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Examining the Input, Process, Output Model of Team Effectiveness (IPOMTE), Leadership Styles, and Relational Coordination as Contributors to a Profile of Team Effectiveness

Abstract

The purpose of this quantitative survey research study was to examine the input, process, output model of team effectiveness (IPOMTE), leadership styles, and relational coordination theory as contributors to a profile of team effectiveness, which was established from the experiences of students, faculty, staff, and alumni of a leadership program at a private institution. Participants identified effective IPO characteristics from their personal work team experiences. Two hypotheses were tested in this study: (H1) effective teams will score differently than ineffective teams on IPO measures, and (H2) effective teams will score differently between supervisor and nonsupervisors on IPO measures. There were differences between all IPO characteristics when comparing ineffective and effective teams. Hypothesis 1 was supported by the evidence with the exception of team task characteristics that were supported, in part, by the evidence. However, differences between IPO characteristics by supervisory role from effective teams were not supported by the evidence. Last, a 37-item profile of team effectiveness was developed based on the research question: What are the IPO characteristics of team effectiveness? The findings from this study show that effective teams consist of integrated leadership with a high level of inclusivity and engagement. Effective teams also consist of team developed norms with high relational coordination, decision making, and cohesion characteristics. Ultimately, effective team characteristics will produce high productivity, performance, satisfaction, and innovative outcomes. Recommendations include utilizing the profile of team effectiveness as an assessment and a monitoring and evaluation tool to increase effectiveness and performance for existing and newly developed teams.

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Examining the Input, Process, Output Model of Team Effectiveness (IPOMTE),
Leadership Styles, and Relational Coordination as Contributors to a
Profile of Team Effectiveness

By

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Submitted in partial fulfillment
of the requirements for the degree
Ed.D. in Executive Leadership

Supervised by

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St. John Fisher College

May 2019

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Dedication

This dissertation is dedicated to my familial, academic, supportive, social, and work teams that have directly and indirectly influenced my academic success. Ultimately, this dissertation is for my immediate family (Nora, April, Shanta, and Willie) who were the first to show me what a team truly is. I thank them for believing in my abilities through their support, availability, and trust—even when they did not understand my journey. My family has been the foundation of my strength, my focus, and my perseverance. They have sacrificed for me in so many ways, and I value their love and support through all of my academic experiences. Shania and Dominique, I hope my accomplishments have opened your eyes to see that you can achieve what people may think is impossible.

This has been the first time in my academic career where I genuinely felt love and supportive care from all members of a program. Thus, I want to say thank you to every faculty and staff member of the DEXL program. Dr. Dingus-Eason, Dr. Cleverly-Thompson, Dr. Cianca, Mr. Clay Osborne, and Dr. Berman, you all have touched my life with your academic, professional, and personal support. You all have opened my eyes to new possibilities, and you created a safe space for vulnerability and growth. A special thank you to Dr. Montes, Dissertation Chair, who consistently challenged me throughout my doctoral journey. Dr. Montes, thank you for your words of encouragement, for your honesty and genuineness, for believing in my abilities, and for continuing to support me

beyond my expectations. My committee, Dr. Tisha Smith and Dr. Bruce Blaine, I also thank you for your ongoing and even last-minute support in my process.

Furthermore, Cohort 11, “straight from heaven” has been a blessing in many ways. We have had a powerful and emotional experience that will be remembered forever. We have allowed ourselves to explore, imagine, and be exposed to life and experiences outside of our ordinary. I will apply a piece of excellence that I have adopted from each person in this cohort. Last, to my colleagues of T-CREW (Dr. Daniele, Dr. Sharitta, and Dr. Kimberly), it has been a long journey. I feel honored to be a part of a group with such amazing people. We are the example of an effective team, and we have definitely exemplified transformations of character, responsibility, empowerment, and will.

The encouragement and motivation of my support systems were very much needed during this journey. Maisha Drayton, Amanda Jackson-Jacobs, George Alexander, Bro. Ivor Baker, Jr., and Bro. Alan Carter-Fambo, I appreciate and value every word of advice; your interest, review, and critique of my work; your mentorship, your academic and professional guidance; and your genuine care for the completion of my degree. Additionally, I want to thank any other person who has given me encouragement, validation, motivation, or support. I want to give a special thanks to Jody Hoffer Gittell, originator of the relational coordination theory. Thank you for being available and for providing guidance and resources that helped me to capture the essence of your theory.

Last, I want to thank the many work teams that I had the opportunity and privilege in which to partake. These teams allowed me to assess common trends that limit and

influence teams, departmental and organizational growth, and development that have led to the emergence of this dissertation. Thus, this dissertation is dedicated to every team, organization, and community that has the desire to improve efficiency, productivity, and performance to maximize its potential.

Biographical Sketch

Cord Stone is devoted to increasing the collective impact and organizational effectiveness and performance of the underserved, by ensuring equity, accessibility, and voice for those in this population. He has a decade of direct and nonprofit leadership experience serving those with medical, mental, sexual, and behavioral health concerns. He has helped lead the fight in the most controversial and complex issues including HIV and HCV, opioid overdose, and the mass incarceration epidemics. Additionally, Cord was the former Executive Director of a nonprofit healthcare organization where his organization received proclamations and recognitions from the City of Buffalo Common Council under his tenure. Cord was also awarded the Buffalo Business First 40 Under 40 Award. At the time of this publication, Cord Stone is the Director of Community Impact where he helps three nonprofit organizations ensure synergy through the collaboration of internal and external programs and services. Thus, his expertise guides organizations to increase efficiency, productivity, and maximize performance. Cord Stone is also the Chief Executive Officer at Greater Works Collaborative, a nonprofit start up that serves individuals who are directly or indirectly impacted by incarceration.

Mr. Stone attended Canisius College from 2005 to 2009 and graduated with a Bachelor of Arts/Sciences degree in Criminal Justice and Sociology in 2009. He attended Hilbert College from 2012 to 2014 and graduated with a Master of Public Administration degree in 2014. Mr. Stone came to St. John Fisher College in the summer of 2016 and began doctoral studies in the Ed.D. Program in Executive Leadership. He pursued

examining the input, process, output model of team effectiveness, leadership styles, and relational coordination as contributors to a profile of team effectiveness under the direction of Dr. Guillermo Montes and Dr. Bruce Blaine and received the Ed.D. degree in 2019.

Mr. Stone was inducted into the Kappa Delta Pi Honor Society for academic excellence and Phi Beta Sigma Fraternity, Inc. during his doctoral program. He plans to expand access to his knowledge, skills, and abilities by founding a capacity-development consulting corporation to assist organizations to increase efficiency and performance in many service areas. Last, Cord's vision is to teach at the college level, and he plans to write for publications that will add to the fields of criminal justice, diversity, education, equity, healthcare, nonprofit management, organizational psychology, and social justice.

Abstract

The purpose of this quantitative survey research study was to examine the input, process, output model of team effectiveness (IPOMTE), leadership styles, and relational coordination theory as contributors to a profile of team effectiveness, which was established from the experiences of students, faculty, staff, and alumni of a leadership program at a private institution. Participants identified effective IPO characteristics from their personal work team experiences. Two hypotheses were tested in this study: (H1) effective teams will score differently than ineffective teams on IPO measures, and (H2) effective teams will score differently between supervisor and nonsupervisors on IPO measures. There were differences between all IPO characteristics when comparing ineffective and effective teams. Hypothesis 1 was supported by the evidence with the exception of team task characteristics that were supported, in part, by the evidence. However, differences between IPO characteristics by supervisory role from effective teams were not supported by the evidence. Last, a 37-item profile of team effectiveness was developed based on the research question: What are the IPO characteristics of team effectiveness? The findings from this study show that effective teams consist of integrated leadership with a high level of inclusivity and engagement. Effective teams also consist of team developed norms with high relational coordination, decision making, and cohesion characteristics. Ultimately, effective team characteristics will produce high productivity, performance, satisfaction, and innovative outcomes. Recommendations include utilizing the profile of team effectiveness as an assessment and a monitoring and

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Table of Contents

Dedication	iii
Biographical Sketch	vi
Abstract	viii
Table of Contents	x
List of Tables	xiii
List of Figures	xiv
Chapter 1: Introduction	1
Team Dynamics	4
Teams and Leadership	8
Problem Statement	13
Theoretical Rationale	22
Relational Coordination Theory	25
Statement of Purpose	29
Research Question and Hypotheses	29
Potential Significance of the Study	29
Definition of Terms	30
Chapter Summary	33
Chapter 2: Review of the Literature	35
Significant Empirical Findings of Relational Coordination	36
Methodological Review of Relational Coordination	71

Relational Coordination Gaps.....	72
Conclusion	73
Chapter 3: Research Design Methodology	74
General Perspective and Problem Statement	74
Research Context	75
Purpose and Research Hypotheses.....	75
Research Participants	76
Survey Used in Data Collection.....	76
Procedures.....	77
Data Analysis	78
Summary of Methodology	79
Chapter 4: Results	80
Participants' Characteristics.....	80
Research Hypotheses	80
Research Question	93
Summary of Results	95
Chapter 5: Discussion	98
Overview and Problem	99
H1: Effective and Ineffective Teams	100
H2: Supervisory Status and Team Effectiveness	106
Research Question: Profile of Team Effectiveness	107
Limitations	109
Recommendations.....	111

Recommendations for Research	111
Conclusion	113
References.....	117
Appendix A.....	131

List of Tables

Item	Title	Page
Table 4.1	Sample Characteristics of Participants	81
Table 4.2	Frequencies of Team Input: Leadership Context Between Effective and Ineffective Teams	83
Table 4.3	Frequencies of Team Input: Team Task Characteristics Between Effective and Ineffective Teams	84
Table 4.4	Frequencies of Team Input: Team Composition Characteristics Between Effective Teams and Ineffective Teams	85
Table 4.5	Frequencies of Team Process: Norm Characteristics Between Effective and Ineffective Teams	86
Table 4.6	Frequencies of Team Process: Relational Coordination Variables	87
Table 4.7	Frequencies of Team Process: Decision Making and Cohesion Characteristics From Effective Teams	89
Table 4.8	Frequencies of Team Output: Output Characteristics Between Effective Teams and Ineffective Teams	90
Table 4.9	Employment Characteristics of Participants	91
Table 4.10	IPOMTE Characteristics Effects Between Supervisors and Non-Supervisors	92
Table 4.11	Hypotheses and Outcomes	95

List of Figures

Item	Title	Page
Figure 1.1	Input, Process, Output Model of Team Effectiveness	22
Figure 1.2	Relational Coordination Theory	27
Figure 4.1	Team Input Organizational Context by Leadership Style	82
Figure 4.2	Team Process-Relational Coordination (Communication and Relationships)	88
Figure 4.3	Profile of Team Effectiveness	97

Chapter 1: Introduction

The impact of single teams and the collective impact of those teams on organizational performance are complex, and they have been underexplored despite the increased need for team structure (Katzenbach & Smith, 1993; Martin & Bal, 2015). Organizations rely on teams to address complex and challenging tasks. However, leadership roles in relation to team dynamics are not well articulated (Kozlowski, Gully, McHugh, Salas, & Cannon-Bowers, 1996). Kozlowski et al. (1996) highlighted that while there is much research on leadership within organizations, there is an absence of research specific to organizational leadership and team effectiveness. Almost two decades later, Martin and Bal (2015) emphasized that researchers and practitioners struggle with the complexities of group dynamics and how to ensure team performance. Moreover, Gallup, in 2010, 2013, 2016, 2017, and 2018, reported longitudinal deficits, needs, and concerns—worldwide—regarding team productivity, efficiency, and performance. As a result, Schwarts, Bohdal-Splegehoff, Gretczko, and Sloan (2016) suggested that there is a need to challenge the status quo of traditional organizational structures and transition organizations to a culture that empowers teams; holds people accountable; and shares information, vision, and direction. Thus, there is an international need for organizational redesign.

From 2015 to 2016, 28% of adults worldwide (1.4 billion) had full-time jobs (Gallup, 2018). With that, full-time jobs in the United States represented 44% (616 million) of working adults. However, only 12% (73.92 million) out of the 44% of

employees (616 million) in the United States were engaged. The 12% of engaged employees were considered to have *great* jobs. This essentially equates to only 12% of the U.S. workforce who were potentially successful in executing workforce productivity, safety, retention, and well-being (Gallup, 2018). Ultimately, the lack of worker engagement has cost the United States between 450 to 550 billion dollars per year in productivity loss (Gallup, 2017).

A critical contribution that identified the need for organization redesign were the results from a Deloitte University Press survey. The survey included over 7,000 respondents from 130 countries who represented diverse industry professions. Of the total respondents, 92% reported the need for organization redesign—a *new organization* that consist of highly empowered teams (Schwartz et al., 2016). Furthermore, 90% of American respondents rated the new organization or *network of teams* as an important trend where, “companies can build and empower teams to work on specific business projects and challenges” (Schwartz et al., 2016, p. 4). In fact, researchers, Schwartz et al. (2016), Katzenbach and Smith (1993), Martin and Bal (2015), and the Schumpeter Blog (2016) indicated that many employees have participated in a network of teams that contribute to this new organization phenomenon. Bersin (2016) specified that organizations with 5,000 or more employees operate in teams (e.g., sales teams, manufacturing plants, retail stores, product groups, service teams, and geographically independent operations). Similarly, the Schumpeter blog (2016) noted that the *New York Times Magazine* identified that business schools (and other colleges and universities) grade students partly on group performance during projects, and discussed how office managers can reduce organizational barriers to encourage team building (Schumpeter

Blog, 2016). In fact, the Schumpeter blog (2016) stated that the *New York Times* highlighted the longevity of teams by referencing the notion that even Jesus had a team of 12 disciples.

One strategy for building teams and collaboration are organizations' use of multiteam workings. Gallup (2017) indicated that 84% of U.S. employees are *matrixed* where employees work in teams and report to many managers. Of those 84% U.S. employees, 49% were *slightly matrixed* by serving on multiple teams on some workdays; 18% were *matrixed* as they served on multiple teams with different staff while reporting to the same manager; and last, 17% were *super matrixed*, where employees worked daily on multiple teams with different coworkers and managers (Rigoni & Nelson, 2016). With the increase in team participation, team formation, and the importance of organizational redesign to establish a network of teams, employee engagement has been consistently high for almost 20 years (Gallup, 2010, 2013, 2017, 2018). Thus, teams are essential to organizations. However, the dynamics of those teams are equally important to ensure team and organizational effectiveness.

Currently, there are gaps in identifying the specific dynamics of team effectiveness in literature, empirical research, and frameworks and models. Thus, this study aimed to align the input, process, output model of team effectiveness (IPOMTE); leadership; and relational coordination to the notion of the new organization (highly effective teams) through the development of a profile of team effectiveness (Gittell, 2002a; Landy & Conte, 2013). To set the tone for this research study, it is important to discuss, define, and explore the utilization of teams. Therefore, the following section

provides an overview of team dynamics, definition, characteristics, performance, and leadership.

Team Dynamics

The Schumpeter blog (2016) quoted Amy Edmondson as stating that “organisations increasingly use ‘team’ as a verb rather than a noun,” (para. 7) as organizations form teams for a specific purpose and then discontinue those teams. Parker (1994) referenced that so called “teams” (p. 34) were really groups acting as teams because of the perception of team importance. Wageman, Gardner, and Mortensen (2012) emphasized that organizational groups are defined as a team—or not—based on the evolving collaborations that the organization has to confront. Given that there are distinct differences between teams and groups, this current study only focused on teams.

Groups versus teams. The words *groups* and *teams* are typically used synonymously by practitioners and researchers. However, Katzenbach and Smith (1993) and Franz (2012) explained there are, in fact, differences between groups and teams and their dynamics, respectively. A group is defined as, “any collection or assemblage of persons or things; cluster; aggregation” or “a number of persons or things ranged or considered together as being related in some way” (The American Heritage Science Dictionary, 2011). A working group is based broadly on an organization’s mission. There is individualized accountability and outputs based on products and performance measures associated with an individual’s influence of others. A working group is coordinated by a typically strong and clearly focused leader. Coordination for a working-group leader consists of active problem-solving meetings that are, most likely, discussed, decided, and delegated by that leader. Overall, groups are not mutually accountable or responsible for

overarching goals and thus interdependence is selective (Parker, 1994). Consequently, there is a natural resistance to move beyond the individual regarding roles and accountability within groups, because individuals do not typically take responsibility for the performance of others and vice versa (Katzenbach & Smith, 1993).

On the contrary, a team is defined as, “a type of organizational group that is composed of members who are interdependent, who share common goals, and who must coordinate their activities to accomplish these goals. Team members must work collectively to achieve their goals” (Northouse, 2016, p. 363). There are three dimensions to teams: (a) purpose, relative to overall goals; (b) longevity, as in permanent or temporary; and (c) membership, pertaining to the functionality or cross-functionality conducted within the team (Parker, 1994). Teams are created to help organizations excel at tasks and achieve goals beyond the individual level (Katzenbach & Smith, 1993). A team upholds individual and mutual accountability based on individual and collective work products. Teams are then measured by their effectiveness through a direct assessment of their work products. Last, a team functions by shared leadership roles through mutual discussion and collective decision making (Katzenbach & Smith, 1993). Overall, a team is highly interdependent, everyone mutually agrees on goals, and everyone works on the agreed goals together (Franz, 2012; Parker, 1994), and the team is expected to outperform the work that would be produced individually. Ultimately, a team includes all aspects that make up a group. However, a group does not include the collective working aspects of a team (Hackman & Johnson, 2013).

