. In regard to individual task performance and individual affect, these variables are necessary but insufficient. While research indicates that individual task performance increases organizational effectiveness (Roberts & Porras, 1992) and individual affect influences change efforts (Armenakis & Bedeian, 1999) neither ensure the success of change efforts. Alternatively, change execution, which describes the degree to which a change initiative achieves its specific
change goals, points directly to the success or failure of the change initiative. Further validating the unit *change execution* is the significant use of similar units, for example project performance, in the project management literature (Slevin & Pinto 1987; Scott-Young & Samson, 2006)

**Methodological Logic**

The unit *change execution* is a variable unit of the associative class. *Change execution* is a variable unit because *change execution* can be present to a degree. Large-group intervention will accomplish change goals to varying degrees. Second, because we can imagine the condition in which no progress is made against change goals, change execution is of the associative class; the unit can have a zero value. Finally, the unit *change execution* is real, sophisticated and individual or collective depending upon the nature of the underlying change goals.

In summary, this section of Chapter Four has identified the units of “A Social-Network-Based Theory of Large-Group Interventions.” The section identified seven units in total: *large-group intervention phase; bridging relationships, strong ties, configuration of network ties, change-oriented learning; response to change, and change execution*. In describing each of the seven units, the same format was followed. The unit was defined, key dimensions were highlighted, the validity of the unit was established, and the unit’s methodological logic was discussed. Figure 4.3 provides a visual representation of the units of the theory.
Note that Figure 4.3 depicts the unit *large-group intervention phase* as an arrow. This depiction is intended to highlight the temporal nature of the unit. Recall that the value of the unit—the specific phase of the large-group intervention—transitions as the intervention progresses through time. Also note that the Figure 4.3 classifies the units into three categories: input units, process units, and outcome units. The rational for this categorization is made apparent in the next section, which specifies the laws of interaction of the theory.

**Theory Building Research Step Two: Developing the Laws of Interaction**

This section of Chapter Four identifies the laws of interaction among the seven units of the theory. The laws of interaction presented in this section are statements of relationship that explain how the theory’s units are connected. Thus, the output of this
section addresses the question, “What are the laws of interaction of the theory? In answering this theory-development question, the researcher-theorist completes step two of Dubin’s theory building research methodology and further partially answers the first research sub-question of this study, namely, Can “A Social-Network Based Theory of Large-Group Interventions” be conceptualized?

The section begins with a description of Dubin’s methodology for developing the laws of interaction. The section then presents the four laws of interaction for this theory. The discussion of each law of interaction follows a similar format. Each law is defined, its rational for inclusion in the theory discussed, and the methodological logic of the law presented.

**Dubin’s Methodology for Developing Laws of Interaction**

Once the units of the theory have been determined, the next step in the theory building research process is to specify the relationships, or linkages, between the units (Dubin, 1978). This is a critical step because until the linkages between units are identified, only a taxonomic model exists. According to Dubin (1978), it is these relationships between units with which science is centrally concerned; the scientist’s objective is to account for the variance in one unit by specifying a systematic linkage of the unit with at least one other. Dubin labeled the systematic linkages among units within a theoretical model “laws of interaction.” He specifically chose the term laws of interaction to “focus attention on the relationship being analyzed,” (1978, p. 90).

Dubin (1978) indicated that there exist three general categories that encompass all forms of laws of interaction. These categories include: categoric interactions, sequential
interactions, and determinate interactions. A categoric law of interaction is one that maintains that the value of one unit is associated with values of another unit. Categoric laws of interaction are symmetrical. Either one of units may come first in the statement of the law. Within social and behavioral science theories, categoric laws are the most common from of laws of interaction (Dubin, 1978).

Sequential laws of interaction employ a temporal dimension. This temporal dimension is used to order the relationship between the units involved. Thus, in contrast to categoric laws, sequential laws are asymmetrical. An example of a sequential law would be “A community disaster activates an informal community leadership structure to organize a response to the disaster,” (Dubin, 1978, p. 101). In this instance, a positive value for the unit disaster precedes the activation of informal leadership to respond.

Finally, determinate laws of interaction link determinate values of one unit with determinate values of another unit (Dubin, 1978). For each determinate value of one unit there is a determinate value of the unit or units related to it. According to Dubin, the most distinguishable feature of a determinate law is that “it may be drawn as a line, curve, plane, surface, a structure of linked points (as in graph theory), or matrices of fixed-position values (as in matrix algebra,)” (1978, p. 106). Thus, the most common language for articulating determinate laws is that of mathematics.

It is important to point out that all three categories of laws of interaction represent statements of relationship and not causality. In particular, Dubin (1978) warns that sequential laws are commonly and incorrectly interpreted as causal laws.
In addition to specifying the three categories of laws of interaction, Dubin (1978) indicated that a law of interaction may have four different levels of efficiency, each of which provides a different level of predictive power and understanding (Dubin, 1978; Tuttle, 2003). At the lowest level of efficiency, presence-absence, a law of interaction states that given the value of unit A, there will be a corresponding positive or negative value of unit B. While presence-absence laws of interaction offer little information beyond concurrent presence (Tuttle, 2003), Dubin states that they are common in the social and behavioral sciences. At the next level of efficiency, directionality, laws of interactions describe the directionality of a relationship between two or more units. Thus, at the level of directionality, a law of interaction may state that as unit X decreases unit Y will also decrease. According to Dubin (1978), within the social and behavioral sciences, the ability to define a law of interaction at this level of efficiency is considered a significant advance in scientific precision. At the third level of efficiency, laws of interaction express covariation. For example, “Conformity to a standard of behavior in a fixed population varies in the shape of a J curve from absolute obedience,” (Dubin, 1978, p. 110). Finally, at the fourth and highest level of efficiency, rate of change, laws of interaction state that the direction and amount of change in one unit is correlated with a fixed direction and amount of change in another unit. Rate of change laws are most typical in the physical sciences where exact measurements are more feasible (Tuttle, 2003).

Dubin (1978) articulated several logical rules which govern the laws of interaction within a given theory. Specifically, Dubin states:
• “Two laws cannot relate two units of a system with inconsistent results. Either of the two laws must be discarded,” (Dubin, 1978, p. 112).

• “A system has a minimum of one law of interaction,” (Dubin, 1978, p. 112).

• “The maximum number of laws of interaction for a system of n units is the number of laws necessary to relate the units two at a time each once with all the other units,” (Dubin, 1978, p. 113).

• “A system may have categoric, sequential, and determinate laws governing interaction among its units. There is no logic limiting the mixture of types of laws in the same model provided each type employed meets the criteria for its class,” (Dubin, 1978, p. 113).

• “In relation to levels of analysis, laws of interaction are always intra-level in location,” (Dubin, 1978, p. 121).

**Law of Interaction One**

**Definition**

The first law of interaction in the social-network based theory of large-group interventions makes explicit the linkage between three units of the theory: *large-group intervention phase*, *bridging relationships*, and *change-oriented learning*. Specifically, the law states:

Law 1: When large-group interventions are in their initial phase, (i.e., Understanding the Need for Change), an increase in *bridging ties* is activated which in turn increases change *change-oriented learning*. 

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Rationale

The rationale for Law 1 has two parts. The first part of this rationale supports the link between large-group intervention phase and bridging ties. The second part supports the link between bridging ties and change-oriented learning. Each part is discussed in turn.

As previously described, a key dimension of large-group interventions is whole-system participation, or the engagement of individuals representing all relevant functions, geographies, and departments. These participants engage in collective work at the same time and in the same physical space. As a result, large-group interventions bring participants into physical proximity with one another. The social network literature indicates that physical proximity increases the likelihood that individuals will meet and learn about one another, thereby enabling the circumstances favorable for the formation of social relationships (Allen, 1970; Krackhardt, 1994; Monge & Contractor, 2003). By simultaneously bringing participants into the same physical space, then, we can expect large-group interventions to facilitate the formation of social relationships among participants.

Above and beyond merely forming social relationships, however, we can expect large-group interventions to specifically generate bridging relationships. This is because large-group interventions do not entail random participation. Participants are specifically chosen for their ability to represent the entire organizational system. Many of these participants may not otherwise have had cause to come into contact in their day-to-day work (Garcia, 2007). Consequently, it is likely that prior to the large-group intervention,
numerous structural holes would exist between participants. During the initial phase of
the large-group intervention many of these participants will come into contact and meet
for the first time. As a result, during the first phase of large-group interventions
participants are likely to form relationships that cross structural holes; they are likely to
build *bridging relationships*.

*Bridgeging relationships* in turn are likely to increase *change-oriented learning*. As
previously discussed, *bridging relationships* serve as important conduits for learning
(Burt, 2003; Granovetter, 2003; Kilduff & Tsai, 2003). In addition, the content of the
information that flows through the *bridging relationships* is important to the content of
the learning that occurs. During the initial phase of large-group interventions,
communications and interactions are focused on the need for change within the
organization and the creation of specific change proposals. To the degree, then, that
*bridging ties* stimulate learning and that this learning is focused on the change taking
place, we can expect *bridging ties* to result in *change-oriented learning*.

**Methodological logic of the law**

Law 1 is a sequential law of interaction at the second level of efficiency. The
sequential nature of the law is apparent from the inclusion of a time dimension. The law
indicates that a given value for *large-group interventions phase* occurs prior to an
increase in *bridging relationships* which occurs prior to an increase in *change-oriented
learning*.

Law 1 is at the second level of efficiency. Laws at this level of efficiency
describe the directionality of a relationship between two or more units. In accordance
with this definition Law 1 describes the directionality of the relationship between the units *large-group intervention phase, bridging relationships, and change-oriented learning*.

**Law of Interaction Two**

**Definition**

The second law of interaction in the “Social-Network Based Theory of Large-Group Interventions” makes explicit the linkage between three units of the theory: *large-group intervention phase, strong ties, and response to change*. Specifically, the law states:

Law 2: When large-group interventions are in their intermediate phase (i.e., Create a Future Vision) an increase in *strong ties* is activated which in turn increases *responses to change*.

**Rationale**

As with Law 1, the rationale for Law 2 is divided into two parts. Part one supports the link between *large-group intervention phase* and *strong ties*. Part two supports the link between *strong ties* and *response to change*. Each part of this rationale is discussed in turn.

As previously described, in phase two of large-group interventions, participants develop a shared vision of the organization's future. The development of this shared future vision entails participants engaging in organizational sensemaking. Organizational sensemaking can involve different activities, but the fundamental process involved is one in which participants develop shared meaning of their surroundings.
The development of shared meaning increases the similarities, or homophily, between participants. It brings them closer together in their beliefs, goals, and attitudes. Research on homophily indicates that homophily increases the strength of relationships between individuals (Monge & Contactor, 2003; Kilduff and Tsai, 2003). According to Heider (1958 as cited by Monge & Contractor, 2003) this is because similarity between people reduces the psychological discomfort that an individual feels when engaged with others who are cognitively or emotionally different. Similarly, Sherif (1958; as cited by Monge & Contractor, 2003) asserts that individuals are more likely to form close relationships with individuals similar to themselves to lessen the potential areas of conflict in the relationship.

Traditional research applying the theory of homophily to organizations focused on general demographic characteristics, such as age, gender, and education. More recently, however, researchers have argued that similarities in personality and activity can also explain involvement in communication networks (Monge & Contractor, 2003). Consequently, we can expect the activities that occur during the second phase of large-group interventions, Developing a Shared Vision, to increase similarities between participants. In turn, the law of homophily would suggest that this increase in similarity is likely to increase the incidence of strong ties.

Moreover, an increase in strong ties is likely to correspond with an increase in positive responses to change. As discussed in the description of the unit strong ties, this is because of strong ties' ability to facilitate the communication of complex, tacit information that must be diffused for organizational change to occur (Krackhardt, 2003;
Organizational change efforts are multifaceted and complex. In these instances, strong ties provide more frequent and richer communication channels, which provides for greater opportunity for explanation and feedback between parties and leads to common understanding (Hansen, 1999; Mohrman, Tenkasi, & Mohrman, 2003; Tenkasi and Chesmore, 2003). Moreover, strong ties serve as a basis for trust, which may help to overcome resistance when organizational members feel threatened by changes in the status quo (Krackhardt, 2003).

**Methodological logic of the law**

Law 2 is a sequential law of interaction at the second level of efficiency. The sequential nature of the law is apparent from the inclusion of a time dimension. The law indicates that a specific value for large-group intervention phase occurs prior to an increase in strong ties which occurs prior to an increase in responses to change. Law 2 is at the second level of efficiency because Law 2 describes the directionality of the relationship between the units' large-group intervention phase, strong ties, and responses to change.

**Law of Interaction Three**

**Definition**

The third law of interaction in the “A Social-Network Based Theory of Large-Group Interventions” makes explicit the linkage between three units of the theory: large-group interventions phase, configuration of network ties, and change execution:
Law 3: When large-group interventions are in their final phase (i.e. Generating Implementation Plans) configuration of network ties will become goal directed, which in turn, will increase change execution.

**Rationale**

The rationale for Law 3 is divided into two parts. Part one supports the link between large-group intervention phase and configuration of network ties. Part two supports the link between configuration of network ties and change execution. Each part of this rationale is discussed in turn.

In the final phase of large-group interventions, participants focus their energy on developing plans to achieve their collective vision. The achievement of this vision represents a goal. In pursuit of their goal, participants established detailed implementation plans. They specify the deliverables that need to be created, when these deliverables will be completed, who will work on which deliverables, and how these individuals will interact. In this manner, the goal becomes the basis for participants’ subsequent activities and interactions and the implementation plan documents their specific intentions.

In response to this goal, configuration of network ties begins to change. The configuration of the relationships in the network is restructured in support of participants’ common goal. For example, people from different departments who have not worked previously together agree to collaborate on one piece of the plan or people who were previously isolated on the periphery of the network become involved and more central. As described by Kilduff and Tsai: “The goal directed network trajectory exhibits
purposive and adaptive movement toward an envisioned end state,” (2003, p. 92). Case-based research supports the notion that large-group interventions are able to restructure social networks in this manner. Arena (2001), for example, determined that the ability of large-group interventions to restructure informal social networks was a key enabler of the intervention’s success. Similarly, French and Bell (1999) report that as a result of the large-group intervention they studied, cross-divisional communication increased, inter-unit cooperation increased, and changes in interaction patterns were immediate and positive.

This network restructuring, in turn, affects change execution. As described in Chapter Two, researchers have determined that configuration of network ties provides opportunities and constraints that act as causal forces within and across organizations (Balkundi & Harrison, 2006; Brass, 2003; Beer, Eisenstat & Spector, 1990; Cross, Liedka, and Weiss, 2005; Kilduff and Tsai, 2003). This is because the social relationships that comprise configuration of network ties serve as conduits for the transfer of interpersonal resources which facilitate or limit specific actions (Balkundi and Harrison, 2006; Brass, 2003; Kilduff & Tsai, 2003).

Methodological logic of the law

Law 3 is a sequential law of interaction. The sequential nature of the law is apparent from the inclusion of a time dimension. The law indicates that a given value for large-group interventions phase occurs prior to a change in configuration of network ties which occurs prior to an increase in change execution. Law 3 is at the second level of efficiency because the law indicates the directionality of the relationship between the
Law of Interaction Four

Definition

The fourth and final law of interaction in “A Social-Network Based Theory of Large-Group Interventions” makes explicit the linkage between three units of the theory: change-oriented learning, responses to change, and change execution. Specifically, the law states:

Law 4: An increase in change-oriented learning leads to an increase in positive responses to change which leads to increases in change execution.

