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Pepperdine University  
Graduate School of Education and Psychology

TRAINING LEADERSHIP TEAMS TO IMPACT PERFORMANCE OUTCOMES:  
AN EXPLORATORY CASE STUDY

A dissertation submitted in partial satisfaction  
of the requirements for the degree of  
Doctor of Education in Organization Change

By

Foster W. Mobley

May, 2010

Robert Canady, DBA – Dissertation Chairperson

This dissertation, written by

Foster W. Mobley

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

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When I was 9 years old, a member of the Los Angeles Rams gave the keynote speech to my local YMCA's year-end sports banquet. He said something that night that has been with me these many years since. He said, "No man is ever as tall as when he bends to help another."

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## ABSTRACT

This study examined the impact of teamwork training provided to intact teams of organization leaders in a single healthcare services company. The subjects of the training were teams of Regional Operations Directors participating in a company-sponsored, 4-day training session focused on examining current and desired levels of collaboration among members. Primary data were collected pre- and post-session using an online Team Effectiveness Tool (TET), measuring group skills, processes, and “emergent states” of climate, affinity, and member satisfaction. Analysis of primary data revealed statistically significant improvements in 22 of the 29 TET items at a 0.01 level of confidence. Secondary data involving objective measures of business performance (productivity, labor cost, quality, employee turnover) were also collected pre- and post-session, and revealed statistically significant changes in two of the four objective measures of performance post-training (clinical quality and employee turnover at the 0.01 and 0.05 levels of confidence, respectively). Correlation and regression analyses indicate a statistically significant relationship (at 0.01 confidence level) of changes in team behaviors post-training and improvements in clinical quality. These case study results strongly suggested a strong, positive relationship between teamwork training for leadership teams and improvements in two important drivers of business success for this company – clinical quality and employee turnover.

## Chapter 1: Introduction

Organizations are facing unprecedented change (Bennis & Thomas, 2002; McCarthy, 2001; Vicere, 1998) and a competitive imperative to improve to survive (Aragon-Sanchez, Barba-Aragon, & Sanz-Valle, 2003; Bennis & Thomas, 2002). The forces driving this pressure for change are many: global competitiveness (Bartel, 1994; Delaney & Huselid, 1996; Friedman, 2005; Kozlowski & Ilgen, 2006; Lynch & Black, 1995); rapid technological change (Kozlowski & Ilgen, 2006; Salas, Stagl, Burke, & Goodwin, 2007); and changes in the complexity and fluidity of work environments (Klein et al., 2009; Kozlowski & Ilgen, 2006; Salas et al., 2007).

Over the past century, intensifying in the past three decades, myriad attempts have been made to improve the performance and responsiveness of business organizations. Claiming that organizational survival requires the prosecution of sustainable, competitive advantage, Aragon-Sanchez et al. (2003), representing one popular theoretical stream state, “Theories placing the origin of sustainable competitive advantage outside the company are losing validity in favor of those centered on internal elements” (p. 956). Appropriately then, significant efforts to improve the competitive advantage of companies have included such internal activities devoted to increasing the return of human capital as workforce training (Barrett & O’Connell, 2001; Bartel, 1994; Black & Lynch, 1996); changes to job or work structures (Delaney & Huselid, 1996); team development (Guzzo & Dickson, 1996; Salas et al., 2007; Stout, Salas, & Fowlkes, 1997; Woodman & Sherwood, 1980); and, other areas like organization development interventions (Nicholas, 1982).

The formation and use of teams or groups, at all organization levels, have been a widely-practiced and significant focus of efforts over the past 30 years to improve business performance and responsiveness to environmental factors. Work groups of various structures, sizes, duration, and missions are now a pervasive component of every organization. The vital role played by teams in accomplishing many “modern day” tasks has become unquestionable (Ichniowski, Kochan, Levine, Olson, & Strauss, 1996; Stout et al., 1997; Woodman & Sherwood, 1980). Consequently, there is little surprise that significant attempts have been made to orchestrate improvements in the functioning of this important work structure (Delarue, Van Hootehem, Procter, & Burridge, 2008; Devaro, 2006; Salas et al., 2007).

### **General Area Under Study**

Due to the proliferation of team-based organizing structures and processes, teams’ performance and improvement is an important consideration to businesses and to the individuals that comprise them (Guzzo & Dickson, 1996; Janz, Colquitt, & Noe, 1997; Kozlowski & Ilgen, 2006). While important, Salas et al. (2007) state, “History has repeatedly shown that (work) team performance is an elusive, dynamic and complex phenomenon” (p. 186).

This challenge of work team performance becomes clear in the scholarship about teams and groups. Despite a half-century of scholarship on groups from the fields of industrial/organizational and social psychology, fewer empirical data exist to clearly direct current researchers to proven methods to evaluate and improve the effectiveness and performance of business teams, particularly teams comprised of organizational

leaders (Delaney & Huselid, 1996; Delarue et al., 2008; Kozlowski & Ilgen, 2006; Nicholas, 1982).

### **The Problem**

Contemporary business literature reveals two primary methods for improving the performance of teams or work groups at all levels in business organizations: (a) team training and (b) team building (Kozlowski & Ilgen, 2006). Each method has a specific focus and purpose, and has typically applied to different types of teams.

Until recently, there have been limited objective, reliable data on the effectiveness of these methods for improving the performance of business teams (Klein et al., 2009). There are three important factors affecting this limited availability of clear scholarship in this area: (a) A lack of consistent agreement on what constitutes an effective team or group; (b) The vast majority of existing research focused on task-level teams, providing little insight into management or leadership team dynamics; and, (c) The majority of past studies primarily relied on subjective assessments (i.e., based on member opinions) and have yielded data on improvements primarily in key process (e.g., role clarity, goal-setting) or affective dimensions (e.g., member relationships, team climate, mood, emotion, conflict; (Klein et al., 2009; Kozlowski & Ilgen, 2006). In the past decade, an increasing number of studies have focused on attempting to link improvement methods to important objective measures of business outcomes like profitability, productivity, and quality (Delarue et al., 2008). Findings are now emerging in this important field that provide some direction on team building as a means to improve team effectiveness, but at present, the findings are far from conclusive (Klein et al., 2009).



What isn't known is whether the function and performance of leadership teams can be improved through training, as determined by objective, "hard measures" of organizational performance, including such areas as productivity, labor cost, quality, and employee turnover.

### **Research Questions**

The primary research questions for this study were:

1. What impacts, if any, does team training of leadership teams have on team processes, and/or team members' skills, knowledge, and attitudes?
2. What is the relationship, if any, between changes in leadership team processes, and/or team members' skills, knowledge, and attitudes and organizational outcomes?

A secondary matter of interest, identified in this study and suggested for later research, involved better understanding the relation between the tool used in this survey to gather perceptual data on team process and effectiveness and other valid, reliable scales in a significant leadership team process metric developed since the occurrence of this exploratory case study.

### **Significance of the Study**

Firms in the United States have been urged to adopt a variety of performance-enhancing, progressive human resource management practices to improve their competitiveness in the global marketplace (Delaney & Huselid, 1996). Most theorists now acknowledge that human capital is an important determinant of firm productivity (Black & Lynch, 1996), and investments in human capital improvements like training and team development are estimated to be as high as \$148 billion annually in the United States (Lynch & Black, 1995).

Most training, team development, and other human capital investments are made without strong empirical links to clear business results. Finding a causal means of improving the effectiveness and outcomes created by leadership teams could improve U.S. firms' global competitiveness and market responsiveness. Additionally, finding such linkages could provide a higher return on investment on improvement activities by encouraging greater focus of those investments, potentially eliminating billions of dollars invested each year on interventions with unjustifiable financial returns. Finally, finding means for improving team functioning will likely improve organizations' retention of leaders and positively impact leaders' satisfaction and quality of work life, given the challenge businesses face of attracting, training, and retaining quality talent, especially at leadership levels.

### **Definition of Terms**

For this exploration into team training and performance, the terms most critical to the study will be defined here: (a) team/group; (b) team types; (c) teams by organizational levels; (d) team effectiveness; (e) team building; and, (f) team training.

**Team/group.** The literature considers the terms work group and team synonymous; in fact, Guzzo and Dickson (1996) state, "The definition of work groups... accommodates the uses of many labels for teams and groups. Consequently, we use the labels 'team' and 'group' interchangeably, recognizing there may be degrees of difference" (p. 309). As the focus of this study was the leadership level of teams (described and defined later in this chapter), the term team will be primarily used.

Kozlowski and Ilgen (2006) define a team as a complex, dynamic system, comprised of two or more individuals who socially interact and possess one or more

common goals, who perform different roles and exhibit interdependencies. Salas et al. (2007) define team similarly, with an additional characteristic. Defining team, they state “(a team) is embedded within an organizational/environmental context that influences and is influenced by ongoing processes and performance outcomes” (Salas et al., 2007, p. 189). This study adopted this expanded definition of team, specifically to include the concept of the context within which a team operates.

**Team types.** Given the multitude of tasks and contexts within business organizations, there are many types of teams described in the literature, each with its own body of evidentiary work related to effectiveness and improvement. Among them are: temporal (time-based) groups such as problem-solving or training groups; task-based groups such as regular work units; autonomous (or self-managing) work groups; and management or leadership teams.

As this study focused on the performance of leadership teams, this researcher has adopted the Wheelan definition, which holds that leadership teams are defined as “a group of people who have strategic and operational responsibility for a function within an organization or for all of the functions within a division of a larger organization” (Wheelan, 2003, p. 179).

**Teams at differing organizational levels.** The distinction about teams operating at different organizational levels is significant for two reasons. First, the vast majority of the research into team effectiveness focuses on teams at levels other than leadership or management levels (Hambrick & Fredrickson, 2001; Janz et al., 1997). Second, the responsibilities, and therefore, performance measures for a leadership team are more strategic and focused on broader goals for performance than those of lower-level teams.

Literature distinguishes between task and knowledge worker teams (implying different organizational levels), as well as distinguishing among various leadership teams, including: functional leadership teams, divisional leadership teams, and top management teams (TMT). Each of these team types has a particular purpose and mandate; therefore, each has a different way to measure effectiveness. This study will be focused on the performance and effectiveness of leadership teams, specifically at the divisional leadership level, for two reasons. First, the impact of a leadership team on the performance of an entire organization can be significant, and the role team effectiveness plays in that impact is worthy of study. Second, according to Wheelan (2003), the goal of a leadership team is to increase effective coordination across functions and activities so that the performance of the whole is greater than the sum of its parts. The purpose and interest of the researcher was to empirically explore whether or not this is true; that is, exploring whether changes in team behavior leading to increased coordination across functions can improve overall organizational performance.

**Team effectiveness.** Measuring the effectiveness of teams has been a challenge to researchers. Several factors contribute to that challenge, including (a) the “often fluid and chaotic environment in which teams operate” (Salas et al., 2007, p. 186); (b) a lack of consistency of team constructs, definitions and characteristics (Salas et al., 2007); and (c) a lack of consistency in effectiveness constructs, definitions, and characteristics (Devaro, 2006; Salas et al., 2007; Stout et al., 1997).

Given those challenges, how do researchers determine whether a team and activities aimed at its improvement are effective? Is it simply a matter of looking at what a team produces, like we would measure an individual worker? For most teams, the

answer is no. Salas et al. (2007) offer an important definition of ‘effectiveness’ as “not the outcome produced from team performance (which can be produced whether or not the team is effective), but rather the result of a judgmental process whereby an output is compared to a subjective or objective standard” (p. 193). For many leadership teams however, including a sub-set of this group called Top Management Teams, the appropriate measure of team performance is outcome-based performance, like organizational performance. For this study then, the primary measure of effectiveness was determined through an evaluation of objectively-measured performance outcomes.

**Team training.** Klein et al. (2009) provide a framework for understanding team training, stating, “Team training is skill focused (i.e., it is focused on gaining specific competencies), typically includes a practice component, and it is done in context. It is generally formal and systematic” (p. 183). Team training is primarily used, therefore, in specific settings in which teams operate, and is generally applied to building discrete skills of the task workers in teams. It is not typically applied to improve cognitive or affective issues, nor is it typically used with management teams (Kozlowski & Ilgen, 2006).

**Team building.** In contrast to training, team building, also called team development or group development, is an extremely popular and common intervention – perhaps one of the most frequently used organization development interventions (Salas et al., 2007). It is a process intervention that prompts team members to reflect on their behavior and interpersonal relations (Beer, 1980, as cited in Kozlowski & Ilgen, 2006) for the improvement of member relations, task accomplishments, and team viability, which Hackman defines as the willingness of members to remain in the team (Hackman,

1987, as cited in Kozlowski & Ilgen, 2006). Given the conceptual focus and cognitive work of most leadership teams, team building is, by definition, the most appropriate method for improvement and is most commonly used to improve leadership team effectiveness.

### **Overview of Methods**

This retrospective, exploratory case study was conducted in a single company in 2003 and 2004, utilizing data from participants in company-sponsored management training workshops. Between September and December of 2003, 17 intact teams of mid-level operational leaders in a healthcare company were asked to participate in a 4-day training session focused on their team's goal focus, internal processes, team climate, and member engagement. The training curriculum was designed in a cooperative effort by this researcher and an expert panel of internal and external contributors. There were two forms of data collected in concert with this effort. First, to measure team members' (subjective) opinions of their internal processes, climate, goal clarity and focus, and member relations (parts 2 and 3 of Kozlowski and Ilgen's definition of effectiveness), a 29-item online survey was administered 2 weeks prior to attendance, and repeated 6-10 months following the event for pre- and post-session comparisons (Kozlowski & Ilgen, 2006). Second, in an attempt to objectively evaluate changes in team performance, two members of the company's executive team identified nine areas of performance from which data were collected from each business unit 6 months prior to attendance and 6 months following attendance at the training program. These measures of team effectiveness included indicators of quality, member retention, productivity, labor cost, supply cost, and others.

It was the purpose of this exploratory study to: (a) evaluate changes in teams' perceived effectiveness and processes, as well as members' skills, knowledge and attitudes following teamwork training; (b) evaluate changes post-training in teams' performance, using company-provided, objective business measures in the areas of productivity, labor cost, quality, and employee turnover; and then (c) evaluate any correlations, positive or negative, between perceptual and objective data. From those analyses, conclusions were drawn.

### **Limitations of the Study**

There were several potential limitations of this exploratory study, including the elapsed time since the data were collected, and the fact that it was conducted in a single company setting. A full explanation of possible limitations is presented in Chapter 5.

### **Assumptions of the Study**

In this exploratory study, the researcher assumed that the opinions collected from participants pre- and post-session accurately reflected their professional opinions. The researcher also assumed that the data, while dated, is still relevant for this study and company insights, as operational delivery methods, team construct, and organizational structures within the company haven't significantly changed in the time that has elapsed. Also assumed was that the populations in pre- and post-session subjective assessments were similar, and that changes in composition within a team didn't materially affect the subjective results. Finally, it was assumed that the findings from this study will be able to be extrapolated to other settings.

## **Summary**

This empirical, exploratory case study intended to add to the body of knowledge about the development and performance of leadership teams. Given the important role leaders and their teams play in organizational performance, and the amount of time and resources organizations apply to improving their performance, supplementing an incomplete, growing body of empirical data on the development and performance of leadership teams measured in objective, significant outcomes has significance and is worthy of further research.

By examining a particular method to improve leadership team performance, the study offers a possible contribution to the existing body of knowledge through its exploration of a non-traditional approach to the improvement of leadership teams.

## **Organization of the Study**

Chapter 1 provides an introduction to the purpose, context, and rationale of the study. In Chapter 2, the comparative literature covering the most critical elements affecting this study, is presented and summarized, including (a) definitions and characteristics of teams of various levels and types; (b) notions of team performance and effectiveness; and, (c) methods of improving performance of teams. The purpose of the literature review is to properly place this study in the existing field of research and confirm its unique contributions to the field.

Once established, the study's methods are described in detail in Chapter 3, followed by the analysis of the data in Chapter 4, and conclusions from the research and implications of the findings in Chapter 5. The paper concludes with implications for future research.



## **Chapter 2: Literature Review**

This chapter builds the case for considering the use of team training of leadership teams as an intervention method to improve their performance, expressed in objective measures. This chapter provides an introduction to the realities of this literature review; that is, that after a century of study of groups in various forms and functions, in a variety of social sciences, a wealth of studies exist which are just beginning form a coherent narrative about the most valuable aspects of work team study at the vital organizational level of leadership teams. The chapter is organized in three major themes. First, the foundation of groups/team study is established. Second, the literature informing determinations of “effectiveness” and “performance” is explored. Third, methods of improving the effectiveness and performance of teams are covered. Within each theme a purposefully defined review of contemporary research will be provided. The chapter will conclude with a presentation of conclusions that will support this study; namely, that a study of the literature reveals that team training for leadership teams (including top management teams) is a novel approach to improving the performance of such teams, and evidence of objectively measuring potential impacts of such interventions is lagging other outcomes research in scholarly literature.

### **Teams at Work – The Why and What**

The formation of teams as a work structure, while not new, has expanded dramatically in the past 30 years in response to a rapidly and dynamically changing environment (Bennis & Thomas, 2002; Klein et al., 2009; Kozlowski & Ilgen, 2006; Salas et al., 2007). The working world has changed. Characteristics of this “new”

environment include an “...unparalleled accelerating rate of change” (Salas et al., 2007, p. 228), increasing competition and consolidation (Kozlowski & Ilgen, 2006), pressure for innovation (Kozlowski & Ilgen, 2006), the technological revolution (Salas et al., 2007) and global market opportunities (Salas et al., 2007). Scholars conclude these changes mandate work structures which are or have skill diversity, high levels of expertise, flexibility, rapid and adaptive responses to the unexpected, and resilience (Kozlowski & Ilgen, 2006; Salas et al., 2007).

Given these many profound changes and their subsequent demands on the workplace, it seems no longer viable for companies to navigate these pressures through the use and perpetuation of work structures through an exclusive reliance on individual workers (Kozlowski & Ilgen, 2006; Salas et al., 2007). In response to these changing demands, organizations are shifting to team-based structures (Jehn & Mannix, 2001; Kozlowski & Ilgen, 2006; Salas, Burke, & Cannon-Bowers, 2000; Salas et al., 2007). As a work structure, teams provide a more appropriate response to these challenges.

As early as Woodman and Sherwood’s 1980 study, and continuing to the present, scholars have clearly concluded that teams are essential entities to the accomplishment of organizational goals (Klein et al., 2009; Marks, Mathieu, & Zaccaro, 2001; Stout et al., 1997; Sundstrom, 1999; Woodman & Sherwood, 1980).