Team characteristics. There are many team characteristics that include team types, team competencies, and team workflow patterns. Franz (2012) deduced that there

are three typical work teams: (a) problem-resolution teams, (b) creative teams, and (c) tactical teams. Problem-resolution teams are conducted to solve problems. For example, a problem-resolution team may be charged with determining a corrective action plan for employees who are underperforming. A creative team develops creative and innovative solutions to a problem such as developing a website that attracts a specific kind of consumer. Last, individuals who are members of tactical teams implement solutions (Franz, 2012). An example of a tactical team is one that develops streamlined processes for inputting data into a case-management database.

In addition to team competencies, Katzenbach and Smith (1993) highlighted team discipline, which promotes collective work products, personal growth, and performance. Similar to Stevens and Campion (1994; 1999), team discipline consists of problem solving skills, technical or functional skills, and interpersonal skills. Secondly, Katzenbach and Smith (1993) agreed with Parker (1994) and Franz (2012) that team discipline includes individual and mutual accountability. Last, team discipline produces specific goals, common approaches, and meaningful purposes of commitment (Katzenbach & Smith, 1993). With that, Katzenbach and Smith (1993) noted that accountability and commitment results in personal growth, a group of individual skills and a commitment also leads to collective work products, and team skills and accountability result in performance.

Team performance. There are four individual/team workflow patterns: pooled, sequential, reciprocal, and intensive (Arthur, Edwards, Bell, Villado, & Bennett, 2005). Pooled/additive interdependence workflow is work that is performed by all members, individually, where the work is not shared between other members of the team (Arthur et

al., 2005). An example of this could be a team of case managers who have their own case load of clients, where their work is performed individually, but all of their goals are contributed to team performance. Tasks are given to employees typically by a team leader who assigns the workload to individual employees. Performance is usually measured individually, and accountability for the team is placed on the leader.

The sequential interdependence workflow occurs when the work enters and flows in one direction within the team (Arthur et al., 2005). An example of this could be a manufacturing team where members of the team work in an assembly manner to complete tasks. Ultimately, each team member is dependent upon the other team member to execute the tasks efficiently in order to ensure maximum performance. Typically, the team takes accountability for the productivity with the leader as support.

The reciprocal interdependence workflow is where the work enters a team and the members work together, interdependently, over a period of time until the work or project is completed (Arthur et al., 2005). An example of this is a team that is funded by a grant where there are different staff levels and types of individuals who contribute to the overall outcomes of the grant. In this case, every member of the team contributes by his or her expertise, experience, or responsibility. Thus, the team is held accountable based on the teams' success or failure to perform.

Last, an intensive interdependence workflow is when work enters a team where the members diagnose, solve problems, and collaborate—with a majority of its members—during different phases of the project in order to complete the task (Arthur et al., 2005). An example of this is a social worker who is conducting a case conference for a person who needs psychosocial services over a period of time. The social worker may

need to collaborate, problem-solve, and diagnose a client with the input and partnership of many or all affiliates of the team. Intensive workflows can include a combination of pooled, sequential, and reciprocal processes in order to execute tasks. Ultimately, accountability is held both individually and with the group as a collective.

Stevens and Campion (1994, 1999) conducted studies that established the competencies for working teams. Interpersonal and team self-management were the core competencies. The interpersonal competencies included: (a) conflict resolution skills that recognize and encourage desirable conflict, appropriate resolution strategy, and win-win solutions; (b) collaborative problem-solving skills that consist of collective problem-solving approaches, and participation and implementation of appropriate corrective actions; and communication that is enhanced, open, and supportive. Communicating while actively listening, balancing verbal and nonverbal cues, and engagement in small talk are also critical skills. Team self-management is the other core competency of working teams that includes goal setting and performance management, as well as planning and task coordination. Goal setting and performance management are activities that establish specific, challenging, and accepted team goals, while, at the same time, monitoring, evaluating, and providing feedback on individual performance. Finally, planning and task coordination consists of coordinating the activities, information, and tasks between members, and defining tasks for a balanced workload.

Teams and Leadership

Just as group and team functionalities are different, leadership roles are also differentiated between groups and teams. Within a group, leaders are typically in full control, making most decisions, and setting the assignments for the group.

Comparatively, leadership within teams is a vigorous, fluid, and evolving process. Shared decision-making responsibilities are implemented based on the task and the situation. The level of focus and the membership roles for a team are distinctive, interdependent, and where all members are actively engaged with coordination-based expertise. Teams are emphasized by regulating processes to build skills while fitting to balance internal and external demands (Katzenbach & Smith, 1993).

According to Pearce and Conger (2003), leadership is defined as “the process of inducing others to take action toward a common goal” (p. 271). Salas, Goodwin, and Burke (2009) stated that, “the contribution of leadership to effective team performance rests on the extent to which team leaders help members achieve a *synergistic threshold*” (Salas et al., 2009, p. 83), where collective effort accomplishes more than the sum of individual abilities or efforts. Thus, the four leadership styles: vertical, bottom-up, shared, and integrated leadership are defined and explored in the next sections.

Vertical leadership and bottom-up leadership. Vertical and bottom-up leadership are one-direction leadership types. *Vertical* leadership (Pearce & Conger, 2003; Pearce & Sims, 2002), also referred to as *hierarchical* (Jaques, 1990), *heroic* (Manz & Sims, 1991; Yukl, 2006), *functional* (Parker, 1994), *collective* or *distributive* (Katzenbach & Smith, 1993; Kozlowski et al., 1996; Manz & Sims, 1993; Zaccaro, Blair, Peterson, & Zazanos, 1995), *top-down* (Locke, 2003), and *traditional* (Day & Zaccaro, 2004) leadership all consist of a formal leader who leads, unaccompanied, over followers in a hierarchical structure (Pearce & Conger, 2003). During a qualitative study, Hooker and Csikszentmihalyi (2003) discovered six behaviors that vertical leaders commonly possess: valuing excellence, providing clear goals, giving timely feedback, matching

challenges and skills, diminishing distractions, and creating freedom. Thus, the leader is always in charge and in control. Comparatively, Pearce and Conger (2003) suggested that a vertical leader's view of individual achievement is not compatible with teamwork promotion, because the leader makes all decisions, has no regard for the team, has technical skills but no people skills, is inflexible, and unchanging.

Whereas vertical leadership consists of a hierarchical structure where the leader drives the team, bottom-up leadership consists of a hierarchical structure where the direct reports or members of the team dominate the team including the person assigned to the lead position. Thus, the leader leads by title only, and the lower-level staff actually drives the team as well as the team's decisions. Pearce and Conger (2003) stated that with the bottom-up leadership style, leaders strictly cater to employees, lack independent views, and refrain from sharing or implementing their own desires as leaders.

Shared and integrated leadership. Traditionally, the notion of leadership has been focused on individual leaders and hierarchal approaches to organizing work tasks. However, Schwarts et al. (2016) voiced that, "the days of the top-down hierarchical organization are slowly coming to an end" (p. 23). Shared leadership challenges the hierarchical approach by utilizing group-level leadership practices (Pearce & Conger, 2003).

Shared leadership is defined as a "dynamic interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals or both" (Pearce & Conger, 2003, p. 1). Other names for a shared leadership approach are *situational leadership* (Gibb, 1954), *self-managed team* (Manz & Sims, 1987), *self-directed team* (Parker, 1994), *distributed leadership* (Day &

Zaccaro, 2004), and *horizontal leadership* (Pearce & Conger, 2003) where the team consistently shares information, empower each other, and participates in collective decision making (Pearce & Conger, 2003). Vertical and bottom-up leadership consist of a one-directional approach that is focused on either the superior or the subordinate.

Shared leadership is horizontally structured, puts more emphasis on the team itself (Pearce & Conger, 2003), and stresses directing and managing collective efforts (Salas et al., 2009). With that, a shared leadership approach typically consists of leadership functions being distributed across a team that may or may not have a formal internal leader (Salas et al., 2009). Ultimately, shared leadership or self-directed teams are groups that are responsible for the entire work process and the delivery of products and services (Parker, 1994).

Shared leadership has been associated with individual, team, and organizational outcomes (Day & Antonakis, 2012). Avolio, Jung, Murray, and Sivasubramaniam (1996) found that shared leadership was positively related to team member satisfaction in a study on undergraduate teams. Furthermore, Shamir and Lapidot (2003) found that shared leadership was positively related to team leader satisfaction as well. Shared leadership also resulted in better performance on cognitive group and team-level outcomes (Day & Antonakis, 2012). Several studies found shared leadership was related to team confidence and competency, high levels of motivation (Hooker & Csikszentmihalyi, 2003; Pearce, 1997; Pearce, Yoo, & Alavi, 2004), cognitive advantage (Solansky, 2008), and group empowerment (Pearce & Conger, 2003). In fact, other studies have associated shared leadership with group or team effectiveness and performance, whereas vertical leadership is based on self-assessment (Avolio et al., 1996). Shared leadership also results in better

problem-solving quality (Pearce et al., 2004), new product development and team effectiveness (Olson-Sanders, 2006), virtual team performance (Carte, Chidambaram, & Becker, 2006), and consulting team performance (Carson, Tesluk, & Marrone, 2007). While there are many positive outcomes to shared leadership, there are other characteristics to consider. Pearce and Conger (2003) implied that there may be behavioral aspects that vertical leaders utilize, such as appropriate team member selection, developing group norms, coaching and development skills, empowering self-leading, modeling self-leadership behaviors, and encouraging problem solving and decision making that may need to be considered with shared leadership for a team to potentially become effective.

Last, the final leadership style is integrated leadership, which consists of a combination of vertical, bottom-up, and shared leadership (Pearce & Conger, 2003). With integrated leadership, there are varying flows of influence from superior (leader) to subordinate (worker), from subordinate to leader and between subordinates. There are two assumptions to integrated leadership: (a) there is a high emphasis on superior interconnectivity, integration, and coherence between team members (Marks, Zaccaro, & Mathieu, 2000), and (b) integrated leadership interactions are associated with team performance and effectiveness (Zaccaro, Rittman, & Marks, 2001). Thus, this approach promotes direct and indirect conditions that assist team members to work efficiently. Integrated leadership also promotes the ability for teams to adapt to change (Marks et al., 2000). Furthermore, cross-functional teams leverage individual competencies and expertise to support the work of the team to maximize performance (Ancona & Caldwell, 1992; Doyle, 1991; Parker, 1994). Kumar and Gupta (1991) concluded that cross-

functional teams should consist of a diverse group of customers, including employees from different levels and different organizations.

The notion of integrated leadership is not to imply that “the leader had to delegate authority and encourage everyone to influence everyone else and then everything is solved” (Pearce & Conger, 2003, p. 282). According to Locke (2000), what needs to be considered is that people have varying degrees of the executing process regarding ensuring effective leadership. Thus, the integrated leadership model has not solved the problem of effective leadership (Pearce & Conger, 2003). However, this model may generally be more effective than the vertical, bottom-up, and shared leadership models.

Problem Statement

There are three notions that undergird the problems that impact team effectiveness. The first concern or notion is the consistent underperformance of teams at the workplace (Burke, Fiore, & Salas, 2003; Coutu, 2009; Franz, 2012; Gallup, 2010, 2013, 2017, 2018; Impraise Blog, n.d.; Qualtrics, 2016; Stein, 2012; Visix, n.d.; Wigert, n.d.; Witt, 2012). The second notion is that companies are concerned with team leadership and the role of the team leader (Beck & Harter, 2015; Bersin, 2016; Coutu, 2009; Cross, Rebele, & Grant, 2016; Foster, 2017; Gallup, 2016, 2017, 2018; Martin & Bal, 2015; Rigoni & Nelson, 2016; Salas, Burke, & Stagl, 2004; Schwarts et al., 2016; Society for Human Resource Management [SHRM], 2005; Spence, 2015; Zenger & Folkman, 2015). The last concern is the consistent development of team effectiveness models (Bersin, 2016; Henderson & Walkinshaw, 2002; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Mathieu, Maynard, Rapp, & Gilson, 2008; Salas et al., 2009). Martin and Bal (2015) specified that, “the complexities of the group dynamic and the puzzle of how

to ensure high performance remain a constant struggle for researchers and practitioners alike” (p. 1). For this current study, it was critical to explore these underlying notions as the core problems of team effectiveness.

Underperformance of teams. Anecdotally, there are many communication, engagement, and productivity concerns that are factors for the underperformance of teams. Gallup (2010, 2013, 2017, 2018) has collected data on the state of the American workplace using an employment engagement metric for more than the last decade. Gallup surveys have been used as the foundation for measuring organizational efficiency, productivity, and performance. However, team effectiveness continues to be a concern, particularly with employee engagement, workplace effectiveness, and leadership.

Employee engagement. Worker engagement has been highly associated with the concerns for organization productivity. A Gallup (2010) panel indicates that the amount of U.S. workers who were not engaged (i.e., slightly disengaged or highly disengaged) at their place of employment averaged between 70 to 79% from 2000 to 2009. Furthermore, U.S. workers who were disengaged increased between 70 to 88% from 2010 to 2016 (Gallup, 2013, 2017, 2018). At the organizational level, the lack of engagement amounted to a 16% decrease in revenue, a 65% long-term share price drop, a 37% decrease in job growth, and an 18% decrease in productivity (Gallup, 2017). At the microlevel, workers who were disengaged had 60% more errors and defects, 49% more accidents, and 37% higher absenteeism than employees who were engaged (Gallup, 2017). Overall, U.S. employee engagement averaged 29 to 35%, with New York State reporting as one of the least engaged states in the United States, at 29%, tied with New Jersey, Connecticut, and Massachusetts (Gallup, 2017).

Gallup eventually identified a formula for high performance based on an examination of employee engagement across a diverse group of employers (Wigert, n.d.). During this investigation, Wigert (n.d.) indicated that having a combination of high-level talent, engagement, and tenure are the elements that result in high performance. Obtaining these three elements has been shown to increase productivity between 18 to 35%. However, this level of productivity accounts for only 5% of the U.S. workforce (Wigert, n.d.). Coutu (2009) noted that J. Richard Hackman, an expert in social and organizational psychology, mentioned that research has shown the consistent underperformance of teams, which is associated with ineffective coordination and motivation that hinder effective collaboration. Consequently, in a Gallup (2017) study, only seven out of 10 U.S. employees strongly agreed that their opinions did not count, they were not recognized, they did not have someone to encourage their development, and they agreed that they were not committed to quality work at their jobs. Additionally, six out of 10 U.S. employees strongly agreed that their company's mission and purpose did not make them feel that their jobs were important, they did not have an opportunity to learn and grow, their supervisors or someone at work did not seem to care about them, and they did not have an opportunity to do what they did best every day (Gallup, 2017). During a survey that was conducted by Salesforce on employee engagement, 40% of the employees believed that decision makers *consistently* failed to ask for the employees' opinions, and almost 80% of the workers believed that their employers did not discuss issues effectively or truthfully (Stein, 2012).

Workplace perception on effectiveness. Burke et al. (2003) and Franz (2012) discussed consistent causes of underperformance and process losses. These causes were:

unclear team dynamics (e.g., establishing a clear vision, roles, goals, and culture); limited coordination (e.g., trust, communication, problem solving, and decision making); and low membership that included number, membership, and team leadership support (Pearce & Conger, 2003). In fact, a study was conducted by Salesforce (Stein, 2012) with over 1,400 corporate executives, employees, and educators who identified collaborative problems that occurred in the workplace. As a result, 97% of the respondents reported a lack of alignment within the teams; 92% reported lack of company efficiency, where the company would consistently just hit or miss deadlines; and 86% reported having a lack of collaboration or ineffective communication. These issues were reported to have a negative impact on task and project outcomes, bottom-line results, and workplace failures (Stein, 2012). Qualtrics (2016) conducted a survey with 14 countries on workplace productivity that resulted in the lack of alignment in the workplace. The United States believed that its workforce had a higher level of productivity than all participant countries. However, the results showed that the United States also overestimated its country's productivity by 11% higher than its true outcomes.

The efficiency issue shared by participants regarding just hitting or missing deadlines, which was identified during the Stein (2012) study, can be associated with the historical lack of collaboration and communication that were also suggested in the same survey. Visix (n.d.) reported that 75% of employees rated teamwork and collaboration as *very important*, but 39% of employees believed that their organizations should increase their collaborative approaches. Additionally, 86% of employees believed that lack of collaboration and ineffective communication was the reason for workplace failures (Stein, 2012). Other studies have indicated that even though workers were familiar with

the goals of the organization, 44% were unable to name them (Impraise Blog, n.d.), and only 14% of employees understood their companies' strategies and directions (Witt, 2012).