Rationale

Support for Law 4 is comes from two sources. The first is the internal logic governing the theoretical model. As already described, large-group interventions can be broken into three component phases, “Understanding the Need for Change,” “Creating a Preferred Future Vision,” and “Generating Implementation Plans.” These phases occur sequentially, one after the other. In addition, according to Laws 1 through 3, each of these phases acts as an input which ultimately produces an outcome. Phase one results in change-oriented learning, phase two results in response to change, and phase three results in change execution. Given that these phases take place sequentially, logic suggests that the outputs occur sequentially too.

Second, each of these outputs corresponds to a phenomenon at work in Lewin’s (1947) 3-Step Model of Change. Change-oriented learning can be conceived of as a
property of unfreezing, *response to change* can be conceived of as a property of moving, and *change execution* can be conceived of as a property of refreezing. Given that Lewin’s model calls for these steps to occur sequentially, it is reasonable to expect these properties to occur sequentially as well.

**Methodological logic of the law**

Law 4 is a sequential law of interaction at the second level of efficiency. The sequential nature of the law is apparent from the inclusion of a time dimension. The law indicates that a positive value for *change-oriented learning* occurs prior to a positive value for *responses to change* which occurs prior to a goal-directed *change execution*. Law 4 is at the second level of efficiency because Law 4 describes the directionality of the relationship between the units *change-oriented learning*, *responses to change*, and *change execution*.

In summary, this section of Chapter Four has identified the laws of interaction of “A Social-Network-Based Theory of Large-Group Interventions.” The section identified four laws in total. These laws are:

- Law 1: When large-group interventions are in their initial phase (i.e., Understanding the Need for Change) an increase in *bridging ties* is activated which in turn increases change *change-oriented learning*;
- Law 2: When large-group interventions are in their intermediate phase (i.e. Create a Future Vision) an increase in *strong ties* is activated which in turn increases *responses to change*;
• Law 3: When large-group interventions are in their final phase (i.e., Generating Implementation Plans) configuration of network ties will become goal directed, which in turn, will increase change execution; and

• Law 4: An increase in change-oriented learning leads to an increase in positive responses to change which leads to increases in change execution.

The addition of these laws to the conceptual model specifies how the theory’s units are interrelated. For each law, the same format was followed. The unit law defined, the rationale for the law’s inclusion is explained, and the law’s methodological logic was discussed. Figure 4.4 provides a visual representation of how the units of the theory are related by these four laws of interaction. Note that each law is illustrates in the theory by a different style of arrow. In addition, the values of the unit large-group intervention phase are included in the figure to highlight their respective roles in activating Laws 1, 2 and 3.
The following section specifies the boundaries that identify the domain over which the theory applies.

**Theory-Building Research Step Three: Developing Boundaries of the Theory**

This section of Chapter Four presents the boundaries of the theory. The boundaries presented serve to identify the domain over which “A Social-Network Based Theory of Large-Group Interventions” applies. Thus, the output of this section addresses the question, “What are the boundaries of theory? In answering this theory-development question, the researcher-theorist completes step three of Dubin’s theory building research methodology and further partially answers the first research sub-question of this study,
namely, *Can a social-network based theory of large-group interventions” be conceptualized?* The section starts with a general description of Dubin’s methodology for developing the boundaries of the theory. Next, boundary-determining criteria for this theory are described.

**Dubin’s Methodology for Developing the Boundaries of the Theory**

Theories are intended to model some element of the real world. The boundaries of a theory identify which aspects of the real world the theory is attempting to model and which it is not (Lynham, 2002b). Thus, the boundaries of a theory delineate the domains or territory over which the theory is expected to hold true (Dubin, 1978). According to Dubin:

> In order that a model may represent an empirical system, it has to have boundaries corresponding to the empirical system. The boundaries are important to the specification of any theoretical model (1978, p. 125).

A theory is said to be bounded when the limiting values on the theory’s units are understood (Dubin, 1978). Moreover, boundary-determining criteria apply with equal force to both a theory’s units and the laws of interaction that relate these units (Dubin 1978). Both units and laws must comply to the theory’s boundary-determining criteria before the theory is complete, (Dubin, 1978).

The number of boundary-determining criteria has several implications for a theory. Dubin (1978) explained that an inverse relationship exists between the number of boundary-determining criteria employed and the size of the domain covered by the theory. Thus, the most universal theory has only one boundary-determining criterion. As
boundary-determining criteria are added to the theory, the domain is reduced; either a unit is removed from the theory or increased restriction is placed on the character or number of laws of interaction governing the theory (Dubin, 1978). When too many boundary-determining criteria are imposed on a theory the resulting population equals one. In this case, the analysis is of an event and not the realm of theory building (Dubin, 1978). The number of boundary-determining criteria also has an influence on the homogeneity of the theory’s domain. As the number of boundary-determining criteria increases, the theory’s units and laws of interaction become more homogeneous. Conversely, as the number of boundary-determining criteria decreases, theory’s units and laws of interaction become more heterogeneous.

Researcher-theorists have two approaches to identifying a theory’s boundary-determining criteria. The first is through logic. The second is through empirical research. According to Dubin (1978):

In model building a scientist has two courses open to him with respect to boundary-determining criteria. (1) He may use a logical test, like the syllogism, to be certain that the units employed and the laws by which they interact all satisfy the same boundary determining criterion and therefore may be incorporated into the same model. (2) The alternative course open in model building is to employ an empirical test to determine whether a supposed sharing of boundary-determining criterion is, in fact, a reality (Dubin, 1978, p. 128).
When employing a theory-then-research strategy of theory building, as is the case in this study, logic is the basis for specifying boundary-determining criteria (Lynham, 2000a). Thus, this study uses logic tests to clarify the theory’s boundary-determining criteria.

There are two general categories of criteria that can bound a theory. Interior criteria are those specified based on the units and laws internal to the theory (Dubin, 1978). Exterior criteria are those imposed from outside the theory (Dubin, 1978). Internal criteria and external criteria are described in turn. Within each subsection, the relevant boundary-determining criteria for “A Social-Network Based Theory of Large-Group Interventions” are presented.

**Internal Boundary-Determining Criteria**

Internal boundary criteria are “derived from characteristics of the units and laws employed in the model,” (Dubin, 1978, p. 128). Three general procedures exist for determining a theory’s boundaries. The first of these is the use of truth tables to determine the logically validity of propositional expressions, such as a law of interaction. The second general procedure is to specify a limit of probability on the values of the units used in the theory. Finally, the third general procedure is *subsetting the property space*. Subsetting the property space uses an affirmative criterion to distinguish a unit or law of interaction from other possible types. Together, these procedures provide a set of tools that researchers can choose from to help identify internal boundary criteria.

This study employed the procedure *subsetting the property space* to determine the theory’s only internal boundary criteria. According to Dubin:
A subsetting operation for determining a model boundary may be best understood by remembering that it takes a positive set of criteria to determine the characteristics of a category and that all other or residual categories may simply be designated by the term not ___________. Thus, if we can define category \( A \), then all other categories may be defined as \textit{not-}A \cite[(1978, p. 131)]{Dubin}.

Dubin used the study of rebellion as an example of the use of subsetting to delineate a boundary-determining criterion. He indicated that deviant forms of individual adaptations can be defined in a number of ways, as: rebellion, ritualism, innovation, etc. One would not know, however, the definition of rebellion just by defining all the other forms of deviant individual adaptation. As a result, one would have to define rebellion itself (\( A \)), at the same time creating a category of not rebellion into which all other types of individual adaptation would fall (\textit{not-}A).

In this study, the phenomenon under investigation is large-group interventions. As previously stated, large-group interventions are defined as:

methods for involving the whole system, internal and external, in the change process. These methods may go by different names…but the key similarity is that these methods deliberately involve a critical mass of the people affected by the change, both inside the organization (employees and management) and outside it (suppliers and customers). This whole-system change process allows a critical mass of people to participate in: (i) understanding the need for change; (ii) analyzing the current reality and deciding what needs to change; (iii) generating
ideas how to change existing processes; and implementing and supporting change and making it work,” (Bunker & Alban, 1997, p. xv-xvi).

This definition provides several positive criteria for large-group interventions. These include: a critical mass of people involved; a focus on the need for change; an analysis of the current reality; the generation of change ideas; and emphasis on implementation to support the change and make it work. Thus, in the context of subsetting, organizational change approaches that embody these positive criteria fall into the category large-group interventions, category \( A \). Other approaches to organizational change that do not meet the positive criteria do not fall into the category large-group interventions and instead fall into the category \( not-A \).

Subsetting of property space allows for the detailing of the theory’s first boundary-determining criterion: large-group interventions are within the domain of the theory while other types of organizational change approaches are not (see Table 4.3).
Table 4.3.

Subsetting the Property Space to Determine the Theory’s Only Internal Boundary Criteria

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A$</td>
<td>Large-group interventions</td>
</tr>
<tr>
<td>Not-$A$</td>
<td>Not large-group interventions</td>
</tr>
</tbody>
</table>

External Boundary-Determining Criteria

External boundary conditions are imposed from outside of the theory (Dubin, 1978). Most frequently, external boundary criteria are employed in a theory when a new unit or a new law of interaction or both is required to augment the theory. This case may result when the need for a new unit or law is identified through empirical research. It is because the need for the boundary criteria arises from outside of the model, through empirical research, rather than from logic derived from the characteristics of the theory’s existing internal units and laws that Dubin labeled such criteria, external boundary-determining criteria.

In particular, Dubin (1978) indicates that when a new intervening variable is identified in the literature it often signals that a new boundary-determining criterion has
been established for an older scientific model. This is the case in this study. Recall from the literature review in Chapter 2, that numerous case-based studies on large-group interventions reported that a key outcome of the interventions was a restructuring of the organization’s social network (Arena, 2001; Bunker and Alban, 1992b; Dannemiller and Jacobs, 1992; French & Bell, 1999; Garcia, 2007; Weisbord and Janoff, 2005; Whittaker and Hutchcroft, 2002). Tenkasi and Chesmore (2003) went beyond identifying network restructuring as an outcome to suggest that large-group interventions may work because of their ability to restructure social networks. Tenkasi and Chesmore’s (2003) hypothesis represents a proposal to add a new intervening variable—social networks—into the existing model explaining how large-group interventions operate.

In accordance with Tenkasi and Chesmore’s (2003) hypothesis, this study focuses on social networks as a mechanism to explain how large-group interventions work. Thus, social networks represent an external boundary-determining criterion for the study. Specifically, the second boundary-spanning criterion for this study is that only those units and laws of interaction that relate to the social network perspective fall within the domain of this theory. Note that this boundary represents a special case of external boundary criteria, what Dubin (1978) refers to as a benign external boundary-determining criteria. Such a criterion does not enter the dynamic model but only determines boundaries. According to Dubin (1978), “each of these boundary criteria serves to narrow the domain of the model but enters into it in no other way,” (p. 134).

In summary, this section presented the boundary-determining criteria of “A Social-Network Based Theory of Large-Group Interventions.” The section began with an
overview of Dubin’s (1978) methodology for determining the boundaries of the theory. Next, the section defined the theory’s internal and external boundaries, namely:

- Only those organizational change approaches that can be classified as large-group interventions fall within the domain of this theory; and
- Only those units and laws of interaction that relate to the social network perspective are within the domain of this theory.

Figure 4.5 provides an illustration of the boundaries of the theory.
The following section details the theory’s system states, which represent conditions of the theoretical model in which the units of the theory interact differently.

**Theory-Building Research Step Four: Defining System States of the Theory**

This section of Chapter Four presents the system states of the theory. These system states represent conditions of the theoretical model in which the units of the theory interact differently. The output of this section addresses the question, “What are the system states of theory? In answering this theory-development question, the researcher-theorist completes step four, the final step, in the conceptual development phase of Dubin’s theory building research methodology. Completion of this step also allows the researcher-theorist to answer the study’s first research sub-question, namely, “Can a social-network based theory of large-group interventions be conceptualized?” The section starts with a general description of Dubin’s methodology for developing the system states of the theory. Next, the system states for this theory are presented.

**Dubin’s Methodology for Developing the System States of the Theory**

In order to identify a theory’s system states, the theory must first be considered as a system (Lynham, 2000a). This means that the theory must be perceived as a bounded set of units, interrelated by laws of interaction, from which deductions are possible about the behavior of the overall system (Lynham, 2000a).

Systems may exist in different states. A system state is a condition of the theoretical model in which the units of the system interact differently. During these different system states each of the system units takes on a characteristic value for some time interval (Dubin, 1978). According to Dubin:
The essential notion of a system state is that the system as a whole has distinctive features when it is in a state of the system. The manner, however, in which we are able to designate a system state is through the recognition of the characteristic values of the units when the system is in that particular state. Thus a system state is apprehended only by knowing the characteristic values of all the units of the system. These values, in turn, must be determinant. If any of the values of any units are indeterminate, then an analytical problem arises as to whether the system as a whole is in a system state or whether the system is in transition between system states (1978, p. 144).

Three criteria must be met in a theoretical model in order for a system state to exist. These three criteria -- inclusiveness, determinate values, and persistence -- are used to determine the system state’s existence as well as to define the system state (Dubin, 1978). The inclusiveness criterion states that all of the units within the system have a distinct value, or range of values, when the theoretical model is in that system state. The determinate values criterion states that the values of all the units in the model may be measured, at least in principle, by instruments that give true values. Finally, the persistence criterion indicates that the system state must persist through some period of time.

Not all theoretical models specify system states. The notion of system states may be ignored if the three system-state criteria are not met or if only one system state exists. Where appropriate, however, the specification of system states of a theoretical model
may increase the model’s predictive capability (Dubin, 1978). According to Dubin (1978):

> It therefore becomes a matter of genuine analytical significance to specify for any model its system states and their recurrence, for this will provide the grounds upon which important predictions may be made about the system. The repetition of system states is one of the dynamic features of the model (p. 148).

For example, in a theoretical model of traffic flows, the systems states "rush hour" and "non-rush hour," may be beneficial in predicting how long it will take to get to work.

In explaining system states it is useful to distinguish them from outcomes of a theoretical model. An outcome of a model is defined as the value of a single unit or the values of a single region of units within a model that gives to that unit or region a distinctive analytical character (Dubin, 1978). Dubin writes, “An outcome, then, is a special condition of one or more units, but not all units, of the system that, when achieved, distinguishes the condition of that unit from other of its possible conditions,” (1978, p. 145). In contrast, system states refer to the state of the system as a whole. A system state is defined by the unique combination of values for all units comprising the system. This configuration of values defines the entire system as a unique condition. Outcomes, on the other hand, are conditions of one or more units of a theoretical model but not of all of them simultaneously (Dubin, 1978).

Two different system states are specified for this theory—Unfreezing and Refreezing. These respective system states are activated by the progression of the values
of the unit *large-group intervention phase*. The next sections describe the Unfreezing and Refreezing system states.

**Unfreezing System State**

The first system state specified for this theory is Unfreezing. The name Unfreezing is borrowed from the first step in Lewin’s 3-Step Model of Change. The term was chosen to reflect the fact that during this system state, the characteristic values of the theory’s units reflect phenomena at work during the initial step in Lewin’s model.

In accordance with Dubin’s (1978) inclusiveness criterion, each of the units in “A Social-Network Based Theory of Large-Group Interventions” is included and has a distinctive value in the Unfreezing system state. These distinctive values are derived from the logic underpinning the theory’s laws of interaction.