The increased use of work teams helps explain its increased attention in academic and popular press (Janz et al., 1997), yet it’s important to understand how the study of work teams fits into the larger body of research into small groups. According to McGrath et al. (2000), “Small groups have been a topic of interest to social psychologists in both psychology and sociology and to scholars in other social and behavioral sciences for the

past century” (p. 96). Indeed, there is a wealth of over 50 years of psychological research and thousands of studies focused on understanding the behavior and effectiveness of small groups (Kozlowski & Ilgen, 2006). McGrath et al. (2000) identify an important shift in the focus of small group research in the 1940s, 1950s, and 1960s, finding that the shift “...brought a flood of research on leadership, communication, social influence, conflict, norms, and many other aspects of groups” (p. 96). Other scholars identify similar, and more recent trends, including a change in the focus of group research from social psychology to organizational scholarship (Delarue et al., 2008; Guzzo & Dickson, 1996; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Salas et al., 2007), causing Salas et al. (2007) to conclude “...team researchers (in organizational studies) are on pace to eclipse all previous historical periods combined in just the first decade of the 21<sup>st</sup> century” (p. 226).

The meaning of this focus, attention and shift in scholarship seems clear; that is, small groups will continue to be “...the context for much of human social experience, in families and organizations, at work and play. Hence, they will be important topics for social psychology and for other social and behavioral sciences” (McGrath et al., 2000, p. 103).

With the importance of groups to society and the workplace established, other researchers provide insight into the benefits of groups to the individuals within them, and to the organizations of which they are part. A partial list of benefits of participants of work groups includes changes in attitude and behavior, greater effectiveness, increased commitment, and increased job satisfaction (Delaney & Huselid, 1996; Nicholas, 1982). Organizational benefits of increased team or group-based structures are widely believed

to improve the performance of organizations through such structures and processes as employee involvement programs, job redesign, training, performance-contingent incentive compensation programs, and lean production (Delaney & Huselid, 1996; Delarue et al., 2008; Pfeffer, 1994). The challenge for business leaders and researchers alike is to build on and rise above the scholarship focused primarily on affective and perceived changes to empirically and objectively determined measures of improved firm performance (Nicholas, 1982).

### **Teams and Levels Defined**

To enter the rich body of scholarship on work teams more precisely, it is necessary to first clearly define the domain of study, including terms, key distinctions, and a differentiation of groups by organizational level. Making such distinctions is important here, as the result has important implications for the body of scholarship associated with each. It is also important to recognize this area of scholarship has been plagued with myriad issues affecting the clarity and cohesiveness of this body of work (Delarue et al., 2008; McGrath et al., 2000; Stout, Salas, & Carson, 1994). Various authors have addressed such issues as: (a) the body of scholarship on work teams lacked “a clear and shared theoretical conception about the fundamental properties of small groups” (McGrath et al., 2000, p. 97); (b) lack of consensus among researchers concerning team constructs and definitions of teams and teamwork and their characteristics (Delarue et al., 2008; Stout et al., 1997); and, (c) lack of a one-on-one relationship between the term ‘team’ and the organizational form it is intended to represent (Delarue et al., 2008).

Despite those challenges, some consensus has begun to emerge among researchers regarding the definitions of groups and teams. The salient domains of a consensus current definition of a work team are these: membership (two or more individuals; Kozlowski & Ilgen, 2006; Salas et al., 2000), interactions (interdependent, adaptive, dynamic; Kozlowski & Ilgen, 2006; McGrath et al., 2000; Salas et al., 2000; Stout et al., 1994) context (embedded in a hierarchy of levels; Kozlowski & Ilgen, 2006; McGrath et al., 2000), relations (multiple, bidirectional, and nonlinear causal; McGrath et al., 2000), and complexity (Barrick, Bradley, Kristof-Brown, & Colbert, 2007; Katzenbach & Smith, 1993; Kozlowski & Ilgen, 2006; McGrath et al., 2000). The most common definition appearing in a majority of current literature is as follows: “A team or group is a complex, adaptive, dynamic entity or system embedded in a hierarchy of levels and characterized by multiple, bidirectional relationships, typically interacting interdependently and dynamically towards a common goal” (Salas et al., 2007, p. 189). This common definition will be used for this study. McGrath et al. (2000) make an important definitional contribution that will also be used here; namely that groups are typically engaged in the pursuit of multiple goals simultaneously. This distinction will be vital as the study’s focus shifts to the performance of business teams at the level of organizational leadership.

Another aspect of definitional and construct consistency is the issue of terminology for teams or groups. The literature reveals that although ‘group’ has been the primary term used to describe the grouping of two or more individuals in psychology and social psychology research, the word ‘team’ has emerged with greater prevalence in studies of business organizations. While a significant body of research uses the terms

'group' and 'team' synonymously (Guzzo & Dickson, 1996), or at least fails to specify any distinctive differences between the two terms, more recent research places particular meaning to describe small groups with high interdependence as 'teams' (Barrick et al., 2007; Cohen & Bailey, 1997; Katzenbach & Smith, 1993). In fact, much of the recent literature makes explicit this difference through reference to highly interdependent groups as 'real teams, as opposed to less interdependent groups as 'work groups' (Barrick et al., 2007; Katzenbach & Smith, 1993). As will be described later in this chapter, given that the focus of this study were groups of operational leaders at divisional levels, the researcher has chosen the word 'team' to reflect the interdependence implied of this group of leaders in the sample.

**Team types.** While their labels aren't new, the study of differentiation by work team characteristics, goals, and dynamics according to their function or organizational level is fairly recent. For example, Bettenhausen's (1991) important meta-analytic study in 1991 focused on small group research, without regard to work level. In Delarue et al.'s important 2008 meta-analysis of team studies using objective performance measures as the dependent variables, clearly relevant for this work, the authors found "only one study makes reference to team type... and two of them to team size, with none of these having an explicit measure in their analysis" (p. 137).

Sundstrom (1999) provided an early recognition of various types of work teams, each with "differing needs", and identified six team types (production, service, management, project, action and parallel) that many authors accepted as a useful framework for determining the functionality of specific teamwork competencies (Marks et al., 2002; Salas et al., 2000). Salas et al. (2000) added to Sundstrom's work by

identifying at least four factors that differentiate these teams: “the level of authority within the organization; time until the team is disbanded; their degree of specialization, independence, and autonomy in relation to other work units; and, the degree to which they are interdependent within the team as well as forces outside the team” (Salas et al., 2000, p. 343). The authors postulate that as a consequence of a team’s need for adaptiveness, even though a core set of competencies may exist, they will “differ in instrumentality (importance) according to the specific characteristics or type of team” (Salas et al., 2000, p. 346). Even with this model of team types, important gaps still exist in the literature with the vast majority of studies focused on teams of “blue collar” workers. Janz et al. (1997) state “Fewer studies have examined the effectiveness of teams comprised of knowledge workers, despite the fact that such workers represent one of the fastest growing segments of the workforce and one of the groups most likely to use teams” (p. 878).

Of greatest significance for this study is the group referred to as management teams. For the purposes of the present study, other team types were reviewed for their salient characteristics to rule out possible confusion over labels, including autonomous work groups and knowledge workers. These two “hybrid” designations potentially spanned one or more of Sundstrom’s initial framework, but were useful for exploration due to their popularity in existence and in the literature. While each has one or more defining characteristics similar to those of management teams (defined later), the researcher concluded that the case study sample contains some characteristics of knowledge workers - specifically that they are “high level employees who apply

theoretical and analytical knowledge” (Janz et al., 1997, p. 878), but are most appropriately associated with the definition of management teams, below.

**Management teams defined.** While differing labels are used to categorize this team type, including leadership teams, Top Management Teams, functional leadership teams, divisional leadership teams (Wheelan, 2003), literature generally defines this group as a group of managers (occasionally with their direct reports) who have responsibility for coordinating the work of units under their purview. Further, management teams “usually have the highest rank, have the greatest authority, are treated as permanent, and are interdependent with the work units they coordinate” (Salas et al., 2000; Sundstrom, 1999). Using the term “leadership team” to basically describe this same team type, Wheelan (2003) further refines the accepted definition by addressing their responsibilities more specifically as having “strategic and operational responsibility for a function within an organization or for all of the functions within a division within a larger organization” (p. 179).

As the literature suggests, each team type has different characteristics, different task requirements, a different operating context, and different member talents and experiences. As such, each team type carries with it different factors for measuring its effectiveness and performance. The review of literature on team effectiveness and measures of performance of leadership teams will be covered later in this chapter, but first it is important to describe an important heuristic of how teams work to provide a vital platform to best understand these issues of performance and effectiveness.



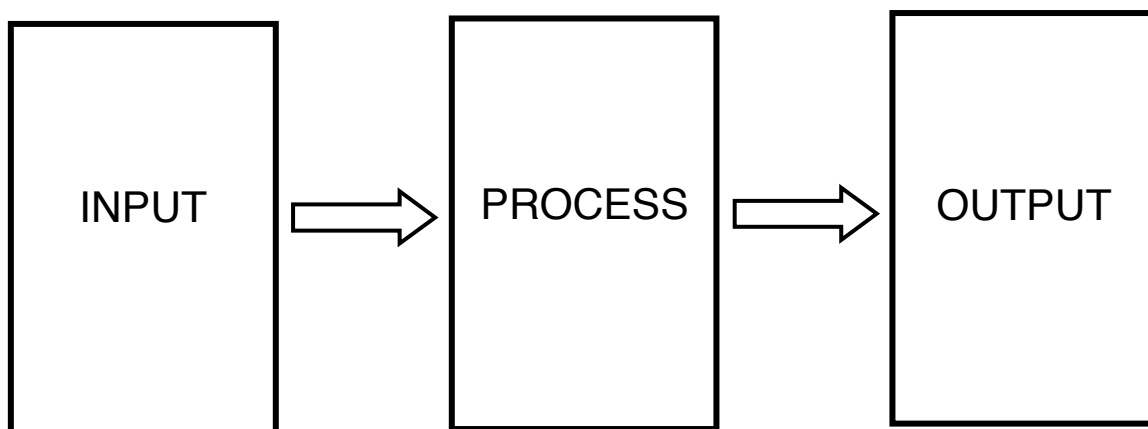
### **How Teams Work – The I-P-O Heuristic**

To best understand important scholarship on team effectiveness and performance, that is, how teams work effectively, it is necessary to first describe a generally accepted model describing how teams work. Once established, concepts of team effectiveness and determinations thereof are covered, followed by an extensive literature review and evaluation of leadership teams, including a sub-set called Top Management Teams. As will be argued later, while not completely responsive to the sample in the study, the addition of findings from Top Management Team literature offers access to one of the most rapidly growing and robust areas of current research into team performance and development, and can inform the researcher's treatment of leadership teams generally.

Although there are a number of variants to it, the Input-Process-Output (I-P-O) heuristic (see Figure 1) is the most popular way of describing team process and framing the relationships among variables associated with team performance and effectiveness (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008; Salas et al., 2007). Expressed in a way similar to classic systems models, and originating within General Systems Theory and its many derivatives (Salas et al., 2007), this I-P-O process construct is defined as “predictable behavioral patterns that transform group inputs into outputs” (Martin, 2007, p. 4). In this heuristic, researchers view processes as mediating mechanisms linking “member, team, and organizational characteristics” (Marks et al., 2001, p. 356), with output criteria such as firm performance (quality, market share, financial returns) and member relations (retention, satisfaction, group efficacy and potency). This heuristic organizes the bulk of research in the field in scholars' attempts to unlock answers to the compelling questions of why some teams are able to create important results, when others

similarly talented and structured cannot, and whether the differential results from such teamwork can result in unambiguous, objective performance improvements (Ilgen et al., 2005).

Two cautionary notes are important before framing the findings of each of the elements of this heuristic most relevant to this study. First is found in early researchers' use of the model for prediction over explanation; that is, what demographic characteristics of teams (inputs) lead to predictable outcomes (Pfeffer, 1994)? Lawrence (1997), in her



*Figure 1.* Input-Process-Output heuristic.

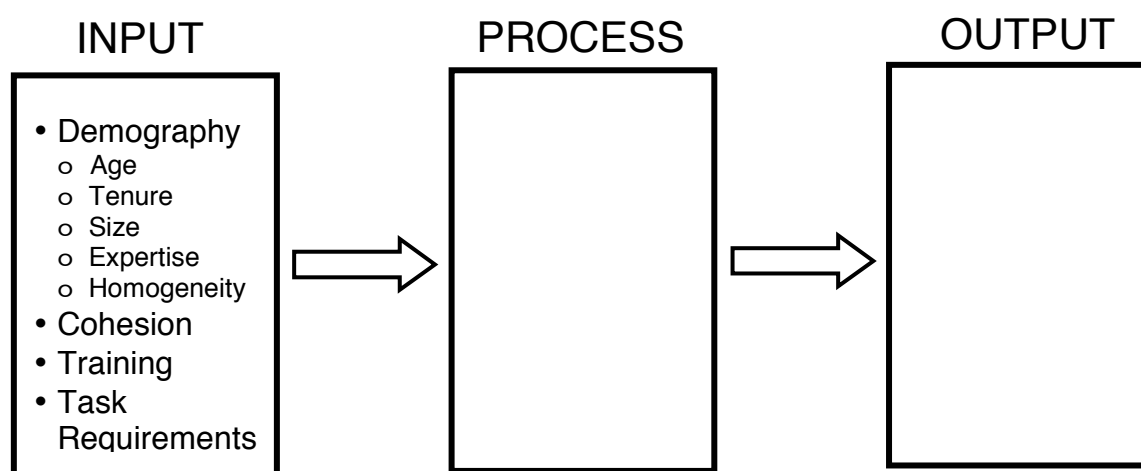
examination of a significant body of research on organizational demography (considered an input, described later in this section), advocates for the use of this model instead as a way to organize research evaluating possible relationships between variables, including questions of causal direction, strength of relationships between variables, temporal factors affecting team performance and other contextual matters (Ancona, Goodman, Lawrence, & Tushman, 2001; Ilgen et al., 2005; Lawrence, 1997; Salas et al., 2007). McGrath et al. (2000) describe and warn against the “positivistic tradition” of much small

group research that has been focused “primarily on the efficient (also called mechanical) cause. It has treated that form of causation as consisting of a series of directional, linear, chain-like cause-effect connections” (McGrath et al., 2000, p. 103) that has treated groups, and their study as “simple, isolated and static entities” (p. 103). This leads to the second caution. In more advanced versions of the I-P-O heuristic, internal- and external-contextual variables are considered as potential influencers of these relationships. As will be described later in this chapter, such contextual influences are not considered germane to this study, and are therefore not described in this review of literature.

**I-P-O Model – Inputs.** The research objective of this exploratory study involved the use of teamwork training provided to intact leadership teams as an input to examine potential impacts on team processes and members’ skills, knowledge, and attitudes, and objectively measured outputs. Other inputs primarily addressed in the literature relate to (a) the team members’ inherent characteristics such as age, tenure, organizational level, functional expertise are referred to as demography); (b) knowledge; (c) skills; and (d) attitudes (Lawrence, 1997, p. 2; Salas et al., 2007; Figure 2). Researchers focused on inputs to team process are primarily interested in answers to the question of which knowledge, skills, attitudes, and other characteristics are central to teamwork.

The majority of work in this section of the field is found in organizational demography, generally defined as the “study of the composition of a social entity in terms of members’ attributes” (Lawrence, 1997, p. 2; Pfeffer, 1994). The arguments used by researchers for the primacy of demography in attempts to decipher mysteries of the teamwork-performance relationship assert that critical concepts like attitudes, beliefs, thinking patterns and other interactive variables can’t be measured directly, therefore

causing challenges in research (Lawrence, 1997). While demographic studies are probably easier to measure and shorter to explain (Pfeffer, 1994), other researchers counter that “developing a thorough understanding of how teams interact in a synchronized fashion to achieve goals is critical” (Salas et al., 2007, p. 186) to understanding the teamwork-performance relationship and that teams of similar demographic construction use different types of processes to convert these inputs into wildly different outcomes (Marks et al., 2001). For this study, the researcher treats the



*Figure 2.* I-P-O heuristic with input variables. Variables displayed are examples of those considered in the literature; they do not constitute an exhaustive listing.

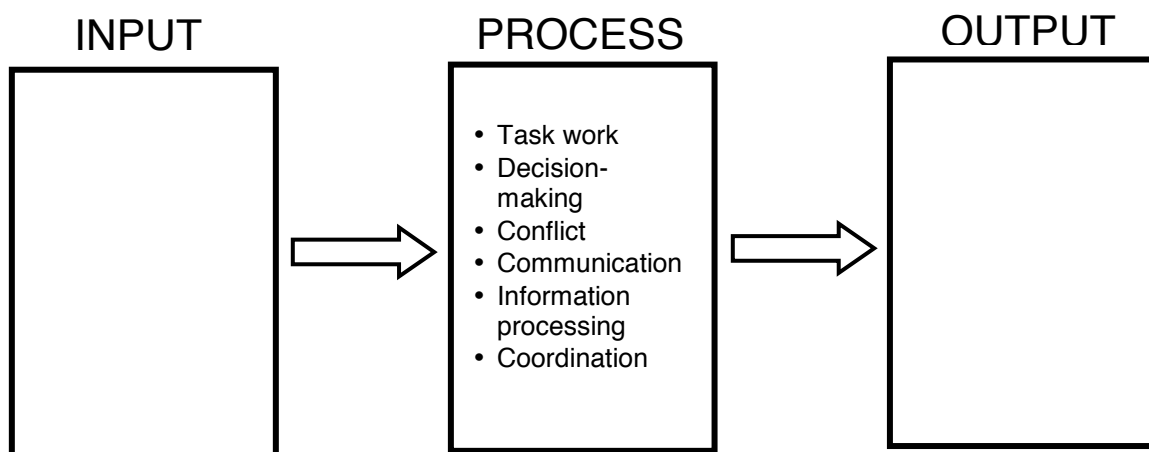
training intervention as one input, and intentionally does not measure nor consider other demographic variables as moderators, focusing instead on (a) the identification of changes in other team processes (process variables) and/or behavioral/attitudinal changes; and (b) changes to objectively-measured performance changes (output).

One note of discovery in the review of literature is the dearth of scholarship addressing training as an input in general, and more specifically those studies that objectively measure the impacts of team training on organizational outcomes.

**I-P-O Model – Processes.** In the past 20 years, “there has been increased attention on developing theoretical models of team effectiveness, with team processes occupying a central role” (Marks et al., 2001, p. 356). As I-P-O models view team processes as a mediating mechanism (or mechanisms) between input variables (like training or demography) and outcome criteria (Marks et al., 2002), the concept will first be defined here. Next, issues arising from those prevalent definitions will be presented. Finally, two of those issues that have implications for this study will be addressed.