Team leadership concerns. Martin and Bal (2015) referenced a survey that was conducted by the Center for Creative Leadership, a top-ranked provider of leadership development, revealing that leaders and emerging leaders believed that teams were very important to organizational environments: 91% of participants believed that teams were central to organizational success, 87% of participants felt that multiteam collaborations were essential for success, and 95% of participants were on more than one team at a time (Martin & Bal, 2015). Furthermore, employees admitted that more than 75% of their day was spent communicating with coworkers (Cross et al., 2016). Coutu (2009) seconded the Center for Creative Leadership's notion by indicating that collaborative activities, by employees, had increased by more than 50% since 1989.

The authors of the Gallup (2016) survey recommended that organizations shift their hierarchical leadership models to "dynamic networks of highly empowered, interdisciplinary teams" (para. 4). Based on the results from the Gallup survey, leadership was the second-highest trend of concern (89% were international respondents) behind organization redesign. The respondents from the United States also indicated leadership as a concern at the same rate (89%) (Rigoni & Nelson, 2016). Bersin (2016) highlighted a study that showed 90% of companies felt that leadership was a major concern and that the concern for the urgency of leadership had increased by over 60% (Bersin, 2016). Rigoni and Nelson (2016) forecasted that leadership is of concern because the *new*

organization would require new leaders to align with the new network of teams accordingly.

Beck and Harter (2015) concluded that managers account for 70% of the variance in low engagement scores. During a Gallup (2017) study, only 45% of executives and 29% of managers were engaged with their employers. Only 14% of matrixed employees reported that their leaders provided ongoing performance feedback (Gallup, 2017). Essentially, the higher matrixed the employee, the higher the employee responded to requests from coworkers and attended internal meetings. Even though the matrix approach, in theory, has been used to increase productivity, only 29% of slightly matrixed, 31% of manager matrixed, and 24% of highly matrixed employees were engaged (Gallup, 2017). Therefore, the more matrixed the employee, the less time that he or she has for daily work, and the more likely that matrixed employees report that they do not have a clear job description, their job descriptions do not align with the work they are asked to do, and they do not trust that their team members understand their roles and responsibilities to timely execute their work (Gallup, 2017). Also, only three out of 10 employees strongly agreed that someone followed up with them about their work progress (Gallup, 2017).

The researchers from the Deloitte University Press survey reported that over 50% of employees surveyed indicated that their respective companies were unprepared to meet leadership needs (Schwartz et al., 2016). Furthermore, the SHRM (2005) reported that 58% of workers believe that poor management is a core challenge to ensuring long-term productivity.

Spence (2015) referenced a study that was conducted by Harvard on the effectiveness of over 2,800 leaders in a large financial services company. The study tested correlations between worker engagement and commitment and supervisor effectiveness. Results indicated that the lower the leadership effectiveness, the more dissatisfaction increased; dissatisfaction, then, results in decreased employee engagement and commitment (Spence, 2015). Additionally, there are differences between gender and engagement based on supervisory level. Gallup (2017) reported that women are more engaged than men among U.S. workers at 36% versus 30%, respectively. However, male leaders supersede women in engagement at 50% versus 35%, respectively. Foster (2017) noted the need for workplace improvement by referencing that only 15% of employees successfully executed communication throughout the organization. In fact, 69% of managers reported that they generally felt uncomfortable communicating with their employees. As a result, the lack of comfort from supervisors decreased the support that they provided to their employees. Additionally, 51-63% of the employees reported that management did not recognize their achievements, had not given them clear instructions, or did not take time to meet with or talk to them (Foster, 2017). With that, Salas et al. (2004) suggested that the role of the team leader has been neglected. Thus, there is a need to examine the team effectiveness approaches that have been utilized by leaders over time (Salas et al., 2009).

Underdeveloped team effectiveness models. Even with the anecdotal development of team effectiveness and performance models, Bersin (2016) emphasized that the continued challenges faced by organizations are team coordination and alignment and information sharing and team working. According to Henderson and Walkinshaw

(2002) and Salas et al. (2009), there continues to be a lack of literature and practice of a universally accepted team effectiveness model. However, the IPO model has been utilized and supported by researchers as the foundation of team effectiveness for over 50 years, and it has consistently developed since its origination (Salas et al., 2009). Thus, the underperformance of teams can potentially be associated with the consistent development of IPO frameworks and performance measures (Ilgen et al., 2005).

Mathieu et al. (2008) criticized prior IPO models by highlighting that past models contained historical, broad, and overlooked characteristics. Franz (2012) posited that the underlying themes of the IPO model are that teamwork is an organizational necessity, teams can perform better than individuals, understanding and assessing teams help to identify where to monitor and modify performance, and team evaluation guides continuous improvement and learning.

To further support the Mathieu et al. (2008) approach of former IPO models, there were many broad, progressive, and overlooked characteristics for 50 years. McGrath (1964) was the originator of the IPO model in which individual (e.g., pattern of member skills, attitudes, personality characteristics); group (e.g., structure, level of cohesiveness, group size); and environmental inputs (e.g., group task characteristics, reward structure, levels of environmental stress) were believed to be the drivers of group interaction that resulted in performance (e.g., performance quality, speed to solution, number of errors) and other intrinsic outcomes (e.g., member satisfaction, group cohesiveness, attitude change, and sociometric structure). This model was ideal until the 1980s, where Gladstein (1984) shifted the notion of inputs by considering only group and organizational level inputs that influence process. Moreover, Gladstein (1984) identified

group tasks as mediators that focused on cognitive ideologies as opposed to processes that influence team outputs. Progressively, 1990s authors, Cohen and Bailey, (1997), Klimoski and Jones (1995), Salas et al. (1992), and Tannenbaum, Bear, and Salas (1992), focused on team and task input factors that emphasized individual and group contributions. Burke et al. (2006) and Salas et al. (2004) agreed that traditional leadership theories lack the distinction between hierarchical and shared leadership interactions that impact conceptual frames and models. Furthermore, researchers Ilgen et al.(2005) endorsed the IPO model as providing the basics of understanding on how teams and groups work, but they argued that the IPO model is imperfect. Thus, the IPOMTE became the modified and extensive framework of the IPO model, which was developed by Landy and Conte (2013).

Last, the most recent 21st century IPO models focused on leadership organization and team development, function, and structural inputs (Blendell, Henderson, Molloy, & Pascual, 2001; Burke et al., 2006; Landy & Conte, 2013; Essens et al., 2005; Ilgen et al., 2005; Rasker, van Vliet, van den Broek, & Essens, 2001; Zaccaro et al., 2001). There are some differences with the 21st century IPO models that include an emphasis on *mediators* (Ilgen et al., 2005) as opposed to *processes* and *mission* (Essens et al., 2005; Rasker et al., 2001). Ultimately, these team inputs are influenced or mediated by team development factors that result in performance and efficiency (Ilgen et al., 2005). Landy and Conte (2013) created the IPOMTE as a modified IPO model that integrates the developments of the previous IPO models. The IPOMTE was used as one of the core frameworks of this current study.

Theoretical Rationale

To effectively address the problem statement and the proposed research question and hypotheses, the IPOMTE (Landy & Conte, 2013) and relational coordination theory (Gittell, 2001) were utilized as contributors to the characteristics of team effectiveness. The IPOMTE (Figure 1.1) is defined as, “a model that provides links among team inputs, processes, and outputs. Thereby enabling an understanding of how teams perform and how to maximize their performance” (Landy & Conte, 2013, p. 527). The IPOMTE consists of team input, process, and output variables.

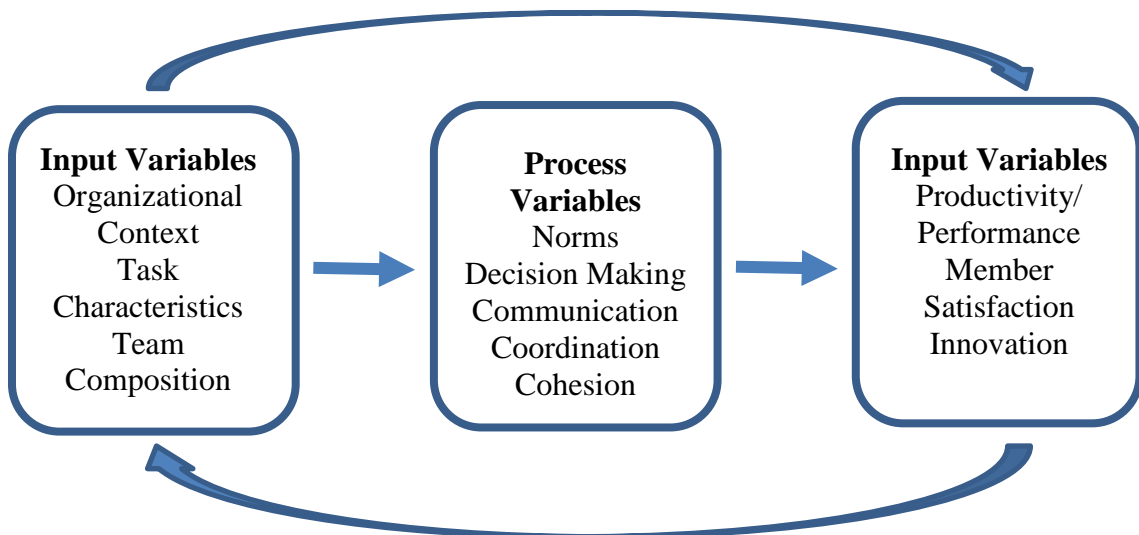


Figure 1.1. Input, Process, Output Model of Team Effectiveness. Adapted from “Work in the 21st Century: An Introduction to Industrial and Organizational Psychology” (4th ed.), by F. J. Landy and J. M. Conte, 2013. Copyright 2013 John Wiley & Sons, Inc.

Landy and Conte (2013) proposed that the team input variables influence the team process variables, which influence team output variables. Team input variables ultimately affect team output variables indirectly through the process (Landy & Conte). The IPOMTE contains feedback loops between input and output variables that serve as

influences of team dynamics that adapt and change over time (Landy & Conte). All variables form the IPOMTE and contribute toward team effectiveness (Landy & Conte, 2013).

Team input variables. Team input variables include organizational context, task characteristics, and team composition. The organizational context consists of managerial support, rewards and training, physical environment, and technology (Landy & Conte, 2013). For the purpose of this study, leadership styles (based on managerial support) are the organization context focus. Landy and Conte (2013) proposed that contextual factors influence team interaction that increases team effectiveness.

Task characteristics are considered the individual and group activators based on the job characteristics approach (Hackman & Oldham, 1980). The job characteristics approach suggests that the contributors of the task characteristics or motivators consist of tasks that are meaningful and important; they require a continuum of skill, autonomy, and performance feedback; and they influence team performance (Fleishman & Zaccaro, 1992; Hackman, 1987; Landy & Conte, 2013).

Last, team composition is defined as “the nature and attributes of group members” (Guzzo & Dickson, 1996, p. 310). Landy and Conte (2013) further described the team members’ experiences that include “skills, abilities, experiences, and personality characteristics” (p. 528). Regarding team composition, Landy and Conte (2013) also referenced the dimensions of the Stevens and Campion Teamwork Test (Stevens & Campion, 1994). The Teamwork Test consists of many interpersonal knowledge, skills, and abilities (KSAs), such as conflict resolution, collaborative problem-solving, and communication. Self-management KSAs include goal-setting and performance

management and planning and task coordination (Stevens & Campion, 1994). Team composition also includes shared mental models that emphasize ways in which team members behave and work (Smith-Jentsch, Mathieu, & Kraiger, 2005). Additionally, Landy and Conte (2013) underlined demographic and psychological diversity as influences of team effectiveness.

Team process variables. Landy and Conte (2013) supported LePine, Piccolo, Jackson, Mathieu, and Saul's (2008) indication of team process variables that consist of norms, communication, coordination, cohesion, and decision making. Norms are the monitoring of behavior through the adoption of rules (Feldman, 1984; Greenberg, 2002; Landy & Conte, 2013). According to Landy and Conte (2013), team norms are developed explicitly by current or past statements that are suggested by team members or adopted by consistent patterns that are implemented by a team. Communication and coordination are important contributors of team effectiveness because communication involves the transfer of information, and coordination involves the interaction of activity (Landy & Conte, 2013). Cohesiveness is another contributor of process that includes "stability, pride in the team, feelings of unity and satisfaction that hold the team together, strong norms, and pressure of conformity" (Landy & Conte, 2013, p. 534). Overall, cohesive team members are positively engaged and great communicators (Landy & Conte). Last, decision making is a contributor to team process. Decision making is associated with team effectiveness by the teams defining and collecting information on a problem and collaboratively discussing and evaluating appropriate actions (Landy & Conte, 2013).

Team output variables. Brodbeck (1996) and Landy and Conte (2013) referenced that when the appropriate input and process variables are applied to teams, the

team output variables will result in productivity, performance, member satisfaction, and innovation. In addition to the team-related behaviors that result in output, other team output include: increased organizational citizenship behaviors, increased commitment to the organization, improved job satisfaction, reduced absenteeism and tardiness, improved organizational communication, improved social benefits for members, and increased affective reactions toward other team members (Franz, 2012). The current IPOMTE consist of characteristics that contribute toward effectiveness. IPOMTE characteristics can potentially be used for practical implementation and as performance measures. However, the aforementioned variables that are identified as being effective are not clearly prescribed or identified as elements within the model to show how the IPOMTE can fully be applied. Thus, there is a potential challenge of accurately applying the model. Similarly, to the communication and coordination IPOMTE variables, relational coordination theory uses relationship and communication dimensions that are also contributors of team effectiveness (Gittell, 2016). Thus, relational coordination is a contributing theory used for this study. Relational coordination dimensions are representative of the communication and coordination variables of the IPOMTE that help contribute to identifying team effectiveness characteristics.

Relational Coordination Theory

Gittell (2001) developed relational coordination to coordinate efforts between workers (relational coordination), between workers and clients (relational coproduction), and between workers and leaders (relational leadership) (Gittell, 2016). Relational coordination is a pragmatic approach defined as “a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task

integration” (Gittell, 2001 p. 301); interdependence, uncertainty, and time constraints are the three conditions where relational coordination becomes essential (Gittell, 2002a).

The mutually reinforcing process consists of high-quality communication that is frequent, timely, accurate, and problem solving (Gittell, 2016). These communication aspects influence the relationships that exist between affiliates of the work process.

Gittell, Weinberg, Pfefferle, and Bishop (2008) highlighted that an increase in intercommunication results in a greater response to new information, which reduces the amount of ambiguity and error to successfully coordinate. The mutually reinforcing processes also contain relational dimensions that consist of shared knowledge, shared goals, and mutual respect; these dimensions are essential to the coordination process (Gittell, 2002b, 2006, 2011, 2016). As relationship ties increase between individuals, interpersonal communication is more efficient, and that communication is acted on by those individuals in a coordinated manner to achieve mutual goals Gittell et al. (2008). Gittell et al. (2008) provided a depiction of relational coordination theory and its expected outcomes, which is depicted in Figure 1.2. Accordingly, when high quality communication and relationships occur, there are high performance, quality, and efficiency outcomes (Gittell, 2002b, 2011, 2016; Gillett, Seidner, & Wimbush, 2010).

Relational coordination is measured by interdependent communication and relationship dimensions between staff within mutual organizations or between multiple organizations (Gittell et al., 2008). So, there is an expectation to improve performance on tasks and goals (Gittell, 2002b, 2011, 2016). Additionally, Gittell (2016) went beyond relational coordination between workers to highlight relational coordination between workers and clients and workers and leaders. Coproduction is the idea of coordination

between workers and clients. Gittell (2016) argued that striving companies are dependent upon customers to work and connect with other customers to create value through interdependence of support. Thus, relational coproduction occurs “when we [workers] extend relationships of shared goals, shared knowledge, and mutual respect to include our customers” (Gittell, 2016, p. 6).

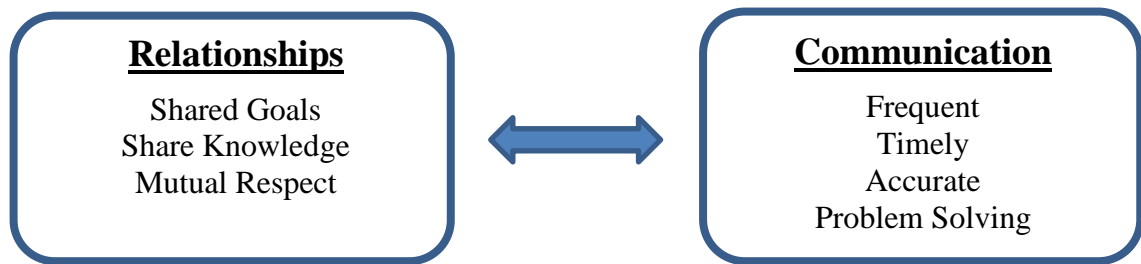


Figure 1.2. Relational Coordination Theory. Adapted from “Relational Coordination: Coordinating Work Through Relationships of Shared Goals, Shared Knowledge, and Mutual Respect,” by J. H. Gittell, 2006. In O. Kyriakidou and M. Özbilgin (Eds.), *Relational Perspectives in Organizational Studies: A Research Comparison* (pp. 74-94). Copyright 2006 Olivia Kyriakidou and Mustafa F. Özbilgin.

Last, Gittell (2016) emphasized relational coordination between coworker and leaders through relational leadership. Relational leadership occurs when relationships of shared goals, shared knowledge, and mutual respect occur between staff and leadership (supervisors, managers). Figure 1.3 shows Gittell’s (2016) display of the associations between relational coordination, relational coproduction, and relational leadership.