The Unfreezing system state is activated when the large-group intervention is in its initial phase, "Understanding the Need for Change". According to the theory’s first law of interaction, when the unit large-group intervention phase has a value of "Understanding the Need for Change," *bridging ties* increase which in turn increases *change-oriented learning*. During this same phase of the large-group intervention, the values of the theoretical model’s other units remain unaffected. Table 4.4 summarizes the expected, characteristic values of all of the units in the theoretical model for the Unfreezing system state.
Table 4.4.

Characteristic Values of the Theory’s Units in the Unfreezing System State

<table>
<thead>
<tr>
<th>Unit</th>
<th>Characteristic Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Large-Group Intervention Phase</strong></td>
<td>Initial phase, “Understanding the Need for Change.”</td>
</tr>
<tr>
<td>Bridging Relationship</td>
<td>Increasing</td>
</tr>
<tr>
<td>Change-Oriented Learning</td>
<td>Increasing</td>
</tr>
<tr>
<td>Strong Ties</td>
<td>Unchanged (likely low)</td>
</tr>
<tr>
<td>Response to Change</td>
<td>Unchanged (likely negative to ambivalence)</td>
</tr>
<tr>
<td>Configuration of Network Ties</td>
<td>Serendipitous</td>
</tr>
<tr>
<td>Change Execution</td>
<td>Zero</td>
</tr>
</tbody>
</table>

The Unfreezing system state also meets Dubin’s (1978) additional criteria, namely: determinate values and persistence. In accordance with the determinate criterion each of the units within the theoretical model can be measured, at least in principle, during the unfreezing state. Potential measures for the units are described in Chapter Five, in the discussion of empirical indicators. Possible measurement techniques would include observation, interviews, and surveys. In accordance with the persistence criterion, the unfreezing state would persist for the duration of the initial phase of the large-group intervention.

**Refreezing System State**

The second system state specified for this theory is Refreezing. The name Refreezing borrowed from the third step in Lewin’s 3-Step Model of Change. The term
refreezing was chosen because during this system state, the characteristic values of the theory’s units reflect phenomena at work described by the third step in Lewin’s model.

In alignment with Dubin’s (1978) inclusiveness criterion, each of the units in the theoretical model is included and has a distinctive value in the Refreezing system state. The distinctive values of the theoretical model’s units are derived from the theory’s second, third, and fourth laws of interaction. From Law 2, we know that strong ties and responses to change are expected to take on characteristic values when large-group intervention phase has the characteristic value, “Developing a Future Vision.” From Law 3 and 4, we know that, subsequently, when the large-group intervention phase transitions to the characteristic value, “Generating Implementation Plans,” configuration of network ties and change execution are expected to themselves take on characteristic values. At the same time, the theory’s remaining units, bridging ties and change-oriented learning, which were anticipated to be uncharacteristically high during the Unfreezing system state, are expected to now decrease. This expectation is based on the fact that once the bridging relationships are formed the nature of the relationship changes; the underlying structural holes have been bridged and therefore cease to exist. At the same time, the nature of the dialogue between participants has changed. Participants’ interactions are no longer focused on the need to change or developing change proposals, but focused on establishing change implementation plans. Thus, the value of change-oriented learning is anticipated to decrease as well. Table 4.5 summarizes the expected, characteristic values of all of the units in the theoretical model for the Refreezing system state.
Table 4.5.

Characteristic Values of the Theory’s Units in the Refreezing System State

<table>
<thead>
<tr>
<th>Units</th>
<th>Characteristic Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Large-Group Intervention Phase</em></td>
<td>Final phase, “Generating Implementation Plans”</td>
</tr>
<tr>
<td><em>Bridging Relationship</em></td>
<td>Low</td>
</tr>
<tr>
<td><em>Change-Oriented Learning</em></td>
<td>Low</td>
</tr>
<tr>
<td><em>Strong Ties</em></td>
<td>High</td>
</tr>
<tr>
<td><em>Response to Change</em></td>
<td>Positive</td>
</tr>
<tr>
<td><em>Configuration of Network Ties</em></td>
<td>Goal-directed</td>
</tr>
<tr>
<td><em>Change Execution</em></td>
<td>High</td>
</tr>
</tbody>
</table>

The Refreezing system state also meets Dubin’s (1978) additional criteria, namely: determinate values and persistence. In accordance with the determinate criterion, each of units within the theoretical model can be measured, at least in principle, during the Refreezing state. In accordance with the persistence criterion, the Refreezing state would persist as long as the large-group intervention phase maintains a value of “Generating Implementation Plans.”

In summary, this section presented the system states for “A Social-Network Based Theory of Large-Group Interventions.” The section began with an overview of Dubin’s (1978) methodology for specifying system states. Next, the section identified the theory’s two system states: Unfreezing and Refreezing.
Conclusion to Part One the Conceptual Development Phase of the Theory

The outcome of the conceptual development phase of the theory-building research process is a fully conceptualized theoretical model (Dubin, 1978; Lynham, 2000a, 2000b; Tuttle, 2003). The components of the model are: the theory’s units, its laws of interaction, its boundary-determining conditions, and its system states. Each of these components has been completed here. The study has therefore addressed the first of the two research questions: Can a social-network based theory of large-group interventions be conceptualized? This question is answered affirmatively. The full conceptualized model of the “Social Network-Based Theory of Large-Group Interventions” is presented in Figure 4.6.
This concludes the conceptual development phase, Part One, of the theory-building research process. Part Two of the process entails operationalization of the theoretical model for testing in the real world (Lynham, 2000a, 2000b; Tuttle, 2003). In Part Two, the propositions, or truth statements, concerning the model are developed. Next, empirical indicators for critical terms are specified. Finally, hypothesis for testing are created and executed. Part Two of the theory building research process is the topic of this study’s next chapter, Chapter Five.
CHAPTER FIVE:
THEORY BUILDING PART TWO – RESEARCH OPERATION

In Chapter Three the theory building research methodology for this study was presented. Chapter Four addressed Part One of this theory building research methodology, the development of “A Social Network-Based Theory of Large-Group Interventions.” The outcome of Chapter Four was a theoretical model specifying the theory’s units, laws of interaction, boundaries and system states. This chapter addresses Part Two, research operation. Part Two entails developing the theory’s propositions, empirical indicators, hypotheses, and future research agenda to begin testing the theory (see Figure 5.1). Completion of Part Two allows the research to answer study’s second research question, Can “A Social Network-Based Theory of Large-Group Interventions” be operationalized?
This Chapter proceeds through Steps Five through Seven of Dubin’s theory-building methodology. The Chapter begins with Step Five, the specification of propositions for the theory. Next, the chapter completes Step Six, the identification of empirical indicators for key terms. The Chapter then completes Step Seven, the development of the theory’s hypotheses. Finally, the chapter lays out a proposed research agenda that could be employed to test the theory, Step Eight. While the execution of this research agenda is outside the scope of this study, a testable, future research agenda is proposed.
Theory Building Research Step Five: Developing Propositions

This section of Chapter Five develops propositions for the theory. These propositions represent truth statements that can be employed to predict values of the theory’s units. Thus, the output of this section addresses the question, “What are the propositions of the theory? In answering this theory-development question, the researcher-theorist completed step five of Dubin’s theory building research methodology and began to answer this study’s second research question, Can “A Social-Network Based Theory of Large-Group Interventions” be operationalized? The section starts with a description of Dubin’s methodology for specifying the propositions. The section then presents the nine propositions of the theory.

Dubin’s Methodology for Developing Propositions

An important objective of any theoretical model is to generate predictions about the empirical domain it represents (Dubin, 1978). According to Dubin, this is where the real fun begins:

Quite simply, the use of the model is to generate predictions or to make truth statements about the model in operation. Indeed, it is at this point that theory building becomes exciting and thoroughly interesting. The design of the model is, of course, an exacting task. However, to put the model to work, to see what it can do in operation, is the feature of theorizing that makes the game more than worth the effort, (1978, p. 163).

Any predication stemming from a scientific model takes the form of propositional statements about the values of the model’s units (Dubin, 1978). The propositional
statements represent predictions because they alert us to what must be true about the model in operation given its component units, laws of interaction, boundaries, and system states (Dubin, 1978). A proposition of a theoretical model is, then, is a truth statement about the model in operation (Dubin, 1978). Propositions may be either positive or negative truth statements (Dubin, 1978). In either case, they are always truth statements about the values taken by the system’s units (Dubin, 1978).

Propositions are derived from the logic underlying a theoretical model. Thus, the ‘truth’ of a proposition is based on whether the proposition flows logically from the model to which it applies, not the degree to which it is validated empirically (Dubin, 1978). Validation and refinement of theoretical model is left to Step Eight, testing. Thus, according to Dubin, “The only criterion of consistency that propositions of a model need to meet is the criterion that their truth be established by reference to only one system of logic for all the propositions set forth about the model,” (Dubin, 1978, p. 160).

Propositions most frequently adopt the classic “if…then” format (Dubin, 1978). Dubin (1978) provides the following example. “If an individual is frustrated, then he may become aggressive,” (Dubin, 1978, p. 164). This proposition contends that a positive value of frustration is associated with a positive value of aggression in a person’s behavior. Propositions may be linked by connecting multiple “if…then” statements (Dubin, 1978). In these cases, the value of the unit in the first “then” clause becomes the value of the unit in the succeeding “if” clause. A chain of propositions would be stated in the following manner:

If (a), then (b);
If (b), then (c);
If (c), then (d); etc.” (Dubin, 1978, p. 165).

In defining propositions, Dubin (1978) was careful to point out two distinctions between propositions and two different types of truth statement. First, Dubin (1978) distinguished between propositions and truth statements about the set membership of units. The assignment of a unit (e.g. Plato) to a specific set (e.g. man) does not predict the unit's value and is therefore not a proposition. According to Dubin (1978), “propositions are not about the location of the system components in their respective sets,” (p. 163). Dubin (1978) also distinguished between propositions and laws of interaction. Laws of interaction specify the relationship between two or more units of a theoretical model for all values over which the units are linked by the law (Dubin, 1978). In contrast, propositions make explicit the value of one unit that is related to a corresponding value of another unit (Dubin, 1978). Dubin writes, “the law of interaction tells what the relationship is, and the proposition states what the predicted values will be,” (1978, p. 170).

Dubin (1978) identifies three general classes of propositions. These classes are.

1. Propositions may be made about the values of a single unit in the model, the values of that unit being revealed in relation to the value of other units connected to that unit in question by a law of interaction;

2. Propositions may be predictions about the continuity of a system state that in turn involves predictions about the conjoined values of all units in the system; and
3. Propositions may be predictions about the oscillation of the system from one state to another that again involves predictions about the values of all units of the system as they pass over the boundary of one system state into another (pp. 165-166).

According to Dubin (1978) all propositions fall into one of these three classes; these classes exhaust all logical possibilities.

Within these classes an infinite number of propositions may arise from any given theoretical model (Dubin, 1978). Dubin writes, “The number of propositions is the sum of different ways the values of all the units in the model may be combined with the values of all other units with which they are lawfully related,” (1978, p. 166). As a result a deliberate way is needed to weed out trivial propositions (Dubin, 1978). This need leads immediately to the concept of strategic propositions.

Strategic propositions are distinguished from trivial proposition by their significance. Strategic propositions are those that, once tested, will corroborate or identify the need to modify a theoretical model (Dubin, 1978). Strategic propositions are typically those that “state critical or limiting values for the units involved,” (Dubin, 1978, p. 168). Critical or limiting values are those at which a unit reaches a minimum or maximum point, a zero value for associative units, or the values for one unit at which related units are predicted to increase or decrease in value (Dubin, 1978). In deciding upon propositions of a model for empirical testing, it is preferable in the interest of parsimony to choose strategic propositions over trivial propositions (Dubin, 1978).
Propositions

Nine propositions are specified for this theoretical model using Dubin’s three classes of propositions as a framework. Consequently, three sets of propositions resulted: propositions about the values of a single unit in the model; propositions about the continuity of system states; and propositions about the oscillation of the system from one state to another. For each of the three classes of proposition, the researcher-theorist logically derived the propositions from the theoretical model.

As described above an infinite number of propositions may be developed from a theoretical model (Dubin, 1978). Therefore, in accordance with Dubin's (1978) guidance, the researcher-theorist sought to limit development to strategic propositions, those that when empirically tested are best suited to corroborating or identifying the need to modify the theoretical model. In total, nine propositions resulted: six propositions dealing with the value of the theoretical model's individual units; two propositions dealing with the continuity of the theoretical model's system states; and one proposition dealing with the oscillation from one system state to another.

Propositions about single unit values

Propositions may be made about the value of a single unit. In this case, the propositions serve to predict the value of the unit in relation to the value of other units related to the unit in question by a law of interaction (Dubin, 1978). Six propositions related to the value of a single unit are specified for this theory. Each of these six propositions makes a prediction based on the relationships between units specified by the theoretical model. All of the model's inter-unit relationships are represented with the
exception of the relationship between the units change-oriented learning, response to change, and change execution. Propositions dealing with the relationship between these units were excluded because the relationships between these units have been previously established (e.g. Burke, 2002; Lewin, 1947). Therefore, the development of propositions dealing with these relationships for this study would be non-strategic. Each of the other inter-unit relationships in the model is represented. As a result, if the six propositions about the value of a single unit were empirically tested and proven true then the model's units and laws of interaction would be corroborated.

The six propositions about the single unit values in the model are:

Proposition 1: Between the beginning and end of the initial large-group intervention phase, “Understanding the Need for Change,” the number of bridging ties will increase.

Proposition 2: If the number of bridging ties is high, then change-oriented learning will increase.

Proposition 3: Between the beginning and end of the intermediate large-group intervention phase, “Creating a Future Vision,” strong ties will increase.

Proposition 4: If strong ties increase, positive responses to change will increase.

Proposition 5: Between the beginning and end of the final large-group intervention phase, “Generating Implementation Plans,” the configuration of network ties will become more goal directed.
Proposition 6: If the configuration of network ties is goal-directed, then change execution will be high.

**Propositions about the continuity of system states**

Propositions may be made about the continuity of a system state (Dubin, 1978). Such predictions entail a set of corresponding predictions regarding the conjoined values of all the units in the theoretical model (Dubin, 1978). "A Social Network-Based Theory of Large-Group Interventions" has two system states: unfreezing and moving. Thus, two strategic propositions were developed: one to test the continuity of each of the theory's two system states.

The two propositions about the continuity of system states are:

- Proposition 7: If a large-group intervention is in the initial phase “Understanding the Need for Change”, bridging ties are increased, and change-oriented learning is increased, then strong ties remains unchanged, responses to change are ambivalent, configuration of network ties is serendipitous, and change execution is low.

- Proposition 8: If a large-group intervention is not in the initial phase “Understanding the Need for Change”, strong ties is increased, responses to change are positive, configuration of network ties is goal-directed and change execution is high then bridging relationships are low and change-oriented learning is low.
Propositions about oscillation of system states

Finally, propositions may be made about the oscillation of systems states. These predictions deal with the values of all the units in the system as they transition from one system state to another (Dubin, 1978). In the case of "A Social Network-Based Theory of Large-Group Interventions" one transition between system states is presumed: the transition from the system state unfreezing to the system state moving. Thus, one proposition was developed to test this presumed transition.

This proposition is:

Proposition 9: The system state, “Unfreezing,” will precede the system state “Moving.”

In summary, this section of Chapter Five has identified the propositions of “A Social-Network-Based Theory of Large-Group Interventions.” In total, nine strategic propositions were specified across Dubin’s (1978) three general classes of propositions. The following section identifies the empirical indicators used test these propositions.