In 2001, Marks et al. called for a common conceptual and structural foundation for the concept of team process. Team processes are generally defined as describing the nature of member interactions or as patterned relations among team members (McGrath et al., 2000), and more specifically defined as “the set of variables that reflect members’ interdependent acts...through cognitive, verbal and behavioral activities” (LePine et al., 2008, p. 274). Team processes constitute a broad array of task-related and behavioral elements that share a common purpose – to translate a group’s inputs to outcomes (Barrick et al., 2007) – and are thought to represent points of leverage for practices aimed at improving the effectiveness and performance of teams at all organizational levels. Only recently have scholars begun to develop and advance theory that describes the domain of work processes, including how the process variables relate to each other (LePine et al., 2008). Some examples of team process variables from early scholarship include the group’s task work, and their communication, coordination, management of conflict, and decision-making, among others (see Figure 3).

As researchers have attempted to look inside the “black box” of team processes to better understand these potential mediators of team and organizational performance, various issues have emerged. One problem involves the number and diversity of variables selected as processes, reflecting a lack of consensus of what team processes are and how they operate during a team’s goal accomplishment (Marks et al., 2001). A second problem involves vague, non-specific definitional constructs for team processes, which Marks et al. believe contributes to a lack of clear guidance to researchers (Ilgen et al., 2005; Marks et al., 2001), “creating a ‘black box’ filled with vague, untested theories” (Lawrence, 1997, p. 2). Third, early research of team processes failed to distinguish true

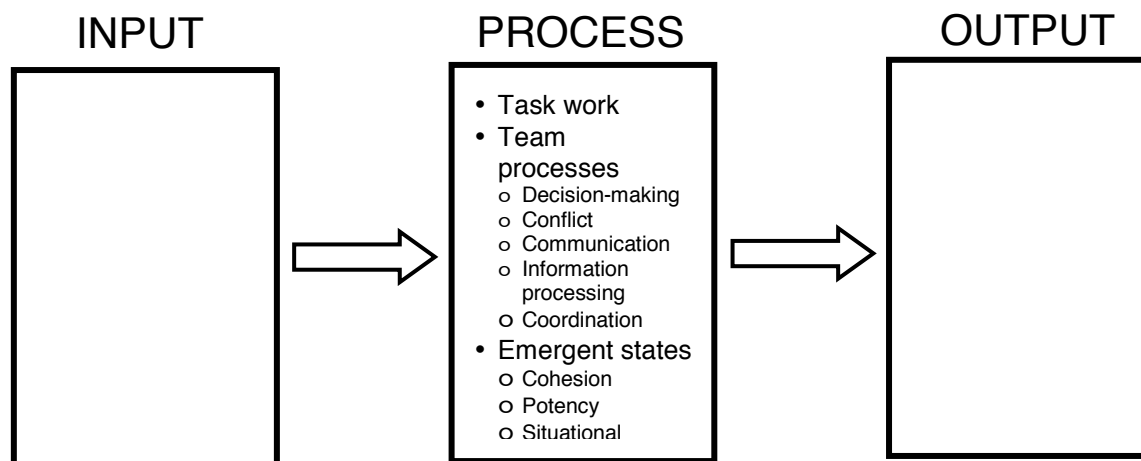


*Figure 3.* I-P-O heuristic with process variables.

processes (coordination, communication, problem-solving), from ‘emergent states,’ defined as the cognitive, motivational, and affective states of teams, as opposed to team member interactions (Ilgen et al., 2005). While both are important and worthy of efforts to understand how they moderate or mediate the relationship between input factors and outputs like team or organizational performance, they are fundamentally different factors (see Figure 4). According to Marks et al. (2001), emergent states do not reflect team

interactions that lead to outcomes, but rather they are products of team experiences and processes which become new inputs to subsequent processes and outcomes. This distinction is important for understanding team process literature, as indices of both emergent states and more ‘pure’ team processes are intermingled, resulting in construct contamination.

However problematic conceptually, the deepening of research into team processes with the distinction and inclusion of emergent states begins to shift from questions of what



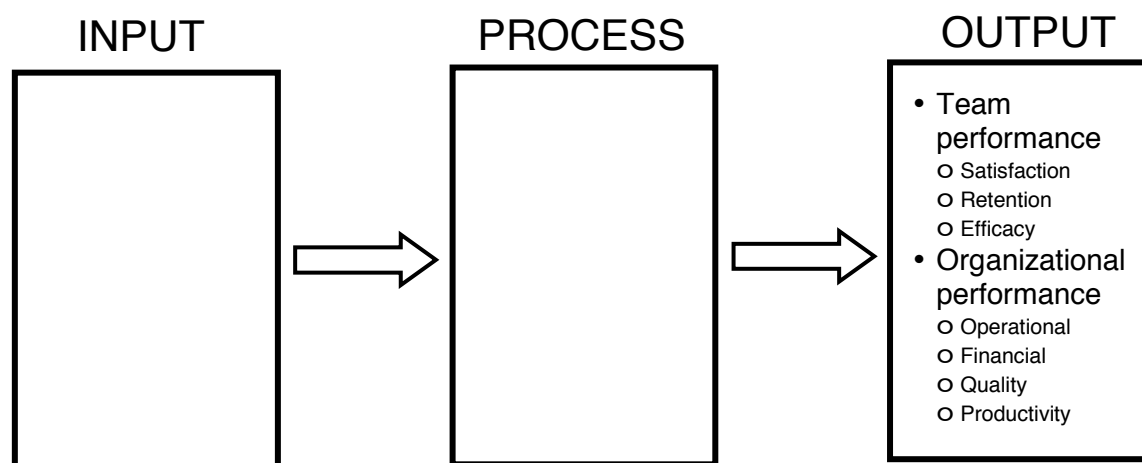
*Figure 4.* I-P-O heuristic with process variables including emergent states.

predicts team performance to more complex questions of why some groups are more effective than others (Ilgen et al., 2005).

This study addressed these issues in the research into team process in two ways. First, while the primary thrust of this study evaluated potential impacts of a specific training intervention (input) on objective measures of organization performance (output), additional analysis was conducted on perceived team process impacts, including

emergent states (described in Chapter 3). Second, while much of the literature in the field of small group and team development lacks direct relevance to the sample population of this research (leadership teams), the researcher additionally reviewed the extensive and rapidly-developing body of research specifically germane to executive teams (called Top Management Teams) and substantiates the use of this literature as one theoretical foundation for the present study later in this chapter.

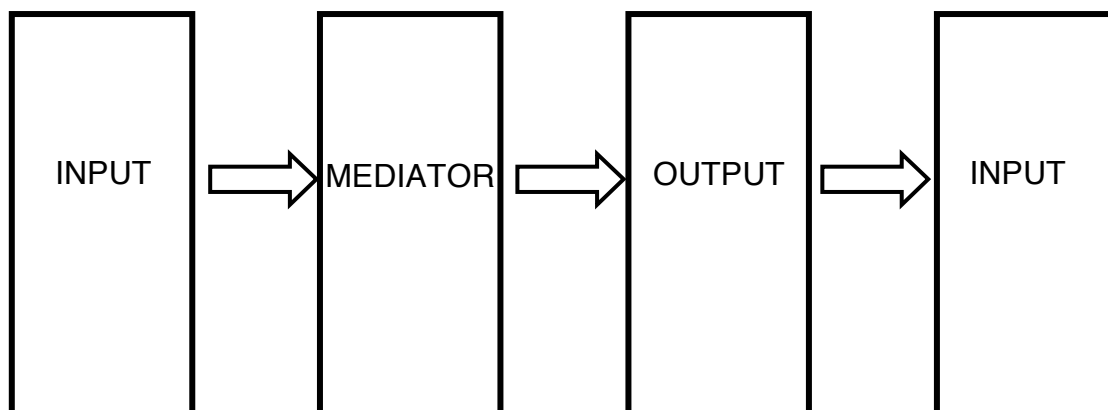
**I-P-O Model – Output.** The third and final element of the traditional I-P-O team heuristic involves the output produced by the team’s efforts. Literature identifies two broad categories of output created by teams’ work: team performance (member satisfaction, member retention, team efficacy) and organizational performance (operational outcomes, financial outcomes, product or service quality; see Figure 5). As objectively measuring organizational performance changes from a team training intervention is a central aspect of this study, this element will be described in greater depth in the next section of this chapter, called “Team Effectiveness and Performance”.



*Figure 5.* I-P-O heuristic with output variables.



Before advancing this conversation with a description of the team effectiveness literature, two final comments about team process and output are worthy here. First, it is specifically the historical and pervasive lack of empirical, objective evidence of organizational performance impacts from training and other organization development (human capital) interventions (Black & Lynch, 1996; Delarue et al., 2008) that sparked this researcher's interest in this study. Second, Ilgen et al. (2005) proposed changing the traditional I-P-O model to an I-M-O-I model to more accurately reflect current research in team dynamics, in which substituting "M" for "P" reflects a broader range of mediational variables that have better explanatory power for explaining differences in team performance and viability, and the final "I" explicitly addresses the notion of cyclical feedback and change from team process. This researcher accepted Ilgen et al.'s (2005) update to the I-P-O model as more reflective of current literature and appropriate for consideration in this study's Chapter 5.



*Figure 6.* I-M-O-I heuristic.

### **Team Effectiveness and Performance**

There is no single measure of performance effectiveness for groups (Guzzo & Dickson, 1996). While intuitive, the relationship between effective teams and

performance has not been definitively established, causing some current researchers to plea for more complex model-building to address the issue of how teams contribute to organizational performance (Delarue et al., 2008). Despite the “plethora of research in the past century” on small groups, during which more than 800 articles and chapters presenting empirical evidence addressing some aspect of team effectiveness (Salas et al., 2007, p. 186), significant gaps remain. Included in the gaps is the assumption that once important key processes are identified, they can “simply be imitated by other teams, with similar effect. It’s not true” (Druskat & Wolff, 2001, p. 82). In this section of the review of literature, the importance and challenges of team effectiveness and performance are presented, followed by definitional treatments in scholarship and some conclusions relevant to this study.

**The challenge of determining team effectiveness.** There are three primary challenges to determinations of team effectiveness presented here. These challenges specifically include the complexity and fluidity of the environments in which teams typically operate, the unique nature of each team’s operating context, and the methodologically weak research that comprises a significant portion of the study of work teams. Following this treatment of the primary contributors to the challenge of understanding what makes an effective team, team effectiveness will be clearly defined, and the critical competencies of effective teams (and team members) will be presented.

According to Salas et al. (2007), “History has repeatedly shown that team performance is an elusive, dynamic and complex phenomenon” (p. 186). One key reason is that teams perform their tasks in often-fluid environments, characterized by evolving and ambiguous task requirements and information availability, intense time pressures,

and often-severe consequences of errors (Orasanu & Salas, 1993; Salas et al., 2007). Much of the early research fails to reflect the dynamism that accompanies actual task accomplishment in actual teams, nor does it consider carefully enough the timing of measurements of team effectiveness. This factor has implications for which team process will or should predominate at a given time, which is central to the measure of effectiveness (McGrath et al., 2000; Salas et al., 2007). Quoting Salas et al. (2007) , “The movement to model fluidity (in the literature) reflects a growing recognition within the teams community that collective task performance requires adaptive moment-to-moment interteam and intrateam interaction” (p. 201). A second challenge to determinations of team effectiveness involves the issue of the importance of organizational and task context on the performance of teams. Researchers point to the need for careful consideration of context, and point to a growing awareness in the scholarly community to the role that context plays in determining team effectiveness (Guzzo & Dickson, 1996; Marks et al., 2001; McGrath et al., 2000; West & Anderson, 1996). In fact, Salas et al. (2000) argue for consideration of contextual factors in team effectiveness determinations, as well as considerations of team type and level. Both issues will be more directly addressed later in this chapter.

The third issue to be addressed when studying teams and methods to improve their effectiveness lies in the methodologically weak research base underlying the field. Three potential contributors will be addressed here: lack of construct coherence, term (or definitional) confusion, and a lack of empirical evidence documenting the teamwork-performance relationship.

Similar to other research issues in complex social science topics, the field of teamwork and performance has developed without construct coherence. As a multi-dimensional construct with a dynamic nature, it is “an elusive and difficult construct to study” (Salas et al., 2000, p. 339). While current efforts are being made and are indeed quickening to delineate a core set of teamwork competencies, the lack of commonalities among previous models has resulted in a significant amount of inter-effort variation. As a result, the literature base lacks coherence and is often confusing (Salas et al., 2000). An important contributor to this problem has been a lack of definitional consistency, which leaves key concepts vague – including teamwork itself – causing even the components of teamwork (knowledge, skills, and abilities) within different models to be dissimilar (Salas et al., 2000). Over the years, various attempts have been made to define teamwork and classify teams in a consistent and coherent way (Cohen & Bailey, 1997; Katzenbach & Smith, 1993), but there remains no generally-accepted definition (Delarue et al., 2008).

As a result of these construct and definitional difficulties, the body of empirical research supporting this field is similarly less cohesive or coherent “than is theory and method” (Ilgen et al., 2005, p. 536). There are examples in the past 30 years of research in team study that highlight this point. In Woodman and Sherwood’s (1980) meta-analysis of studies to date, the authors found 30 empirical studies that met their determinations of research rigor, and of those, only four focused on outcome measures. None of the studies analyzed achieved above a “Poor” rating of internal validity. In Cohen and Bailey’s 6-year study, the authors identified only 13 empirical studies of management teams concerned with effectiveness outcomes (Cohen & Bailey, 1997). More recently, in Delarue et al.’s 2008 study, the authors identified over 300 research

articles examining the team effectiveness-performance relationship. After applying their specific inclusion criteria for the purposes of their study, the set of studies was reduced to 31 that evaluated empirical links between teamwork and performance, few of which looked at organizational performance (Delarue et al., 2008). However, it seems clear the body of empirical teamwork research is growing in recent years (Kozlowski & Ilgen, 2006; Salas et al., 2007), especially as it relates to different types of teams, discussed later in this chapter.

### **Team Effectiveness and Performance Defined**

According to Salas et al. (2000), early efforts to understand team effectiveness tended to focus on how inputs affected team outputs such as performance and member satisfaction, but recent research has added to the delineation of factors that affect the creation of effective team processes (teamwork) and effective team performance. In 2008, Delarue et al. opined “considerable progress has been made in understanding team effectiveness”(p. 138). This section, in which team effectiveness will be defined, will first describe definitions and will then address the literature covering teamwork competencies, before concluding with outcomes of effective teamwork processes.

In the previous section titled “How Teams Work – The I-P-O Heuristic”, literature covering the past 40 years of theory and research based on the I-P-O heuristic developed by McGrath was presented (Kozlowski & Ilgen, 2006). Early researchers such as Woodman and Sherwood (1980) held a simple, utilitarian belief that “effectiveness means to manage problems confronting a group and to accomplish group goals” (p. 166). Later definitions reflected the growing body of research and sophistication in concepts, and require the distinction of team performance and team effectiveness. For the purposes

of this study, team performance is defined as the product of the team's work, as measured by organizational factors (operational, financial), team factors (intragroup, interpersonal), or both. By contrast, the generally accepted construct in the literature for team effectiveness is more nuanced, and involves the element of judgment by individuals knowledgeable of the team's work. As Salas et al. (2007) explain, "Effectiveness is defined as...producing a decided, decisive, or desired effect. Thus, effectiveness is not the outcome produced from team performance, but rather the result of a judgmental process whereby an output is compared to a subjective or objective standard" (p. 193). Other researchers confirm and extend this notion of judgment as vital element of team effectiveness determinations, whereby an output is compared to a standard (Kozlowski & Ilgen, 2006; Sundstrom, 1999). Hackman and Helmreich's 1987 model for effectiveness has three dimensions, which have been accepted by subsequent researchers: (a) judgment by stakeholders about quality and quantity of work; (b) satisfaction of group members' needs; and, (c) strengthening or maintaining of group member interactions (Cohen & Bailey, 1997; Hackman & Helmreich, 1987; Salas et al., 2007). Kozlowski and Ilgen (2006) conclude, "These tripartite facets capture the prevalent conceptualization of team effectiveness" (p. 80). Thus defined, it is important that this study is framed as involving team performance (output focused) and is only interested in other measures of leadership team effectiveness as a secondary matter.

As the present study was focused on evaluating impacts of team training as an input to leadership teams' processes and/or team members' skills, knowledge, and attitudes on objectively measured organizational performance (output), moderating or mediating variables like teamwork competencies were reviewed for directional

consistency. Much like process variables, teamwork competencies (called KSA to reflect the requisite teamwork knowledge, skills, and attitudes) are said to operate not in isolation, but “dynamically, simultaneously, and recursively as they unfold over time” (Salas et al., 2007, p. 191). While various teamwork taxonomies exist, the Salas et al. (2000) framework of eight core, generalizable dimensions of teamwork KSAs including adaptability, shared situational awareness, performance mentoring and feedback, leadership/management, interpersonal relations, coordination, communication, and decision-making is mostly consistent with the dimensions of teamwork KSAs included in this study’s Team Effectiveness Tool used in this study (Chapter 3).

The final issue requiring treatment for defining team effectiveness is the output created through a team’s efforts, and the methods used to determine the certainty of the attribution of that output to the team’s efforts. As the focus of this research study is to evaluate potential impacts of a training intervention on objectively measured organizational performance indices, including productivity, labor cost, quality, and employee turnover, studies were sought for comparison with a similar focus.

The next section of this literature review will address the important, and growing contribution of the research into a sub-set of leadership teams, namely Top Management Teams. The intention for its inclusion is two-fold: (a) add evidentiary depth and breadth into study of the teamwork/performance relationship; and, (b) as several definitional elements are similar to that of the present study, to utilize relevant findings in the current study.

## **Top Management Teams**

Top Management Team literature represents a significant, rich and growing body of research into the effectiveness and performance of a distinct leadership group, influenced by but distinct in many ways from scholarship for other management and leadership teams. In this section, Top Management Teams (TMT) will be defined and described as a subset of leadership teams, an accepted meta-construct will be presented for understanding and measuring the effectiveness of TMTs, called Behavioral Integration, and an argument will be made for why the present study should be informed, but not limited by TMT literature.

Beginning with Cyert and March's "dominant coalition" theory (Cyert & March, 1963; Patzelt, Knyphausen-Aufse, & Nikol, 2008), and Pettigrew's study of "managerial elites" (Pettigrew, 1992), there has been considerable interest in this organizational group due to its potential to affect the fate of the organization - perhaps more than any other group including the Board of Directors (Cohen & Bailey, 1997; Hambrick, 1994; Hambrick & Mason, 1984). There are at least three factors arguing for this attention. First, a growing body of research provides support for the conclusion that the top team, rather than any one individual leader, has the greatest effects on organizational functioning (Carmeli & Schaubroeck, 2006; Carson, Mosley, & Boyar, 2004). Second, organizational stimuli are so easily influenced by perceptual bias and interpretation that the form and functioning of the top team has an undue influence on the organization (Hambrick, 1994). Third, according to organizational and strategy theorists, as the TMT represents the most influential executives in an organization, the way they work together to take advantage of knowledge, experience, and strengths is a key determinant of



organizational performance (Barrick et al., 2007; Carmeli & Schaubroeck, 2006; Hambrick, 1997).