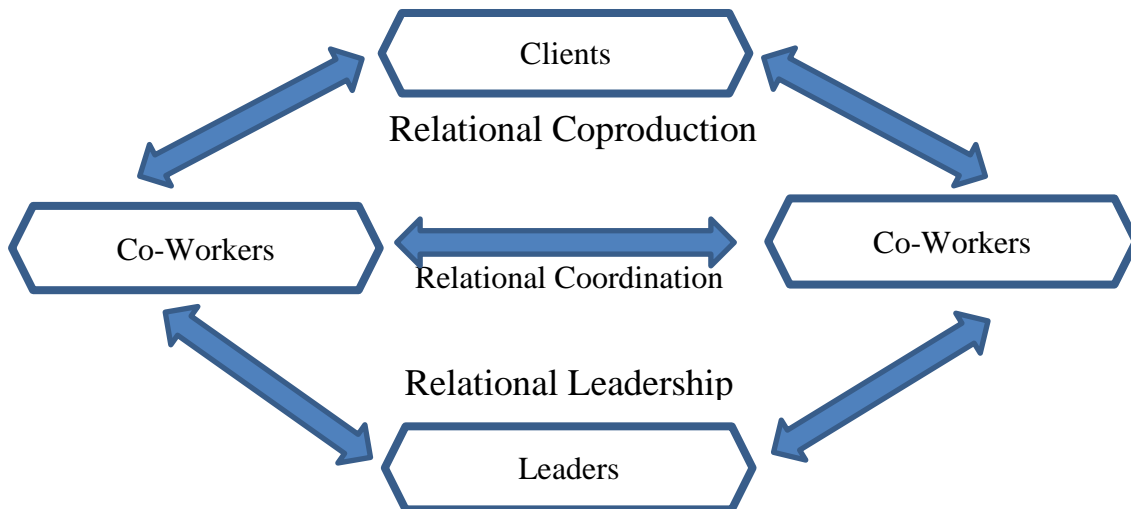


Figure 1.3. Three Relational Dynamics. Adapted from “Transforming Relationships for High Performance: The Power of Relational Coordination,” by J. H. Gittell, 2016. Copyright 2016 the Board of Trustees of the Leland Stanford Junior University.

Relational coordination theory has improved over the years with the addition of a seven item Relational Coordination Survey (RCS) that has been proven to be effective in many empirical studies. The RCS includes seven Likert-scale questions that measure communication (frequent, timely, accurate, and problem solving) and relationship dimensions (shared knowledge, shared goals, and mutual respect) (Gittell, 2002a, 2002b). Questions from the RCS are answered based on a 5-point Likert scale that consist of 1 = never, 2 = rarely, 3 = occasionally, 4 = often, 5 = constantly. The RCS score is typically determined by the theorist by adding the ratings from each of the seven responses to obtain an accumulated total. The total is then divided by seven (based on the number of dimensions/questions). The higher the RCS score (35 being the highest), the higher the rate of relational coordination.

Statement of Purpose

The purpose of this survey research study was to identify specific input and process and output characteristics that create a profile of team effectiveness. This work developed a profile of team effectiveness by prescribing the input, process, and output characteristics of the IPOMTE associated with well-performing teams. This study also aimed at identifying the most effective team leadership style and the teams with the highest relational coordination. Finally, the study compares the most effective team to the most ineffective team, and it also compares the results from supervisors and nonsupervisors. This study contributes toward the research, literature, and practical implication of team and organizational leadership, relational coordination, team-based performance, and organizational psychology.

Research Question and Hypotheses

The survey study aimed to test two hypotheses and answer one question:

Hypothesis 1 (H1): Effective teams will score differently than ineffective teams on input, process, and output measures.

Hypothesis 2 (H2): Effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process, and output measures.

Research Question (RQ): What are the input, process, and output characteristics of team effectiveness?

Potential Significance of the Study

The findings from this study sheds light on the IPO model; the IPOMTE; vertical, bottom-up, horizontal, and balanced leadership; and the relational coordination theory literature. This study is the first empirical study that utilized the IPOMTE, and it is the

first study that incorporated the IPOMTE, leadership, and relational coordination theory into one study. Second, this is the first study to develop a detailed profile of the IPOMTE that can potentially be utilized as a team-performance measure, assessment, monitoring and evaluation, or quality assurance and improvement tool. Third, the results of this developed team leadership profile can potentially be utilized for generalization. In addition, the study may further validate relational coordination theory.

Definition of Terms

The following terms are defined within the context of model team effectiveness.

Accurate Communication – “the degree to which participants perceive that other workgroups communicate in an accurate way about the focal work process” (Gittell, 2016, p. 239).

Cohesion – “[the] degree to which team members desire to remain in the team and are committed to team goals” (Landy & Conte, 2013, p. 494).

Communication – “the transmission of information from one team member to another in a common language” (Landy & Conte, 2013, p. 494).

Coordination – obtaining information from other team members when needed and moving easily from one task to another interactively (Landy & Conte, 2013).

Decision Making – “defining the problem, gathering information, discussing and evaluating alternatives and deciding collaboratively on the appropriate course of action” (Landy & Conte, 2013, p. 496).

Demographic Diversity – “differences in observable attributes or demographic characteristics such as age, gender and ethnicity” (Landy & Conte, 2013, p. 492).

Effectiveness – “the accomplishment of the objectives, milestones, and goals as defined by the requirements of the context or the stakeholders” (Salas et al., 2009, p. 294-295).

Engagement – “employees who are emotionally attached to their workplaces and motivated to be productive” (Gallup, 2010).

Frequent Communication – the degree to which participants consistently communicate their work in the focal work process to other workgroups.

Innovation – “the creation of novelty of economic value . . . the creation of new products and services, as the processes of production of these and as the associated organizational changes, sometimes including the establishment of new work practices and skills” (Marceau, 2008, p. 2).

Leadership – “the process of inducing others to take action toward a common goal” (Pearce & Conger, 2003, p. 257).

[Team] Member Satisfaction – a positive reflection of the perceived characteristics of a team in relation to a person’s frame of reference (alternatives, expectations, experiences) (Burke, 2004).

Mutual Respect – “the degree to which participants perceive that their work in the focal work process is respected by other workgroups” (Gittell, 2016 p. 238).

Norms – “informal and sometimes unspoken rules that teams adopt to regulate members’ behavior” (Landy & Conte, 2013, p. 493).

Organization Context – managerial support of team performance (Landy & Conte, 2013).

Performance –

How well work processes are being carried out. This includes activities that are directly related to the operational tasks, such as planning and decision making done individually and as a team as well as those activities required to work together as a team, such as coordinating, providing feedback, and maintaining cohesion. (Salas et al., 2009, p. 294)

Problem Solving Communication – “the degree to which participants perceive that other workgroups communicate in a problem-solving rather than a blaming way about the focal work process” (Gittell, 2016, p. 239).

Productivity –

The efficiency of production, normally calculated as units of output produced per unit of input. The process that produces more output per unit input is classified as more productive, and the process that produced less output unit input is regarded as less productive. (Leicht, 2013, p. 2)

Psychological Diversity – “differences in underlying attributes such as skills, abilities, personality characteristics, attitudes, beliefs, and values; may also include functional, occupational, and educational backgrounds” (Landy & Conte, 2013, p. 492).

Shared Goals – “the degree to which participants perceive that other workgroups share their goals for the focal work process” (Gittell, 2016, p. 236).

Shared Knowledge – “the degree to which participants perceive that their work in the focal work process is understood by other workgroups” (Gittell, 2016, p. 235).

Shared Mental Model – “organized way for team members to think about how the team will work; helps team members understand and predict the behavior of their teammates” (Landy & Conte, 2013, p. 492).

Task Characteristics (Team Task) – work or chores that a team is required to perform that requires a variety of skills, autonomy, meaning, and importance, and they provide performance feedback (Landy & Conte, 2013).

Team Composition – “the attributes of team members, including skills, abilities, experiences, and personality characteristics” (Landy & Conte, 2013, p. 489).

Timely Communication – “the degree to which participants perceive that other workgroups communicate in a timely way about the focal work process” (Gittell, 2016, p. 239).

Chapter Summary

Internationally, there has been an emphasis on the need for organizational redesign that includes teams. Even though teams are routinely assembled, team effectiveness has not been fully defined. Researchers and practitioners experience complexities with group dynamics that create challenges to ensure high performance (Martin & Bal, 2015). With that, the IPOMTE was created to understand team effectiveness and its relation to performance (Landy & Conte, 2013). However, there is a need to further identify the characteristics of each IPOMTE variable that are associated with increased effectiveness. Thus, this study describes the characteristics of the IPOMTE variables through the exploration of leadership styles and the IPOMTE and relational coordination theories. The results from this study can be applied to leadership

within teams for relational coordination, team-based performance, organizational psychology, and to the leadership within teams.

This dissertation has five chapters. The first chapter reviewed the research problem, the purpose of the study, the research question, and the potential significance of a study examining the IPOMTE, leadership styles, and relational coordination as contributors to a profile of team effectiveness. A review of the literature on team effectiveness is presented in Chapter 2. The research design, methodology, and analysis are discussed in Chapter 3. Chapter 4 presents a detailed analysis of the results and findings, and Chapter 5 discusses the findings, implications, and recommendations for future research and practice.

Chapter 2: Review of the Literature

Empirical studies on relational coordination were investigated through an extensive search. *Relational coordination* was the sole search parameter for obtaining articles on relational coordination. The intent of this search was to discover the literature on relational coordination in all facets. There were three steps of filtration for this study. First, the relational coordination research began in the year 2000. So, the search term for this literature review was between 2000 and 2018. Studies were also filtered to include only peer-reviewed English journal articles. The researcher eliminated dissertation, conference, abstract only, literature review, and similar study types. Additionally, the researcher only included articles that were related to teams and team perspectives that utilized all seven items of the Relational Coordination Scale (RCS). In addition, only those articles that employed variables used in the IPOMTE (Landy & Conte, 2013) framework were included. After the three-step filtration, all duplicate articles were eliminated. A methodological review in this chapter describes relational coordination and its use of quantitative and qualitative research methods. Relational coordination research gaps were highlighted, and recommendations were suggested for future research that can be added to the literature.

Significant Empirical Findings of Relational Coordination

In classifying all of the empirical relational coordination articles, the literature review was categorized utilizing the IPOMTE framework. Categories for this literature review included input dimensions (organizational context: interagency collaboration and interdepartmental collaboration); process dimensions (team collaboration and engagement); and output dimensions (quality, member satisfaction, innovation, and performance). Relational coordination focuses on communication dimensions that are frequent, timely, accurate, and problem solving and relationship dimensions that include shared goals, shared knowledge, and mutual respect. Thus, the results from the relational coordination theory articles for this literature review were closely related to the IPOMTE.

Input dimensions. Collaboration comes from the idea that every entity needs supportive contribution from other entities to achieve missions, goals, and outcomes because no entity can execute maximum impact alone. Interagency and interdepartmental collaboration are organizational context input measures that contribute to managerial support and physical environment, and the team tasks and team composition of the IPOMTE. Most of the relational coordination studies that have tested and evaluated input dimensions have come from the criminal justice and healthcare professions. Two studies focused on criminal justice reentry systems (Bond & Gittell, 2010; Hean, Ødegård, & Willumsen, 2017) and three studies focused on integrated healthcare support (Hartgerink et al., 2014a; Hartgerink et al., 2014b; Khosla, Marsteller, Hsu, & Elliott, 2016; Perloff et al., 2017). Within criminal justice and healthcare systems, collaboration and coordination are essential to high level performance and outcomes.

Interagency and interdepartmental collaboration. In review of the studies that discussed interagency and interdepartmental collaboration, first it is important to have clear definitions. Himmelman (2001) defined collaboration as, “an exchange of information for mutual benefit (networking); an altering of activities (cooperating); sharing of resources (coordinating); and working to build the capacity of others” (pp. 277-278). Clairborne and Lawson (2005) emphasized the interagency working of collaboration to include a “form of collective action, involving multiple agencies working together in response to special mutually dependent needs and complex problems” (p. 2). In comparing definitions, Himmelman’s (2001) definition of collaboration is related to interdepartmental collaboration while Clairborne and Lawson’s (2005) definition of collaboration is related to interagency collaboration. Thus, both definitions were identified accordingly within the literature review.

The criminal justice studies that dealt with interdepartmental and interagency collaboration focused on offender reentry outcomes between internal and community-reentry organizations and within a correctional facility for offenders with mental illness. Bond and Gittel (2010) highlighted that there is a need for cross-agency coordination between the criminal justice system and the social service agencies. They stated that this is particularly important in order to guarantee successful offender reentry, which is considered a top contemporary issue. Thus, tests were developed based on relational coordination and its relation to cross-agency collaboration and reentry outcomes—specifically at reentry hot spots. The reentry hot spots were located in nine cities throughout the state of Massachusetts. Bond and Gittel (2010) wanted to examine (a) if federally funded initiatives that support collaborative efforts had a higher relational

coordination score than the nonfederally funded initiatives, (b) associations between reentry agencies and relational coordination, and (c) if relational coordination was appropriate for offender reentry collaborative research. Thus, Bond and Gittell (2010) developed a relational coordination survey that was distributed to reentry service stakeholder administrators from criminal justice, employment, and substance use organizations with a return rate of 77% (Bond & Gittell, 2010).

After conducting descriptive statistics for each reentry stakeholder, Bond and Gittell (2010) calculated a relational coordination index based on the seven dimensions of the RCS. Bond and Gittell (2010) ensured that their measures had acceptable reliability by calculating Cronbach's alpha between .60 and .80. The highest overall relational coordination occurred in the parole and probation systems with scale scores that ranged from 3.8 to 4.2 and 3.6 to 4.2, respectively, out of 5.0. In contrast, employment agencies had the lowest relational coordination distribution, scoring only between 2.7 and 3.2. Overall relational coordination for each agency was conducted, and scores ranged from 3.31 (substance use agency) to 3.92 (employment agency).

For the first question of the study, Bond and Gittell (2010) predicted that since seriously violent offender reentry initiative (SVORI) communities were supported by funding efforts to increase collaboration, that their relational coordination score would be greater than the non-SVORI communities. However, after conducting an analysis of variance, the only difference in relational coordination scores was for employment agencies, with means and standard deviations for SVORI and non-SVORI communities at 3.45 (1.02) and 2.36 (1.18), respectively, $p < .05$. Thus, SVORI communities having a

greater relational coordination score than non-SVORI was only supported in part by the evidence.

For the second question of the study, Bond and Gittell (2010) calculated relational coordination of the community hot spots within the nine cities in Massachusetts. Scores among the cities ranged from 3.23 to 3.96. Therefore, all cities were average or above average in relational coordination, using the benchmark standard that a 3.0 was average. Bond and Gittell (2010) analyzed recidivism rates from the nine cities for those who were reconvicted of a new crime between 1997 to 2002. The results indicate that recidivism, overtime, was only supported in part by the evidence—regardless of the relational coordination score. Even with all cities having an above average relational coordination score, six cities had negative recidivism improvements with confidence intervals (between $-.84$ and -14.72). In contrast, only three cities had positive recidivism improvements (between $.50$ and 2.81). Although relational coordination did not predict recidivism, Bond & Gittell (2010) proposed that “relational coordination is a fitting model in the multidimensional reentry context” (p. 126). However, there were other measures of recidivism other than reentry (Maxwell, 2005) where relational coordination could be tested.

Relational coordination can be used in many settings and in a variety of ways. It is interesting to look at the Hean et al. (2017) study that conducted relational coordination as an evaluation tool. Hean et al. (2017) examined the internal support for mentally ill offenders by testing prison officers’ existing and desirable perceptions of relational coordination during interprofessional collaboration while working with offenders. The purpose of the study was to identify gaps between current and desirable relational

coordination to improve collaboration. The study took place within correctional services in Norway. Norway is divided into five administrative regions that include 37 prisons and eight halfway houses; all were approached to participate in the study. Out of the entities that were approached, four regions with 13 prisons and 160 prison officers agreed to participate in the study. Hean et al. (2017) utilized Gittell's (2011) RCS, which was translated into Norwegian. The study had good internal consistency with scores between .84 to .88.

During the Hean et al. (2017) study, officers were asked to rate their level of relational coordination with psychiatrists and psychologists who worked with specialized mental health and drug treatment services; and also with prison nurses, doctors, social workers, and other prison officers. Means were examined to identify overall actual and desired levels of relational coordination. Additionally, Hean et al. (2017) tested to identify the differences between the actual and the desirable levels of relational coordination by profession. Results based on the Friedman tests indicated that there were gaps between actual and desired relational coordination, $F(7) = 433.372, p < 0.00$ and $F(7) = 547.548, p < 0.00$, respectively, between all professions (psychiatrists in mental health services, psychiatrists in drug services, psychologists in mental health services, psychologists in drug services, doctors, nurses, social workers, and other prison officers). The Hean et al. study can be used as a model to assess relational coordination between professionals to identify actual relational coordination and to further improve relational coordination based on desirable relational coordination scores.