Theory Building Research Step Six: Identifying Empirical Indicators

This section of Chapter Five develops specifies empirical indicators for the theory. These empirical indicators identify operations that allow the researcher-theorist to measure the values of the units in the theoretical model. Thus, the output of this section addresses the question, “What are the empirical indicators of the theory? In answering this theory-development question, the researcher-theorist completes Step Six of Dubin’s theory building research methodology and further partially answers the second research sub-question of this study, namely, Can “A Social-Network Based
**Theory of Large-Group Interventions** be operationalized? The section begins with a description of Dubin’s methodology for developing empirical. The section then presents the theory’s empirical indicators.

**Dubin’s Methodology for Identifying Empirical Indicators**

The development of empirical indicators allows the model's propositions or predictions to be tested for empirical accuracy (Dubin, 1978). This requires that the researcher-theorist put aside the internal workings of the theoretical model and turn his or her attention externally. According to Dubin:

> For the first time, we now turn analytical attention systematically outward from the model to confront the empirical world. In previous considerations of the empirical world, useful results were obtained as a basis for discovering and describing the units of a model, its laws of interaction, its boundary conditions, and its system states. These descriptive features of the empirical world, however, provided only suggestions for the theory building. Once these suggestions entered into his consideration, there was no need to have further reference to the empirical world in building the theoretical model (1978, p. 182).

The first step in establishing the empirical accuracy of the model’s propositions is to identify an empirical indicator for each of the units employed in every proposition to be tested (Dubin, 1978). An empirical indicator is an operation used by a researcher to determine measurements of values on a unit (Dubin, 1978). Dubin states that the value of a unit generated by an empirical indicator:
is most often a number like a dial reading, a test score, or an ordinal position on a scale. The measured value of a unit may also be a category, like present or absent, central or peripheral, dominate or submissive, and sociometric star or sociometric isolate. In each instance, it is possible unequivocally to sort a sample of identical units into these categories so that the units have the values described by the categories,” (1978, pp. 182-183).

Above and beyond producing a specific value of a unit, an empirical indicator refers to the operation employed by the researcher to produce that value (Dubin, 1978). Thus, empirical indicators normally take the standard form of “The value of unit X as measured by ...,” (Dubin, 1978, p. 185). In this form, the term as measured by and what follows describe the procedure used by the researcher to determine the value of the unit (Dubin, 1978).

Two principle criteria determine the adequacy of an empirical indicator. These criteria are:

1. The operation involved in the relation between observer and the apparatus used for observing are explicitly set so that they may be duplicated by any other equally trained observer.

2. The observing operation produces equivalent values for the same sample when employed by different observers,” (Dubin, 1978, p. 183).

In other contexts, these criteria have been referred to as (1) operationalism and (2) reliability (Dubin, 1978).
Just as Dubin (1978) created classification systems for other components of theory, including units, laws of interaction, and boundaries, he suggests two classes of empirical indicators: absolute indicators and relative indicators (Tuttle, 2003). Absolute indicators refer to empirical indicators “that are absolute in the sense that there can be no question as to what they measure,” (Dubin, 1973, p. 193). Examples of absolute indicators are race, age and gender. In these cases the definition of the indicator is sufficient to warrant that the empirical indicator has a single referent (Dubin, 1973). In contrast, relative indicators are empirical indicators that may be used as an empirical indicator for more than one theoretical unit (Dubin, 1973). Dubin (1978) provides the example of worker absenteeism which can be employed to measure multiple units, including: morale, health status, or community social practices as when absenteeism is associated with the beginning of hunting season.

Dubin cautions that the researcher-theorist must ensure that the empirical indicators chosen are appropriate for the class of unit. Recall that enumerative units are defined as a characteristic of a thing in all its conditions (Dubin, 1978). This definition promises that any empirical indicator used to determine the value of an enumerative unit has to produce nonzero values for that unit regardless of the condition in which the unit is exits. Alternatively, associative units are defined as a property characteristic of a unit in only some of its conditions (Dubin, 1978). Associative units can therefore have a zero value. Thus, empirical indicators for associative units must be capable of producing zero values and, where appropriate, negative values (Dubin, 1978).
Empirical Indicators

Nine propositions regarding the theoretical model were developed in the previous section. In order for these propositions to be tested, empirical indicators for the units in each proposition must be identified. Each of these empirical indicators must meet Dubin’s criteria of operationalism and reliability and must be consistent with the unit’s classification. Many valid empirical indicators may exist for each unit. Under these circumstances Dubin (1978) leaves the choice up to pragmatic considerations.

Table 5.1 presents the empirical indicators for each unit in the theoretical model.

Table 5.1.
Empirical Indicators for the Theory

<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit Class</th>
<th>Empirical Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large-group intervention phase</td>
<td>Enumerative</td>
<td>The purpose and focus of large-group intervention activities as measured by questioning / observation of participants</td>
</tr>
<tr>
<td>Bridging relationships</td>
<td>Associative</td>
<td>Number of structural holes in social network as measured by social network survey (Kilduff &amp; Tsai, 2003)</td>
</tr>
<tr>
<td>Change-oriented learning</td>
<td>Associative</td>
<td>The content of participants’ learning as measured by a survey</td>
</tr>
<tr>
<td>Strong ties</td>
<td>Statistical</td>
<td>The density of strong ties as measured by a network survey (Tenkasi &amp; Chesmore, 2003; Wasserman &amp; Faust, 1999)</td>
</tr>
<tr>
<td>Responses to change</td>
<td>Statistical</td>
<td>The value of participants cognitive, emotional and intentional attitudes toward the change as measured by a survey (Piderit, 2000)</td>
</tr>
</tbody>
</table>
Table 5.1 Continued

| Configuration of network ties | Enumerative | The average distance in network of relevant instrumental ties as measured by a social network survey (Hanneman, 2005; Kilduff & Tsai, 2003; Wasserman & Faust, 1999) |
| Change execution | Enumerative | The degree to which change objectives are achieved on time, within budget, and within scope as measured by interviews, document reviews, observations. |

In conclusion, this section of Chapter 5 presented the empirical indicators identified to measure the values of the units in the theory. One empirical indicator was identified for each unit. The next section of this chapter will develop hypotheses that leverage these empirical indicators to test the theory’s propositions in the real world.

**Theory Building Research Step Seven: Developing Hypotheses**

The previous six steps in the theory-building research process have allowed for the conceptual development of a theoretical model, the specification of proposition statements, and the identification of empirical indicators for the model. At this point, testing in the empirical world is possible (Tuttle, 2003).

This section of Chapter Five develops hypotheses for the theory. These hypotheses allow for the testing of predictions in the real world. Thus, the output of this section addresses the question, “What are the hypotheses of the theory? In answering this theory-development question, the researcher-theorist completes Step Seven of Dubin’s theory building research methodology and answers the second research sub-question of this study, namely, Can “A Social-Network Based Theory of Large-Group Interventions”
be operationalized? The section begins with a description of Dubin’s methodology for developing hypotheses. The section then presents the theory’s hypotheses.

**Dubin’s Methodology for Developing Hypotheses**

Hypotheses are intended to test predictions in the real world. According to Dubin:

> It is through the test that [the researcher] relates the facts he finds in the empirical world to his theoretical predictions about them. We can safely assume, therefore, that the hypothesis is the feature of a theoretical model closest to the “things observable” that the theory is trying model,” (1978, p. 205).

Hypotheses are defined as predictions concerning the values of a theory’s units in which empirical indicators are employed for the names of the units in each proposition (Dubin, 1978). In other words, a hypothesis is a proposition in which the names of the units within the proposition have been substituted by empirical indicators that measure values on the respective units (Dubin, 1978). For example, if a proposition states: “Friendliness of interaction is directly related to frequency of interaction,” then one hypothesis testing this proposition could be “Expressed liking between two people as measured by the Dubin Interaction Love and Liking Yardstick is directly proportional to the number of hours spent in contact,” (Dubin, 1978, p. 206).

Dubin (1978) emphasized that every hypothesis must be homologous with the proposition it purports to test. This structural similarity is determined by the dimensionality of the theoretical definition of the units included in the proposition (Dubin, 1978). As a result, the empirical indicators in the hypothesis standing in for the
names of the units in the proposition have to meet the necessary and sufficient conditions of the theoretical defined unit. These conditions were articulated in the preceding section on identifying empirical indicators.

Three primary strategies may be employed to develop hypotheses to test (Dubin, 1978). They are: extensive, intensive, and inductive strategies. The extensive strategy entails developing hypotheses to test every strategic proposition in a theoretical model. Because the extensive approach tests all strategic propositions, the strategy is “the most adequate test of the theory as a whole,” (Dubin, 1978, p. 210). Alternatively, the intensive strategy entails focusing attention on one or more, but not all, of the theory’s strategic propositions. The intensive strategy may be appropriate if the researcher has a particular interest in a limit number of strategic propositions (Dubin, 1978) or if the resources available for research are limited. Finally, the inductive strategy entails starting with an ad hoc hypothesis and working backwards to identify the other components of the theoretical model (Dubin, 1978, Tuttle, 2003). These three strategies for hypotheses development are not mutually exclusive nor is one any better than the others (Dubin, 1978).

Hypotheses

An intensive strategy was chosen for the development of the theory’s hypotheses. The intensive approach was selected for two reasons. First, a number of the theory’s propositions have previously been tested and validated in some form (Table 5.2.). While previously tested propositions are not completely homologous with this study’s
propositions, the underlying units are similar enough that one could expect the corresponding propositions employed in this study to stand up to empirical research.

Table 5.2.

Existing Research on this Theory's Propositions.

<table>
<thead>
<tr>
<th>Proposition</th>
<th>Previous Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Between the beginning and end of the initial large-group intervention phase, “Understanding the Need for Change,” the number of bridging ties will increase.</td>
<td>None</td>
</tr>
<tr>
<td>2. If the number of bridging ties is high, then change-oriented learning will increase.</td>
<td>While the effect on bridging ties on change-oriented learning has not been specifically researched, a significant body of research demonstrates that bridging ties promote learning related to the content of the relationship (Burt, 2004; Hansen, 1999; Tsai, 2001; Zaheer and Bell, 2005)</td>
</tr>
<tr>
<td>3. Between the beginning and end of the intermediate large-group intervention phase, “Creating a Future Vision,” strong ties will increase.</td>
<td>None</td>
</tr>
<tr>
<td>4. If strong ties increase, positive responses to change will increase.</td>
<td>The affect of strong ties on individuals responses to change was investigated by several researchers (Tenkasi &amp; Chesmore, 2003; Krackhardt, 2003; Mohrman, Tenkasi &amp; Morhman 2003).</td>
</tr>
<tr>
<td>5. Between the beginning and end of the final large-group intervention phase, “Generating Implementation Plans,” the configuration of network ties will become more goal directed.</td>
<td>None</td>
</tr>
</tbody>
</table>
Table 5.2 Continued

6. If configuration of network ties is goal-directed, then change execution will be high. The effect of the configuration of network ties on performance outcomes has been demonstrated by (Balkundi and Harrison, 2006; Brass, 2003; Cross, Liedka, and Weiss, 2005; Kilduff and Tsai, 2003; Krackhardt, 2003). Moreover, the configuration of network ties has been shown to specifically influence the outcomes of change interventions (Mohrman, Tenkasi & Morhman 2003; Stephenson, 2003).

7. If a large-group intervention is in the initial phase “Understanding the Need for Change”, bridging ties are increased, and change-oriented learning is increased, then strong ties remains unchanged, responses to change are ambivalent, configuration of network ties is serendipitous, and change execution is low. None

8. If a large-group intervention is not in the initial phase “Understanding the Need for Change”, strong ties is increased, responses to change are positive, configuration of network ties is goal-directed and change execution is high then bridging relationships are low and change-oriented learning is low. None

9. The system state, “Unfreezing,” will precede the system state “Moving.” Lewin’s 3-Step Model of Change in groups makes clear the state of moving follows the state of unfreezing (Lewin, 1997).

Second, research is resource intensive (Dubin, 1978; Tuttle, 2003). As stated by Dubin:

Many scientists are relatively reluctant to do research because of the time and energy required…Given , then, the possibility of doing trivial research and the
considerable investment necessary to accomplish any single piece of research, these constitute strong pressures toward achieving some degree of efficiency in research operations.

Given that previous, empirical research supports several of the theory’s propositions and the resource-intensive nature of empirical research, an intensive approach to developing hypotheses was selected. Thus, the researcher-theorist chose to focus development on hypotheses dealing with the theory's subset of untested propositions. By focusing the development of hypotheses on untested propositions, the researcher-theorist seeks the most parsimonious approach to corroborating or identifying the need to modify the theory.

Three hypotheses for this theory were developed. These hypotheses are focused on the theory’s untested propositions: proposition one, proposition three, and proposition five. While propositions seven and eight also are untested, they concern the continuity of the theoretical model’s system states. While important, testing propositions one, three, and five will help to establish the underlying logic upon which the system states are based. Consequently, an investigation of these propositions is more important to testing the theory.

The three hypotheses developed adhere to Dubin’s (1978) guidelines; each hypothesis is homologous to the underlying proposition. In each case, the name of the units within each proposition has been replaced by an appropriate empirical indicator. The theory’s three hypotheses are presented in Table 5.3.
Table 5.3.

The Theory's Three Hypotheses

<table>
<thead>
<tr>
<th>Proposition</th>
<th>Empirical Indicators</th>
<th>Hypothesis</th>
</tr>
</thead>
</table>
| 1. Between the beginning and end of the initial large-group intervention phase, “Understanding the Need for Change,” the number of bridging ties will increase. | • The purpose and focus of large-group intervention activities as measured by questioning / observation  
• The number of structural holes in the social network as measured by a social network survey | Between the beginning and end of the initial large-group intervention phase, "Understanding the Need for Change," (as measured by questioning / observation), the number of structural holes in the network will decrease (as measured by a social network survey). |
| 3. Between the beginning and end of the intermediate large-group intervention phase, “Creating a Future Vision,” strong ties will increase. | • The purpose and focus of large-group intervention activities as measured by questioning / observation  
• The density of strong ties as measured by a network survey | Between the beginning and end of the intermediate large-group intervention phase, “Creating a Future Vision,” (as measured by questioning / observation), the density of strong will increase (as measured by a social network survey). |
| 5. Between the beginning and end of the final large-group intervention phase, “Generating Implementation Plans,” the configuration of network ties will become more goal directed. | • The purpose and focus of large-group intervention activities as measured by questioning / observation  
• The average distance in network of relevant instrumental ties as measured by a social network survey (Kilduff & Tsai, 2003) | Between the beginning and end of the final large-group intervention phase, “Generating Implementation Plans,” (as measured by questioning / observation), the average distance in network of relevant instrumental ties will decrease (as measured by a social network survey). |
In summary, this section of Chapter 5 developed three hypotheses for “A Social Network-Based Theory of Large-Group Interventions.” These hypotheses provide the means to test the theory in the real world. The next section describes a research agenda that could be used to conduct these tests.

**Theory Building Research Step Eight: Testing the Theory**

In line with the previous theory-building work of Holton III and Lowe (2007, Lynham (2000a; 2002b), and Tuttle (2003), this study’s scope does not entail completion of Step Eight in Dubin’s (1978) theory-building research methodology. This eight and final step in the methodology is conducting tests of the theory’s hypotheses to test the theory in an effort to modify and refine it. Although the completion of this step is outside the scope of this study, a future research agenda is presented below that is immediately employable for testing the theory.