**Definition and composition of TMT.** Despite the importance of this rich body of work, there is a difficulty in the literature defining who comprises the top team (Pettigrew, 1992). It would appear an easy task to define a TMT by describing the positions and/or responsibilities of the individuals that comprise them. However, as organizations differ widely on the roles, responsibilities, and functioning of its top executives, there is no single construct that adequately describes that group (Hambrick, 1994). Hambrick, a significant contributor to the literature on TMT composition, process, and performance, advocates for considering this group more broadly than simply the top level in an organization's structure (Hambrick, 1994; Michalisin, Karau, & Tanpong, 2004; Simsek, Veiga, Lubatkin, & Dino, 2005; West & Anderson, 1996).

Two findings are vital here. First, the literature offers different definitions of what and who comprise a Top Management Team, from the single, top level of an organization chart to broader consideration of other influential players who make decisions that are important to the firm's future (Carmeli & Halevi, 2009; Simsek et al., 2005). Second, due in part to differing conceptions of TMT composition, the data included in TMT research isn't pure; in other words, it is not focused solely on the collective characteristics and efficacy of an organization's top level (Cohen & Bailey, 1997). Both findings, the lack of uniform composition and lack of pure data in the TMT literature, could support the case for the present research sample being appropriately considered as TMT research and utilizing TMT literature for comparison. However, as will be more fully discussed later, several factors argue against the regional operating

teams of the present study being compared to executive teams with enterprise-wide responsibilities. And, due to the “gray area” in the definitional literature, this question of inclusion deserves robust treatment here.

The researcher considered three factors before deciding on the appropriateness of inclusion of the teams in this data sample in TMT literature: (a) comparison of duties; (b) the validity of using organizational performance measures to determine team performance; and, (c) comparison of characteristics of the sample to typical TMTs. Each will be described next.

*Comparison of duties.* The key definitional characteristics to use in assigning the TMT label to a senior team of executives are these: the amount of autonomy in carrying out their tasks, the complexity of their tasks and responsibilities, level of involvement in strategic decision-making, and level of responsibility for success of the firm (Carmeli & Halevi, 2009; Cohen & Bailey, 1997; Lubatkin, Simsek, Ling, & Veiga, 2006; Mooney, 2000). As will be described in greater detail in Chapter 3, the present study’s research sample involved regional teams of individual business unit leaders, each with average annual revenues between \$3 and \$10 million, average employee population between 10 and 50, and with profit and loss responsibility within their geographies. Collectively, these Regional Teams have operational, but few strategic responsibilities, have only moderate levels of autonomy in carrying out their tasks, and while they are accountable for a significant range of financial, labor cost, productivity, growth, and employee satisfaction measures, as would be appropriate for a Top Management Team, they have no say over the development of strategy, determinations of capital spending, or development of policies to govern employee behavior. Thus, while similarities did exist

between Regional Team characteristics and those attributed to TMTs, this researcher argues that the differences are significant enough to warrant exclusion from the TMT research stream.

*Use of organizational performance measures to determine effectiveness.* The second argument for determining the appropriateness of this research stream for the present study involves the use of organizational performance measures as dependent variables by most studies in current TMT literature, similar to this study's design. The ultimate measure of TMT performance is firm performance; unlike many studies in the work team literature, one strength of TMT studies is their use of objective measures of organizational performance (Cohen & Bailey, 1997). While the study's author proposed use objective measures of performance (productivity, labor cost, quality, and employee turnover) to determine impacts of the training intervention, the data used for this study were solely operational in nature, and as such, were different than organization-wide outcomes. Enterprise results naturally include those generated from operating performance certainly, but must also include financial, strategic, regulatory, social, and ethical decisions and actions, all outside the purview of these regional teams and the leaders who comprise them.

*Comparison of characteristics of sample to TMT population.* The third and final determination of TMT literature appropriateness for this study involved an examination of the similarities and differences of the study's sample group with those of TMT studies. Here we see the difficulty of a clear distinction. One example is a recent study in the TMT literature of small-to-medium sized enterprises (SMEs) in which firm size (22-500 employees), TMT size (4.75 members), enterprise complexity (fewer organizational

impediments that larger organizations), and the relationship of TMT members to the market and customers, were all characteristics nearly identical to the sample used in the present study (Lubatkin et al., 2006). The study's author concludes, however, that while TMT literature certainly has within it studies encompassing a broad inclusiveness, the previous two arguments of comparison of responsibilities and operational versus enterprise performance metrics appropriately place this study in the broader context of leadership teams in general. At the same time, the author also concludes there are enough similarities in team composition and responsibilities in this study sample to warrant an examination and understanding of the TMT literature for explanatory purposes.

**Understanding TMT processes – The ‘Black Box.’** There is value to the present study to understand TMT processes, as well as those processes appropriate to the larger field of leadership teams. The following section looks at contributions of TMT research to an understanding of the processes for interaction of TMTs.

Historically, researchers identified two factors leading to the slow start in the accumulation of data documenting the impact TMT processes on organizational performance: (a) a lack of access to top management teams (primary source data), leading to the majority of studies being focused on demographic analyses containing secondary source data from public records such as team size, member age, tenure, functional experience, educational level, and the like (Higgs & Dulewicz, 1998; Pettigrew, 1992); and, (b) the “relative independence of TMT research of the broader work teams literature” (Barrick et al., 2007, p. 544). The result of these two factors on the direction and accumulation of TMT research was what researchers called the “black box”

(Carmeli & Schaubroeck, 2006; Hambrick, 1994; Lawrence, 1997) around an understanding of TMT process. In other words, researchers' primary attempts to understand the team-organizational performance relationship was through a focus on demography, holding "group cognitions, values, and interchanges as a 'black box, so the actual mechanisms by which group composition affects organizational outcomes can only be surmised" (Carmeli & Schaubroeck, 2006, p. 448; Hambrick, 1994; Simsek et al., 2005). This recognition led to what Simsek et al. (2005) referred to as the "second stream" of TMT research during which we find ourselves today - a period in which researchers are focused on identifying intervening process mechanisms (Corner & Kinicki, 1997; Lubatkin et al., 2006; Simons, 1995; Simsek et al., 2005). Carmeli and Schaubroeck (2006) conclude, "Research indicates that TMT group process may explain variance that was left unexplained by TMT heterogeneity alone, and that TMT characteristics are important to outcomes only insofar as they influence group dynamics" (p. 442).

In the past decade, a myriad of research with a TMT process focus has added to our understanding of the TMT process-performance relationship, including findings on information processing (Corner & Kinicki, 1997), within-team interdependence (Barrick et al., 2007), conflict (Mooney & Sonnenfeld, 2001), debate (Simons, 1995), the firm's business model (Patzelt et al., 2008), strategic choice (Olson, Parayitam, & Twigg, 2006), and social integration (Mooney, 2000), among others. While this work stream is beneficial in advancing our understanding of the TMT 'black box, researchers identify limitations in its failure to reflect the inherent complexity and dynamism of TMT process in a way that yields, for example, a strong strategy for an organization or a series of

adaptive market responses (outcomes; Hambrick, 1994) that “can’t be captured by any single process dimension” (Lubatkin et al., 2006, p. 651).

**TMT behavioral integration.** One research stream in TMT literature in the past decade most promising in unlocking the ‘black box’ of team process-organizational performance relationship is Hambrick’s meta-construct of behavioral integration (Hambrick, 1994; Simsek et al., 2005). Behavioral integration (or B.I.) is considered a meta-construct, as it is intended to capture three interrelated TMT process elements, including: (a) the team’s level of collaborative behavior, (b) its quality and quantity of information exchanged, and (c) how, and how well decisions are made jointly (Carmeli & Schaubroeck, 2006; Simsek et al., 2005). Described as the best attempt to understand TMT process to date, TMT behavioral integration is defined as the degree to which the TMT engages in mutual, collective integration. Said simply, a behaviorally-integrated TMT shares information, resources, and decisions (Hambrick, 1997). According to Simsek et al. (2005), “Use of this all-encompassing ...construct prevents attributing more import to a single process dimension than is warranted” (p. 70).

Most TMT process research today is found within and related to this meta-construct. Examples include studies on: conflict that found TMT B.I. was negatively related to affective conflict (Mooney & Sonnenfeld, 2001), strategic decision-making that found a direct relationship between TMT B.I. and organizational decline (Carmeli & Schaubroeck, 2006), and industry growth and marketization that found a positive relationship between B.I. of a founder group and marketplace innovation and performance (Li & Zhang, 2002).

### **Relationship of Behavioral Integration Construct to This Study**

Data used in this study were collected before much of the recent advancements in our understanding of B.I. as a process construct for team effectiveness. So, rather than use B.I. as an evaluative framework, the researcher proposes to evaluate the data using more traditional conceptual frameworks associated with leadership teams, described in Chapter 3. However, due to the strength of the B.I. construct in TMT literature, and its potential value to teams at organizational levels other than TMTs, the researcher will propose recommendations for future research in Chapter 5.

Having explored the important and emerging field of TMT research for a better understanding of leadership team processes, the concepts of improving leadership team performance and effectiveness will now be explored.

### **Improving Leadership Team Effectiveness and Performance**

Few studies exist that document the presence or impact of training leadership teams to improve teamwork competencies (KSAs), either formally or informally. Formal training is defined as “training that is planned in advance and that has a structured format and a defined curriculum... while informal training is defined as unstructured, unplanned, and easily adapted to situations and individuals” and is by far the most prevalent form, estimated to deliver 70% of workplace training (Frazis, Gittleman, Horrigan, & Joyce, 1998, p. 4). Training is considered a basic investment in human capital and key to productive employees (Black & Lynch, 1996), and is alive and well in business organizations in the United States. Estimates from 1995 indicate that employers invest approximately \$75 billion in indirect wage and salary costs, twice what was estimated by some researchers in 1986 at \$32 billion (Frazis et al., 1998; Lynch & Black, 1995).

Despite its importance and prevalence, managers and leaders receive the lowest amount of formal training each year of any group (an average of 4.3 hours), and even less is directed at the TMT level (Frazis et al., 1998). Further, only a small part of employers' training dollars is finding its way into training teams to improve their effectiveness (Atkins & Gilbert, 2003), leading Stout et al. (1994) to conclude, "Future research should concentrate on the relation between training and coordination and performance in operational environments" (p. 190). The benefits of such training could be what Carson et al. (2004) describe as "the training could potentially educate and inform team members about differences, and how to use those differences to form a more effective team" (p. 124).

Despite a series of forces on the workplace that mandate a more pervasive and strategic use of work teams and decades of ever-growing research documenting the team process-performance relationship, little is empirically-known about how to improve the effectiveness and performance of teams, especially at the management level. The remainder of this literature review will focus on what is empirically known about the two most common methods of improving team effectiveness and performance, namely team building and team training at all levels, but particularly at the leadership team level. The section will conclude with implications for this study of a teamwork training intervention for leadership teams.

**Teambuilding to improve team effectiveness and performance.** The concept of group development is well documented in the literature over the past five decades (Wheelan, 2003). Teambuilding, also called team development, is an extremely popular and common intervention, perhaps one of the most frequently used organization



development interventions (Porras & Berg, 1978; Salas, Rozell, Mullen, & Driskell, 1999). Teambuilding is defined as “a class of formal and informal team-level interventions that focus on improving social relationships and clarifying roles, as well as solving task and interpersonal problems that affect team functioning” (Klein et al., 2009, p. 183). It has at its core the notion that enlisting the participation of a group in planning and implementing change will be more effective than simply imposing change on the group from the outside. Teambuilding was designed to enhance organizational effectiveness by improving the functioning of teams through developing problem-solving skills and improving role clarity (Salas et al., 1999). Said differently, teambuilding works by assisting groups, and the individuals within them, diagnose and take action on their behavior and interpersonal relationships (Beer, 1976; Schein, 1969; Woodman & Sherwood, 1980). Beer (1976), Dyer (1977), and Buller (1986) researched and presented four basic models of teambuilding that would guide numerous studies into their efficacy for the next two decades. Included in those models were those whose focus was primarily goal-setting, interpersonal relations, problem-solving, and role-clarification.

For example, in 1980, Woodman and Sherwood reviewed current empirical literature on team development approaches using that four-part construct and found: (a) the two most commonly-used models of teambuilding were goal-setting and interpersonal relations models; (b) general support for teambuilding eliciting positive, affective responses from participants; and, (c) the linkage between teambuilding and improved work group performance to be largely unsubstantiated (Woodman & Sherwood, 1980).

A review of current literature on team development suggests several important updates, and the presence of the enduring problem of establishing empirical validation of

the approach on performance outcomes. First, over the years, teambuilding models have evolved in emphasis from the original four, to emphasize a greater concern for achieving results, meeting goals, and accomplishing tasks (Klein et al., 2009). Second, current teambuilding models rarely exist in pure form (Klein et al., 2009), possibly suggesting some hybrid forms could replicate some of the processes and content of team training. Third, the concept of teambuilding suffers from some of the same construct confusion as has been mentioned in other parts of this study; in Salas et al.'s 1999 meta-analytical review of team development, the authors found "a stunning lack of convergence" in models, definitions, and approaches, leading them to conclude that "This diversity in teambuilding interventions represents one of the major challenges to previous efforts to make sense of the research literature" (p. 314). Until recent years, evidentiary support for the teambuilding-performance improvement relationship has been largely mixed or inconclusive (Bettenhausen, 1991; Klein et al., 2009; Salas et al., 1999). Research conducted more recently have found clear and continuing support for teambuilding's effectiveness as a tool for improving a team's affective outcomes, and has also identified growing evidence of this technique's value as a means to facilitate improvement in team processes (Klein et al., 2009). However, evidentiary support of the teambuilding-performance relationship is far from conclusive (Klein et al., 2009; Kozlowski & Ilgen, 2006; Salas et al., 1999).

**Training to improve team effectiveness and performance.** The importance of teams as an organization structure in today's business environment is well established in the present study, and in research overall. Klein et al. (2009) state, "The simple existence of team-based organizing structure is not enough to ensure that positive outcomes will

result. Teams must be nurtured, supported, developed” (Klein et al., 2009, p. 182). For many years, training has been generally accepted as a tool to help companies develop sustainable advantage (Aragon-Sanchez et al., 2003). As teambuilding fails to serve as an effective tool for the development of teams, especially those at leadership levels, to deliver empirically determined measures of firm performance, what about training as a tool to serve that purpose? The remainder of this section will focus on a review of the literature addressing training as a tool for improving the performance of teams, as well as the performance outcomes of leaders, and will conclude with this researcher’s conclusion of the value of the current inquiry; that is, using teamwork training for leadership teams to improve performance outcomes.

While team training has solid support in the literature, the primary focus has been on measuring the impacts of training on high-reliability, mission-critical teams like those in military, commercial aviation, and medicine (Kozlowski & Ilgen, 2006), and in task or production teams (Leedom & Simon, 1995). Such studies refer to “standardized, behavior-based training...to improve team coordination (and intrateam familiarity)” (Leedom & Simon, 1995, p. 109), in which team performance is determined as an increased percentage of task accomplishment. There seems to be wide support for the value of team training (Kozlowski & Ilgen, 2006; Salas et al., 2007; Stout et al., 1997; Sundstrom, 1999), but that support is based on “theoretically derived, systematically developed, and focused on specific SKAs (skills, knowledge, and attitudes)” (Stout et al., 1997, p. 179) of work teams with predictable, constrained, and repetitive tasks. As previously discussed, leadership teams work in environments much different than that of task teams. At that level, teamwork is difficult to define, contextualize, and measure its

impact, leading this researcher to inquire into the extent and direction of research into team training of such teams comprised of people who “collectively take on the role of providing strategic, operational, and institutional leadership for an organization” (Ancona et al., 2001, p. 5). Very little direct research exists speaking to the issue of training leadership teams (including the subset of TMTs) as an approach to improve performance outcomes, although several researchers appeal for this type of study (Stout et al., 1994; Wheelan, 2003). Instead, a broader review of literature into peripheral issues related to training at this organizational level yields some insights for this research effort.

One of the salient characteristics of the team training provided in this case study involves improving leadership team members’ knowledge of the roles, responsibilities, strategies, and issues of their teammates, something referred to in the literature as “positional clarification” and a form of team training broadly called “cross training” (Marks et al., 2002). According to Marks et al. (2002), the ultimate goal of such cross-training is to “improve coordination and ultimately team performance” (p. 47). This training approach is consistent with Kozlowski and Ilgen’s (Kozlowski & Ilgen, 2006) meta-analysis into various team training interventions, which included cross-training. While in its infancy, “preliminary experimental research on cross-training has found promising results warranting further investigation. ... (previous) studies have operationalized cross-training as positional rotation, and thus far no studies have investigated positional clarification...” (Marks et al., 2002, p. 4). The Marks et al. 2002 study informs this research, but is considered peripheral. In that study, the researchers studied effects of cross-training on 3 types of criteria: shared mental models, coordination and back-up behaviors, and overall team performance. In addressing this

study's first research question, "What impacts, if any, does team training of leadership teams have on team processes, and/or team members' skills, knowledge, and attitudes?," the Marks et al. (2002) research will inform that analysis.

### **Conclusion**

This literature review established the importance of teams in today's business environment, characterized by dynamic change, global pressures, and requirements for rapid response to market conditions. It provided an established heuristic to understand the functioning of teams, and to understand the various components involved in studies of determinations of team effectiveness and improvement. The chapter further distinguished the types of teams by organizational level and responsibilities, identifying the strategic, operational and financial requirements of leadership teams, including the Top Management Team. Given the immense value of leaders and leadership teams to organizational success, the review examines the two most popular and studied forms of team improvement to determine their relevance to the improvement of leadership teams. Finally, the idea of a particular training approach (cross-training and positional clarification) was theorized as having particular benefit to leadership teams, and will be addressed as a matter for possible future research in Chapter 5.

Chapter 3 presents the methodology for the study, including descriptions of the participant company and its industry, sample demographics, primary and secondary source data collected, and methods of analysis.

### **Chapter 3: Methods**

This exploratory study was conducted within a single company between August 2003 and May 2004 as part of a company-sponsored training course for its regional operating leadership teams. The study included data from four training sessions conducted between August and December 2003, and focused on teaching team working skills to these leadership teams. The researcher was engaged by the company in this project as an external consultant for the design of the training sessions, their tools and processes, and for facilitation of the sessions. Joining the researcher for design and facilitation was a team of leadership and team development experts from inside and outside the organization.

Several factors made this project suitable for research study, particularly: the organization's willingness to allow pre- and post-event collection of both primary data, which involved team members' perceptions gathered through the use of a survey tool, and secondary source, objective performance data (culled from company records); curiosity by the researcher and the internal project's sponsor about if, and in what ways these training events could impact "hard" performance measures of quality, labor cost and productivity (among others); and, the relative ease of collecting a full range of both perceptual and performance data from a discrete population of leaders.