As mentioned before, several studies have been conducted on interagency and interdepartmental collaboration in the healthcare system. These studies are

methodologically similar to the Bond and Gittel (2010) study and the Hean et al. (2017) study. In the healthcare field, elderly patients have many complex biopsychosocial needs that are expected to be serviced by integrated care delivery (World Health Organization [WHO], 1996). Many complications for elders can be preventable, but healthcare delivery tends to lead to inadequate outcomes (Hartgerink et al., 2014a; Hartgerink et al., 2014b). So, interagency and interdepartmental collaboration are important to the success of integrated healthcare delivery outcomes. Hartgerink et al. (2014a) and Hartgerink et al. (2014b) investigated whether relational coordination in hospital settings were positively associated with high quality integrated care and the collaborative context on delivering integrated care. Both studies were a part of other nonrelational coordination studies where cross-sectional studies were conducted with elderly patients who were hospitalized in Norway. Both studies used the RCS (Gittel, 2001) but they measured relational coordination using six survey questions (as opposed to seven) by combining the frequent and timely communication dimensions into one dimension. Additionally, both studies used a 4-point scale rather than a 5-point scale. Even with these modifications, the RCS still measured the same construct. Hartgerink et al. (2014a) and Hartgerink et al. (2014b) had great internal reliability with Cronbach's alpha at .96 (Hartgerink et al., 2014a) and .94 (Hartgerink et al., 2014b).

In the Hartgerink et al. (2014a) study, 192 professionals (44% response rate) (medical specialists, nurses, physical/speech therapists, dieticians, social workers, transfer nurses, and general practitioners) from several Norway hospitals completed a questionnaire. Results based on multiple regression analyses indicated that integrated care was positively associated with relational coordination ($R^2 = 0.11$, $F = 3.071$, $\beta = .20$,

$p < 0.05$). The Hartgerink et al. (2014b) had 215 professionals from three Norwegian hospitals complete their questionnaire obtaining a 42% response rate. Similar to Hartgerink et al. (2014a), results from Hartgerink et al. (2014b) revealed that relational coordination was positively associated with integrated care delivery ($r = .46, p < 0.01$) among health professionals.

Khosla et al. (2016) and Perloff et al. (2017) used relational coordination to evaluate interagency and interdepartmental collaboration through innovative influence while working with HIV-positive populations (Khosla et al., 2016), and also through education and research (Perloff et al., 2017). The premise of the Khosla et al. study was that, “problems in coordination, fragmentation of services and people ‘slipping through the cracks’ may occur because of the wide diversity among agencies that serve people living with HIV” (p 87). Additionally, there was limited information on the patterns of collaboration used to increase interaction that specifically catered to HIV services (Khosla et al). The Khosla et al. study recruited 11 organizations (two government, six nonprofits, and three university organizations) in Baltimore, MD that worked with other agencies that catered to people living with HIV. The 11 agencies were administered the relational coordination survey using the RCS (Gittell, 2009). Khosla et al.’s (2016) measures had good internal reliability with Cronbach’s alpha at .94.

First, a relational coordination matrix was conducted by Khosla et al. (2016) that generated relational coordination mean scores between each of the 11 organizations. The relational coordination scores ranged between 3.1 and 4.22 out of 5.0. The study then identified the mean scores of relational coordination from organizations with different participant organizations; scores ranged between 3.3 and 3.97 out of 5.0. Khosla et al.

(2016) suggested that social networks help to expand access to information and knowledge by developing density and centralization networks, as a collective, and for the individuals within the networks. Therefore, in addition to the relational coordination survey, Khosla et al. (2016) included social network theory or “a model of the relationships between actors, with [the] actor represented graphically as points called nodes (or vertices) and their relationships represented graphically as lines” (p. 87). Khosla et al. included social network theory by utilizing the Pajek analysis and visualization software system to calculate a social network analysis as an innovative approach to report relational coordination results and to produce network drawings (sociograms) of relational coordination. Organizations that were central were those organizations that had the most interagency collaboration (they were the most connected) to organizations within the social network. In contrast, the organizations that were peripheral were the organizations that had the least interagency collaboration (they were the least connected) to organizations within the social network.

As an additional innovative method, Khosla et al. (2016) created relational coordination social networks based on each communication and relationship dimension of relational coordination theory to identify results that differed from the overall pattern. For the Khosla et al. study, problem solving communication had the most connections with 54 lines and the greatest density (.98 out of 1.00) with the least centralization (.02 out of 1.00). In other words, problem solving communication had the greatest flow of resources (e.g., access to information) compared to the other relational coordination dimensions within the evaluated social network. In contrast, the frequent and timely communication networks had the least connections, the lowest density, and/or the least

flow of resources between the organizations and the most centralization. Thus, the frequent and timely communication networks had greater variation between the organizations that were connected to the most organizations and the least connected organizations (*DC* [Degree of Centrality] = 10 and 9, respectively out of 10).

Khosla et al. (2016) used an innovative approach to identify relational coordination through the use of social maps. Social maps were used as a visual method to assess the existing relational coordination scores between the organizations and as a way to further evaluate the organizations and the relational coordination dimensions that needed improvement.

Similar to Khosla et al. (2016), Perloff et al. (2017) also developed innovative ways of utilizing relational coordination, during interagency collaboration, by implementing a relational coordination evaluation for a private coalition. Like the previous study by Khosla et al. (2016), Perloff et al. (2017) emphasized barriers to collaboration that included the lack of communication, differences in education and training, siloed goals, and cultural differences. To address these barriers, Perloff et al. (2017) developed a longitudinal intervention that incorporated relational coordination into the coalitions' program process. Coalition members were from different professional backgrounds, however, the Perloff et al. study focused specifically on the members from education and research services: nine participants were from education, 12 participants were from research services, and 14 participants were from clinical trial coalitions. There were seven workgroups for the relational coordination survey from educational services and 16 workgroups for the research services.

Perloff et al. (2017) conducted a mixed-methods study for the coalition to use relational coordination theory and tools to diagnose and improve collaboration, innovation, and productivity. There were four types of mixed-method data that were collected. Relational coordination surveys were completed by the participants for the quantitative part of the study. Then, meeting practice logs, meeting practice observations, and individual interviews on intervention progress were used for the qualitative part of the study. There was a four-step process to implementing the study (Perloff et al., 2017). First, the researchers introduced relational coordination to the members of the coalition that included the outcomes of relational coordination and the utilization of the theory for collaborative improvement. Next, the researchers conducted relational maps to show to visually show the members of the coalition their existing relational coordination status based on a systems perspective. The researchers then distributed three relational coordination surveys: the first at baseline, the second survey was distributed 1 year after the baseline distribution, and the third survey was distributed 2 years after baseline distribution. As a result, Perloff et al. (2017) assessed relational coordination post distribution of the relational coordination survey, and the members created relational maps to understand the relational coordination dimensions that needed improvement. With that, the observers within the Perloff et al. (2017) study used a relational coordination checklist that consisted of relational coordination principles as they related to gathering agendas, workplans, and handout artifacts. Individual interviews were conducted also during Year 1 and Year 2 for one participant who was perceived to be highly engaged and with one participant who was perceived to be less engaged. The

interview was conducted for 30 minutes, each, based on the participants interpretation of practices and outcomes from a relational coordination lens.

For the quantitative part of the study, Perloff et al. (2017) obtained reliability with acceptable internal Cronbach's alphas between .79 and .91. Relational coordination survey data from the Perloff et al. (2017) study were tested using an ANOVA. For the relational coordination survey provided to the education service coalition, overall relational coordination increased from wave one to wave three at 3.88, 4.53, and 4.69, respectively, compared to the full sample of education and research services at 3.78, 4.02, and 4.27, respectively, out of 5. Based on the evidence, accurate communication was the only difference regarding relational coordination. Moreover, relational coordination with the research services coalition indicated scores of 4.01, 3.81, and 3.85 resulting in a fluctuation over the three waves. The research service coalition scores for relational coordination resulted in 3.62, 3.78, and 4.05. Overall relational coordination scores for the full sample concluded an overall relational coordination of 3.84, 3.89, and 3.89. As a result, there was no evidence of difference between groups. For the qualitative part of the study, meeting logs and observations were conducted and held 10 times in Year 1 and six times in Year 2. Using key themes and reported feedback memos. the interview findings indicate a high report of mutual respect among the coalition members. However, the results for the other relational coordination members were parallel to the relational coordination survey results (Perloff et al., 2017).

Overall, Khosla et al. (2016) and Perloff et al. (2017) were able to use relational coordination in practice, using multidimensional tools and strategies to create an innovate way to develop and evaluate its program, process, and outcomes. In support of Khosla et

al. (2016) and Perloff et al. (2017), Landy and Conte (2013) emphasized that input variables that include organization and environmental contexts indirectly influence outcomes that include innovation.

Process dimensions. Similar to interagency and interdepartmental collaboration, relational coordination research also puts emphasis on processes that ensure effectiveness within individual teams. Thus, nine studies predicted relational coordination and identified influences of relational coordination on team communication and engagement (Albertsen, Wiegman, Limborg, Thörnfeldt, & Bjørner, 2014; Gittell, Weinberg, Bennett, & Miller, 2008a; Havens, Warshawsky, & Vasey, 2013; Lundstrøm et al., 2014; McDermott, Conway, Cafferkey, Bosak, & Flood, 2017; Naruse, Sakai, & Nagata, 2016; Warshawsky, Havens, & Knafl, 2012) and team coordination (Carmeli & Gittell, 2009; Daniel, Ross, Stalmeijer, & Grave, 2018; Sakai et al., 2016). Relational coordination studies relating to process measures also include the decision making, cohesion, coordination, and communication characteristics of the IPOMTE (Landy & Conte, 2013).

Team coordination and relationships. Coordination is another process variable and mediator of team effectiveness according to the IPOMTE (Landy & Conte, 2013). Team collaboration and relationships are forms of coordination that have been examined by relational coordination studies through three methods: interdisciplinary coteaching relationships (Daniel et al., 2018), team goal attainment (Sakai et al., 2016), and psychological safety and learning from failures (Carmeli & Gittell, 2009).

Daniel et al. (2018) explored interdisciplinary coteaching relationships using relational coordination between a physician and a teacher, who was a social behavioral scientist, to identify influences of quality relationships. Coteaching occurs when “two

professionals with complementary expertise deliver meaningful instruction, with equal ownership, responsibility and accountability for the planning, conduction, and assessment of instruction across the duration of the course” (Cook & Friend, 1995). Daniel et al. (2018) conducted qualitative research methods using a constructivist grounded theory approach that “views reality as cocreated by individuals as they assign meaning to the world” (p. 142). The physician and the social behavioral scientist coteachers were recruited from a medical university; purposeful sampling occurred to obtain a balance of demographic representation. A physician with primary coteaching skills and a doctoring-course teacher conducted 12 one-hour individual semistructured interviews with six social behavioral scientists and six physicians. In addition to the interviews, focus groups were implemented by the doctoring-course administrator to identify confirmation and elaboration of themes.

Daniel et al. (2018) analyzed the transcripts of the interviews and focus groups to develop a grounded theory. Independent coding was conducted for triangulation during the data collection phase by a course administrator and then during the last stage of coding by a qualitative researcher who had no affiliation to the course of the study. Mutual thematic categories were eventually reached. Themes were then merged into a conceptual model to develop a theoretical coteaching framework that included relational coordination concepts. Four relational coordination themes were concluded as impacting the quality of the coteaching relationships: respect, shared goals, shared knowledge, and communication. Complementary pairing and understanding were additional themes that emerged from the Danie et al. (2018) study. As a result, relational coordination that

consists of high-quality communication and relationships are related to complementary pairing between coteaching.

While Daniel et al. (2018) explored team quality relationships with coteaching, Sakai et al. (2016) explored the quality of services and relationships between professional home-visiting nursing teams in Japan regarding goal attainment. The researchers recruited 234 home-visiting nursing agencies; 14 of the 234 agencies, which included 74 nurses, agreed to participate. A cross-sectional study was conducted utilizing a self-administered questionnaire. Two questionnaires were implemented. Questionnaire A was given to the nurses and nurse managers to collect information on coordination between healthcare workers and to obtain demographic information, and Questionnaire B was provided to only the nursing managers who were targeted toward having agency characteristics. Daniel et al. (2018) used the Japanese translated version (RCS-J) of the RCS (Gittell, 2002a). The researchers obtained acceptable internal Cronbach's alpha at .89. During the study, the participants were asked to rate relational coordination over a 3-month period. Results from a multivariate logistic regression analysis concluded that relational coordination was positively associated with goal attainment ($OR = 5.71$, 95% confidence intervals (CI) 1.65-19.79, $p < .05$).

Kahn (1990) defined psychological safety as persons who can express themselves "without the fear of negative consequences to self-image, status, or career" (Kahn, 1990, p. 708). Carmeli and Gittell (2009) supported the belief of psychological safety that originated from Kahn (1990). Furthermore, Carmeli and Gittell (2009) implied that the lack of psychological safety can potentially create barriers to executing organizational tasks that lead to organizational success. Carmeli and Gittell (2009) emphasized that

organizational failure occurs, but psychological safety is a component of the learning process. As a result, high-quality relationships are to be explored because relationships undergird learning to avoid organizational failure. Thus, Carmeli and Gittell's (2009) research focused on the relational dimensions of relational coordination, shared goals, shared knowledge, and mutual respect, to predict psychological safety and enable organizations to learn from failures. Carmeli and Gittell's (2009) research utilized a mediation model. They believed that psychological safety is the link between relational dimensions and learning from failures. As a result, Carmeli and Gittell (2009) collected data from two quantitative studies within a 1-year span. Ultimately, this study was used to test (a) associations between psychological safety and learning from failures and relationship dimensions of relational coordination, and (b) mediation between psychological safety and relationship dimensions of relational coordination and learning from failures.

Carmeli and Gittell's (2009) Study 1 utilized subjects from three organizations that were operating in the software, electronics, and finance industries in Israel. At random, 144 were distributed with 100 usable questionnaires returned: 31 subjects were from finance companies, 22 subjects were from electronic companies, and 47 subjects were from software companies (Carmeli & Gittell, 2009). Carmeli's (2007) failure-based learning behaviors were the core measure for this study. Failure-based learning behaviors were adapted from Tucker and Edmondson's (2003) study on learning from failure and from a second-order problem-solving type. A second-order problem-solving type is defined as successfully solving a problem but also addressing its underlying causes. The items for learning from failure were assessed on a 5-point scale ranging from 1 = strongly

disagree to 5 = strongly agree. The developed subscales had acceptable reliability between 0.60 and 0.80. The second measure included psychological safety. Carmeli and Gittell (2009) used a 7-item team psychological safety scale to assess the psychological safety at the organizational level. The word *team* was then replaced with *organization* to become the 7-item Organization Psychological Safety Scale. The scale was based on a 5-point Likert scale from 1 = strongly disagree to 5 = strongly agree. Carmeli and Gittell (2009) also had acceptable reliability for these measures with Cronbach's alpha between 0.60 and 0.80. The last scale of measurement was on the high-quality relationships that were based on Gittell's (2003) conceptualization of three high-quality relational dimensions of relational coordination: shared goals, shared knowledge, and mutual respect. Carmeli & Gittell (2009) created a 10-item scale of measurement from the relational dimensions of relational coordination that included three items for shared goals, four items for shared knowledge, and three goals for mutual respect. Validation for this scale was based on a pilot study in Israel with 77 employees. Reliability of the measures was good with Cronbach's alphas between 0.81 and 0.92.

Carmeli and Gittell's (2009) Study 1 used two control variables: differences across organizations (a finance firm served as the baseline), and gender (female), age, and tenure in the organization. The researchers performed a regression analysis to test for the first two research hypotheses. They also tested Hypothesis 3 by testing the mediating effect from the mediation model where psychological safety in relationships was between high-quality relationships and learning from failures. Based on the series of regression analyses, learning from past failures was positively and significantly related to both high-

quality relationships ($r = .63, p < .001$) and psychological safety ($r = .60, p < .001$) (Carmeli & Gittell (2009)).

According to Carmeli and Gittell (2009), all hypotheses resulted in positive relationships. Thus, the higher psychological safety, *learning from failure*, increases ($p < .001$), the higher relational coordination, *psychological safety*, increases ($p < .001$). Therefore, learning from failure mediates both relational coordination relationship dimensions ($p < .001$) and psychological safety ($p < .01$). As a result, relational coordination positively predicted both psychological safety and learning from organizational failures.

On the other hand, Carmeli and Gittell's (2009) Study 2 was conducted a year after Study 1 to test the generalizability for the model. Study 2 analyzed the perceptions of students who worked full time on the importance of high-quality relationships and psychological safety to enable learning from failures within an organization. The subjects were graduate students from a large academic institution in Israel who had full-time jobs and worked in a vast amount of industries. A psychological safety survey was distributed twice; 128 surveys were completed during both distributions. The survey contained a similar indicator to compare the results from both surveys and to connect the results back to the same student.

Carmeli and Gittell (2009) used the same measures in Study 2 as in Study 1, which included learning from failures, psychological safety, and high-quality relationships. Acceptable reliability of the learning-from-failure subscales was between 0.60 and 0.80. Acceptable reliability for the psychological safety measure had a

Cronbach's alpha calculation of .84. Additionally, the control variables were also the same as Study 1, which included gender, age, and tenure in the organization.