**Proposed Agenda to Test the Theory**

This section gives an overview of a potential research agenda that could be used to test “A Social Network Based Theory of Large-Group Interventions.” This description will identify major elements of a research agenda, with the exception of the problem and the need, which has been the focus of the rest of this study (Tuttle, 2003). The components of the research agenda presented here are: research question, hypotheses, research design, participants, variables and measurement, instruments, procedures, and intended analysis.
Proposed agenda: Research question

The larger research question guiding the testing of the theory is: Can “A Social Network-Based Theory of Large-Group Interventions” be validated? It will take multiple research studies to fully address this question. Therefore, the specific research question guiding this proposed research agenda is only one step in that direction. The specific research question is: Do large-group interventions affect bridging ties, strong ties, and the configuration of network ties as suggested by “A Social Network-Based Theory of Large-Group Interventions.”

Proposed agenda: Hypotheses

To address this specific research question, the proposed agenda will test the following hypotheses:

Hypothesis 1: Between the beginning and end of the initial large-group intervention phase, "Understanding the Need for Change," (as measured by questioning / observation), the number of structural holes in the network will decrease (as measured by a social network survey).

Hypothesis 2: Between the beginning and end of the intermediate large-group intervention phase, “Creating a Future Vision," (as measured by questioning / observation), the density of strong will increase (as measured by a social network survey).
Hypothesis 3: Between the beginning and end of the final large-group intervention phase, “Generating Implementation Plans,” (as measured by questioning / observation), the average distance in network of relevant instrumental ties will decrease (as measured by a social network survey).

Proposed agenda: Research design

Collectively, the proposed research agenda’s hypotheses deal with the ability of a treatment, a large-group intervention, to affect a set of dependent variables associated with an organization’s social network. Given the intent to investigate a treatment, Creswell (2003) suggests the use of an experimental design. Following Creswell's guidance, this study will use a pre-experimental, one-group pretest-posttest design (Creswell, 2003). The study will begin with a pre-social network analysis to determine the nature and structure of the social relationships within the organization. The pre-test will be followed by a large-group intervention treatment. During and after the large-group intervention, social network data will be collected and then analyzed to determine if and how the large-group intervention has restructured the social relationships within the organization. Please see Figure 5.2 for a high-level, graphical representation of the study's design.
This design offers several advantages, including: simplicity; cost-effectiveness; timeliness; and the ability to compare pretest and posttest data. This design also has a number of limitations and delimitations. Table 5.4 provides a list of potential study limitations.

Table 5.4.
Limitations of Proposed Research Design

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unexpected events</strong></td>
<td>Unexpected events such as organizational downsizing or a merger or acquisition may alter the organization's informal social network, confounding the study's results.</td>
</tr>
<tr>
<td><strong>Participant maturation</strong></td>
<td>Participants' social relationships may change simply due to the passage of time between the pre-test and the post-test.</td>
</tr>
<tr>
<td><strong>Pre- &amp; post testing</strong></td>
<td>The pre-test itself may affect participants such that their responses on the post-test are affected.</td>
</tr>
</tbody>
</table>
Table 5.4 Continued

<table>
<thead>
<tr>
<th>Testing procedure</th>
<th>Testing procedures for the pre-test and post-test may differ and thus affects participants' responses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-metric survey</td>
<td>Respondents may not accurately report on their relationships in socio-metric surveys.</td>
</tr>
<tr>
<td>relying upon self reports</td>
<td></td>
</tr>
</tbody>
</table>

The study will incorporate several procedures to help address these potential limitations. To minimize the affect of unexpected events or participant maturation, the study will consider the impacts of unintended events and attempt to control for them. To reduce the potential for the testing procedure to affect participants’ responses, the study will take pains to ensure that the pre- and post-test are conducted consistently.

**Proposed agenda: Participants**

This study will take place in the context of a for-profit or non-profit organization that is made up of approximately 100 employees. This organization may represent an organizational subunit of an even larger organization. For example, the organization under investigation could be an entire nonprofit organization or a subdivision of a Fortune 500 corporation. The employees of the organization will serve as the study's participants. Participants will represent a convenience sample.

In the case of social network analysis, population sampling presents unique challenges (Wasserman & Faust, 1999; Scott, 2004). According to Scott (2004), this is because of the limited relational data that can be obtained from a sample of network agents. Even assuming that all members of the sample responded, many of contacts identified by respondents will not themselves be included in the sample. As a result, the number of relationships among sample members will represent a small proportion of their
total relationships. This makes it difficult to extrapolate to the larger population. Burt (1983 as cited in Scott, 2004) has estimated that the quantity of relational data lost through sampling is equal to (100-k) percent, where k is the sample size as a percentage of the population. Thus, Burt asserts that a 10 percent sample would result in the loss of ninety percent of the relational data.

While sampling procedures exist for social network studies, they are not simple and require that researchers adjust the results to allow for potential bias (Wasserman & Faust, 1999). For this reason, most social network researchers use well-defined, completely enumerated sets, rather than rely on sampling (Wasserman & Faust, 1999; Scott, 2004; Marsden, 1990). Consequently, this study will employ a census approach; study participants will include all members of the organizations under investigation.

**Proposed agenda: Variables and measurement**

Multiple variables are necessary to test the proposed research agenda's hypotheses. Table 5.5 identifies these variables.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the beginning and end of the initial large-group intervention phase, &quot;Understanding the Need for Change,&quot; (as measured by questioning / observation), the number of structural holes in the network will decrease (as measured by a social network survey).</td>
<td>• Type of large-group intervention activities</td>
</tr>
<tr>
<td></td>
<td>• Number of structural holes</td>
</tr>
</tbody>
</table>
Each of these variables is discussed in turn.

*Type of large-group intervention activities.*

As described in Chapter 4, large-group interventions are comprised of three, sequential phases: Understanding the Need for Change, Envisioning a Preferred Future, and Generating Implementation Plans. Each of these phases has a different goal, which is apparent from the name of the phase. The activities that participants engage in during a large-group intervention take place during one of these three phases and can be categorized accordingly. Thus, the variable can have a value of “understanding the need for change activities,” “envisioning a preferred future activities,” or “generating implementation plans activities.” Measurement will be conducted through a combination of reviewing the large-group interventions agenda, observing participants, and questioning.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 2. Between the beginning and end of the intermediate large-group intervention phase, “Creating a Future Vision,” (as measured by questioning / observation), the density of strong will increase (as measured by a social network survey). | • Type of large-group intervention activities  
• Density of strong ties |
| 3. Between the beginning and end of the final large-group intervention phase, “Generating Implementation Plans,” (as measured by questioning / observation), the average distance in network of relevant instrumental ties will decrease (as measured by a social network survey). | • Type of large-group intervention activities  
• Average distance of relevant instrumental ties |
Number of structural holes.

Structural holes are gaps in the social fabric across which there are no existing relationships (Kilduff & Tsai, 2003). According to Burt (2003), who developed the concept of structural holes:

Nonredundant contacts are connected by a structural hole. A structural hole is a relationship of nonredundancy between two contacts. The hole is a buffer, like an insulator in an electric circuit. As a result of the hole between them, the two contacts provide network benefits that are in dome degree additive rather than overlapping (2003, p. 22).

The empirical conditions that indicate a structural hole are cohesion and structural equivalence (Burt, 2003). Each of these conditions defines structural holes by indicating where they are absent. Under the cohesion criterion, two contacts are redundant to the degree that they are linked by a relationship. Under the structural equivalent criterion, two contacts are redundant to the extent that they share the same contacts. This study will determine the number of structural holes through a social network analysis. The existence of a structural holes will be presumed using the cohesion criterion, which Burt (2003) indicates is the more certain indicator.

Density of strong ties.

Density of Strong Ties refers to the degree to which the maximum number of strong ties exists within the social network. To calculate the density of strong ties within the network, the proposed research agenda will use the standard network density measure where the density of ties within a network is defined as the number of existing ties,
expressed as a proportion of the total number of possible ties (Scott, 2004). The formula for the density is:

\[
density = \frac{1}{n(n-1)/2} \quad \text{(Formula 5.1)}
\]

where \( l \) is the number of ties present and \( n \) is the number of nodes in the network. This measure can vary from 0 to 1, where 0 represents a network with no ties and 1 represents a network where every actor is connected to every other actor.

The proposed research agenda will operationalize strong ties using Krackhardt's (2003) concept of 'philos' ties. While scholars have defined strong ties in a variety of ways, including: relationships that entail frequent interaction; relationships that are reciprocated by both parties; and relationships that are characterized by emotional intensity and intimacy, the proposed research agenda's use of Krackhardt's definition is appropriate because it captures the essence of strong ties for the study of organizational change (e.g. Krackhardt, 2003; McGrath & Krackhardt, 2003; Tenkasi & Chesmore, 2003; Mohrman, Tenkasi & Mohrman, Jr., 2003). Krackhardt (2003) defines a philos tie as one that meets three necessary and sufficient conditions: (i) the actors must interact with each other; (ii) the actors must feel affection for each other; (iii) the actors must have a history of interactions that have lasted over an extended period of time. According to Krackhardt (2003), philos relationships represent a particular type of strong tie; one that constitutes “a base of trust that can reduce resistance and provide comfort in the face of uncertainty,” (p. 84).
Average distance of relevant instrumental ties.

Average distance is a common measure of network cohesion (Cross & Parker, 2004; Hanneman, 2005; Wasserman & Faust, 1999). The (geodesic) distance between two nodes in the network is defined as the length of the shortest path between them (Wasserman & Faust, 1999). Average distance is derived by taking the average of the geodesic distances between all pairs of actors in the network (Hanneman, 2005).

Proposed agenda: Instrumentation

The primary instrumentation used in this proposed research agenda will be a social network questionnaire, sometimes referred to as a name generator. The social network questionnaire will be used prior to, during, and after the large-group intervention (see Figure 5.3).

Figure 5.3. Timing for Conducting Social Network Questionnaire During Proposed Research Agenda
While various methods exist for collecting social network data, surveys and questionnaires are the most common form (Wasserman & Faust, 1999; Marsden, 1990). Marsden (1990) and Wasserman and Faust (1999) confirm that questionnaires are an appropriate data collection method, particularly when appropriate procedures are followed. The procedures for piloting and administering the social network questionnaire are explained in the subsequent section titled, Procedures.

While the specific social network questionnaire is not yet developed, the sociometric questions employed will allow for measurement of the proposed study’s variables. Socio-metric questions from previous studies (e.g. Cross & Parker, 2004; Krackhardt, 2003; Tenkasi & Chesmore, 2003) will be used as a basis for developing the instrument’s questions. These questions will then be tailored for the proposed research agenda’s specific context as advised by Krackhardt:

My experience is that different questions are relevant at different sites, and that it is best to create a question that captures those relations that are critical to the local culture. In addition, for research purposes, different questions will be pertinent to different theoretical issues, which should be foremost in your mind as you construct a questionnaire (2006).

---

2 Marsden (1990) reviewed data from studies using three different approaches to assess accuracy and reliability: test-retest studies; studies comparing network measures to an observed standard; and studies comparing the reciprocity of the relationships cited.
Proposed agenda: Procedures

Three primary procedures will be used in the proposed research agenda. These procedures are: (1) the procedure for conducting the large-group intervention; (2) the procedure for conducting the web-based social network survey; and (3) the procedure for recording participants’ interactions. Figure 5.4. illustrates these three procedures in the context of the overall research agenda. Each of these three procedures is discussed in turn.

Figure 5.4. Illustration of Three Procedures in the Context of the Overall Research Agenda
**Procedure for large-group intervention treatment.**

Although multiple large-group intervention methodologies exist, this study will employ Open Space Technology.\(^3\) Scholars have characterized Open Space Technology as a large-group intervention approach (Bunker & Alban, 1997; Bryson & Anderson, 2000; Holman & Devane, 1999; Manning & Binzagr, 1996; Weber & Manning, 1998) and it has been employed in large and small for-profit and nonprofit organizations around the globe. The study’s rationale for selecting Open Space Technology as the treatment method is based on scholars’ acceptance of the method, its adaptability and ease of use (Holman and Devane, 1999) and the researcher’s experience with it.

A detailed description of the procedure for conducting an Open Space Technology large-group intervention is outside the scope of this overview. Readers who are interested in a full treatment of the procedure are referred to (Bunker & Alban, 1997; Owen, 1997)

**Procedure for conducting the social network survey.**

The social network survey will be conducted prior to the large-group intervention, at the end of the large-group intervention’s second phase, and after the large-group intervention is completed. Marsden (1990) asserts that appropriate survey techniques are necessary to ensure the accuracy and reliability of social network data. Marsden (1990) suggests several practices, including: “ensuring that meaning is shared between respondent, interviewer, and investigator; asking questions about which respondents are

---

\(^3\) Open Space Technology was developed by Harrison Owen. Owen (1992) describes how, after organizing a conference on organizational transformation, he recognized that some of the conference’s best moments had come during the coffee breaks. Subsequently, he imagined what it would be like to create a conference that was “all coffee breaks,” (Owen, 1992, p. 3). Thus, Open Space Technology was conceived.
in fact knowledgeable; avoiding both excessively diffuse and excessively minute items; thoroughly pretesting instruments, and the like,” (p. 456). To help increase reliability, this study will follow these recommended measures. For example, the survey will be piloted by 5-10 ‘expert judges,’ including large-group intervention practitioners, social network researchers, and randomly-selected members of the organization under investigation.

A key procedural issue relating to completion of the survey by respondents deals with participation rate. As discussed in the preceding section on Participation, very high participation rates are necessary when conducting social network research. To encourage participant responses, the researchers will offer to provide respondents with feedback consisting of network diagrams indicating their own personal position in the overall network (Borgatti and Molina, 2003) at the completion of the study.

Procedure for recording participants’ interactions.

During the first phase of the large-group intervention treatment, “Understanding the Need for Change,” participants self select into small discussion groups to engage in conversations regarding the organization’s need to change. The output of these discussion groups is a “small-group topic report” that documents the content of the discussion and the names of small group’s participants. The data on participation contained in the topic reports is sociometric data. This data will be used to construct a social network of participant' interactions during the initial phase large-group intervention.
**Proposed agenda: Intended analysis**

To generate the data needed for the intended analysis, the proposed research will use two different methods to collect data: a social network survey and an analysis of collected “small-discussion group topic reports.” This needed data will be collected at four different points during the proposed study: (1) prior to the large-group intervention; (2) during phase one; (3) at the end of phase 2; and (4) at completion of the large-group intervention. The purpose of data collection at each point in the study differs. Table 5.6 summarizes how the data will be collected at each point in the study and for what intended purpose.

Table 5.6.

Summary of What Data will be Collected When and for What Purpose in the Proposed Research Agenda

<table>
<thead>
<tr>
<th>Point of Data Collection</th>
<th>Data Collection Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social network survey</td>
</tr>
<tr>
<td></td>
<td>Analysis of small</td>
</tr>
<tr>
<td></td>
<td>discussion group reports</td>
</tr>
<tr>
<td>1. Prior to large-group</td>
<td>Data collection point 1: To establish a baseline for comparison</td>
</tr>
<tr>
<td>intervention</td>
<td></td>
</tr>
<tr>
<td>2. During phase one</td>
<td>Data collection point 2: To determine the number of structural holes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3. After phase two</td>
<td>Data collection point 3: To determine number of strong ties</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4. At completion of large-group intervention</td>
<td>Data collection point 3: To average distance in the network of relevant instrumental ties</td>
</tr>
</tbody>
</table>

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The collected data will be analyzed to test the proposed research agenda's hypotheses. The intended analysis to test each hypothesis follows.

Analysis for hypothesis one.

Hypothesis 1 states:

Between the beginning and end of the initial large-group intervention phase, "Understanding the Need for Change," (as measured by questioning / observation), the number of structural holes in the network will decrease (as measured by a social network survey).