A study of the impact of a training event is not new, nor unique; thousands of similar studies appear in the literature (Aragon-Sanchez et al., 2003). What is unique about this study is: (a) the focus of teamwork training at leadership levels with intact operational, geographic leadership teams; and, (b) the type of data collected that looked at both "hard" performance (outcome) and perceptual (or team process) data over time.

## **Chapter Organization**

This chapter begins with a restatement of purpose of the study and its research questions. Next, the research design is described, followed by a description of the training, and discussion of sampling methods. Given the nature of this quantitative and longitudinal study that included both instrumented perceptual and “hard” (objective) results over two time periods, several paragraphs are devoted to describing the instrument, called the Team Effectiveness Tool (TET), used to collect training participants’ perceptions of the effectiveness of their teams, pre- and post-training. Given the study involved data collected from human subjects, albeit from archival data sources, human subjects considerations are addressed. Finally, methods of data analysis are explained.

### **Purpose of the Study**

There are limited, growing empirical data on the effectiveness of various methods for improving the performance of business leadership teams, as measured by objective outcome data. This exploratory study was intended to add insight into this important issue.

Numerous studies exist showing perceptual changes in dimensions of team effectiveness and satisfaction, like member affinity, positive team identity and decision-making (Klein et al., 2009; Kozlowski & Ilgen, 2006). In the past decade, an abundance of studies have emerged attempting to measure the effectiveness of teams in a fundamentally different way; that is, to attempt to empirically link team process and organizational performance (Delarue et al., 2008). Within this research stream, Delarue et al. conclude that a positive relationship between teamwork and operational

performance is found in a number of studies. In their meta-analysis of over 300 related studies conducted over the past 10 years however, the authors found that:

1. The overwhelming majority of studies either focused on work or task teams or failed to designate any specific organizational level of the teams they studied (i.e., virtually none focused on management-level teams).

2. Only 31 (of 300) established the teamwork/performance link with any evidentiary rigor.

3. None attempted to understand the relationship between team training, a documented developmental activity for teams and objective performance outcomes (Delarue et al., 2008).

The intention of this exploratory study was to determine if there is a relationship between a training activity specifically designed to improve team effectiveness and performance outcomes for a significant number of leadership teams in one client organization and “hard” business measures selected by the company as determining success criteria. The term “hard measures” is used throughout the literature to indicate objective and important areas of performance for a company (e.g., profitability, product quality, sales revenues, employee turnover, etc.), as contrasted to more subjective and/or less important measures of performance (e.g., employee satisfaction, brand perception, etc; Nicholas, 1982). Once determined, the specific processes within the leadership teams were analyzed for changes post-training. While not attempting to establish a causal link, the correlation between changes in specific organizational outcomes and changes in team processes is explored.



## **Research Questions**

The primary research questions for this study were:

1. What impacts, if any, does team training of leadership teams have on team processes, and/or team members' skills, knowledge, and attitudes?
2. What is the relationship, if any, between changes in leadership team processes, and/or team members' skills, knowledge, and attitudes and organizational outcomes?

As team training was treated as an input, no other input variables were considered as moderators of the team training-performance outcome relationship.

## **Research Design**

This exploratory case study involved the collection and analysis of two types of data about the leadership teams in the sample: (a) quantitative data about leaders' perceptions of the effectiveness of their geographic, operational teams; and, (b) objective measures of performance of said teams. Primary data (perceptions of team effectiveness) were collected pre- and post-training session from each leader using an online, scaled instrument as a pre-condition for attendance at the training. Secondary data (performance outcomes) were collected from company records, and recorded business unit performance of each team member at 6 months prior to each team's attendance at the training session and 6 months post-attendance. No moderating variables of team performance are considered in this study, as have commonly been used in other studies, such as team size, tenure of members, company size, functional expertise, educational level, and work policies (Delarue et al., 2008; Ichniowski et al., 1996; Tata & Prasad, 2004).

For this study, the organization's top two executives (Chief Executive Officer and Chief Operating Officer) were asked to collectively select the distinct, measurable,

objective criteria they use in determining the effectiveness of each business unit (defined here as a single kidney dialysis treatment center or “facility”). They selected nine measures, each objective and available for analysis. Included were measures of employee productivity (e.g., the number of labor hours required for each dialysis treatment), operational cost and efficiency (e.g., salaries/wages/costs per dialysis treatment, salaries/wages/costs variance from budget, the dollar amount of employee overtime expended), service quality (e.g., a composite measure of seven quality measures), and employee turnover. As these executives were each highly experienced healthcare operators, especially within this segment of the healthcare services industry, the researcher believed it was reasonable to take *de facto* their determination of success factors without additional, external validity testing of these factors prior to the conduct of this exploratory study.

Data covering the nine objective measures of performance for each business unit were collected for the performance period (month) 6 months prior to that unit’s leader’s participation in the training event, and 6 months following his/her participation in the training event. No attempt was made to moderate, or explain for exogenous factors arising from the collection of secondary data in different months of the company’s business cycle. Comparisons of the two time periods are presented, as described later in this chapter. To focus the analysis, the researcher chose four of the nine indicators of performance for the analysis, each addressing a major theme from the literature: productivity, labor cost, quality, and employee turnover.

In addition to objective performance measures, perceptions of his or her regional team’s process and effectiveness were collected from each participant by the company

within 2 weeks of the event they attended, and 6 to 10 months following participation in the training activity. The Team Effectiveness Tool (or TET) used in the perceptual data collection (Appendix A) was jointly designed by this researcher and a panel of experts in leadership and team development, and included internal company representatives and external consultants. The content of the instrument includes common dimensions of team effectiveness discussed in the literature, including team identity, goal clarity, problem solving, trustworthiness, member self-control, information flow, and rewards/recognition (Dyer, 1977; Gibb, 1978; Katzenbach & Smith, 1993). This expert panel designed both the specific instrument items and their thematic groupings, which were used to simplify the reporting of results. No *a priori* reliability testing was performed on the tool prior to its use.

The same instrument was used to measure pre- and post-session perceptions. Comparisons of the two time periods are performed, as described later in this chapter. In addition, with the presence of both objective and perceptual measures collected in both pre- and post-session time periods, the opportunity exists to compare changes in particular dimensions of each with each other, also described later in this chapter.

### **Study Population**

This study was undertaken in a single company within the healthcare services industry, an operator of kidney dialysis treatment centers for patients with end-stage renal disease (ESRD). At the time of this study, this publicly traded company had annual revenues of approximately \$2.0 billion, 13,000 employees, and approximately 700 dialysis treatment facilities. The researcher was permitted access to the company and its

performance data due to his role in the design and facilitation of this training experience for its regional operations leaders.

For the 3 years prior to this event, this company had invested heavily in the development of its leaders, through a series of training events offered through their corporate university curriculum. Each of the previous training courses focused on the individual leader's behavior, self-awareness, and strategy. In a significant supplement to that historical direction for leader training, the company's CEO and COO decided to sponsor the creation of a training experience for leaders focused on how and how well they collaborated in their geographic "teams" of peers. Thus, the "Regional Teams" training experience was conceived.

### **Description of Company Training Experience**

"Regional Teams" training was designed as a 4-day residential training event for intact homogeneous teams of geographically proximate leaders, focused on exploring how and how well they collaborate to achieve desired results from each business unit in that operating region. The company's thesis was that improving the functionality of this previously neglected team structure would improve the performance of the individual business units (i.e., dialysis facilities) comprising each one.

Each training class was comprised of between three and five regional teams who would participate in the training concurrently. This study data consisted of the first four classes of Regional Teams training, and is comprised of 17 regional teams, representing 158 individual business units across the United States. The four training classes reported in this study were conducted between August and December 2003. The pre-session data collection process for the study's subjective data, namely from the Team Effectiveness

Tool, began approximately 2 weeks before each class; the post-session data for this same tool was collected 6-10 months after the team's participation in the training. Outcomes data on the nine selected performance dimensions for each business unit was collected from historical company records in May 2005.

**“Regional Teams” training design.** The “Regional Teams” training design included content in topics related to effective teamwork, including the importance of a goal focus and role clarity, effective behaviors of team members including communication and conflict management, and several dimensions of emotional intelligence (self-awareness, sensitivity to others' issues/needs). The content topics were presented to all training participants in plenary sessions by the same group of trainers in each of the four sessions. Once presented, each intact team was provided the time and opportunity of explore the meaning and implications of the topic to their current and desired operations. Each team was assigned a dedicated facilitator (one member of the training team) that stayed with the team throughout the session to facilitate their learning and absorption. One unique feature of this training design is its mixed instructional methods, which allows the delivery of standard, consistent content topics and the opportunity for each team to examine and personalize the learning for their needs. A second unique factor of the teamwork training design is its content of emotional intelligence topics for the individual members comprising the team, including self-awareness, presence, self-management and emotional “triggers” that derail individual performance. There appears to be little in the literature about teamwork training for leadership team containing those two elements.

**“Regional Teams” delivery team.** To ensure a high-quality and consistent delivery of the training curriculum from session to session, the client organization chose to have the same trainers deliver each of the first four sessions from which the data in this study were derived. Three of the training “faculty”, including this researcher, were external consultants to the company, selected for their significant experiences in team development. Two of the faculty members were selected from within the organization, using the same criteria in team development. While some learning inevitably occurred during each session, resulting in slight alterations to training delivery of certain topics, the course content remained significantly consistent throughout the training deliveries being studied.

### **Target Population**

A Regional Team is comprised of a Regional Director and between 5 and 15 Facility Administrators, individuals who held overall responsibility for the financial, clinical, and operational performance of a kidney dialysis treatment clinic. Regional Teams are organized solely by proximate geography. While other individuals/roles interact with regional teams, (e.g., regional secretary, regional financial analyst) for training purposes, these teams were discouraged from including other participants in their training for two reasons: (a) to minimize extraneous training and travel costs; and, (b) to encourage the focus of the work to be on how the Facility Administrators collaborate together.

Participation in this training required 100% attendance of the members of a Regional Team, and all members were required to complete the pre-session Team Effectiveness Tool. Teams with less than 100% attendance were rescheduled for later

attendance when they could guarantee full attendance. No additional demographic characteristics for team members were collected, and are therefore unavailable for analysis in this study. There was no such requirement for participation in the post-session Team Effectiveness Tool. Each team member in attendance at the session and still in the employ of the client company between 6-10 months after the session was asked to participate. New Facility Administrators added to the regional team following training, but prior to the post-session TET data collection, were also asked to participate, provided they had a minimum of 2 months of exposure to the team to allow for a fair evaluation. For human subjects consideration, no individual identifying information was collected or maintained, making the exact calculation of the post-session Team Effectiveness Tool data collection response rate impossible to determine (including determinations of the number and impact of new Facility Administrators' scores post-session), due to an inability to match individual scores.

Attendance was voluntary for teams, with selection being made on a first-come, first-served basis. Two criteria were used: all members of the team had to attend, and, at least 70% of team members had to have participated in at least one other class session from their corporate university course offerings (to assure a minimum previous knowledge of the corporate culture).

### **Sampling Procedures**

Sampling was straightforward in this study, as 100% of program attendees participated in both the instrumented data collection for team effectiveness, and had performance data collected about them. Some description of how individuals were invited into the training bears some treatment here, however.

Of the four training classes included in this study, the first was comprised of Regional Teams hand-selected by the company executives for the initial pilot offering. The remaining three classes were comprised of regional teams volunteering on a first-come, first-served basis. The company's rationale for selection of Regional Teams to participate in the first class session were as follows: (a) a subjective judgment about the Regional Director's support of the existing company culture; (b) a determination of the existence of any outstanding performance issues affecting the regional team (i.e., the existence of performance issues would disqualify the team from participation); and, (c) a roughly equal geographic distribution of teams selected, so that they didn't fall within one area, or report to the same Operations Executive. Those factors, in addition to those described previously about full attendance and previous training experience, resulted in four regional teams being invited to participate in the first course.

### **Instrumentation – The Team Effectiveness Tool**

To support the training course's learning objective, namely that Regional Teams explore their current level and manner of collaboration and how a change in either of those factors would positively affect their performance, a team self-assessment tool was conceived and designed for use with each team. The full text of the tool, called the Team Effectiveness Tool, along with its sub-categories, is provided in Appendix A.

The training course designers, comprised of the researcher, one additional external consultant, and two internal representatives, designed the Team Effectiveness Tool using a collaborative process, and utilizing: (a) individual items with which they had familiarity; and (b) new items designed to support this particular design. The instrument contained 29 scaled items and 3 open-ended questions (open-ended questions



not considered in this study), which allowed respondents the opportunity to comment on particular aspects of team performance in a less structured manner. For easy digestion by the teams, the data were grouped by the expert panel into sub-categories, each addressing a particular dimension of team process (team identity, goal focus, trustworthiness, problem-solving, self-management, rewards, information-sharing, and talent management). Initial differences of opinion by members of the expert panel regarding the correct placement of TET items into specific groupings were all resolved through dialogue and understanding. Voting, or other means to force agreement were unnecessary. Each team's results were presented by grouping, with individual items displaying the mean score of all respondents to that question. Anonymity was maintained in the presentation of data such that no individual score or comment could be discerned or associated with any individual.

The client maintained final approval over all items and groupings of the instrument. In no cases did the executives disagree with TET items or groupings resulting in a change to the instrument designed by the expert panel. Other than broad direction concerning the nature of collaboration at the Regional Team level they thought to be important, the only specific direction provided the designers by the client organization concerned the length of the tool, which at their request, was to contain 30 or fewer items. There was no specific direction provided on scaling, groupings, or language.

Questions of appropriateness for this population being surveyed were addressed in the design process, as two of the four course designers had specific and direct experience having served in the two job classifications included in this training (Facility

Administrator and Regional Director). As a result of the collaborative design process, numerous changes were made to the language of items in the instrument before utilizing in the first class session.

**Validity and reliability of the tool.** Validity testing of the Team Effectiveness Tool was conducted through a field test at the initial, pilot program delivery. Validity testing was conducted through two means: (a) discussion with each of the four teams in attendance about the tool's clarity and utility; and, (b) discussion with each of the course's trainers/facilitators charged with utilizing the tool's results in their facilitation of the team to which they were assigned. Both efforts yielded positive feedback with no changes to the tool indicated, including its length, content, or process.

No *a priori* reliability testing was conducted on the TET, but rather, due to its construction by a panel of internal and external experts, the client accepted its construction and use as appropriate for this class. As will be described later in this chapter, this study intentionally included post-session reliability testing of the TET as a part of the data analysis. The purpose and methodology of this analytical step will be discussed further in this chapter, and the findings of the analysis will be presented in Chapter 4.

## **Procedures**

**Administration of the Team Effectiveness Tool.** The Team Effectiveness Tool was administered by a single individual within the company, a Project Manager. This individual utilized online survey software the company had purchased to administer the survey, and all communications, processing and reporting were the responsibility of this Project Manager. Prior to attendance, an introductory email message was sent to all

members of a Regional Team, informing them about the session, including content and logistics, and asking for their participation in the online survey. The Project Manager would periodically monitor completion of the instrument by all regional team members and would follow-up with the appropriate Regional Director until 100% completion was achieved.

The tool's scoring utilizes a 7-point agreement scale. The reasons for selecting this scoring scale were: (a) client familiarity with an agreement (vs. quantity or extent) scale; (b) the desire to have the scale be of sufficient size to allow a mid-point or neutral point; and, (c) their desire to have more than 5 points on the scale, allowing a broader range of discernment of responses. A "Not Applicable" option was offered to the respondents, resulting in a null response.

For purposes of the training, and not considered a part of this study, three additional open-ended questions were asked of all respondents. While a response of some kind ranging from 1-7 or "Not Applicable" was required for the 29 scaled items, participation in these final three questions was voluntary and not required for completion and submission of an online survey.

**Response rate.** The response rate for participants in this pre-session data collection process was 100%; that is, each person who initially attended the training classes included in this research completed a Team Effectiveness Tool questionnaire prior to their attendance. Almost all surveys were completed in the immediate 2 weeks prior to attendance. For those individuals unable to complete their surveys prior to attendance, special provisions were made and enacted by the session's onsite Project Manager to complete the survey once they arrived at the training session's location.

For the post-session completion of the Team Effectiveness Tool, the same diligence in obtaining high response rates was used. However, as the organization's attendance/turnover records were not matched up with the training data sample, it is impossible to accurately state the response rate of post-session participation. It is best estimated, however, that the post-session response rate was close to 100% for those Regional Team members still employed within the organization 6-10 months after their training sessions.

**Data collection process.** The process for collecting the team effectiveness data from each regional team was as follows:

1. Initial contact between the training Project Manager and the Regional Director informing him/her of his/her team's selection for the training course;
2. An electronic request by the Project Manager and the Regional Director to identify the participants who will be attending the training from his/her team;
3. Direct electronic request from the project manager to each participant with course objectives, timing, logistics and completion instructions for the online survey;
4. Monitoring completion of the online survey for participants, with notifications to the Regional Director about their completion in the days prior to the event. (Note: The online survey tool did not allow for the collection of individual identifying information; as such, the Project Manager could only tell the Regional Director the number of individuals requested and completed); and,
5. Special follow-up with Regional Directors and Regional Team members when additional survey completion was required at the training session itself.

As the survey input process did not record respondent's names (for human factors considerations), the Project Manager couldn't specifically identify which member of a team hadn't completed the survey prior to training. Instead, when she found an inconsistent number of responses compared to training session attendees for any team, she escalated the matter to the Regional Director. In all cases, the missing respondents were identified and ultimately completed the survey. Even though individuals late to complete the survey identified themselves to the Project Manager and Regional Director, the data were collected in such a way as to mask the identity of each individual's scores. Once all survey responses were input, the Project Manager would print and distribute the results to the training faculty member serving as the team's facilitator for the training. The results were provided to the team on the second day of the training, with sufficient time to dialogue about the scores and their meanings to team members. Through the course of the training, Regional Team members attending the training discussed each of the survey items in depth, resulting in a different level of understanding of the items on the survey during the post-session survey than they initially had in the pre-session survey completion. This factor will be discussed in Chapter 4 of this manuscript, where the results of the surveys and their implications are discussed.

### **Human Subjects Considerations**

The present study is a retrospective case study utilizing two types of data: (a) secondary data accessed from the client company's financial and operational records; and, (b) primary source data collected by the client organization for training purposes. Both information sources exist within the company's archives, and are common to the company's way of doing regular business. This exploration involves no risk to human

subjects and meets criteria established in the Federal Guidelines as being exempt from Full or Expedited IRB review. This study offers potentially important benefits to the client company and organizations generally, and was conducted with permission from the client organization to use the existing data. Prior to accessing either data set for this study, specific permission was obtained from the Chief Executive Office of the client company to obtain and analyze these data for these specific purposes. The Chief Executive Officer (as the most appropriate and qualified representative of the organization) was contacted via email to request his permission to access and analyze the data. The purposes and benefits of this study were explained, and assurances were offered regarding the minimization of risk to human subjects by accessing only archival data, and eliminating all individual identification from the data. Permission was received via email to access and use the data for dissertation study purposes. The email request, along with the stream of electronic communications between the client company's CEO and this researcher are included as Appendix B.