The results from Carmeli and Gittell (2009) Study 2 indicated that learning from failures was significantly related to high-quality results ($r = .52, p < .001$) and psychological safety ($r = .74, p < .001$). Thus, the results showed that there were correlations between psychological safety and learning from failures ($p < .001$) for Hypothesis 1. Hypothesis 2 resulted in a significant relationship between high-quality relationships and psychological safety ($p < .001$). Last, Hypothesis 3 concluded that learning from failure was not significant for high-quality relationships ($p > .050$), but it was significant for psychological safety ($p < .001$).

Social capital and worker engagement. Communication is a process variable and a mediator of team effectiveness according to the IPOMTE (Landy & Conte, 2013). Social capital and worker engagement are forms of communication and retention that have been examined by relational coordination studies as it pertains to healthcare (Albertsen et al., 2014; Gittell et al., 2008; Havens et al., 2013; Lee, 2013; Lundstrøm et al., 2014; McDermott et al., 2017; Naruse et al., 2016; Warshawsky et al., 2012).

Social capital is a collection of resources that are associated with a network of relationships (Bourdieu, 1986). Furthermore, Lundstrøm et al. (2014) highlighted Gittell's (2006) notion of organizational social capital and defined it as "the ability for members in an organization to collaborate when solving the key task of the organization" (p. 2). There is an increased role differentiation in general healthcare practice that calls for collaboration between healthcare providers (Lee, 2013). There is a need for collaboration, especially with outpatients and patients with complex treatments, because

the patients are not closely monitored and follow up is the responsibility of the patient (Lee, 2013). Social capital can enhance trust, cooperation, and justice between staff members to ultimately conduct high levels of collaborative practice and relational coordination (Lundstrøm et al., 2014). As a result, Lee (2013) and Lundstrøm et al. (2014) analyzed the associations between relational coordination and social capital in outpatient clinics and in general practices.

Lundstrøm et al. (2014) distributed a questionnaire that included the RCS scale (Gittell, 2002a) and an organizational social capital measure that measured five items of trust, justice, and cooperation. These measures were adopted from the dimensions of *trust regarding management* and *mutual trust between employees* categories in the Copenhagen Psychological Questionnaire (COPSOQ) (Andrews, 2010). Both the RCS and the COPSOQ were translated into Danish. Out of 2,074 possible participants, 706 general practice doctors participated in the study, resulting in a response rate of 34%.

Analyses for the Lundstrøm et al. (2014) study identified the practical average ratings of relational coordination and social capital by using an analysis of variance with 95% CIs. Results from the analysis of variance indicated that there was significance in the rates of relational coordination regarding cooperative practice types (crude and adjusted difference = -0.015 , 95% CI = -0.22 to -0.08 , $p < 0.001$) and partnership practice types (crude and adjusted difference = -0.012 , 95% CI = -0.18 to -0.06 , $p < 0.001$) with cooperative practice types being higher than partnership practice types. The Lundstrøm et al. (2014) study concluded that there are overall associations between relational coordination and organizational social capital.

Lee (2013) also looked at social capital and relational coordination by hypothesizing that social capital is positively related to relational coordination (communication and relationship dimensions individually). The Lee (2013) study was conducted with hospital clinics. Lee (2013) recruited 501 nurses and 187 physicians from 256 outpatient clinics who then were filtered down to 139 nurses and 188 physicians for a total of 327 participants. Participants were associated with five ambulatory departments that were affiliated with university healthcare institutions in Ontario, Canada. A cross-sectional survey was distributed that examined relational coordination and social capital using 16 items: seven RCS items (Gittel, 2002a) and 11 structural, relational, and cognitive social capital items (Nahapiet & Ghoshal, 1998). Acceptable reliability was confirmed with Cronbach's alphas between .81 to .84. Means, standard deviations, and bivariate correlations were conducted that revealed that relational coordination communication and relationships were positively associated with social capital ($r(327) = .66, p < 0.001$ and $r(327) = .75, p < 0.001$). Thus, the higher the relational coordination, the higher the social capital.

Researchers define worker engagement as a motivational and work-related state of mind where employees enjoy challenges, show mental resilience, and are captivated in their work (Havens et al., 2013; Naruse et al., 2016; Warshawsky et al., 2012). Key dimensions of worker engagement are vigor, dedication, and absorption. Vigor is considered as having high levels of energy and mental resilience. Dedication is when staff members are strongly involved in their work, and absorption is staff members feeling immersed in their work (Havens et al., 2013). The literature suggests that given that worker engagement and relational coordination are based on dimensions of staff

communication and relationships, then worker engagement is complementary to relational coordination (Havens et al., 2013; Naruse et al., 2016; Warshawsky et al., 2012).

An empirical study was conducted by Havens et al. (2013) that was replicated from a parent study. The researchers examined if there were relationships between nurse-report work engagement based on workers' age by generation category. They distributed questionnaires that were completed by 747 registered nurses who provided direct care to clients at an acute-care hospital in Pennsylvania. The study had a good response rate of 64%. Participants were assessed based on generational cohorts grouped by age: veterans (born between 1925 and 1945); Baby Boomers (born between 1946 and 1964), Generation X (born between 1965 and 1980), and Generation Y (born between 1981 and 2000).

Havens et al. (2013) used the RCS and Utrecht Work Engagement Scale (UWES-9) to measure relational coordination and worker engagement. The researchers had acceptable reliability on both the RCS and UWES-9 measures, used within the study with Cronbach's alphas between 0.81 and 0.98. The results, based on a multiple regression model, confirmed that relational coordination was a predictor of worker engagement ($r = .1662, p < .0001$). This means that as relational coordination increases, worker engagement also increases.

In addition to the Havens et al. (2013) study, Naruse et al. (2016) examined relational coordination theory and worker engagement but focused on home-visiting nurses who worked for home visit nursing agencies in Miyazaki, Tokyo. Havens et al. (2013) and Naruse et al. (2016) hypothesized that personal and job resources, ongoing

relationship building, span control, and great work environments lead to greater work engagement; thus, emphasizing relationships between resources, practice environment, and worker engagement (Havens et al., 2013; Naruse et al., 2016). The intent of the Naruse et al. (2016) study was to identify relational correlations of coordination between home-visiting nurses, with nurse managers, and through work engagement. There were 93 nurses included in the analysis who were from 15 home visit nursing agencies.

The RCS and the UWES-9 were used as measurement tools of relational coordination and worker engagement; both scales were converted to Japanese based on the cultural setting of the study. Cronbach's alphas were calculated to measure the reliability of the RCS among nurses, managers, and worker engagement; all measures had acceptable reliability (between 0.81 and 0.98). A bivariate analysis was conducted by researchers on the nurse subjects using Student's *t*-test; Pearson correlations were then conducted to identify factors of worker engagement with the nurses and the managers. Results confirmed positive predictions of relational coordination with the nurses ($r = .38$, $p < .001$) and positive predictions of relational coordination with the managers ($r = .42$, $p < .001$).

Like Havens et al. (2013) and Naruse et al. (2016), Warshawsky et al. (2012) examined the effects of interpersonal relationships but emphasized worker engagement and proactivity of work behaviors among nurse managers, nurse administrators, and physicians. Warshawsky et al. (2012) emphasized the core aspects of the model of work engagement that includes interpersonal relationships from organizational structures that are physical, psychological, or social that will assist a worker in the fulfillment of their goals. Thus, job resources can influence worker engagement, and both job resources and

worker engagement can ultimately influence job performance. For Warshawsky et al. (2012) to identify work engagement and work behavior between nurse managers, an online, self-administered survey was completed by 290 nurse subjects within 44 states. In addition, there were three scales that were assessed during the study.

Like the previous studies on work engagement, RCS, assessed relational coordination. The RCS was scored three times based on the study's job classifications. Researchers calculated the reliability of the RCS among nurse managers, nurse administrators, and physicians. All groups had acceptable reliability between 0.81 and 0.92. Cronbach's alpha was also calculated to measure the reliability of UWES, resulting in a similar reliability score. To predict proactive work behavior, Warshawsky et al. (2012) also used a 13-item Proactive Work Behavior Scale (PWBS) that included four subscales: taking charge, individual innovation, problem prevention, and voice. The PWBS consisted of a 5-point Likert scale from 1 = very infrequently to 5 = frequently. Cronbach's alpha was also calculated with acceptable reliability between 0.81 and 0.92.

Covariates were used by Warshawski et al. (2012) in justification of the relevant theories and aspects of the literature. The mean UWES was regressed separately on each possible covariate and concluded that age was significantly related to the UWES ($p < .05$). The PWBS was also regressed separately on each possible covariate of years of nurse experience ($p < .001$), years worked on current unit ($p < .05$), and age ($p < .001$) were significantly related to the PWBS. Results concluded that relational coordination was positively associated with the UWES ($p < .001$) and the PWBS ($p < .001$). Results from a mediated analysis concluded that relational coordination between nurse administrators and physicians is associated with the PWBS ($p < .05$ and $p < .001$,

respectively). Results also concluded that relational coordination between administrators and physicians was significantly related to UWES ($p < .001$ and $p < .001$, respectively). Last, relational coordination on nurse physicians and the UWES related to the PWBS ($p < .001$ and $p < .001$, respectively). However, the RCS scores with nurse administrators was not a predictor of the PWB ($p > .05$).

Another aspect of relational coordination that was used to predict worker engagement included job satisfaction (Albertsen et al., 2014; Gittell et al., 2008), and cross-functional performance (McDermott et al., 2017). McDermott et al. (2017) conducted a study in Ireland that highlighted the components of job resources that included motivation, productivity, and organizational value within healthcare settings. Relational coordination ensures that cross-function is a key aspect of coordinating efforts relating to the work. In addition, performance monitoring is also intended to be cross-functional to increase operational improvement. Thus, the researchers emphasized that “performance monitoring and relational coordination are distinct processes for improving organizational performance in healthcare” (McDermott et al., 2017, p. 7). McDermott et al. (2017) proposed that the research model suggests that formative cross-function influences both relational coordination, patient care, and employee outcomes. Thus, the purpose of the McDermott et al. study was to analyze factors that could potentially link performance monitoring, relational coordination, and outcomes toward a mediated model.

McDermott et al. (2017) hypothesized that “the relationship between perceived levels of formative cross-functional performance monitoring and perceptions of (a) patient care and (b) employee outcomes will be mediated by relational coordination” (p. 8). Cronbach’s alphas were calculated to measure the reliability of the RCS between

patient care and employee outcomes; all had acceptable reliability between 0.81 and 0.92. Results from a hierarchical regression analysis supported the proposed hypothesis that “relational coordination fully mediated the relationships between formative cross-functional performance monitoring and employee outcomes” (p. 13). The results also indicated that cross-functional monitoring was insignificant ($p > .05$) when relational coordination was included in the model ($p < .01$).

Last, Albertsen et al. (2014) and Gittell et al. (2008) studied the associations of relational coordination between healthcare worker engagement, quality of care, and job satisfaction. The purpose of the Albertsen et al. (2014) study was to explore patterns of relational coordination between groups and organizations within a Danish healthcare setting. In addition, the study explored associations between relational coordination and team perception of job, job work, and job quality. Questionnaires were completed by subjects from five job groups: 22 teams contained 439 healthcare assistants and healthcare workers, 91 nurses, 33 therapists, 49 visitation officers, and 43 team-managers/leaders. Pearson correlation coefficient was used for analysis; the Benyamini-Hochberg method was used for multiple testing. A relational coordination survey was used and translated to Danish. Other outcome measures included job-satisfaction (one item), job-involvement (two items), competences (one item), use of competencies (one item), quality of care (one item), goal of the elderly in focus (one item), and attitude from elderly toward rehab (one item). The results of the explorative study suggest that relational coordination positively predicted job satisfaction ($p < .05$).

Albertsen et al. (2014) conducted an explorative study that emphasized the association of team perceptions of job satisfaction, and the Gittell et al. (2008) study

tested the prediction of relational coordination on job satisfaction. Gittell et al. (2008) argued that as relational coordination practice occurs, job satisfaction is improved. Therefore, two hypotheses emerged: (a) “relational coordination among nursing home employees is positively associated with resident quality outcomes” (p. 156), and (b) “relational coordination among nursing home employees is positively associated with job satisfaction” (p. 157). Subjects from five for-profit and 10 nonprofit organizations participated in the study. Data from the study included a resident questionnaire, with 38 items on resident quality of life, which was distributed to 105 residents with a response rate of 85%. A nursing aid questionnaire, with 82 items pertaining to relational coordination, job satisfaction, and working conditions, was distributed to 252 nursing aides with a response rate of 99%. The study also used publicly available facility-level archival data.

Gittell et al. (2008) used the RCS to measure relational coordination. However, modifications to the RCS were made due to cultural, communication, and literacy barriers. Thus, timely and accurate communication dimensions were taken out of the RCS, which resulted in the scale having five items instead of seven items. Additionally, relational coordination questions were changed from a 5-point Likert scale to a 4-point Likert scale. The RCS within a nursing home setting was measured by calculating Cronbach’s alphas resulted in acceptable reliability between 0.81 and 0.92. A one-item survey of job satisfaction was asked of the staff based on a 5-point Likert scale: “overall, how satisfied are you with your job?” (Gittell et al., 2008, p. 159). A 14-item survey on resident quality of life was distributed based across seven theoretical domains: privacy, spiritual well-being, meaningful activity, food enjoyment, relationships, individuality,

and global quality of life. Acceptable reliability was obtained with Cronbach's alpha that measured the residents' quality of life subscale between 0.81 and 0.92.

A random effects linear regression was conducted using STATA-9 on the multilevel structure of the data. Random effects linear regression accounted for multilevel structure of data that accounted for resident/faculty or nursing aide/facility with the facility as the random effect. Relational coordination influence on the residents' quality of life was assessed using random effects linear regression; the quality of life index was considered the dependent variable. Results from the random effects linear regression proved the first hypothesis that relational coordination was significantly associated with resident quality of life ($r = 0.37, p < .01$). In addition, relational coordination on nursing aide job satisfaction was assessed using a random effects linear regression. Job satisfaction was the dependent variable. Confirming the second hypothesis, relational coordination was significantly and positively associated with nurse aide job satisfaction ($r = 0.30, p < .01$).

There is much empirical evidence that proves relational coordination positively predicts worker engagement (Havens et al., 2013; Naruse et al., 2016; Warshawsky et al., 2012). Aspects of relational coproduction are also indicated as positive predictors of performance.

Output dimension. Based on the IPOMTE, team input and processes influence team outputs (Landy & Conte, 2013). As studies have tested relationships between team inputs and processes, team outcomes have been identified by testing associations between relational coordination and productivity (Cramm & Nieboer, 2012a, 2012b; Noël, Lanham, Palmer, Leykum, & Parchman, 2012; McIntosh et al., 2014), satisfaction

(Cramm, Hoeijmakers, & Nieboer, 2014a, 2014b, 2014c; Gittel et al., 2008; Havens, Gittel, & Vasey, 2018), and performance (Ghafoor & Qureshi, 2013; Gittel et al., 2010; Riaz, 2016). Productivity, satisfaction, and performance are characteristics of the IPOMTE (Landy & Conte, 2013).

Healthcare quality. According to the IPOMTE, output variables are the outcomes that result from team effectiveness (Landy & Conte, 2013). Quality is an example of productivity that is the result of team effectiveness. Cramm and Nieboer (2014a, 2014b) examined the relationship between relational coordination and disease management; care quality perceptions were studied by McIntosh et al. (2014); and chronic illness care was studied by Noël et al. (2012).

Quality has been a key outcome measure of relational coordination (Gittel et al., 2008) and the IPOMTE (Landy & Conte, 2013). As relational coordination research continues to expand, the theory has also been used to predict quality. Jane Murray Cramm assisted with the implementation of two international longitudinal research studies that assessed patient-professional interactions within chronically ill and diseased-managed patients (Cramm et al., 2014a, 2014b). Both the 2014a and 2014b studies of Cramm et al. discussed disease management programs in Netherlands, which included the chronic care model as one approach to improving quality of chronic care and execution of care delivery through patient interactions. The chronic care model is shifting the focus of healthcare from acute and reactive care delivery to proactive care that is structured, organized, and planned (Cramm et al., 2014a, 2014b). As a result, the foundation of chronic care is coproduction; this includes maintaining productive interaction with patients and healthcare staff (Cramm et al., 2014a). Cramm et al. (2014b)

noted that there are minor empirical studies that investigated chronic care quality, interaction and coproduction, or contributions to additional outcome measures. Thus, there is a need to incorporate relational coproduction where there is interdependence and cooperation during patient professional interaction (Cramm et al., 2014a).