To test this hypothesis, the proposed research agenda will compare the value of the number of structural holes prior to the large-group intervention using the data collected at point 1, to the number of structural holes that exist after phase one of the large-group interventions, using the data collected at point 2. If the number of structural holes has decreased significantly, the researcher will conclude that hypothesis 1 is true.

Analysis for hypothesis two.

Hypothesis 2 states:

Between the beginning and end of the intermediate large-group intervention phase, “Creating a Future Vision,” (as measured by questioning / observation), the density of strong will increase (as measured by a social network survey).

To test this hypothesis, the proposed research agenda will compare the value of the density of strong ties prior to the large-group intervention using the data collected at point 1, to the density of strong ties that exist after phase two of the large-group
interventions, using the data collected at point 3. If the density of strong ties has increased significantly, the researcher will conclude that hypothesis 2 is true.

*Analysis for hypothesis three.*

Hypothesis 3 states:

Between the beginning and end of the final large-group intervention phase, “Generating Implementation Plans,” (as measured by questioning / observation), the average distance in network of relevant instrumental ties will decrease (as measured by a social network survey).

To test this hypothesis, the proposed research agenda will compare the average distance in the network of relevant instrumental ties prior to the large-group intervention using the data collected at point 1, to the average distance in the network of relevant instrumental ties that exists after the completion of large-group interventions, using the data collected at point 4. If the average distance in the network of relevant instrumental ties has decreased significantly, the researcher will conclude that hypothesis 3 is true.

In summary this section of Chapter 5 described a proposed research agenda to begin to test “A Social-Network Based Theory of Large-Group Interventions.” This description outlined the key elements of a research agenda, including the proposed agenda’s research question, hypotheses, research design, participants, variables, instruments, procedures, and intended analysis.

**Conclusion to Part Two -- Research Operation of the Theory**

The outcome of Part Two of the theory building research process, research operation, is an operationalized theory (Dubin, 1978; Tuttle, 2003). Research operation
entailed the following steps: specifying propositions of the theory, identifying empirical indicators, developing hypotheses, and building a proposed research agenda to test the theory. Each of these steps has been completed here in accordance with the work of (Dubin, 1978; Holton III & Lowe, 2007; Lynham, 2000a, 2000b, and Tuttle., 2003). The study has therefore addressed the second of the two research questions: Can “A Social-Network Based Theory of Large-Group Interventions” be Operationalized? This question is answered affirmatively.

This concludes Part Two of the theory building research process. The next step in this study is to evaluate “A Social Network-Based Theory of Large-Group Interventions” using established criteria of excellence and to discuss the theory’s implications for research and practice. These topics are the focus of the next and final chapter of this study.
CHAPTER SIX:  
EVALUATION, LIMITATIONS, AND IMPLICATIONS

This sixth and final chapter has three purposes: to evaluate "A Social Network-Based Theory of Large-Group Interventions;" to identify limitations of the study; and to discuss the implications of the study. The chapter begins with an evaluation of the theory using Patterson's (1986) eight criteria for evaluating theory. In instances where the theory does not fully meet Patterson's (1986) criteria, limitations of the study were identified. Next, the chapter explores these identified limitations in greater detail. Finally, the chapter identifies and discusses the implications of the theory for research, practice, and the field of Human Resource Development (HRD).

Evaluating the Output of the Conceptual Development Output of the Theory

Theory-building scholars contend that theory must be continuously refined and modified. This requires a continual process of evaluation of the theory to identify areas for improvement. Patterson (1986) provided eight criteria for evaluating theory: These criteria are:

(1) Importance (i.e. the theory should not be limited to restricted situations).

(2) Precision and clarity (i.e. the theory should be understandable, internally consistent, and free from ambiguity).

(3) Parsimony or simplicity (i.e. the theory should contain a minimum of complexity and few assumptions).
(4) Comprehensiveness (i.e. the theory should be complete, covering the area of interest and encompassing relevant data in the field).

(5) Operationality (i.e. the theory’s concepts must be defined such that they can be measured).

(6) Empirical validity or verifiability (i.e. the theory must be supported by experience and empirical data).

(7) Fruitfulness (i.e. the theory should result in new knowledge).

(8) Practicality (i.e. the theory should benefit practitioners in organizing their understanding of practice).

While multiple sets of criteria exist for evaluating theory, Patterson's are regularly cited by HRD scholars as appropriate for evaluating applied theory (Holton & Lowe, 2007; Torraco, 1994, 2004). Moreover, Patterson's criteria are comprehensive. Table 6.1 maps Patterson's criteria to the factors Whetten (1989) identified for judging theoretical papers (What's new?, So what?, Why so? Well done? Done well? Why now?). A comparison of Patterson's criteria to Whetten's factors helps to demonstrate the relevance and comprehensiveness of Patterson's eight criteria for judging theory.
Table 6.1.


Factors for Judging Theoretical Papers

<table>
<thead>
<tr>
<th>Patterson's criteria for evaluating theory</th>
<th>Whetten factors for judging theoretical papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruitfulness</td>
<td>What's new? - Does the paper make a significant, value-added contribution to current thinking</td>
</tr>
<tr>
<td>Practicality</td>
<td>So what? - Will the theory likely change the practice of organizational science in this area?</td>
</tr>
<tr>
<td>Empirical validity or verifiability</td>
<td>Why so? - Are the underlying logic and supporting evidence compelling.</td>
</tr>
<tr>
<td>Precision and clarity</td>
<td>Well done? - Does the paper reflect seasoned thinking, conveying completeness and thoroughness.</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>Done well? - Is the paper well written? Does it flow logically? Are the central ideas easily accessed?</td>
</tr>
<tr>
<td>Operationality</td>
<td>Why now? - Is this topic of contemporary interest to scholars in this area?</td>
</tr>
</tbody>
</table>

In order to evaluate “A Social Network-Based Theory of Large-Group Interventions,” the theory is compared to each of Patterson’s eight criteria. In the case of Patterson's (1986) second criterion, precision and clarity, sub-sections describe the procedures used to ensure precision and clarity at each theory-building research step.

**Patterson #1: Importance Criterion**

The first of Patterson’s (1986) criteria is importance. Importance refers to the quality of having great worth or significance. As described in Chapter 1 and Chapter 2,
large-group intervention researchers and practitioners agree on the efficacy of large-group interventions in affecting organizational change (Burke, 2002; Bunker & Alban, 1997; Bastianello, 2002; Bramson & Buss, 2002; Bryson & Anderson, 2000; Dewey & Carter, 2003; French & Bell, 1999; Nixon, 1998; Worley & Feyerherm, 2003). Many researchers contend, however, that the theoretical mechanisms that underlie these interventions are not adequately understood (Austin & Bartunek, 2003; Bryson & Anderson, 2000; Garcia, 2007; Weber & Manning, 1998; Weisbord & Janoff, 2005).

The lack of established large-group intervention theory presents several challenges. In particular, it is difficult to say with certainty how large-group interventions work, under which circumstances they are appropriate, or how they might be integrated with other forms of organization development (Garcia, 2007).

One promising explanation for how large-group interventions work is through their capacity to restructure the social network of relationships within an organization (Clarke, 2005; Garcia, 2007; Tenkasi & Chesmore, 2003). Numerous case studies support this proposition (Garcia, 2007). Despite this evidence, however, theorists have not yet sought to explain and understand large-group interventions from a social network perspective. Thus, this study helps theory to catch up with existing practice.

The “Social Network-Based Theory of Large-Group Interventions” addresses this gap. The theory is important because it extends researchers’ understanding of a growing, yet poorly understood, phenomenon. Thus, this study helps theory to catch up with existing practice.
The importance of the theory can also be assessed based on the predictive capacity of the theory relative to other social science theories. Predictive capability is based largely on the forms of the laws of interaction employed within the theory. According to Dubin (1978) categoric laws of interaction are the most common type within the social sciences. In addition, laws in the social sciences are most often at the first level, presence-absence, of efficiency (Dubin, 1978). At this level, laws of interaction offer little information beyond concurrent presence (Tuttle, 2003). “A Social Network-Based Theory of Large-Group Interventions” employs sequential laws of interaction at the second level of efficiency, directionality. This means that above and beyond stating that the value of one unit is connected to the value of a second unit, the laws of interaction used in "A Social Network-Based Theory of Large-Group Interventions" describe the directionality of a relationship between units. Dubin (1978) states that within the social and behavioral sciences, the ability to define a law of interaction at this level represents a significant advance in scientific precision. Consequently, relative to typical social science theories, “A Social Network-Based Theory of Large-Group Interventions” can be expected to have greater predictive capabilities.

**Patterson #2: Precision and Clarity Criterion**

Patterson’s (1986) second criterion is precision and clarity. Theories that are precise and clear are understandable, internally consistent, and free from ambiguity. In order to ensure precision and clarity, the theory was constructed in accordance with Dubin’s (1978) research methodology for theory building. At each step in Dubin’s
theory building research process, Dubin’s guidelines were closely followed. In addition, where limiting tests on the outcomes of each step were identified by Dubin, these tests were applied. Further, the positivistic assumptions inherent in Dubin's theory-building method are carried throughout each theory-building research step. Note that the reliance on this single research paradigm, while in accordance with Dubin's methodology, represents a limitation of the study. This limitation is elaborated on in the subsequent section, Limitations. A description of the specific measures taken to ensure precision and clarity at each of the eight theory building research steps in this study follows.

**Precision and clarity in developing units**

During step one of the theory-building process, the units of the theory were categorized according to their class and properties. This classification allows for comparison against Dubin’s (1978) limiting rules regarding the combination of unit classes in the same theory (Tuttle, 2003). The first of these limiting rules states, “a relational unit is not combined in the same theory with enumerative or associative units that are themselves properties of that relational unit,” (p. 73). The second rules indicates that when “a statistical unit is employed, it is by definition a property of a collective. In the same theory do not combine such a statistical unit with any kind of unit (enumerative, associative, or relational) describing a property of members of the same collective,” (p. 73). Finally, the third rule states that “summative units have utility in education of and communication with those who are naïve in the field. Summative units are not employed in scientific models,” (p. 78).
By following this logic, the “Social Network-Based Theory of Large-Group Interventions” meets the precision and clarity criterion. Each unit has been defined to represent a unique social domain that is conceptually independent from other units. In addition, the theory does not contain statistical or summative units.

**Precision and clarity in developing laws of interaction**

During step two of the theory-building process, the laws of interaction of the theory were developed. According to Dubin (1978), logical consistency is the primary criterion with which to judge a theory’s laws. If two laws contained in a theoretical model result in inconsistent outcomes, one of the laws must be discarded (Tuttle, 2003). For example, if two different laws resulted in different values for the same unit, the laws would be inconsistent and one of the laws would need to be dropped from the theory. The four laws of interaction employed in the “Social Network-Based Theory of Large-Group Interventions” do not conflict with one another. In the instances that the theory's laws suggest values for the same unit (i.e. laws 1, 2, and 3 specify values for change-oriented learning, responses to change and change execution respectively and law 4 specifies values for each of these units as well), the predicted values are congruent. Thus, the theory's laws meet Dubin’s requirement.

**Precision and clarity in developing boundary conditions**

During step three of the theory-building process, internal and external boundary criteria were defined. These boundaries delineate the domains over which the theory is expected to hold true (Dubin, 1978). Dubin (1978) indicates that a boundary-determining criteria apply with equal measure to both a theory’s units and the laws of
interaction that relate these units (Dubin 1978). Both units and laws must adhere to the
theory’s boundary-determining criteria before the theory is complete (Dubin, 1978). "A
Social Network-Based Theory of Large-Group Interventions" specifies two boundary
criteria:

- Only those organizational change approaches that can be classified as large-
group interventions fall within the domain of this theory; and
- Only those units and laws of interaction that relate to the social network
  perspective are within the domain of this theory.

Both the units and laws employed in the theory fit within these two boundary-
determining criteria. Each of the units employed represent properties of large-group
interventions and the laws of interaction relating these units are based on principles
fundamental to the social network perspective.

*Precision and clarity in developing system states*

During step four of the theory-building research process, system states were
detailed. Dubin (1978) identified three criteria which must be met for the development of
each system state in a theory. These criteria are inclusiveness, determinate values, and
persistence. Two system states--unfreezing and refreezing--were developed in "A Social
Network-Based Theory of Large-Group Interventions." As described in Chapter Four
both of these system states meet the three criteria laid out by Dubin.

While the system states in this theory were developed to meet Dubin's criteria for
excellence, it was a source of frustration to this researcher-theorist not to be able to define
a third, intermediate, system state. Lewin's 3-Step Model of Change specifies three
phases: unfreezing, moving, and refreezing. The researcher-theorist had hoped to develop corresponding system states in "A Social Network-Based Theory of Large-Group Interventions." The combination of the theory's units, laws of interactions, and Dubin's constraints on system states precluded this possibility, however. In reflecting on this challenge, the researcher-theorist came to view this as a possible limitation of the study. This potential limitation arose from difficulties in using Dubin's (1978) theory-building research methodology to develop process theory. This limitation of the study is further explored in the subsequent section on limitations.

**Precision and clarity in developing propositions**

During step five of the theory-building research process, nine propositions were specified. Propositions are derived from the logic underlying a theoretical model. There validity is based on whether the proposition flows logically from the model to which it applies, not the degree to which it is validated empirically (Dubin, 1978). Additionally, the propositions in the model must be consistent; each must be based on the same system of logic. The propositions for “A Social Network-Based Theory of Large-Group Interventions,” were logically derived from the theory’s laws of interactions and each was developed consistently in the context of the core premises that served as the logical foundations of the theory (see Chapter Four).

**Precision and clarity in developing empirical indicators**

During step six of the theory-building research process, empirical indicators to measure the value of each unit in the theory were identified. Dubin (1978) articulated three important criteria for empirical indicators. These are: (1) logical coherence (i.e. the
empirical indicator is logically consistent with the rules for its respective unit classification); (2) operationalism (i.e. the measurements are explicitly defined so that they may be duplicated by other researchers); and (3) reliability (i.e. measurement produces equivalent values for the same sample when employed by different researchers). In regards to the logical coherence criterion, as discussed in Chapter 5, the theory’s empirical indicators all adhere to their respective units’ requirements. In regards to the operationalism and reliability criteria, it is important to note that “A Social Network-Based Theory of Large-Group Interventions” is an emerging theory. As such, the empirical indicators in the theory are also in an early stage of development. Although each of the theory's empirical indicators is supported by existing literature, only after empirical testing can more thorough refinement of the empirical indicators take place (Tuttle, 2003). In particular, the empirical indicators representing the units change-oriented learning and change execution require additional refinement. This represents an additional limitation of the study.

**Precision and clarity in developing hypotheses**

During step seven of the theory-building process, three hypotheses were developed. Dubin (1978) emphasized that every hypothesis must be homologous with the proposition it purports to test. In the case of “A Social Network-Based Theory of Large-Group Interventions” each of the three hypotheses are structurally similar to their underlying propositions and therefore meet the criterion established by Dubin.

In summary, the preceding sub-sections described the specific measures taken at each theory building research step to ensure Dubin's guidelines were followed.
Adherence to these guidelines helps make certain that the theory meets Patterson's (1986) precision and clarity criterion.

Two key potential limitations of the study were identified through the evaluation of the study against the criterion precision and clarity. The first was the study's reliance on a single research paradigm, the positivistic paradigm. The second stems from challenges in applying Dubin's (1978) theory building research methodology to process theory. Both of these limitations are elaborated on in the subsequent section on limitations. The rest of this section continues to evaluate "A Social Network-Based Theory of Large-Group Interventions" against Patterson's (1986) remaining six criteria.