According to Pepperdine University's Graduate and Professional Schools Institutional Review Board, and their letter dated February 1, 2010 (Appendix C), this research qualified as exempt from IRB review under Category 46.101 (b)(4) in the Code of Federal Guidelines, which exempt research from IRB review if that research involves the "the study of existing data...if the information is recorded by the investigator in such a manner that the subjects cannot be identified..." (U.S. Department of Health & Human Services, 1991, p. 4). Specifically, three reasons support this claim: its archival data source, the company's typical and traditional use of collected data in training, and the removal of any identifying information prior to use in this study.

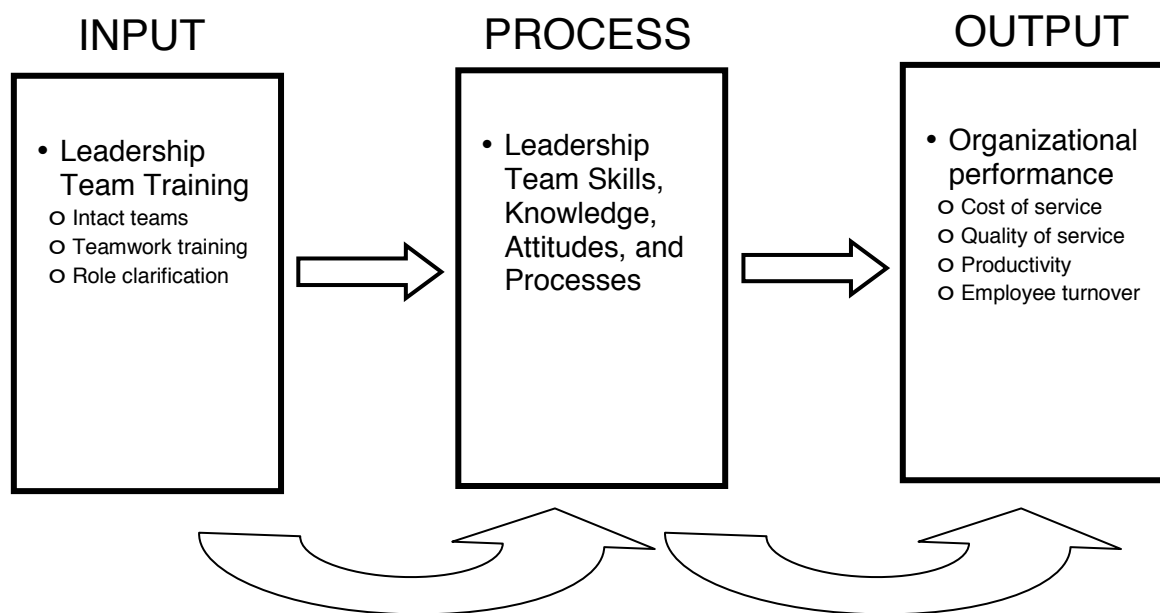
**Archival data source.** As described in 45 CFR 46.101 (b)(4), the present study uses an archival data source (U.S. Department of Health & Human Services, 1991). Both primary and secondary data sources for analysis in this study existed in the company's archives. As such, no new data were collected for this study. Company management utilizes an evidence-based approach to managing, and collects, uses, and freely shares with its managers all the performance data utilized in this study. It is common practice for leaders, at all levels, to participate in open conversations about performance data for theirs, and others' areas of responsibilities.

**Common usage of collected data in training.** The data used for this study falls within the scope described in 45 CFR 46.101 (b)(1) as written by the U.S. Department of Health & Human Services (1991). As the average manager receives more than 40 hours of training annually through the client company's corporate university, and most training involves the collection of data (multi-rater leadership 360° assessments are included in leadership training, similar multi-rater tools are included in the core management training, etc.), this population of organization leaders is used to the collection of their perceptions, opinions, and judgments, and having those things shared sensitively and confidentially in training, as they were in this class on teamwork.

**No identifying information.** As detailed by the U.S. Department of Health & Human Services (1991) in 45 CFR 46.101 (b)(4), none of the primary or secondary source data contained anything that allowed for the identification of individuals or groups, of matters of individual performance or opinions, nor specific dates of training or data collection periods. Each of the 17 teams studied was assigned a number from 100 to

1,700 to allow the linking of TET scoring with performance outcomes. There was no code or legend created which shows team identities, nor names of the members of teams.

**Research Objective** – To determine the impacts, if any, of training of intact leadership teams on objectively-measured organizational performance.



**Research Question 1** – What impacts, if any, does team training of leadership teams have on team processes, and/or team members' skills, knowledge, and attitudes?

**Research Question 2** – What is the relationship, if any, between changes in leadership team processes, and/or team members' skills, knowledge, and attitudes and organizational outcomes?

*Figure 7.* Research schematic.

### Data Analysis

In this quantitative study of multiple variables over several time periods, the initial analysis compared changes in scores in both pre- and post-session perceptual ratings, using a t-test to compare mean changes in TET items (see Figure 7). The second



analysis evaluated changes in the objective performance results of Regional Teams pre- and post-training utilizing similar t-tests in the four objective dimensions selected by the client company and narrowed by the researcher. The third analysis correlated behavioral and performance changes. Once any/all behavioral and performance correlations were determined, the strength of any/all behavioral contributions to performance outcomes was examined, in a two-step process: first, reliability testing of the TET groupings was conducted to facilitate a straightforward regression analysis; second, a regression analysis was conducted to determine the strength and direction (positive or negative) of contribution of the behavioral/performance relationship. For each analysis, the meanings of the findings and their implications are presented in Chapter 4.

### **Summary**

The intention of this study is to explore the impact of team training on the performance outcomes of business leadership teams. In this exploratory case study, primary and secondary source data on the effectiveness and performance respectively have been collected over multiple periods to allow a sufficient/representative comparison. This researcher's hope is to provide an empirical evaluation of potential impacts of this particular team intervention and to provide a bridge in researchers' efforts involving leadership team performance and proven methods to improve them. In the following chapter, collected data are analyzed in an effort to determine impacts as well as discuss their implications. A summary of findings and recommendations for future research are presented in Chapter 5.

## **Chapter 4: Data Analysis**

This chapter examines in detail the impact of team training provided to leadership teams, both in terms of impacts of the teams' effectiveness and impacts on objective, organizational performance terms. The chapter is organized around the study's two research questions as described in Chapters 1 and 3. Data examining impacts of training on team processes and on members' skills, knowledge, and attitudes will be analyzed first, followed by analysis of changes in performance variables post-training and possible relationships between behavior and performance. At the conclusions of the data analysis, conclusions and recommendations will be discussed in Chapter 5.

### **Behavioral Changes and Impacts on Performance of Training**

The study's first research question involved the impact of teamwork training provided to regional leadership teams on perceptions of team processes, and the skills, knowledge, and attitudes of the regional leadership team members. To examine this question, a t-test evaluation was conducted to determine changes in scores (and their significance) for each item and each team from the 29-item Team Effectiveness Tool (TET), measured in two performance periods. The results of that analysis are described next.

**Comparison of TET item changes.** Of the 29 TET items covering seven conceptual groupings, 22 items were found to have positive improvements at a minimum 0.05 level of statistical significance, two items were found to have a statistically significant decline at a 0.01 confidence level, and the remaining five found to have positive improvements without statistical significance (Table 1). In short, 24 of 29 items of the survey tool designed to capture important behavioral, attitudinal, or process

variables of team effectiveness indicated statistically significant changes at a minimum of 0.05 confidence level after the training session by an amount that is unexplained by random variation. The two items experiencing a statistically significant decline

Table 1

*Team Effectiveness Tool Item Changes Pre- and Post-Session*

Q#	Pre-Session Score	Post-Session Score	Score Change	Std. Pre-Session	Std. Post-Session	Std. Change
Q7	4.83	6.50	1.67**	1.41	0.75	-0.66
Q28	5.07	6.36	1.29**	1.50	0.80	-0.70
Q17	4.74	5.96	1.22**	1.40	1.08	-0.32
Q23	4.69	5.80	1.11**	1.36	0.91	-0.44
Q21	4.80	5.75	.95**	1.30	0.99	-0.32
Q24	4.98	5.92	.94**	1.40	0.93	-0.47
Q5	4.99	5.92	.93**	1.32	0.92	-0.40
Q11	5.07	5.99	.93**	1.35	0.94	-0.41
Q14	4.98	5.88	.90**	1.25	0.94	-0.32
Q19	4.85	5.73	.88**	1.41	1.03	-0.39
Q27	4.82	5.65	.83**	1.37	1.09	-0.28
Q18	4.78	5.59	.81**	1.40	1.05	-0.35
Q9	5.07	5.84	.77**	1.33	0.82	-0.51
Q4	4.57	5.31	.74**	1.57	1.01	-0.57
Q3	5.12	5.82	.70**	1.42	0.92	-0.51
Q6	5.15	5.84	.69**	1.27	1.08	-0.19
Q1	5.47	6.12	.66**	1.25	0.93	-0.31
Q26	5.26	5.90	.65**	1.28	0.96	-0.31
Q20	5.07	5.68	.61**	1.27	1.11	-0.16
Q22	5.17	5.59	.42**	1.26	1.26	-0.01
Q2	5.30	5.68	.38**	1.26	1.09	-0.17
Q13	5.16	5.45	.29**	1.30	1.08	-0.23
Q29	6.37	5.50	-.87**	1.11	1.13	0.01
Q25	5.96	5.41	-.55**	1.15	1.21	0.06
Q8	5.33	5.61	0.28	1.32	1.05	-0.28
Q12	5.29	5.43	0.14	1.34	1.08	-0.26
Q15	5.10	5.24	0.14	1.40	1.06	-0.33
Q16	5.20	5.31	0.11	1.24	1.18	-0.06
Q10	5.70	5.80	0.10	1.27	1.02	-0.25

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

(at a 0.01 confidence level) appear to lack conceptual congruence, coming from different conceptual categories (e.g., “Keeps Team Informed”, and “Right Person, Right Attitude, Right Job”, respectively). The same may hold true about the five items that experienced no change; that is, they are conceptually different from the two declining items, and no more than any two of the five unchanged items come from the same conceptual category. There appears to be no discernable pattern explaining why these five items (out of 29) performed differently than the other 24. A possible explanation for the two items experiencing statistically significant decline post-training is provided later in this chapter.

At the team level, the average team experienced statistically significant changes on approximately eight items in the survey (8.35); of those, 55.6% were significant at the 0.01 confidence level (Appendix D). Significant changes were experienced by a majority of teams in four items (Items 5, 7, 17, and 28). At the item level, the range of mean changes per item was from zero (Items 15 and 16) to 12 (Item 7 improved in 12 of 17 teams at a level of statistical significance). In summation, for the most part, changes in TET item scores were widespread, both in terms of the teams experiencing change in member skills, knowledge, or attitude, and/or team processes, and the individual items themselves.

*Discussion and implications.* The findings in this area reveal statistically significant changes in the majority of predicted behaviors, attitudes, and processes determined from previous studies on team effectiveness and performance; this strongly suggests the team training improved these behavioral, process, and affective elements of these leadership teams. While it is not unusual for a training event to change team performance (Salas et al., 2007; Stout et al., 1997), most documented evidence of such

changes comes from routine or repetitive task environments (like military settings), not the functioning of complex leadership teams. While 22 of the 29 items experienced statistically significant improvements at the 0.01 confidence level (75.9%), spread evenly across all content categories, two items experienced statistically significant declines post-training (Items 25 and 29), leading the researcher to question what occurred in the training to have team members experience such declines. One plausible explanation for these declines is the training helped the teams better understand the performance dimension being measured (one goal of training), which led to a more honest and stringent interpretation of the item when respondents participated in post-training measurement. An examination of both items that experienced decline (Item 25 - "Team members communicate openly, honestly, and directly"; and Item 29 - "Members of this team are fully utilized in ways that help the team maximize its performance and potential") supports this possible hypothesis. Additional insights into the phenomenon of score declines in teamwork training could be a useful topic for exploration in future studies.

In sum, the data showed a strong, positive response to the study's first research question about the impact of teamwork training provided to leadership teams and impacts on team processes, and members' skills, knowledge, and attitudes. With this question addressed, analysis focused on the second research question will next be presented and discussed.

### **Performance Impacts of Training**

The study's second research question sought to evaluate and understand the impacts of teamwork training on important measures of organizational performance:

productivity, labor cost, quality, and employee turnover. For this analysis, the top leaders of the client organization identified nine factors they consider most vital to the business unit's (dialysis treatment center) success. For purposes of focus and efficiency, this researcher selected four of those nine variables that best measured productivity (hours per treatment, or Hrs/Tx), quality (DQI), labor cost (salaries, wages, and contract labor per treatment, or SWC/Tx), and employee factors (turnover), and picked two time factors (6 months prior, 6 months post-training) for evaluation. This provided a pre- and post-event opportunity for analysis. Monthly secondary source performance data were collected from financial and operational records for each team participating in the training.

To compare and assess changes in pre- and post-training performance, t-tests were conducted on each of the four performance factors and for each team (Table 2). Three factors were considered: degree of change, direction of change (increase or decline), and the statistical significance of any changes. The results of the t-test analysis for each of the four chosen performance variables are described next.

**Hrs/Tx (Hours per treatment).** For this variable, a measure of productivity, defined as the actual time required to complete the average dialysis treatment (lower is considered more efficient), the overall measure increased from 2.92 hours per treatment to 3.00 hours per treatment, not a statistically significant increase at a 0.05 level of significance. The pre-session team scores ranged from 3.59 hours (high, most inefficient) to 2.70 (low, most efficient), while the post-session scores ranged from 3.23 hours to 2.69 hours. Thus, while the lowest (most efficient) results stayed nearly the same (not a statistically significant difference), the highest scores declined by 0.36 hours (Table 2).

Table 2

*Comparison of Means – Group Performance Data*

Team #	Hrs/Tx 6 Months Pre Session	Hrs/Tx 6 Months Post Session	Diff	DQI 6 Months Pre Session	DQI 6 Months Post Session	Diff	SWC/Tx 6 Months Pre Session	SWC/Tx 6 Months Post Session	Diff	Turn-over 6 Months Pre Session	Turn-over 6 Months Post Session	Diff
100	2.80	2.95	0.14	57.33	58.51	1.18	44.93	47.28	2.35	0.67	0.31	-0.36*
200	2.84	2.84	0.00	61.30	64.14	2.84	50.14	50.04	-0.10	0.15	0.07	-0.09*
300	3.20	3.20	0.00	46.94	51.61	4.68*	47.32	48.22	0.90	0.93	0.72	-0.21
400	3.59	2.71	-0.88	63.80	63.22	-0.58	59.73	61.11	1.37	0.69	0.31	-0.37
500	3.22	3.23	0.01	56.44	66.03	9.58*	63.41	65.25	1.84	0.39	0.39	0.00
600	2.98	3.02	0.04	56.37	57.57	1.20	50.09	51.92	1.82	0.40	0.63	0.23*
700	2.94	2.79	-0.15	57.43	61.09	3.66*	49.69	47.27	-2.43	0.78	0.58	-0.19
800	3.31	3.14	-0.18*	59.70	59.36	-0.34	52.10	51.05	-1.05	0.30	0.24	-0.06
900	2.96	2.95	-0.01	58.78	63.36	4.58**	63.76	65.33	1.56	NO DATA	NO DATA	
1000	2.97	3.00	0.02	54.28	59.67	5.39**	49.18	51.36	2.18**	0.60	0.71	0.10
1100	2.91	2.69	-0.22	61.26	62.79	1.53	46.37	43.35	-3.01	0.69	0.28	-0.42
1200	3.17	3.05	-0.11**	56.56	54.80	-1.76	58.74	56.07	-2.68*	0.50	0.20	-0.30
1300	2.96	2.92	-0.03	59.18	64.58	5.40**	60.45	60.34	-0.11	0.35	0.30	-0.05
1400	2.80	2.74	-0.06	55.71	61.65	5.94*	50.72	50.92	0.19	0.36	0.83	0.47
1500	2.70	2.83	0.12	57.10	60.07	2.97*	53.52	57.11	3.59*	0.44	0.25	-0.19
1600	2.74	2.75	0.01	57.93	62.41	4.49**	43.16	45.81	2.65	0.23	0.40	0.17
1700	2.84	2.82	-0.02	62.45	63.94	1.49	58.88	49.84	-9.04	0.77	0.25	-0.52*
Total	2.92	3.00	0.08	58.01	60.90	2.90**	53.03	53.08	0.05	.48	.38	-0.11*

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

An evaluation of the variation of scores for this pre- and post-session revealed a reduction of variation from pre-session standard deviation (std.) of 0.73 to post-session standard deviation of 0.48. The implications of the overall variable's statistically non-significant increase in hours per treatment with a reduction in variation in scores are discussed next.

Table 3

*Performance Variable Changes in Variation of Scores Pre- and Post-Session*

	Pre- Session Score	Post- Session Score	Change	Std. Pre- Session	Std. Post- Session	Change
Hrs/Tx	2.92	3.00	0.08	0.73	0.48	-0.25
DQI	58.01	60.90	2.90**	8.07	8.32	0.25
SWC/Tx	53.03	53.08	0.05	13.30	12.58	-0.72
Turnover	.48	.38	-.11*	0.45	0.53	0.07

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

**Discussion and implications.** The findings in this area revealed no statistically significant change in this performance metric post-training, suggesting that the training event had no discernable impact on worker productivity. The reduction in variation of the range of scores, while directionally promising (three of the five most inefficient team results pre-session experienced large improvements, with two of five improving significantly at 0.01 and 0.05 confidence levels), did not result in a statistically significant change overall (Table 2). The variability of results in measured changes in productivity, while not statistically significant in this study, is curious enough to warrant consideration in further studies.

**DQI (Quality Index).** This proprietary measure of clinical quality provided to its patients is a composite index of seven clinical quality indicators created by this organization, for which higher scores are considered better clinical quality. Its name, DQI, reflects the client firm's name, followed by "quality index." As shown in Table 2, an evaluation of DQI scores pre- and post-session revealed a statistically significant improvement at a minimum 0.05 confidence level in 9 of the 17 teams (with four teams experiencing a statistically significant improvement at the 0.01 confidence level), and an



overall improvement of 2.90 points, a statistically significant improvement at the 0.01 confidence level. The pre-session quality scores for each team (a composite of the scores for each of the facilities in their regions) ranged from 46.94 to 63.80, while the post-session quality scores ranged from 51.61 to 66.03 points, reflecting an improvement in the lowest quality scores (4.67 points), and an improvement in the highest scores, albeit by a slightly lower amount (2.23 points). The direction of change was positive; that is, the level of quality provided to dialysis patients increased (58.01 – 60.90) and the change *is* statistically significant at the 0.01 confidence level. While the clinical quality provided to patients increased in these two time periods, the variability of clinical quality provided patients also increased, albeit not by a statistically significant amount; the pre-session standard deviation of quality scores was 8.07, and the post-session standard deviation 8.32, an increase of 0.25 points (Table 3). The implications of these important results, both the changes in clinical quality post-training, and the increase in variability are discussed next.