The purpose of Cramm et al. (2014b) quantitative study was to examine patient-professional interactions while identifying influences of overall well-being between quality of care, productivity of patient-professional interactions, and chronically ill patients. Within 18 Dutch disease-management programs (the collaborator between care sectors or primary care settings), 1,279 patients completed the questionnaire during years one and two (T1 & T2); 2,191 (47%) of the subjects completed a questionnaire during year one (T1), a total of 1,722 subjects completed the questionnaire during year two (T2). There were three measures used within the Cramm et al. (2014b) study. Well-being was measured at Year 1 and Year 2 with a 15-item version of the Social Production Function Instrument for the Level of Well-Being (SPF-ILWB). Cronbach's alpha was calculated to measure the reliability of SPF-ILWB at Year 1 and Year 2; all 15 subscales had acceptable reliability during both periods of time (between 0.81 and 0.92). A modified version of the relational coordination instrument was used during Year 2 to assess productive interactions between patients and teams of healthcare staff. Cramm et al. (2014b) eliminated *timely* from the communication dimensions, and *shared knowledge* from the relational dimension of the validated relational coordination survey. Cronbach's alpha was calculated to measure the reliability of the modified version of the RCS; all five subscales had acceptable reliability (between 0.81 and 0.92). Last, the Patient Assessment of Chronic Illness Care-Short version (PACIC-S) assessed patients'

perception of quality of care using an 11-item survey. Cronbach's alpha was also calculated to measure the reliability of the PACIC-S with acceptable reliability between 0.81 and 0.92.

According to the study, Cramm et al. (2014b) performed descriptive statistics to describe the population and the assessment of the quality of the chronic care. A paired sample *t*-test was used to identify well-being, over time, between Year 1 and Year 2. The researchers also used Pearson correlation analyses to examine associations of individual characteristics, such as quality of chronic care, productive interaction between patients and teams of healthcare professionals, and well-being. Last, a multilevel random-effects model investigated the quality of chronic care delivery and productive patient-professional interaction at Year 1 (T1) for age, gender, education level, and marital status. The results concluded that there was statistical significance ($p \leq .05$). Cramm et al (2014b) also controlled for patients' well-being. Results from the multilevel random-effect model indicated that relational coordination positively predicted well-being from Year 1 (T1) to Year 2 (T2); subjects who were chronically ill improved slightly from 2.76 at T1 to 2.79 at T2 ($p \leq .05$).

The second longitudinal study by Cramm et al. (2014a) conducted a mixed methods approach. This study is very like Cramm et al. (2014b) as 18 Dutch disease-management interventions were asked to assess quality of care over a 2-year span (2010-2012). Questionnaires were distributed in 2010, 2011, and 2012 for a total of three assessments; a total of 1,722 subjects completed all three questionnaires. Productive interactions among patients and teams of healthcare professionals using the same modified relational coordination survey from the Cramm et al. (2014b) study was used.

Cramm et al. (2014b) measured the reliability of the relational coordination items and the reliability of the PACIC during each year of distribution (2010-2012); all measures had acceptable reliability each year (between 0.81 and 0.92).

Descriptive statistics were performed to identify the populations and profiles of the patients who completed the questionnaires. Like Cramm et al. (2014b), the correlation analyses were used to examine associations of the individual characteristics of quality of chronic care and productive interaction between patients and teams of healthcare professionals viewed by patients. A multilevel random-effects model was then used to analyze the changes in the chronic-care delivery in productive patient-professional interactions when controlling for patients' age, gender, education level, and marital status. The results concluded that there was a statistical significance ($p \leq .05$).

Similar to Cramm et al. (2014b), McIntosh et al. (2014) assessed physician and nurse manager perceptions on provider coordination of care quality. A total of 36 Veteran Health Administration patient medicine services, which included nine medical centers of different sizes were recruited from the Eastern, Central, Southern, and Western regions of the United States participated in the study. A multivariate linear regression was conducted and concluded that relational coordination of interprofessional coordination between nurses was significant ($R^2 = .63$ and adjusted $R^2 = .58$, $N = 35$, $p < .01$).

In contrast to the Cramm et al. (2014b) study, Cramm et al. (2014a) conducted a qualitative research consisting of structured interviews with project leaders at a disease management program. A template was created to reflect the chronic care model to obtain qualitative data on many approaches. The interviews contained six interrelated aspects of healthcare systems: self-management support, delivery system design, decision support,

clinical information systems, healthcare organization, and community linkages. Project leaders were interviewed with a focus on their experiences of improving patient outcomes using the chronic-care model template. Results show that each disease-management program conducted an average of four of the six chronic-care model dimensions; the results considered most disease-management programs as high quality within this study.

Comparable to the Cramm et al. (2014a) examination of disease management, Noël et al. (2012) examined chronic-care delivery with primary care teams. The study was designed to implement chronic care delivery to improve outcomes for patients with Type 2 diabetes. Noël et al. (2012) also used the RCS in addition to the ACICS (Bonomi, Wagner, Glasgow, & VonKorff, 2002) and conducted a hierarchical linear regression model. The results from the study showed that relational coordination predicted chronic illness care for the direct effect model ($R^2 = .79$, $SE = .20$ $p < .001$), mediation ($R^2 = .79$, $SE = .19$ $p < .001$), and adjusted for covariates ($R^2 = .79$, $SE = 1.11$ $p < .001$). Thus, the higher relational coordination, the better chronic illness care, mediation, and covariates.

Satisfaction within healthcare industries. Team satisfaction is another output variable that results in team effectiveness based on the IPOMTE (Landy & Conte, 2013). In addition to the previous aspects of job satisfaction items described in this chapter, there were three studies that examined team satisfaction in relation to healthcare and healthcare delivery with nurses (Cramm et al., 2014c; Gittell et al., 2008; Havens et al., 2018). The studies focused on healthcare services with community health nurses in the Netherlands (Cramm et al., 2014c), 15 nursing home facilities (Gittell et al., 2008), and five community hospitals in rural Pennsylvania (Havens et al., 2018). All studies used the

same seven-item RCS (Gittell, 2002) and job satisfaction items based on their respective study. Cramm et al. (2014c) utilized a six-item questionnaire, where the factor analysis showed good loadings of the six items ranging from .73-.89. Gittell et al. (2008) and Havens et al. (2018) used a one-job satisfaction item for their questionnaires. Cramm et al. (2014c) used hierarchical regression analysis that showed relational coordination was positively associated with job satisfaction at $\beta = .71, p < 0.001$. Gittell et al. (2008) used a random effects linear regression to identify the impact of relational coordination on nursing aide job satisfaction. The results concluded that relational coordination was positively associated with job satisfaction at overall $R^2(0.12) = 0.30, p < 0.000$. Last, Havens et al. (2018) also used a regression model to predict relationships between relational coordination and job satisfaction. Relational coordination positively predicted job satisfaction ($R^2(0.21), B = 0.30, \beta = .24, p < .01$). Overall, all the studies concluded that relational coordination is positively associated with job satisfaction.

High-performance work systems. Performance is an overall output variable that is the result of team effectiveness according to the IPOMTE (Landy & Conte, 2013). So, three studies tested associations between relational coordination and high-performance work systems and organizational performance (Ghafoor & Qureshi, 2013; Gittell et al., 2010; Riaz, 2016).

Ghafoor and Qureshi (2013) used a human capital causative model that focused on human resource management practices in relation to high involvement systems. Since human resource practices affect organizational growth activities in service industries (Batt, 2002; Chuang & Liao, 2010) and there is limited empirical research that investigates human resources practices (Hussain, Akhtar, & Butt, 2009), there was a need

to explore the Ghafoor and Qureshi (2013) study. Ghafoor and Qureshi (2013) tested (a) relationships between relational coordination and organizational performance, and (b) relationships between relational coordination and high-performing work systems. Ghafoor and Qureshi (2013) conducted a convenience sample that collected data from telecommunication and banking professionals in Pakistan. Out of 2,000 participants, 301 participated in the study for a response rate of 15%. The study also utilized the RCS (Gittell, 2002a); Cronbach's alpha resulted in an acceptable reliability at .78. Results from the means, standard deviations, and correlations were performed and indicated that relational coordination negatively contributed toward organizational performance ($m = 4.7557, -0.119, p > 0.05$), but relational coordination positively contributed toward high performance work systems ($m = 4.7932, 0.954, p < 0.01$).

Gittell et al. (2010) also made several hypotheses in regard to high performing work practices. Gittell et al. (2010) tested: (a) associations between relational coordination and high performing work practices, (b) if relational coordination mediates high-performance work practices and quality outcomes, and (c) if relational coordination mediates high-performance work practices and efficiency. A convenience sample was conducted at nine hospitals at its orthopedics units with physician, nurses, physical therapist, case managers and social workers responsible for the care of joint replacement patients over a 6-month period. Three hundred and thirty-eight providers agreed to participate in the study out of 666 for a 51% return rate. Gittell et al. (2010) used the seven-item RCS for the relational coordination items of the survey, and six items were used for high performance work practices that included cross-functional teams regarding selection, conflict, performance measurement, rewards, team meetings, and boundary

spanners. For the first hypothesis, Gittell et al. (2010) regressed relational coordination ($n = 336$ care providers in nine units) and found that high performance work practices were positively associated with relational coordination ($R^2 = 0.07, r = .31, p < 0.001$). For Hypothesis 2, Gittell et al. (2010) regressed quality outcomes ($n = 558$ care providers in nine units) that showed high performance work practices were positively associated with relational coordination ($R^2 = 0.07, r = .31, p < 0.001$). Additional results concluded that relational coordination was associated with higher quality of care ($R^2 = 0.07, r = .31, p < 0.05$). Finally, Hypothesis 3 regressed efficiency outcomes ($n = 599$ care providers in nine units) and found that relational coordination was associated with higher quality of care ($r = -1.19, p < 0.01$).

Riaz (2016) also examined relational coordination with high performance work systems. Riaz (2016) hypothesized that (a) perceived or employee-level high performance work systems would be significantly associated with relational coordination among employees, and (b) relational coordination would positively mediate the relationship between employee-level high performance work systems and organizational performance in Pakistan. There were two models for the Riaz study: Model 1 investigated the managerial aspects of high-performance work teams, and Model 2 examined the employee aspects of high-performance work teams; 12 organizations participated in the study, which included 81 managers and 113 employees.

Riaz (2016) used a simple regression to explore the two hypotheses. The results from the simple regression show that high performance work systems were associated with relational coordination ($R^2 = .233, \Delta R^2 = .177, \beta = 0.302, p < 0.001$). Thus, when relational coordination is high, there is a high level of performance work systems.

Additionally, the results were similar for the last hypothesis that indicated that relational coordination is associated with high-performance work systems on organizational performance ($R^2 = .122$, $\Delta R^2 = .047$, $\beta = 0.229$, $p < 0.05$).

Methodological Review of Relational Coordination

The empirical articles on relational coordination consisted of quantitative variables (Albertsen et al., 2014; Bond & Gittell, 2010; Carmeli & Gittell, 2009; Cramm et al., 2014a, 2014b, 2014c; Cramm & Nieboer, 2012b; Ghafoor & Qureshi, 2013; Gittell et al., 2008a; Gittell et al., 2008; Gittell et al., 2010; Hartgerink et al., 2014a, 2014b; Havens et al., 2013, 2018; Hean et al., 2017; Khosla et al., 2016; Lee, 2013; Lundstrøm et al., 2014; McDermott et al., 2017; McIntosh et al., 2014; Naruse et al., 2016; Noël et al., 2012; Perloff et al., 2017; Riaz, 2016; Sakai et al., 2016; Warshawsky et al., 2012), qualitative (Daniel et al., 2018), and mixed (Cramm & Nieboer, 2012a) methodologies. These current methodological studies highlight the approaches utilized within the studies of this literature review.

Quantitative and qualitative empirical studies. During the time of the researcher's literature review, quantitative methods dominated the approaches used by researchers of relational coordination (Albertsen et al., 2014; Bond & Gittell, 2010; Carmeli & Gittell, 2009; Cramm et al., 2014a, 2014b, 2014c; Cramm & Nieboer, 2012b; Ghafoor & Qureshi, 2013; Gittell et al., 2008; Gittell et al., 2010; Hartgerink et al., 2014a, 2014b; Havens et al., 2013, 2018; Hean et al., 2017; Khosla et al., 2016; Lee, 2013; Lundstrøm et al., 2014; McDermott et al., 2017; McIntosh et al., 2014; Naruse et al., 2016; Noël et al., 2012; Perloff et al., 2017; Riaz, 2016; Sakai et al., 2016; Warshawsky et al., 2012). Gittell et al. (2000) developed and validated a seven-item RCS

(Gittell, 2002a) that consisted of a survey that included four communication dimensions: frequency, timeliness, accuracy, and problem solving; and three relationship dimensions: shared knowledge, shared goals, and mutual respect. The survey and its dimensions were used in all the quantitative studies of this literature review. Cronbach's alpha was used to measure the reliability of the relational coordination's seven communication (frequency, timeliness, accuracy, problem solving) and relationship (shared knowledge, shared goals, and mutual respect) items to identify a valid index. All RCSs had acceptable reliability based on the respective study. Although, the RCS (Gittell, 2002a) seven-item-validated survey is the most commonly used method for measuring relational coordination in quantitative studies, the only qualitative study used in this research, Daniel et al. (2018), modified the seven relational coordination items to complement coteaching in which the study was based. In contrast to the relational coordination surveys, all studies utilized an additional theory, framework, or model relative to their studies that were related to aspects of the IPOMTE (Landy & Conte, 2013) as well as performing several analyses.

Overall, the relational coordination studies, as a collective, was well represented on an international level. The articles were also diverse in the types of questions and analyses as well as complementing the IPOMTE (Landy & Conte, 2013). The theorist, Jody Gittell, was well represented but did not overwhelmingly represent a majority of the studies. Moreover, there were duplicate authors that indicated trust and reliability for the theory. Last, all studies can be replicated in other diverse settings.

Relational Coordination Gaps

As national, state, and local demands for team effectiveness emerge, there is a need to incorporate relational coordination theory to improve performance outcomes.

There are gaps that have been identified within the empirical relational coordination studies. There is a lack of qualitative and mixed methodology studies. Additionally, there is a lack of diverse studies in the professions that are exclusively concerned with healthcare.

Conclusion

Relational coordination has been proven to be associated with interagency collaboration and coordination (Bond & Gittell, 2010; Hartgerink et al., 2014a, 2014b; Hean et al., 2017; Khosla et al., 2016; Perloff et al., 2017); team communication, relationships, and engagement process variables (Albertsen et al., 2014; Carmeli & Gittell, 2009; Daniel et al., 2018; Gittell et al., 2008; Havens et al., 2013; Lee, 2013; Lundstrøm et al., 2014; McDermott et al., 2017; Naruse et al., 2016; Warshawsky et al., 2012; Sakai et al., 2016); and quality, safety, satisfaction, innovation, and performance (Cramm et al., 2014; Cramm & Nieboer, 2012a, 2012b; Ghafoor & Qureshi, 2013; Gittell et al., 2008; Gittell et al., 2010; Havens et al., 2018; Khosla et al., 2016; McIntosh et al., 2014; Noël et al., 2012; Perloff et al., 2017; Riaz, 2016). Relational coordination has also been proven to be associated with the IPOMTE (Landy & Conte, 2013) as these associations and predictors of relational coordination are related to each input, process, and output measure of the IPOMTE. Thus, the dimensions of relational coordination can be used as proven measures of team effectiveness.

Chapter 3: Research Design Methodology

In the Schwarts et al. (2016) study, employees indicated that there is a need for an increase in teams and leadership, and Bersin (2016) found that there is an urgency for leadership within organizations. Additionally, Katzenbach and Smith (1993) and Martin and Bal (2015) found that the impact of single teams and the collective impact of those teams on organizational performance are complex and underexplored, despite the increased need for team structure. This survey research study developed characteristics of team effectiveness that identified effective team inputs, processes, and output dimensions while examining leadership styles and relational coordination. This chapter reviews the research context of this study, along with the hypotheses, design, participants, instruments and data collection, procedure, analysis, and summary of the methodology.

General Perspective and Problem Statement

In 2016, Schwarts et al. conducted a Global Human Capital Trends survey that resulted in over 7,000 participants who identified two core issues (a) their need for an organizational design that consists of a network of *highly empowered teams*, and (b) their concern for leadership. Many U.S. employees are matrixed in companies where the employees participate in a variety of teams (Rigoni & Nelson, 2016). Although, there is a need for the inclusion of teams, Hackman and Johnson (2013) emphasized that “every team is a group but not every group is a team” (p. 217). This current study explored and examined four leadership types: hierarchical (vertical), bottom up, shared (horizontal), and integrated (vertical and horizontal or balanced). Researchers Kozlowski et al. (1996)

indicated that “the role of leaders in the development of the coordinated, adaptive, and coherent behavior of effective teams is not well articulated” (p. 225). Resultingly, in this current study, the IPOMTE (Landy & Conte, 2013) was utilized to identify leadership input characteristics, relational coordination, team process characteristics, and confirmed outcomes of team outputs to identify the characteristics of team effectiveness.

Research Context

This research included all working individuals who, at the time of this study, were students, alumni, faculty, and staff of an academic leadership program at a private college, regardless of their place of employment. The participants’ place of employment included their respective nonprofit, for-profit, and government employers. Additionally, the research participants were employed under several job classifications, such as executive, first/middle officers or managers, professionals, technicians, sales workers, administrative support workers, craft workers, operatives, laborers and helpers, and service workers (U.S. Equal Employment Opportunity Commission [EEOC], 2018). The study asked the participants to reflect on their most effective and ineffective team experiences.