**Patterson #3: Parsimony Criterion**

Patterson’s (1986) third criterion is parsimony. Theories that meet the parsimony criterion contain a minimum of complexity and few assumptions. The researcher-theorist pursued three approaches in an effort to achieve parsimony. First, care was taken in the use of assumptions. In building this theory, an effort was made at balancing parsimony with the need to be mindful of the many influential forces and factors within the system (Tuttle, 2003). The use of assumptions is greater for an emerging theory prior to testing and refinement. However, the assumptions for this theory were continually checked and articulated along with existing literature to support their use (Tuttle, 2003).

Second, during each step in the theory building research process, the need for parsimony was considered. The researcher-theorist compared each of the theory’s units and laws of interaction to their peers to ensure that no overlap in concepts existed. As a result, in this theory a minimum number of units and laws makes clear the properties out
of which the theory is built and the interrelationships among these properties. In developing propositions, the researcher-theorist focused on the development of strategic propositions (Dubin, 1978), those that once tested will corroborate or identify the need to modify a theoretical model. Similarly, in the development of the theory’s hypotheses the researcher-theorists employed an intensive strategy (Dubin, 1978), in which a subset of all of the possible hypotheses are developed.

Third, in identifying the outputs of each step in the theory-building process—the units, laws of interaction, boundaries, system states, propositions, empirical indicators, and hypotheses—an effort was made to diminish complexity by following a common structure for defining and describing each output. Dubin’s (1978) methodology for the development of the outputs was made explicit, and the development of each output followed a similar approach, influenced by the previous work of Lynham (2000a) and Tuttle (2003). For each output the definition was specified, key dimensions were discussed, and supporting literature was presented.

**Patterson #4: Completeness Criterion**

Patterson’s (1986) fourth criterion is completeness. Completeness is defined as covering the area of interest and encompassing all known data in the field. To ensure that all known data in the field was considered, the researcher-theorist completed a review of the existing literature following Creswell's (2003) guidance for conducting literature reviews. The researcher-theorist performed searches for relevant articles in the scholarly and practitioner literature using electronic databases, including Academic Search Premier, Business Source Premier, ERIC, and PsychINFO. Further, a manual review of
the reference lists of scholarly articles was conducted to identify additional sources. Key search terms relevant to the study, included: organizational change, large group interventions, whole system change, social networks, social capital, and theory building. The resulting literature was reviewed and organized to identify constructs that might be included in this theory. In addition, the theorist-researcher’s own practical experience in these areas was mined as an additional avenue for construct identification.

A theory’s completeness, or ability to cover an area of interest or domain, is dependent upon the theory’s boundaries conditions (Dubin, 1978). The fewer boundary conditions a theory has, the larger its domain. “A Social-Network Based Theory of Large-Group Interventions” has two boundary determining conditions. These are the minimum conditions required to address the study’s research sub-questions: Can “A Social Network Based Theory of Large-Group Interventions” be developed? and Can “A Social Network Based Theory of Large-Group Interventions” be operationalized? Moreover, the number of and the constraints imposed by these boundary conditions are in line with the previous theory-building work of (Holton III & Lowe, 2007; Lynham, 2000a, 2002b; Tuttle, 2003).

**Patterson #5: Operationality Criterion**

Patterson’s (1986) fifth criterion is operationality. Operationality refers to the degree to which a theoretical model is precise and contains "unique measurable/observable and understandable elements," (Storberg-Walker, 2008, p. 567). Theory that lacks operationality cannot be measured and is not testable (Holton III & Lowe, 2007). Operationality is particularly important to applied theories. Theories that
cannot be operationalized cannot be validated empirically and, as a result, provide less guidance to practitioners. Wenger's (1998 as cited in Storberg-Walker, 2008) Community of Practice theory is an example of a mid-range theory that cannot be moved down the ladder of abstraction to an applied theory due to issues related to operationality. Storberg-Walker (2008) describes one of these issues, a lack of specificity, as follows:

    How would researchers justifiably code something as participation rather than code it as mutual engagement? This simple question caused the researchers to reexamine the intent behind Wenger's work to answer the question.

    Unfortunately, after the reexamination, the researchers believed that Wenger was not convincingly clear on the distinction between the two (p. 572).

    In contrast, Chapter Five operationalized "A Social Network-Based Theory of Large-Group Interventions." This entailed determining a set of strategic propositions for the theory, identifying empirical indicators, develop hypotheses, and laying out a future research agenda. As described above, Dubin's guidelines for theory-building research were closely followed during each step of the process. The result is a theory that is testable and thus one that meets Patterson's operationality criterion.

**Patterson #6: Empirical Validity or Verifiability Criterion**

    Patterson’s (1986) sixth criterion is empirical validity or verifiability. Empirical validity or verifiability refers to the ability of the theory to be confirmed or substantiated through empirical tests. As described previously, in an applied discipline, such as HRD, empirically verifiable theory is preferable because it is more immediately applicable to
practice. In contrast, mid-range or grand theories need not be fully operationalized or validated.

“A Social Network Based Theory of Large-Group Interventions” is still emerging and has not yet been tested empirically. Chapter Six proposed a future research agenda that could be immediately used to test three of the theory's hypotheses. This research agenda has not yet been carried out, however. A resulting limitation of the study is the lack of an empirically validated theory. This limitation is further discussed in the following section, Limitations.

**Patterson #7: Fruitfulness Criterion**

Patterson’s (1986) seventh criterion is fruitfulness. Fruitfulness refers to the degree to which the theory leads to new knowledge. Although still an emerging theory, “A Social Network Based Theory of Large-Group Interventions” has important implications for theory building research and organizational change and social network research. These implications are discussed in detail in the subsequent sections on the theory’s implications for research.

Worthy of noting here, however, is Whetten's (1989) contention that theoretical contributions that go beyond the *What* and *How* (i.e. adding or subtracting factors from an existing model) to describe the *Why* (i.e. the underlying psychological economic, or social dynamics that explain the choice of factors and the proposed causal relationships) are preferred. According to Whetten:

Why. This is probably the most fruitful, but also the most difficult avenue of theory development. It commonly involves borrowing a perspective from other
fields, which encourages altering our metaphors and gestalts in ways that challenges the underlying rationales supporting accepted theories (1989, p. 493). "A Social Network-Based Theory of Large-Group Interventions," pursues the Why. In accordance with Whetten's above description it seeks to explain and understand large-group interventions by borrowing and applying the social network perspective.

Patterson #8: Practicality Criterion

Patterson’s (1986) eighth, and final, criterion is practicality. Practicality is defined as providing guidance for practice. Again, “A Social Network Based Theory of Large-Group Interventions” is still an emerging theory. Still, the theory has implications for practice as well as research. In particular, the theory provides insight into the design and execution of large-group interventions. These practical implications are described in detail in the subsequent section on the implications of the theory for the practice.

In summary, the “Social Network-Based Theory of Large-Group Interventions” was evaluated using each of Patterson’s (1986) eight criteria for evaluating theory: importance, precision and clarity, parsimony, completeness, operationality, empirical validity or verifiability, fruitfulness, and practicality. The theory meets these criteria to varying degrees. In instances where the theory does not fully meet the criteria, limitations of the study were highlighted. These limitations are further explored next.

Limitations

The evaluation of "A Social Network-Based Theory of Large-Group Interventions" against Patterson's (1986) criteria for evaluating theory identified three key limitations of this study. These limitations are: 1) the reliance on a single research
paradigm; 2) difficulties using Dubin's theory building research method to develop process theory; and 3) the failure of the study to empirically validate the theory. Each of these limitations is discussed in turn.

**Limitation #1: Reliance on a Single Research Paradigm**

Chapter Three conducted an assessment of theory-building research approaches to identify the most appropriate for this study. After consideration of alternative approaches against the needs of this study, Dubin's (1978) theory building research methodology was selected. Like all theory-building research methods, Dubin's (1978) method is grounded in a set of assumptions about "the nature of phenomena (ontology), the nature of knowledge about those phenomena (epistemology), and the nature of ways of studying those phenomena (methodology),” (Gioia and Pitre, 1990, p. 585). These assumptions are commonly referred to as a research paradigm. Dubin's theory-building research method is specifically grounded in the positivistic paradigm, which presumes a traditional, quantitative approach to theory development (Lynham, 2002b; Torraco, 2005, 2005).

Since Dubin (1978) published his seminal work on theory-building, scholars have come to advocate the use of multi-paradigm theory-building research methods (Gioia & Pitre, 1990; Lynham, 2000b; Storberg-Walker, 2006; Torraco, 2004). These scholars argue that multi-paradigm theory-building research is beneficial because it provides multiple perspectives from which to understand complex and multifaceted organizational and social phenomena.
Given this context, the use of a theory-building research method based on a single research paradigm represents a limitation of the study. The study leaves unanswered the question of how "A Social Network-Based Theory of Large-Group Interventions" may have been informed by other research paradigms, such as the interpretivist, radical humanist, or radical structuralist (Gioia and Pitre, 1990). This limitation presents an opportunity for further research.

Limitation #2: Difficulties Applying Dubin's Method to Process Theory

As described, the researcher-theorist had originally sought to create a separate system state in "A Social Network-Based Theory or Large-Group Interventions" for each of the phases in Lewin's 3-Step Model of Change. However, the theory's units and laws of interaction and the constraints imposed by Dubin's (1978) theory building research methodology precluded this possibility. This may be reflect on the researcher-theorists' ability to select the appropriate units for the theory or it may be that Lewin's theory is too high up the ladder of abstraction to be operationalized successfully. Alternatively, and the researcher-theorist suspects that this is the case, it may be that Dubin's (1978) theory-building research method was designed to build variance, as opposed to process theory. If so, this would represent a limitation of Dubin's method as well as of this study. Before exploring this potential limitation further, a brief description of variance and process theory is provided.

The distinction between variance and process theory stems from different perspectives of organizations (Van de Ven & Poole, 2005). For some, organizations are best represented as entities comprised of things. People adopting this perspective tend to
study change with a variance theory methodology. From this standpoint change is best represented as a dependent variable, explained by a set of independent variables that statistically explicate variations in the dependent variable of change (Van de Ven & Poole, 2005, 1380). Alternatively, for some, organizations are best represented as processes. People adopting this perspective tend to devise process theory explanations for change. These process theories focus on the temporal order and sequence of key activities that occur during change (Van de Ven & Poole, 2005). According to Van de Ven & Poole:

The common thread running through these works is the difference between scientific explanations, cast in terms of independent variables causing changes in a dependent variable, and explanations that tell a narrative or story about how a sequence of events unfolds to produce a given outcome (2005, p. 1381).

Variance theory and process theory offer significantly different conceptualizations of change (Van de Ven & Poole, 2005). While variance theories have traditionally dominated studies of organizational change, process theory provides an important alternative viewpoint (Van de Ven & Poole, 2005).

Dubin's (1978) theory-building research method is based on hypothetic-deductive procedures and is designed to produce variance theory. This assertion is supported by Dubin's emphasis on things. According to Dubin:

What, then, is the distinction between reporting and "doing science"? The distinction lies in whether the information is gathered for its own sake, or whether
it is used to measure the values associated with "things"...The first procedure we call description; the second we call research (1978, p. 16).

Moreover, throughout Dubin's (1978) text, the vast majority of examples provided, such as Herzberg's two-factor theory, can all be easily classified as variance theories.

In contrast, this study sought to explain large-group intervention processes and ultimately resulted in a process theory. "A Social Network-Based Theory of Large-Group Interventions" classification as a process theory is readily apparent from the inclusion of the unit \textit{large-group intervention phase}, which introduces time as a key variable in the change process as well as the sequential nature of each of the theory's laws of interaction. According to Van de Ven and Poole (2005) a key distinction between variance and process theories is the role of time. In variance theories the time ordering among independent variables is not relevant. In process theories it is critical.

While this study is a testament to the fact that Dubin's (1978) method can be used to develop process theory, it may be that the strict guidelines imposed by Dubin's (1978) method present challenges to developing process theory. Dubin (1978), for example, specifies that all of the units within a theory must exist at the same level of abstraction. Thus, the researcher theorist cannot combine sociological, psychological, and chemical units in the same theory. Similarly, Dubin's (1978) methodology stipulates that all of the units in a theory must have a distinct value in each system state. These conditions imposed by Dubin's (1978) methodology limit the ability to develop process theory. This is because process theories tend to be more complex due to the multi-level nature of events, multiple time scales in the same processes, and the need to account for temporal
relationships among events (Van den Ven & Poole, 2005, p. 1383). To the degree to which Dubin's (1978) method precludes these possibilities it limits the ability to craft process theory.

**Limitation #3: Failure to Empirically Validate the Theory**

The final step in Dubin's (1978) theory building research method is testing. During testing the theory's hypotheses are tested empirically in an effort to either corroborate the theory or to modify and refine it to better fit the real world. Empirical testing is critical to applied theories because validated theories are of greater use to practitioners in designing and targeting interventions.

This study did not empirically test "A Social Network-Based Theory of Large-Group Interventions." As indicated in Chapter One, this final step was outside the scope of this study. Alternatively, the study proposed a future research agenda, which could be immediately employed to test the theory.

While the failure to empirically validate the theory is a limitation of the study, the contributions of the study are in keeping with the work of others (e.g. Holton & Lowe, 2007; Lynham 2000a; Storberg-Walker, 2004; Tuttle, 2003). Moreover, scholars contend that it is beneficial to separate the conceptual development portion of the theory building research process from the empirical testing portion (Dubin, 1978; Sutton & Staw, 1995; Weick, 1989; Whetten, 1989). They argue that if too great an emphasis is placed on the need for empirical validity, the imagination and creativity necessary for inspired conceptual development may be constrained. In an effort to support interesting theory building, Sutton and Staw go so far as to suggest that theory-building journals,
such as Administrative Science Quarterly, rebalance the selection process between theory and method:

People's natural inclination is to require greater proof of a new or provocative idea than one they already believe to be true (Nisbett and Ross, 1980). Therefore, if theory is particularly interesting, the standards used to evaluate how well it is tested or grounded need to be related, not strengthened. We need to recognize that major contributions can be made when data are more illustrative than definitive (1995, p. 382).

Thus, although the lack of an empirically validated theory is a limitation of the study, this limitation is expected at this phase of the theory-building research process. The opportunity to empirically validate the theory represents an avenue for future research.

**Implications**

This study developed and operationalized “A Social Network-Based Theory of Large-Group Interventions.” This theory building research study contributes to expanding the scholarly and practical knowledge base in four areas: 1) theory building research; 2) organizational change and social network research; 3) the practice of large-group interventions; 4) and HRD. Each of these contributions is discussed in greater detail below.

**Implications for Theory-Building Research**

As discussed in Chapter Two, Dubin's (1978) theory building research methodology is one of the more common theory building approaches in the field of HRD (Torraco, 2004). This study stretched Dubin's (1978) methodology in two ways,
however. The first was in the use of the social network perspective as a context in which to apply Dubin's method. The second was in the application of Dubin's method to develop a process theory.

Scholars advocate for the application of social network tools and methods in HRD theory building. Given the primacy of Dubin's (1978) theory building research method in the field of HRD, one might reasonably expect a significant number of HRD studies integrating Dubin's (1978) method and the social network perspective. Yet, this researcher-theorist is aware of only one such published theory-building research study (Ardichvili, Cardozo & Ray, 2003). Moreover, in Ardichvili, Cardozo and Ray's (2003) study, social networks represented just one of multiple theoretical units. Consequently "A Social Network-Based Theory of Large-Group Interventions" further verifies that Dubin's method is appropriate for the development of social network theories. Given that both Dubin's (1978) method and the social network perspective rest on positivistic assumptions, this is not particularly surprising; it is, however, satisfying to confirm nonetheless.