***Discussion and implications.*** The findings in this area revealed a positive and statistically significant impact of team training of Regional Teams on the clinical quality provided in the dialysis centers managed by these leaders. This result is noteworthy for three reasons. First, the caregivers whose work created this result were not directly affected by this training, only their leaders. Second, this performance metric is one of the most important for a company providing clinical care, a company that attempts to differentiate themselves strategically through their quality of care. Third, not considered in these results was the coincident change in the company's calculation of DQI factors between the time of pre- and post-session data collection, which resulted in a system-

wide decline of results by approximately 2 points, making this statistically significant improvement even more pronounced. Potential reasons for this result include an increase in clarity of: (a) a strategic organizational priority (DQI), and (b) the roles/approaches utilized by team members gained through training. Both potential reasons are explored in greater depth later in this chapter.

**SWC/Tx (Salaries, wages, and contract labor cost per treatment).** This performance variable measured the average, expressed in dollars of salaries, wages, and contract labor required to complete the average dialysis treatment, and the lower cost is considered more efficient. While there is undoubtedly a threshold below which further reductions would be injurious to patient quality, that determination was not a focus of this study. For this cost measure, the overall data revealed an insignificant increase (not statistically significant at a 0.05 confidence level) in labor costs per treatment overall, and only statistically significant changes in 3 of 17 teams which did not significantly affect the overall costs. The range of scores showed little change as well, with the pre-session labor costs-per-treatment ranging from 63.76 (high) to 43.16 (low), and post-session labor costs ranging from 65.33 (high) to 43.35 (low). Thus, while the highest cost of service stayed nearly the same (and not a statistically significant difference), so did the lowest scores as well. The variation of labor costs did not experience a statistically significant change (reduction from 13.30 to 12.58). This indicated a slight improvement in standardization of costs pre- and post-session whose performance change was not likely explained by the training intervention. As with the other performance variable changes, the implications of non-significant changes in labor costs from this training are discussed in greater depth next.

***Discussion and implications.*** The findings in this area revealed no statistically significant impact of team training on the labor costs associated with the provision of dialysis care in the centers represented by the leaders in this training, determined both by an analysis of the overall results and of the variation of scores. This result is not surprising given that the actual caregivers were not directly affected by this training. A question to address in future studies is why some areas of performance improve, even though those directly providing the care/service aren't directly involved in the training, while other areas of performance experience no change.

**Turnover.** The final performance variable evaluated in this study involved a measure of total employee turnover, voluntary and involuntary, in the dialysis clinics, measured and expressed as a percentage of total employment, where lower is considered better (and is theorized by company executives to be correlated with quality measures). Four of the sixteen teams for which data was available and collected (data from one team was not provided to the researcher, due, in part, to the newness of the team) showed statistically significant improvements (reductions) at a 0.05 confidence level. The overall measure of turnover also showed statistically significant improvements at a 0.05 confidence level. Thus, in addition to clinical quality, employee turnover was the only other performance variable measured that experienced statistically significant improvements in the data sample post-session. It is important to note that this performance variable measured employee turnover for all employees in the facilities, not merely of the leaders of the facilities receiving training in the Regional Teams sessions. The pre-session turnover scores ranged from 15% to 93%, while post-session turnover scores ranged from 7% to 83%, reflecting a slight decline in the lowest and highest

turnover rates. While the overall direction of the change of turnover scores was positive (lower turnover), 4 of the 16 teams actually increased the rate of turnover in their facilities, suggesting the possible presence of exogenous factors at work that were not analyzed in this study. An evaluation of the variability of scores pre- and post-training reveals an average pre-session standard deviation of 0.45, and a post-session standard deviation of 0.53 (Table 3), reflecting a slight increase in variability. The implications of these changes in turnover are described in greater depth next.

***Discussion and implications.*** The findings in this area revealed a statistically significant improvement (reduction) of employee turnover in the dialysis centers represented by leaders trained in the Regional Teams sessions. Similar to the previous performance area, these results were surprising, given the fact that the direct recipients of the training were the leaders, not the employees primarily measured here. Upon greater reflection however, when considered against the considerable body of evidence that speaks to potential improvements from leadership training, employee satisfaction and retention are often cited as typical benefits (Aragon-Sanchez et al., 2003; Barrett & O'Connell, 2001; Bartel, 1994). Those earlier findings could be supported by these results.

***Summary of mean changes for performance variables.*** In sum, the data analysis found statistically significant changes in two of the four performance variables, namely quality and employee turnover, at the 0.01 and 0.05 levels of confidence, respectively. The other two performance variables experienced no statistically significant changes (either positive or negative) following the training intervention. It was possible the two variables experiencing statistically significant improvement were interpersonal in

nature, benefitting from improved interaction, understanding, role clarification, or other interpersonal effects. Evaluations of other changes in the outcome measures, including range and variability of scores showed mixed results, raising one possibility that those items are of a financial or structural nature and less likely to change regardless of perceived level of team functioning

The next analytical process, the correlation of changes in TET items and changes in the performance measures, is discussed next.

### **Correlation of Performance Outcomes Changes and Behavioral Changes**

The next evaluation correlated changes in the performance variables, particularly those variables that experienced statistically significant change (DQI and Employee Turnover) with behavioral variables captured through TET survey items. For this evaluation, each performance variable was analyzed to determine its degree of correlation with each of the 29 items of the TET. The results are shown in Table 4.

The two performance variables examined in greater depth are DQI (quality) and Employee Turnover, as they represented the variables showing statistically significant change post-training. For DQI, 23 TET items (of 29) demonstrated statistically significant positive correlation at a 0.05 confidence level, suggesting a strong relationship between behavioral improvement and quality improvement.

For Employee Turnover, none of the TET items showed correlations at any level of statistical significance, indicating little or no identifiable relationship between behavioral improvement and that performance variable. The same held true for the performance variable SWC/Tx (Salaries, Wages, and Costs per Dialysis Treatment). The fourth performance variable, Hrs/Tx (Labor Hours per Dialysis Treatment), which

experienced no significant change post-session, revealed five TET items with statistically significant negative correlations. This finding suggests that this performance variable was not affected by behavioral changes occurring in the leadership teams; only a small proportion of TET items are significantly correlated with changes in Hrs/Tx, apparently not enough to make a difference in Hrs/Tx as measured in real outcomes.

To pursue a deeper understanding of the relationship of changes in team processes and/or members' skills, knowledge, and attitudes and changes in clinical quality, two additional analyses were required here. To fully understand the contribution of the behavioral and process changes to performance change in DQI, a regression analysis was conducted. However, to have full confidence in the results of the regression analysis, it was important to test the reliability of the data collected by the TET. After all, the TET was created by an expert panel and was not subjected to *a priori* reliability testing. Thus, these two tests, a reliability assessment of TET data and a regression analysis were next conducted. Together, they provided important insights to a satisfactory understanding of this study's second research question (What is the relationship, if any, between changes in leadership team processes, and/or team members' skills, knowledge, and attitudes and organizational outcomes?)

**TET reliability testing.** A reliability test on the TET was conducted for two reasons. First, as previously stated, the tool items and groupings were designed by a panel of experts and taken *de facto* by the organization without prior testing of its reliability. To have full confidence in the analysis and conclusions requires an analysis of the tool's reliability. Second, due to the large number of TET items that displayed statistically significant correlation with the DQI performance variable, this researcher

determined that regressing those 23 variables could be unwieldy and unclear, and instead sought a statistically defensible grouping of items for a more accurate regression technique. Reliability testing of the seven groupings of items on the TET served both purposes and are presented next.

Table 4

*Correlation Values of Performance Variables and TET Items*

	Hrs/Tx	DQI	SWC/Tx	Turnover
Item 1	-.310	.425*	.018	-.162
Item 2	-.434*	.462**	.042	-.136
Item 3	-.213	.422*	.159	-.096
Item 4	-.308	.514**	.061	-.085
Item 5	-.282	.542**	.171	-.251
Item 6	-.286	.508**	.001	-.246
Item 7	-.208	.471**	.022	-.194
Item 8	-.338	.462**	.061	-.148
Item 9	-.320	.435*	-.056	-.104
Item 10	-.192	.209	.058	.208
Item 11	-.344*	.462**	.012	-.193
Item 12	-.298	.416*	.042	-.037
Item 13	-.322	.421*	.046	.007
Item 14	-.333	.608**	-.005	-.176
Item 15	-.304	.407*	.051	-.045
Item 16	-.324	.439**	.067	-.032
Item 17	-.297	.436**	-.059	-.137
Item 18	-.306	.500**	.084	-.072
Item 19	-.321	.539**	-.013	-.180
Item 20	-.351*	.271	-.145	.002
Item 21	-.270	.418*	.045	-.018
Item 22	-.312	.278	-.077	-.049
Item 23	-.257	.500**	.009	-.184
Item 24	-.230	.444**	.023	-.184
Item 25	-.361*	.142	-.069	.101
Item 26	-.478**	.499**	-.110	-.153
Item 27	-.330	.316	-.124	-.024
Item 28	-.333	.500**	-.029	-.203
Item 29	-.013	-.313	-.081	.321

According to Huck (2004), an assessment of reliability estimates the internal consistency of a group of data. According to theory, the higher the internal consistency of data, the greater the likelihood the items are measuring similar constructs. For this analysis, Cronbach's alpha testing was used. As shown in Table 5, estimates of internal consistency for the TET groupings before and after training were acceptable in this study as Cronbach's alpha scores ranged from .892 to .974 (pre-training) to .856 to .953 (post-training). Cronbach's alpha scores above .70 are considered acceptable as internal consistency determinants; in this study, with all Cronbach's alpha values (pre- and post-training) above .856, the reliability of the TET was accepted.

Table 5

*Reliability Testing (Estimates of Internal Consistency) of the Seven TET Groupings*

	Cronbach's Alpha	
	Pre-Test	Post-Test
Creates Team Identity and Goals	.972	.944
Manages Self	.941	.928
Solves Problems	.966	.953
Is Trustworthy	.937	.949
Rewards Results	.933	.902
Keeps Team Informed	.892	.856
Right Person, Right Attitude, Right Job	.894	.873

**Regression analysis.** The final analysis, a regression analysis that utilized DQI as the dependent variable, was conducted to determine the relative contribution of the teams' behavior and process changes to changes in DQI. The analysis is presented here.

Table 5 shows the regression analysis that involved the seven TET Survey Categories. It revealed important results for addressing the study's second research question. First, the explanatory power of the collective behavior was 48%, meaning that



48% of the change in the dependent variable, DQI, was explained by the behavior and/or process changes occurring with the teams post-training. Second, this result was revealed to be statistically significant at the 0.01 confidence level, yielding statistically strong results from this study on which solid conclusions can be made.

Table 6

*Regression Model Using the Seven TET Survey Categories*

	Beta Coefficient	Standard Error
(Constant)	52.59**	6.56
Creates Team Identity and Goals	2.90	2.61
Manages Self	-0.85	3.96
Solves Problems	0.76	2.71
Is Trustworthy	5.550	3.08
Rewards Results	-4.00	2.32
Keeps Team Informed	3.05	4.27
Right Person, Right Attitude, Right Job	-5.84	3.99

*Note.* R-Square = 0.48\*\*

Dependent Variable: DQI Score

TET Category 1 - Creates Team Identity and Goals (Items 1-7)

TET Category 2 - Manages Self (Items 8-11)

TET Category 3 - Solves Problems (Items 12-15)

TET Category 4 - Is Trustworthy (Items 16-19)

TET Category 5 - Rewards Results (Items 20-22)

TET Category 6 - Keeps Team Informed (Items 23-25)

TET Category 7 - Right Person, Right Attitude, Right Job (Items 26-29)

Third, as displayed in Table 6, the results showed variation of positive and negative results; that is, three of seven categories had negative Beta Coefficient scores, suggesting that a decline in their scores would result in an increase in the dependent variable by some amount, while 2 of those 3 categories (Manages Self, and Right Person, Right Attitude, Right Job) had relatively high variation (3.96 and 3.99, respectively, expressed as Standard Error), calling into question confidence in their predictive value.

## Summary

This chapter examined the impact of teamwork training on organizational performance in a single case study of a healthcare services company in 2003 and 2004. Specifically, it analyzed: (a) the impact of teamwork training on leadership team behavior, process, and attitudes; (b) the impact of teamwork training on four organizational performance variables; and, (c) the relationship between behavioral and team process changes and changes in performance outcomes.

Analysis of primary and secondary source data revealed widespread and statistically significant changes in team processes and members' skills, knowledge, and attitudes post-training. Analysis also revealed statistically significant improvements in pre- and post-training scores in clinical quality (at a 0.01 confidence level) and employee turnover (at a 0.05 confidence level), and statistically significant correlations of 23 of 29 behavioral and process items with the performance variable most impacted post-training, clinical quality (DQI). A *post facto* reliability analysis of the TET revealed very acceptable levels of internal consistency of the data. And finally, a regression analysis revealed that changes to team processes and members' skills, knowledge, and attitudes explained 48% of the variation of the improvement in clinical quality scores (DQI), statistically significant at the 0.01 confidence level.

These analyses document the occurrence of important changes post-training of intact leadership teams in this exploratory study, and that the behavioral changes had strong correlations with, and explanatory improvements in selected areas of organizational performance. While not implying causality, the direction and strength of the findings were promising, and sufficiently addressed the study's two research

questions. The specific meanings and implications of these results, along with recommendations for future research are addressed in the next chapter.

## **Chapter 5: Summary, Conclusions, and Recommendations**

This chapter presents a summary of the study and important conclusions drawn from the data presented in Chapter 4. This chapter is organized in three parts: (a) a summary of the study, including a restatement of the study's purpose and research questions, a review of the study's methodology, presentation of the study's major findings, and a description of the study's limitations; (b) conclusions and a description of how the study's findings relate to the existing body of literature; and, (c) recommendations for future research. The chapter concludes with the author's final thoughts about the study.

### **Summary of the Study**

Due to the proliferation of team-based organizing structures and processes, teams' performance and improvement is an important consideration to businesses and to the individuals that comprise them. Empirical data clearly directing current researchers to proven methods to evaluate and improve the effectiveness and performance of business teams, particularly teams comprised of organizational leaders, have been slow to develop. This exploratory study was designed to explore the leadership team performance-organizational outcomes relationship in a case study of a single healthcare services company, utilizing a novel training intervention as the stimulus for study.

**Purpose statement and research questions.** The purpose of this study was to determine whether the functioning and performance of leadership teams can be improved through training, as determined by objective, "hard measures" of productivity, labor cost, quality, and employee turnover. The study addressed two research questions. First, what impact, if any, occurred in team processes and/or team members' skills, knowledge, and

attitudes? And second, what is the relationship, if any, between changes in leadership team processes, and/or team members' skills, knowledge, and attitudes and organizational outcomes? The research methodology for this study, utilizing primary and secondary data sources, is described next.

**Study methodology.** The study was conducted using two data sources. Primary data included participants' perceptions of the behaviors, processes and "emergent states" (climate, affinity, safety) of their regional leadership team members. Secondary data was also obtained from company archives, containing actual performance metrics for the business units (dialysis treatment centers) represented by the leaders being trained. Both data sources provided pre- and post-session data for analyses.

Those primary and secondary data were analyzed by first comparing mean changes, for the pre- and post-session, in the perceptions of team behavior, process and performance. Next, changes from the pre- and post-training in the organizational performance measures of productivity, labor cost, quality, and employee turnover were determined. The third component of data analysis involved determining the correlation between changes in organizational performance variables and team effectiveness variables. Next, the reliability of the data collection tool used to collect the primary data was determined, followed by a determination of the strength of the relationship between key variables of interest through regression analysis.

**The major findings of the study.** There were two major findings from this study presented here. Following the presentation of these important findings, an analysis of their relationship to existing literature is described.

The first significant finding of the study addressed the study's first research question: "What impacts, if any, does team training of leadership teams have on team processes, and/or team members' skills, knowledge, and attitudes?" This study found statistically significant, widespread improvements in team processes, purpose, and member behaviors resulting from teamwork training provided to leadership teams. As stated previously in Chapter 4, 22 of the 29 items measured using the Team Effectiveness Tool experienced significant improvements, suggesting higher levels of effectiveness and performance of the team. Given the preponderance of positive change among the items, the study's author reasonably concludes that the teamwork training improved the levels of teamwork in these leadership teams, although the research design did not permit the researcher to control for nor assess whether or not exogenous variables that could be also have contributed to these changes. Existing literature strongly suggests such changes in team members' perceptions of improved performance are: (a) fairly typical in the domain of team building (as the team development method); (b) typical in team types other than leadership levels (task, functional, project); and, (c) unique as a training result and among leadership teams (Guzzo & Dickson, 1996; Klein et al., 2009; Leedom & Simon, 1995; LePine et al., 2008).

The second major finding of this study addressed the second research question: "What is the relationship, if any, between changes in leadership team processes, and/or team members' skills, knowledge, and attitudes and organizational outcomes?" The study found a significant, positive correlation between changes in leadership teamwork behavior and changes in outcome measures, explaining nearly half (48%) of all variation in pre- and post-session measurements, a statistically significant result at the 0.01

confidence level (Table 6). Central to the training design was the important task for each leadership team to identify their optimal level of interdependence and coordination to achieve maximum results for each of their business units. The Team Effectiveness Tool was designed in such a way as to describe and emulate the characteristics of high-performance, highly interdependent leadership teams. Therefore, statistically significant increases in 75.9% of the TET items (22 of 29 items – Chapter 4, Comparison of TET Item Means) and an R-square value (regression coefficient) of 48% strongly suggested: (a) the training resulted in the average leadership team becoming more interdependent; (b) the average team became more effective in performance; (c) with acceptable scores of its reliability, the Team Effectiveness Tool was effective in measuring and documenting the important changes in the team behavior and processes that correlated with improvements in performance variables; and, (d) the design and delivery of teamwork training for these teams of regional healthcare leaders had a significant contribution to team effectiveness and performance. At a general level, this finding contributes to a decades-old body of literature about the return on investment of leadership training (Aragon-Sanchez et al., 2003; Lynch & Black, 1995; Nicholas, 1982; Phillips, 1996), where significant increases in either performance dimension (employee turnover or clinical quality) would apparently justify the investment in training of these leadership teams.