As described in the previous Limitations section in this Chapter, the construction of process theory using Dubin's (1978) method poses difficulties. These stem from applying strict guidelines imposed by Dubin's (1978) approach, originally designed to develop variance theory, to the complex nature of ongoing processes. This, in and of itself, is an important implication identified by this study for theory-building research. Researcher-theorists may wish to carefully consider the advantages and disadvantages of employing Dubin's (1978) method for process theory building.
Consideration of this issue has led the researcher-theorist to an additional implication based on Van de Ven and Poole's (1995) Typology of Approaches for Studying Organizational Change. Van de Ven and Poole identify four different approaches to studying organizational change. These four approaches result from viewing studies of change along two dimensions: ontology and epistemology. The ontological dimension differentiates between studies of change focus on things or processes. The epistemological dimension differentiates between studies of change that from a variance or process perspective. The result is a two-by-two matrix where each cell corresponds to a different approach to the study of change (see Table 6.2).

Table 6.2.
Van de Ven and Poole's (1995) Typology of Approaches for Studying Organizational Change

<table>
<thead>
<tr>
<th>Epistemology (Method for studying change)</th>
<th>Ontology (An organization is represented as being:)</th>
<th>Approach I</th>
<th>Approach IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variance method</td>
<td>A noun, a social actor, a real entity ('thing')</td>
<td>Variance studies of change in organizational entities by causal analysis of independent variables that explain change in entity (dependent variable)?</td>
<td>Variance modeling of agent-based models or complex adaptive systems</td>
</tr>
<tr>
<td>Process narratives</td>
<td>A verb, a process of organizing, emergent flux</td>
<td>Approach II</td>
<td>Approach III</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Process studies of change in organizational entities narrating sequence of events, stages or cycles of change in the development of an entity</td>
<td>Process studies of organizing by narrating emergent actions and activities by which collective endeavors unfold</td>
</tr>
</tbody>
</table>

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Approaches I and II adopt variance and process methods, respectively, to study the change where change is defined by things. Approaches II and IV adopt variance and process methods, respectively, change where change is defined by processes. Each approach represents a different way to study organizational change.

The use of Dubin's (1978) variance-based methodology to study large-group intervention change processes falls squarely into Van de Ven and Poole's (1995) Approach IV. Approach IV research defines variables that describe the nature of the processes. According to Van de Ven and Poole:

Approach IV studies investigate processes through quantitative analysis of an event series. This strategy: (a) specifies indicators or variables that characterize attributes of events; (b) codes events to assign values to these variables; (c) analyzes the resulting time series to examine questions about the sequence, pattern, or structure of an unfolding process (1995, p. 1391).

Van de Ven and Poole's (1995) description encompasses this study, which identified units and empirical indicators for the phases associated with large-group intervention processes.

The recognition that studies, which use of Dubin's method to develop process theory, correspond to Approach IV has two implications. First understanding where to situate these studies in Van de Ven and Poole's (1995) typology helps researcher-theorists to determine what these studies can and cannot do well. For example, researcher-theorists interesting in building a theory of change processes using procedural methods may be wise to steer clear of Dubin's (1978) method and instead focus research on
activities falling into Approach III. Second, Van de Ven and Poole (1995) provide guidance to researchers operating in each quadrant of their typology. For example, they recommend researchers conducting Approach IV studies consider using fitness landscape models, a concept originally developed in evolutionary biology, to study complicated processes quantitatively. Van de Ven & Poole's (1995) guidance may inform future studies which employ Dubin's (1978) methodology to develop process theory.

Implications for Organizational Change and Social Network Research

Several implications for organizational change and social network research result from this study. These include implications regarding: large-group intervention theory; Lewin's 3-Step Model of Change; and restructuring informal social networks. Each of these implications is described in turn.

Implications for large-group intervention theory

Researchers investigating organizational change appreciate the efficacy of large-group interventions in affecting organizational change. (Bastianello, 2002; Bramsom & Buss, 2002; Bryson & Anderson, 2000; Burke, 2002; Bunker & Alban, 1997; Dewey & Carter, 2003; French & Bell, 1999; Nixon, 1998; Worley & Feyerherm, 2003) Many contend, however, that the theoretical mechanisms that underlie these interventions are not adequately understood (Austin & Bartunek, 2003; Bryson & Anderson, 2000; Weber & Manning, 1998; Weisbord & Janoff, 2005). While an increasing body of research suggests that the success of large-group interventions may be attributable to their ability to restructure the network of social relationships within an organization (Arena, 2001; French & Bell, 1999; Garcia, 2007; Tenkasi & Chesmore, 2003), this possibility had not
be fully understood and theorized. Practice was ahead of theory in this instance. “A Social Network-Based Theory of Large-Group Interventions” addresses this gap in researchers' understanding.

Several avenues of future research are recommended. As previously described, the first is the completion of step eight, testing, in Dubin’s (1978) theory-building research process. Chapter Five proposed a research agenda for this purpose. When executed, this proposed research agenda, will help to answer the question, Can “A Social Network-Based Theory of Large-Group Interventions” be validated? The results of testing in the real world will allow for modifications and refinement of the theory.

Second, this theory has identified two new units, change-oriented learning and change execution. While these new units largely overlap well-established, pre-existing units, the two new units have been specifically developed for this study. Additional research might further define and identify key dimensions of these units or employ them for use in other theories of organizational change.

Third, researchers may investigate other laws of interaction that exist between the theory’s units. While this theory has developed four laws of interaction, other laws of interaction governing the relation of the theory's units may exist? For example, might a law of interaction directly connect the unit strong ties and change execution? Some network researchers do, in fact, argue that the incidence of strong ties in a social network has a direct relationship with task performance.

Fourth, other empirical indicators might be identified to measure the value of the theory’s units. This theory identified one empirical indicator for each unit. However, the
number of potential empirical indicators for a given unit is virtually limitless (Dubin, 1978). Future research might identify additional or better empirical indicators for unit values. For example, a researcher-theorist might decide to measure strong ties based on network cohesion as opposed to network density. Alternatively, he or she might seek to further refine empirical indicators related to change-oriented learning.

Fifth, additional research might focus on the development and testing of hypotheses related to the theory. This theory employed an intensive strategy, developing hypotheses for three of the study’s nine propositions. Further research could focus on developing hypotheses for the remaining six propositions. In particular, proposition seven and eight are untested in the literature. Hypotheses related to these propositions would further confirmation of the theory's system states.

Finally, researchers may choose to investigate the boundaries of the theory. In particular, the theory’s internal boundary condition warrants attention. Recall that this boundary condition states that: large-group interventions are within the domain of the theory while organizational change approaches that are not large-group interventions are outside the domain of the theory. The removal or loosening of this boundary condition such that it encompasses all types of organizational change interventions would dramatically increase the theory’s domain. The theory would, in effect, become a social network based theory of organizational change in general. Existing theories of organizational change from a social network perspective are fragmented and narrow in scope. Typically, they describe only one component of the change process, such as the use of strong ties to overcome resistance. In contrast, the theory that would result from
modifying the internal boundary criteria for “A Social Network-Based Theory of Large-Group Interventions” would cover the entire change process as described by Lewin (1947). As a result, the theory could be reframed as a mid-range to grand theory, and ascend up the ladder of abstraction. In this way it could be used to integrate and clarify the existing body of knowledge on organizational change and social networks.

**Implications for Lewin's 3-Step Model of Change**

As described in Chapter Four, a foundational premise of this theory is that organizational change takes place in accordance with Lewin's (1947) 3-Step Model of Change. While scholars have established the relevance of Lewin's work, some have criticized Lewin's model as too simplistic and mechanistic (e.g. Kanter, Stein & Jick, 1992 in Burnes, 1994; Wheatly, 1999). A likely contributing factor to this debate is the lack of empirical research validating Lewin's 3-Step Model of Change (Ford & Greer, 2005). This may be due, at least in part, to the challenges associated with operationalizing Lewin's process-oriented theory.

"A Social Network-Based Theory of Large-Group Interventions," helps to address these difficulties by operationalizing Lewin's model from a social network perspective. Specifically, the study employs the social network perspective to suggest units, laws of interactions, propositions, and empirical indicators for each of the three phases identified in Lewin's model. For example, the study suggests that: the unit bridging ties increases during Unfreezing; the unit strong ties increases during Moving; and the unit configuration of network ties becomes goal directed during Refreezing. Future research might empirical test these units and relationships in an effort to corroborate or modify
Lewin's model. If undertaken, such a study may help to integrate scholars' differing views on Lewin's work.

Implications for restructuring social networks

This theory also has implications for research related to social networks. The ability to modify social networks within organizations, particularly informal social networks, is increasingly important as organizations rely more heavily on cross-functional teams, flatter hierarchies, matrix management, and employee collaboration. At present, however, researchers understanding of how to restructure informal social networks is limited (Borgatti & Foster, 2003; Kilduff & Tsai, 2003). As stated by Kilduff and Tsai:

How do social networks change over time…Even though these questions are of great theoretical and practical interest, organizational network research has tended to neglect issues of network origins and change (2003, p. 87).

As discussed in Chapter Two, a significant amount of case-based research indicates that large-group interventions are able to restructure social networks. Until now, however, the types of changes to social networks have not been well understood. “A Social Network-Based Theory of Large-Group Interventions” suggests specific types of social network changes and their specific timing. As a result, it may inform researchers' understanding of how to affect network changes.
Implications for the Practice of Large-Group Interventions

As described in Chapter One the incidence of large-group interventions is increasing. “A Social Network-Based Theory of Large-Group Interventions” has several implications for this practice. The theory contends that the success of large-group interventions is attributable, at least in part, to the ability of the interventions to restructure social networks. This insight can be leveraged by practitioners in the design and implementation of large-group interventions. For example, the theory provides insight into who should participate in large-group interventions. If, as the theory suggests, change-oriented learning is increased by bridging ties, then large-group intervention practitioners would be wise to ensure that the participants who attend the interventions are separated by structural holes. Additionally, the theory indicates that it is strong ties that influence responses to change. Currently, however, during large-group interventions ties strength is increased largely through ad-hoc, serendipitous processes. Thus, the theory suggests that more purposeful efforts to increase tie strength during the interventions may be warranted.

Above and beyond influencing the design and development of large-group interventions, the theory may have implications for the prevalence of large-group interventions and the organizational members who participate in them. Currently, researchers may be hesitant to teach large-group intervention methods due to a perception of the interventions as atheoretical. “A Social Network-Based Theory of Large-Group Interventions” may address researchers’ concerns, thereby accelerating the teaching and adoption of large-group intervention approaches.
This increased adoption or large-group intervention methods may, in turn, have implications for participants. Large-group interventions are based on humanistic practices, such as employee democracy and wide-scale participation. Research suggests that such practices foster employee satisfaction and positive attitudes toward work (Coopman, 2001; Alas, 2007b). Thus, to the degree that this theory helps to accelerate the adoption of large-group interventions, the study may benefit employees' well-being.

**Implications for HRD**

Finally, this study has implications to the field of HRD as well. HRD is increasingly involved in organizational change activities (Garcia, 2007). A Social Network-Based Theory of Large-Group Interventions" grounds large-group intervention practice in social network theory. As a result, it helps to fill a gap between theory and practice in an important area of HRD.

This theory also adds to HRD existing theory base. The development of HRD theory is one of the subjects most frequently discussed in the field (Holton, 2002; Kuchinke, 2000; Lynham, 2000b, 2002a; Swanson, 2000; Torraco, 1997, 2004). In particular, Torraco (2004) advocates that (i) developing new theory for HRD, (ii) giving more attention to the theoretical foundation of HRD, (iii) conducting research on theory building methods and their uses in HRD, and (iv) generating published works that describe both the theory building process and the theory would advance the field of HRD. By building a theory of large-group interventions and describing the method by which the theory was developed, this study addresses both the first and fourth issues raised by Torraco.
In particular, the introduction of a new theory using Dubin (1978) theory-building research method is beneficial. Dubin’s (1978) method is at times difficult to understand. According to Lyham (2000a), Dubin’s theory building research methodology “is not reader friendly and was often found to be unclear and at times ambiguous,” (p. 108). A limitation of Dubin’s (1978) work is the lack of a common example with which to illustrate each step in the theory-building process. Given this lack, the researcher-theorist found it extremely helpful to draw on the examples of others who have employed Dubin’s method (Holton III & Lowe, 2007; Lynham, 2000a; Tuttle, 2003). Their examples provided a means to triangulate in instances where Dubin’s guidance was difficult to follow. The development of “A Social Network-Based Theory of Large-Group Interventions,” provides an additional example and point of view that would-be theory builders can draw on in their work.

Finally, this study interjects the social network perspective into HRD. Increasingly, HRD scholars are calling upon the field of to incorporate social network research, ideas, and methods (Garcia, 2007; Hatala, 2006; Storberg-Walker & Gubbins, 2007). The integration of the social network perspective into HRD is important because of its relevance to the field (Brass, 2003; Hatala, 2006; Lengnick-Hall & Legneick-Hall, 2003; Storberg-Walker & Gubbins, 2007) as well as because using theory from other fields is laudable since it broadens the conceptual basis for framing HRD research questions and it helps to case a wider net for collecting and analyzing various kinds of data to answer these questions,” (Holton, 2003; Torraco, 2004, p. 7-8).
In summary, the study that generated “A Social Network-Based Theory of Large-Group Interventions” has numerous implications. This section has described the specific implications for theory-building research, organizational change research and social network research, the practice of large-group interventions, and the field of HRD.

**Conclusion to the Study**

The study set out to develop and operationalize “A Social Network-Based Theory of Large-Group Interventions.” This has been done. Both of the study’s research sub-questions—Can “A Social Network-Based Theory of Large-Group Interventions” be developed? and Can “A Social Network-Based Theory of Large-Group Interventions” be operationalized?—were answered affirmatively.

Chapter One introduced the purpose and importance of this study. It presented the problem statement driving the study and a high level review of the literature on large-group interventions. The chapter identified a need for large-group intervention theory and indicated that the conceptual development and research operation of “A Social Network-Based Theory of Large-Group Interventions” would address this gap.

Chapter Two reviewed the core literature that informs this study. Four main areas of literature were reviewed. These areas were literature related to: the social network perspective in general; the social network perspective on organizational change; large-group interventions; and theory and theory building research.

Chapter Three described the methodology. The main research question--Can social network theory be used as the basis to develop a theory of large-group interventions?--and two sub-questions were highlighted. In addition, the rationale for the
selection of Dubin's (1978) theory building research methodology and a description of this methodology itself was presented.

Chapter Four began the theory-building research process by conceptualizing “A Social Network-Based Theory of Large-Group Interventions.” This conceptualization development phase represented Part One of the theory-building research process. It entailed developing the theory’s units, laws of interaction, system states, and boundaries and resulting in a conceptual model of the theory.

Chapter Five concluded the theory-building research process by operationalizing “A Social Network-Based Theory of Large-Group Interventions.” Research operation represented Part Two of the theory building research process. It included specifying the theory’s propositions, identifying empirical indicators, and developing hypotheses. In addition, Chapter Five presented a proposed research agenda that could be used to test the theory in the real world.

Chapter Six, the final chapter in this study, evaluated “A Social Network-Based Theory of Large-Group Interventions” using Patterson’s eight criteria. In addition, the chapter identified the study's limitations and its implications for research, for practice, and for the field of HRD.
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