At a more specific level, the finding of a direct relationship between an investment in training to develop the teamwork skills and processes of leadership teams and organizational performance supports a small, growing body of empirical evidence involving the impact and value of leadership training (Bartel, 1994; Fiedler, 1972; Hand

& Slocum, 1972). This study finding also provides new information in two areas: (a) teamwork training provided leadership teams as a strategy to affect objectively determined performance outcomes; and, (b) leadership team training as a team development methodology. In addition, this finding yielded one unexpected result related to the strength of the relationship between teamwork training and clinical quality; little evidence exists in the literature to suggest training leadership teams in teamwork and coordination affects the level of clinical care provided in healthcare settings.

In sum, this study offers clear, strong, statistically supported findings relative to its two research questions. These research outcomes lead this author to conclude that teamwork training for leadership teams is a viable methodology for improving the effectiveness of such teams, and that the intact delivery modality for leadership training, is a promising idea worthy of additional research, addressed later in this chapter.

Before exploring how this study's findings relate to existing literature, the limitations of the study are presented.

### **Limitations of the Study**

There are several recognized limitations to this study that must be considered in the interpretation of data, as well as in the extrapolation of its findings. First, this study was conducted within one business, a mid-sized healthcare services organization. Second, this study involved the collection of data from individuals and teams selected to attend an in-house leadership training class between September 2003 and December 2003. The pre-session opinion data were collected from participants immediately prior to their attendance during the same time frame, now over 6 years old. As post-session perceptual and performance data was collected in 2004, the data are 6 years old. This



concern is based less on the presence of a plethora of new team development techniques (which the literature does not support), than it is about the current relevance of conclusions for the company under study due to possible cultural, leadership, or other human systems changes. Third, the initial selection of teams to participate in the training was made purposefully to support company goals by the Director of Training and Chief Operating Officer; thus, selection for the first of four classes was not random and therefore it is possible that the results may not be generalized even within the organization itself. Fourth, the design of the data collection tools and the training intervention were completed using specific knowledge of the organization's culture. Based on the team definition adopted for use for the purposes of the present study, which the team operates within and is in turn influenced by the organizational context, generalizing findings from the study must be done with caution or not undertaken at all. Finally, the researcher recognizes there may be non-identifiable impacts that occur in these results that may not be attributable from the training sessions.

With the study's methodology, findings and limitations described, its relationship to the existing body of literature is presented.

### **Findings Related to the Literature**

This study involves a novel training approach for leadership teams as a means to impact performance outcomes of the organization. As such, it extends the literature in three areas: (a) team development as a method to improve leadership teams; (b) the relationship of leadership team performance and organizational outcomes; and, (c) team training for leadership teams. Each of these areas is discussed in greater depth here.

**Team development as a method to improve leadership teams.** As described in

Chapter 2, although team development itself has a robust body of evidentiary work, this concept applied to improving leadership team performance is an area for which the literature is much smaller, less developed, and growing in recent years. A significant link in existing literature on leadership team performance appears in Hambrick's research on the behavior of Top Management Teams (TMT) through his behavioral integration construct (Hambrick, 1994, 1997), although his work focused exclusively at the "dominant coalition" or "managerial elites" level of the organization (Cyert & March, 1963; Pettigrew, 1992). Hambrick's behavioral integration (B.I.) meta-construct advances the notion that there are three interrelated process elements correlated with effectiveness among top leadership teams: the team's level of collaborative behavior, the quality and quantity of information exchanged, and how well decisions are made jointly. Hambrick's work implies that interventions to address team improvement, regardless of form, must address these three process elements. However, this study did not directly address this topic for two reasons: (a) it did not extend to non-TMT groups; and, (b) it did not directly address improvement methods, such as team development or training.

**Relationship of team performance and organizational outcomes.** In this area, this study serves to extend and deepen the literature in several areas. It extends Klein's research of team development interventions into leadership teams; the focus of Klein's work is the direct and positive impact of the functioning and effectiveness of work teams (not leadership), in which Klein describes limited empirical evidence showing the team building-performance relationship at the work team level (Klein et al., 2009). The present study also contradicts Wheelan's conclusions about the difficulty leadership teams have of functioning as high performing teams, by showing the impact a single

intervention can have on their improvement in team effectiveness and organizational performance (Wheelan, 2003). Additionally, this study opens a link to Simsek's research for future study at the leadership team level of Top Management Team Behavioral Integration (B.I.) scales, for which he used team-level measures of B.I. to relate that meta-construct to positive firm performance (Simsek et al., 2005).

**Team training for leadership teams.** The current study supported Stout and Salas' conclusion that researchers are only beginning to understand what comprises team training (Stout et al., 1997), and Sundstrom's (1999) conclusion of team training as a key support system to a team's potential effectiveness. Further, this study extends Kozlowski and Ilgen's (2006) work on team training into leadership teams, and addresses their question about the validity of team effectiveness construct into service environments. Finally, this study supported Marks et al. (2002) in their findings of the value of positional clarification and cross-training within leadership teams as a performance improvement strategy for organizational performance. In this work, we find the closest approximation to the current study of training leadership teams as an organizational improvement activity, and possible direction for future studies in this area (relationship of leadership team coordination and organizational performance; Marks et al., 2002).

With this study's implications on the body of existing literature presented, possible areas for future research are presented and discussed next.

### **Recommendations for Future Research**

This study and its findings present four important opportunities for future research into the teamwork-performance relationship of leadership teams and training of leaders: (a) replication of the study in multiple settings and cultures; (b) comparative study of

leadership training in intact teams (versus conventional “stranger” settings); (c) explicit study of the impact of dimensions of emotional intelligence on the effectiveness and performance of leadership teams; and, (d) study the elements contained in the Behavioral Integration construct of Top Management Teams for possible application to leadership teams at various organizational levels. Each is described in greater depth below.

**Replication of the study in multiple settings and cultures.** Using teamwork training as a method to improve leadership team behavior, processes, and performance, resulting in improved organizational performance, deserves additional study in other settings such as various organizational levels and team types, and other cultures. This study involved a single-company case, conducted in an organization with well-established cultural practices of: leadership development, emphasis on individual and leader growth, and support of key emotional intelligence dimensions (self-awareness, self-management, social awareness; Goleman, 1995). Future studies should involve more rigorous and robust research to include formal hypothesis testing that is not typically employed in case study research.

**Comparative study of leadership training in intact teams.** In addition to a more rigorous repetition of this study, the methodology of leadership training delivery to intact teams warrants additional study. The purpose of such research is to compare the effectiveness of this delivery modality with more traditional methods of leadership training delivery (stranger group composition). A preliminary hypothesis regarding this potential area for research is that an intact team delivery model is more effective than stranger or random participant models due to two factors: (a) the establishment of a common language and cognitive constructs regarding the conduct of the job that all

members of a leadership team share; and, (b) participating in a shared learning experience creates the opportunity for leadership teams to develop mutual accountabilities for both growth and performance; this is typically not available in more traditional training methods.

**Study of emotional intelligence dimensions on the effectiveness and performance of leadership teams.** The underlying content of the teamwork training that was the subject of this study involves core principles of the field of emotional intelligence. While empirical studies are beginning to emerge that study the emotional intelligence-teamwork relationship (Druskat & Wolff, 2001), the field is not well developed and additional study is warranted. Of particular interest to this study's author are the antecedents to emotionally intelligent teams, and whether there is an empirically proven relationship between emotionally intelligent teams and organizational performance.

**Study Behavioral Integration construct elements (of Top Management Teams) for possible application to leadership teams at various organizational levels.** Hambrick's groundbreaking conceptualization of Top Management Team (TMT) behavioral integration (B.I.; Hambrick, 1994, 1997), and subsequent work by Simsek to develop valid measurement scales (Simsek et al., 2005), provides a rich opportunity for two areas of future research: (a) study of the possible application and efficacy of the behavioral integration construct and scales (Simsek et al., 2005) at other organizational levels of leadership teamwork (non-TMT levels); and, (b) comparing the efficacy of existing behavioral integration scales with the Team Effectiveness Tool at leadership team levels.

**Concluding Remarks**

This study evaluated the impact of a particular improvement methodology on leadership team effectiveness and performance, an area of interest to the study's author for many years. Its conclusions give direction and energy to ongoing research into other applications of teamwork training for leadership teams, as well as other improvement methodologies addressed at leaders and their teams in an effort to improve organizational performance. It further supports and justifies the extraordinary commitment and investment made by the company studied in the training of their leaders in general, and specifically, in the unique methodology of leadership training of intact teams. By exploring and extending the work of researchers in the areas of leadership training, team development, and the emotional intelligence-teamwork relationship, it is hoped that this study gives new life to investments in the training of leaders, consideration of intact training models for self-supporting teams, and the application of emotional intelligence dimensions of leadership into the process of how they work together in teams.

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## APPENDIX A

## Team Effectiveness Tool Items and Categories

	Survey Items from Original Survey	Category/Theme
Q1	This team's purpose is clear and compelling.	Creates Team Identity and Goals
Q2	Team members are excited by the purpose and activities of this team.	Creates Team Identity and Goals
Q3	This team has clear, simple and measurable goals.	Creates Team Identity and Goals
Q4	Team members hold each other accountable to achieve team goals.	Creates Team Identity and Goals
Q5	The importance and priority of this team's goals are clear.	Creates Team Identity and Goals
Q6	Whether together or apart, team members feel like they belong to this team.	Creates Team Identity and Goals
Q7	I am personally committed to achieving the goals of the team.	Creates Team Identity and Goals
Q8	Team members demonstrate emotional maturity and control, especially when dealing with difficult and/or personal issues.	Manages Self
Q9	Team members act as positive role models for others.	Manages Self
Q10	Team members listen attentively to what others are saying and feeling.	Manages Self
Q11	Team members show respect for the ideas of others.	Manages Self
Q12	This team gets to the heart of complex matters by addressing root causes.	Solves Problems
Q13	This team makes timely and effective decisions to address problems.	Solves Problems
Q14	Team members help each other solve their problems.	Solves Problems
Q15	Conflict within the team is addressed constructively, rather than being ignored or downplayed.	Solves Problems
Q16	Team members act in the best interest of the team versus self-interest.	Is Trustworthy
Q17	Team members demonstrate respect for each other.	Is Trustworthy
Q18	Team members behave in ways that leads others to trust them.	Is Trustworthy
Q19	Team members build trust by honoring commitments and confidences with, and to each other.	Is Trustworthy
Q20	Team members feel acknowledged and rewarded by the team leader for team results.	Rewards Results
Q21	Team members encourage each other to take actions to improve results.	Rewards Results
Q22	Team members feel acknowledged and rewarded for their individual contributions to team accomplishments.	Rewards Results
Q23	Team members have enough information about the goals, progress or issues of the team to be an effective team member.	Keeps Team Informed
Q24	The team leader clearly articulates relevant information to the team (e.g., expectations, initiatives, timelines, etc.).	Keeps Team Informed
Q25	Team members communicate openly, honestly, and directly with each other about concerns, feelings and disagreements.	Keeps Team Informed
Q26	Team members behave in ways that are consistent with DaVita's mission and values.	Right Person, Right Attitude, Right Job
Q27	The team leader does not tolerate members' indifference about the team or underperformance on team goals.	Right Person, Right Attitude, Right Job
Q28	This team, and its team members have sufficient talent to accomplish its goals and stated purpose.	Right Person, Right Attitude, Right Job
Q29	Members of this team are fully utilized in ways that help the team maximize its performance and potential.	Right Person, Right Attitude, Right Job



[redacted] Inc.

-----Original Message-----

From: [redacted]

Date: Wed, 31 Oct 2007 22:41:45

To: "Foster Mobley" [redacted]

Subject: RE: Request to Use [redacted] [organization's name]Data for My Dissertation

did i respond?

-----Original Message-----

From: Foster Mobley [mailto:[redacted]]

Sent: Thursday, November 01, 2007 6:09 AM

To: [redacted]

Subject: Re: Request to Use [redacted] [organization's name]Data for My Dissertation

No.

The Foster Mobley Group, Inc.

[redacted]

Santa Ana, CA [redacted]

[redacted]

The answer is yes.

I hope all is well with you.

\*Note. Identifying information has been masked for confidentiality purposes.



## APPENDIX C

## IRB Exempt-Status Approval Letter

## PEPPERDINE UNIVERSITY

## Graduate &amp; Professional Schools Institutional Review Board

February 1, 2010

Foster Mobley  


Protocol #: E0110D13

Project Title: *Training Leadership Teams to Impact Performance Outcomes: An Empirical, Longitudinal, and Retrospective Case Study*

Dear Mr. Mobley:

Thank you for submitting your application, *Training Leadership Teams to Impact Performance Outcomes: An Empirical, Longitudinal, and Retrospective Case Study*, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Robert Canady, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - <http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html>) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b) (2) states:

(b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

**Category (4) of 45 CFR 46.101**, research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy material" at <http://www.pepperdine.edu/irb/graduate/>).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

## APPENDIX D

## Team Effectiveness Tool Item Changes by Team

Group	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	Total
Q1																		
Diff	0.0	0.5	1.1	1.2	0.8	0.6	-0.5	0.3	0.3	0.7	0.7	1.5	1.4	0.0	0.8	0.5	1.3	0.7
Q2																		
Diff	-0.8	0.1	0.5	1.0	0.4	0.2	-0.4	-0.3	0.2	0.2	0.3	1.2	1.5	0.0	0.1	0.7	0.8	0.4
Q3																		
Diff	0.2	1.3	0.7	0.8	0.5	-0.3	-1.1	0.8	0.0	1.7	0.8	1.4	1.4	0.7	0.3	1.0	1.5	0.7
Q4																		
Diff	-0.4	1.9	1.9	0.5	0.7	-0.7	-0.8	0.1	1.4	0.7	0.7	1.1	1.7	0.7	-0.4	1.5	1.2	0.7
Q5																		
Diff	1.2	1.0	2.1	1.1	1.1	0.5	-0.4	0.1	1.4	1.5	0.7	1.5	1.9	-0.2	0.4	0.7	1.5	0.9
Q6																		
Diff	0.1	1.0	1.6	0.7	0.6	-0.2	-0.2	1.2	0.5	0.1	1.4	0.7	1.8	-0.3	-0.1	1.0	1.6	0.7
Q7																		
Diff	1.2	2.4	3.1	1.4	1.6	1.0	0.4	1.6	1.3	2.3	1.3	2.6	3.0	0.5	0.9	1.3	2.3	1.7
Q8																		
Diff	-0.1	0.0	0.3	0.2	-0.4	0.0	-0.6	1.1	0.6	0.1	-0.2	0.6	1.3	-0.2	-0.1	0.2	1.2	0.3
Q9																		
Diff	0.3	0.8	1.7	0.5	-0.1	0.3	-0.1	1.5	1.1	0.3	1.0	1.4	1.3	0.5	0.1	0.8	1.5	0.8
Q10																		
Diff	-0.9	0.0	0.3	0.4	-0.1	-0.4	-0.5	0.8	0.7	-0.3	1.2	0.1	0.4	0.4	0.3	0.5	0.3	0.1
Q11																		
Diff	0.9	0.9	1.9	1.0	0.8	0.3	0.0	1.6	1.3	0.2	0.9	1.0	1.3	0.3	0.2	0.8	1.9	0.9
Q12																		
Diff	-0.3	0.4	0.4	0.3	0.4	0.1	-0.3	0.4	0.5	0.1	-0.9	-0.5	0.9	-0.8	-0.4	0.3	0.9	0.1
Q13																		
Diff	-0.8	1.1	0.6	0.4	0.9	0.5	-0.1	0.3	0.9	-0.2	-0.6	0.3	0.6	-0.2	-1.0	0.2	1.1	0.3
Q14																		
Diff	0.5	0.4	1.0	0.4	1.1	0.7	0.1	0.6	0.6	1.0	0.9	1.0	2.0	0.3	0.8	1.2	1.3	0.9
Q15																		
Diff	0.3	-0.3	0.7	-0.1	-0.6	0.3	-0.2	0.5	0.7	-0.3	-0.6	-0.1	0.4	-0.3	-0.6	0.3	1.0	0.1
Q16																		
Diff	-0.7	-0.5	-0.6	0.2	-0.3	0.3	-0.9	0.0	0.8	-0.1	0.1	0.8	0.6	0.8	0.3	0.5	1.1	0.1
Q17																		
Diff	1.6	2.3	1.2	1.0	0.2	0.6	-0.2	1.2	1.5	1.1	2.1	1.2	2.5	1.5	0.6	1.2	1.5	1.2
Q18																		
Diff	-0.2	1.1	0.5	1.4	0.5	0.4	0.0	1.0	0.0	0.9	0.6	1.0	1.6	0.8	0.3	1.7	1.1	0.8
Q19																		
Diff	0.3	1.1	1.9	1.0	0.5	0.4	0.0	0.9	0.7	0.9	0.5	0.8	2.1	0.8	0.1	0.9	1.5	0.9
Q20																		
Diff	0.5	1.9	1.2	0.6	0.1	0.3	0.1	0.4	0.6	0.2	0.3	0.5	1.8	0.2	0.0	0.0	1.2	0.6
Q21																		
Diff	-0.1	2.4	1.4	1.2	1.7	-0.1	-0.4	0.6	1.1	0.6	1.1	1.0	2.1	0.9	0.1	1.0	1.6	1.0
Q22																		
Diff	0.5	1.4	0.3	0.6	-0.3	0.1	-0.4	0.5	0.4	-1.2	1.4	0.4	1.0	0.6	0.1	0.6	1.2	0.4
Q23																		
Diff	0.9	1.6	1.5	1.5	1.5	0.6	-0.5	1.3	1.1	1.0	0.4	1.1	2.1	0.6	0.7	0.8	2.2	1.1
Q24																		
Diff	1.4	1.8	2.3	1.2	1.0	0.9	0.2	0.5	1.1	0.9	0.0	1.2	1.5	0.5	-0.6	0.1	2.2	0.9
Q25																		
Diff	-0.9	-1.9	-0.2	0.2	-1.3	-0.2	-0.7	-1.0	0.9	-0.8	-0.7	-0.9	0.2	-0.7	-0.3	-0.5	-0.1	-0.5
Q26																		
Diff	-0.3	0.5	0.5	1.2	0.3	0.5	-0.4	1.6	0.3	0.0	0.5	0.8	1.6	0.6	0.7	0.5	1.0	0.6
Q27																		
Diff	0.7	0.8	1.8	1.3	-0.5	0.8	-0.3	0.5	1.2	-0.1	0.3	1.3	1.8	1.1	0.6	0.9	1.7	0.8
Q28																		
Diff	0.6	1.9	2.5	1.3	1.0	0.3	-0.4	1.8	1.0	1.5	0.7	1.6	2.1	1.0	0.9	1.5	2.1	1.3
Q29																		
Diff	-0.8	-1.4	-1.2	-0.7	-1.1	-0.3	-1.0	-0.7	1.0	-1.7	-0.8	-0.8	-0.8	-1.2	-1.9	-0.6	0.2	-0.9

Note. Yellow-shaded items indicate significance at the 0.01 level; Rose at the 0.05 level.