Purpose and Research Hypotheses

An anonymous survey was used to identify specific input, process, and output characteristics to establish a profile of team effectiveness model. This work (a) prescribed the input, process, and output characteristics that contribute to team effectiveness, (b) identified the organizational context of leadership that contributes best to team effectiveness, (c) explored the communication and relationship dimensions (relational coordination theory) as characteristics of the IPOMTE, (d) compared differences between

effective and ineffective teams, and (e) compared differences between effective and ineffective teams based on supervisory roles. There were two hypotheses and one research question used in this research study:

H1: Effective teams will score differently than ineffective teams on input, process, and output measures.

H2: Effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process, and output measures.

RQ: What are the input, process, and output characteristics of team effectiveness?

Research Participants

The research participants included students, alumni, faculty, and staff of an academic leadership program at a private college. The participants of this study included individuals of all genders and races who were over 18 years of age and who had a work history. The participants had different levels of education, supervisory experience, and they had diverse job roles that included executive, first/middle officers or managers, professionals, technicians, sales workers, administrative support workers, craft workers, operatives, laborers and helpers and service workers (EEOC, 2018). Accessibility to all of the research participants was through the academic leadership program's email listserv, and the emails were distributed accordingly. Participants' characteristics are described in detail in Chapter 4.

Survey Used in Data Collection

Based on the IPO dimensions of the IPOMTE, the anonymous survey was self-developed, predominately closed-ended, and tightly structured. Additionally, the survey

incorporated leadership styles and questions from the RCS (Gittell, 2002a, 2002b) that include communication and relationship dimensions.

The survey consisted of 12 sections of background knowledge that included an introduction (introduction of study), consent form (description of study), and directions for the survey (setting the tone with two short-answer questions). The survey comprised eight demographic questions, which collected the participants' demographic information (four questions) and demographic diversity questions (four questions). Last, the survey contained 20 questions relating to IPOMTE: team inputs/organizational context (one question), team inputs/team tasks (five questions), team inputs/team composition (one question), team process/norms (one question), team process/communication and coordination (seven relational-coordination survey questions), team process/decision making (two questions), team process/cohesion (one question), and team outputs (two questions).

Procedures

First, the researcher developed a survey that tested the hypotheses and the research question. All aspects of the survey reflected the IPOMTE and included characteristics of the IPO model dimensions, leadership styles, and relational coordination. The researcher then evaluated the survey by having the researcher's committee chair complete the survey and then provide feedback with potential modifications to enhance the survey. After the modifications were made to the survey and Internal Review Board (IRB) approval was obtained the researcher coordinated with a private college to administer the self-developed survey to all alumni, students, faculty, and staff, via email, inviting the recipients to participate in the survey. The email

distribution included an introductory message and a link to the survey. Once the link was accessed, the participants received an informed consent document that asked for their consent to be a participant in the study. After the participant gave their informed consent, he or she was granted access to complete the survey. The researcher allowed no more than 4 weeks for the recipients to complete the survey. During survey distribution, the private college sent out three reminders to participate in the study: one reminder was sent out at the beginning of Weeks 2 and 3, and one last reminder was sent out on the last day before the survey closed. The survey was closed by the researcher on the last day of the 4th week at 11:59 p.m.

All completed surveys were collected through Qualtrics software; the researcher gathered all individual responses and compiled the responses in Qualtrics to develop descriptive and frequency data. The researcher exported all data from Qualtrics into SPSS software to further compile the survey data and conduct univariate and non-univariate analyses. Once the results from the surveys were collected and exported into SPSS, the researcher analyzed the data to answer the two hypotheses and research question.

Data Analysis

According to Salas et al. (2009), “the prime unit of analysis for criteria in studies of team leadership should reside at the team or group level not at the individual level. However, predictor units of analysis can be at both the individual and team level” (p. 84). Thus, utilizing SPSS, the researcher analyzed two hypotheses and one question by running one univariate analysis and three nonparametric inferential statistical tests: chi-square test of independence, paired sample *t*-test, and Mann-Whitney U Test from the survey results.

H1. The researcher conducted nonparametric inferential statistics by running a chi-square test of independence (Cronk, 2016) for all effective (green team) and ineffective (red team) input, process, and output dimensions with the exception of multi-answer questions and relational coordination questions. Thus, the researcher conducted a univariate analysis (Walliman, 2018) for all multi-answered questions and paired sample *t*-tests (Cronk, 2016; Walliman, 2018) for all relational coordination questions.

H2. The researcher ran a Mann-Whitney U Test (Cronk, 2016) to test if the effective team (green team) experiences from supervisors and nonsupervisors were from the same distribution.

RQ. For the overall research question in this study, the researcher conducted a univariate analysis (Walliman, 2018) for all of the effective team (green team) responses by running descriptive statistics (frequencies and descriptive) to determine description, assumptions, and conclusions utilizing central tendency (mean, median, mode, sum) dispersion (range, variance, and standard deviation), and distribution and percentile values (Berkman & Reise, 2012; Cronk, 2016; Knoke, Bohmstedt, & Potter Mee, 2002).

Summary of Methodology

This study used descriptive and nonparametric inferential statistical procedures to test two hypotheses and answer one question. Quantitative methodology using a survey were administered to establish a profile of team effectiveness that was influenced by the results of a Global Human Capital Survey (Rigoni & Nelson, 2016), which resulted in employees' need for the inclusion of highly effective teams. The potential profile of team effectiveness detailed the team input, team process, and team output characteristics, and it tested its alignment to the IPOMTE, leadership, and relational coordination.

Chapter 4: Results

Results from this survey research study examined the input, process, output, model of team effectiveness (IPOMTE), leadership styles and relational coordination as contributors to a profile of team effectiveness. The results from this study also described the participant characteristics and response rate, hypotheses and research question, data analyses and findings.

Participants' Characteristics

The survey included feedback from current students, alumni, faculty and staff of an academic leadership program at a private college who work or had worked with a team at their respective current or former employers. The self-developed survey was distributed to 507 participants with a 25% (128) return rate. Table 4.1 provides an overview of the participant demographics that included gender, race, age range, and education. The participants' profile included majority female, White, age 35 and older, who had a master's degree or higher education.

Research Hypotheses

Two hypotheses were tested for this study:

H1: Effective teams will score differently than ineffective teams on input, process, and output measures.

H2: Effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process, and output measures.

Table 4.1

Sample Characteristics of Participants (N = 128)

Characteristics	N	%
Gender		
Female	92	71.9
Male	33	25.8
Unanswered	3	2.3
Total	128	100.0
Race		
American Indian	0	0.0
Alaskan Native	0	0.0
Asian	1	0.8
Black/African American	45	35.2
Native Hawaiian	0	0.0
Other Pacific Islander	0	0.0
White	65	50.8
Other	3	2.3
Hispanic, Latino or Spanish Origin	8	6.3
Unanswered	6	4.7
Total	128	100.0
Age		
18-24	0	0.0
25-34	9	7.0
35-44	33	25.8
45-54	42	32.8
55 and up	41	32.0
Unanswered	3	2.3
Total	128	100.0
Education		
Grade School	0	0.0
High School or GED	0	0.0
Associates Degree	0	0.0
Bachelor's Degree	4	3.1
Master's Degree	36	28.1
Doctorate Degree	85	66.4
Unanswered	3	2.3
Total	128	100.0

H1. Effective teams will score differently than ineffective teams on input, process, and output measures. To test for H1, each dimension (input, process, and output) and their related items were tested individually.

Input dimension scores. To test the input dimension scores for H1, a single chi-square test of independence was estimated. Figure 4.1 shows the results of the effective and ineffective teams' input for each of the four leadership styles. Clearly, the participants identified the integrated model as the most effective leadership style by a large margin (70.3%), and the participants identified the top-down leadership style as the predominant leadership style for ineffective teams by a similarly large margin (70.3%). Results were statistically significant at the standard $p < .05$ level.

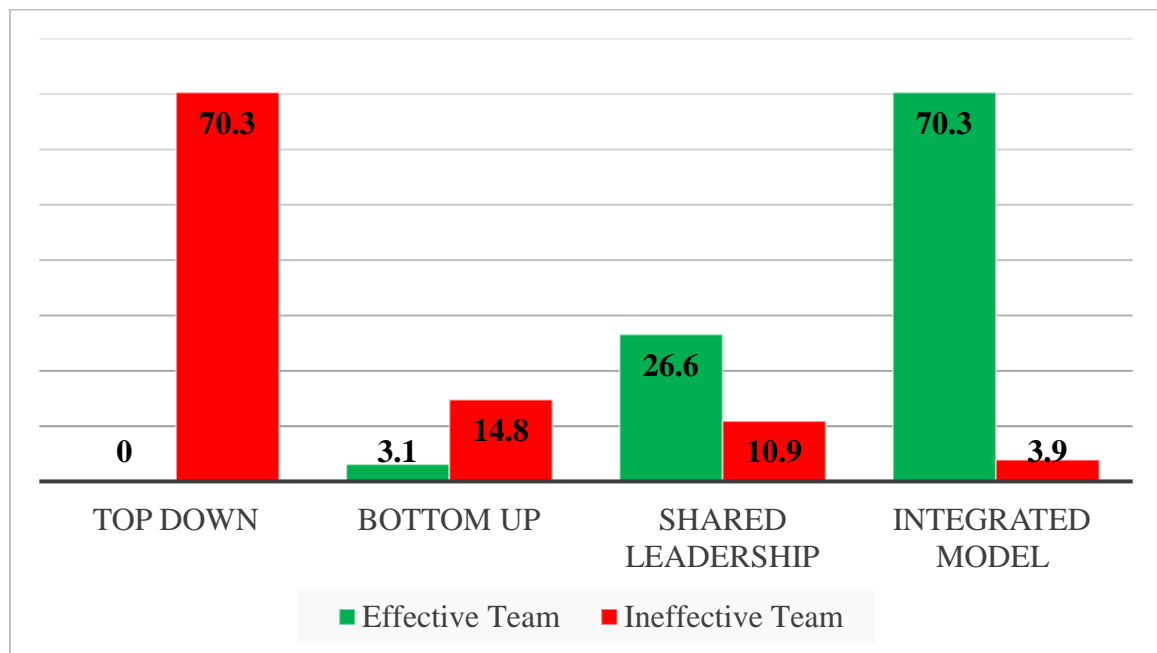


Figure 4.1. Team Input Organizational Context by Leadership Style.

Table 4.2 displays the frequencies of the team input dimension of the organizational context between effective and ineffective teams.

Table 4.2

Frequencies of Team Input: Leadership Context Between Effective and Ineffective Teams

(*N* = 28)

Organizational Context: Leadership Style	Green (Effective) Team		Red (Ineffective) Team		<i>X</i> ² (6)	<i>p</i>
	<i>n</i>	%	<i>n</i>	%		
Top Down	0	0.0	90	70.3		
Bottom Up	4	3.1	19	14.8		
Shard Leadership	34	26.6	14	10.9		
Integrated Model	90	70.3	5	3.9		
Total	128	100.0	128	100.0	14.996	.020*

Note. Results were statistically significant at the standard, *p* < .05* level. Seven cells (58.3%) have an expected count less than five. The minimum expected count is .16.

Several chi-square tests of independence were estimated on the team task characteristics between effective and ineffective teams. Table 4.3 shows the frequencies. Because of the multiple comparisons, the Bonferroni adjusted alpha levels of .00185 (.05/27) were used to prevent the accumulation of Type I errors. Effective teams were more likely to have members from different departments (53.9% vs. 47.6%, *p* < .001). Finally, effective teams were also characterized by giving importance to all perspectives of the team (40.6% vs. 14.8%, *p* < .0001) including the views of customers, employees, department heads, and the organization (all of the above response). In contrast, effective team makeup consists of many levels or position types. However, there was no detectable evidence to support differences between effective teams and ineffective teams (73.4% vs. 56.3%, ns). Equally, both effective and ineffective teams had similar responses on the

level of autonomy (76.7% vs. 17.2%, ns) and performance feedback (30.5% vs. 8.6%, ns).

Table 4.3

Frequencies of Team Input: Team Task Characteristics Between Effective and Ineffective Teams

Team Input- Team Task Characteristics		Green (Effective)		Red (Ineffective)		X^2	p
		n	%	N	%		
Team Makeup	Same Level/Type positions	33	25.8	55	42.9	00.014 ^a	.905
	Many Level/Type positions	94	73.4	72	56.3		
	Unanswered	1	00.8	1	00.8		
	Total	128	100.0	128	100.00		
Department	Same	58	45.3	66	51.6	12.356 ^b	.001*
	Different	69	53.9	61	47.6		
	Unanswered	1	00.8	1	00.8		
	Total	128	100.00	128	100.00		
Autonomy	Little to no Individual Level	1	0.8	58	45.3	11.595 ^c	.170
	Team Level	2	1.6	40	31.3		
	Individual and Team Level	13	10.2	7	5.5		
	Unanswered	111	86.7	22	17.2		
	Total	1	0.8	1	0.8		
Meaning & Importance	Consumer, student, client	12	9.4	13	10.2	76.644 ^d	.001*
	Employee	1	0.8	10	7.8		
	Participants of Project	7	5.5	7	5.5		
	Department head of Team	1	0.8	23	18.0		
	The Organization	13	10.2	19	14.8		
	All of the Above	52	40.6	19	14.8		
	Combination	40	31.3	29	22.7		
	Unanswered	2	1.6	8	6.3		
Total	128	100.0	128	100.0			
Performance Feedback	Daily	21	16.4	2	1.6	39.380 ^e	.034
	Weekly	39	30.5	11	8.6		
	Biweekly	20	15.6	10	7.8		
	Monthly	20	15.6	19	14.8		
	Quarterly	6	4.7	16	12.5		
	More than Quarterly	8	6.3	15	11.7		
	No Feedback Provided	0	0.0	0	0.0		
Unanswered	14	10.9	55	43.0			
Total	128	100.0	128	100.0			

Note. Bonferroni adjusted alpha was used, $*p < .00185$; (a) $X^2(1)$. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.29; (b) $X^2(1)$. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 27.86. Contingency coefficient valued at .298, $p < .00185$; (c) $X^2(3)$. Fisher's exact chi square test was used as there were cells with a count of < 5 ; (d) $X^2(6)$. cells (81.6%) have expected count less than 5. The minimum expected count is .06. A Fisher's exact test could not be computed because unable to open temporary file. Contingency Coefficient valued at .624, $p < .00185$. $X^2(5)$. 33 cells (91.7%) have expected count less than 5. The minimum expected count is .11. A Fisher's exact test could not be computed because unable to open temporary file.

Frequencies shown in Table 4.4 were estimated to compare effective team and ineffective team inputs regarding team composition characteristics. A single chi-square test of independence was estimated for each team composition characteristic. The percentages suggest that effective teams have higher skills, abilities, experiences, and personal characteristics. Results show that the team composition between effective teams and ineffective teams consists of conflict resolution (79.7% vs. 10.9%), collaborative problem solving (96.9% vs. 17.2%), communication (96.9% vs. 18.8%), self-management (77.3% vs. 41.4%), planning and task coordination (91.4% vs. 34.4%), demographic diversity (77.3% vs. 50%), and psychological diversity (82.8% vs. 52.3%). All results were statistically significant at the standard $p < .05$ level.

Table 4.4

Frequencies of Team Input: Team Composition Characteristics Between Effective Teams and Ineffective Teams (Total N = 128)

Team Input	Effective Team		Ineffective Team		X^2	p	
	n	%	N	%			
Team Composition	Conflict Resolution	102	79.7	14	10.9	28.3	.001*
	Collaborative Problem Solving	124	96.9	22	17.2	91.9	.001*
	Communication	124	96.9	24	18.8	91.7	.001*
	Self-Management	99	77.3	53	41.4	19.4	.001*
	Planning and Task Coordination	117	91.4	44	34.4	56.3	.001*
	Demographic Diversity	99	77.3	64	50.0	12.9	.003*
	Psychological Diversity	106	82.8	67	52.3	18.4	.001*
	None of the above	1	00.8	20	15.6	00.152	.696

Note. * $p < .05$

Process dimension scores. To test the process dimension scores of this H1, a single chi-square test of independence was estimated. Table 4.5 shows the frequencies of effective and ineffective teams' process for team norm characteristics. The participants identified that the norms of effective teams are developed through explicit statements by team members (56.3%), and the participants identified teams having no norms developed as the predominant style for ineffective teams (36.7%). Results were statistically significant at the Bonferroni adjusted alpha levels of .01 (.05/5) to prevent the accumulation of Type I errors, $p < .01$.

Table 4.5

Frequencies of Team Process: Norm Characteristics Between Effective and Ineffective Teams (N = 128)

Team Process: Norms	Green (Effective) Team		Red (Ineffective) Team		$X^2(16)$	p
	n	%	N	%		
Through explicit statements by team members	72	56.3	11	8.6		
As carryover behaviors from past situations	23	18.0	31	25.0		
From the first behavior pattern that emerges in the team	21	16.4	19	14.8		
There were no norms developed	7	5.5	47	36.7		
Unanswered	5	3.9	19	14.8		
Total	128	100.0	128	100.0	34.483	.005*

Note. Bonferroni adjusted alpha was used, $*p < .01$

A paired sample t -test was estimated to compare the mean relational coordination scores between effective and ineffective teams as shown in Table 4.6.

Table 4.6

Frequencies of Team Process: Relational Coordination Variables

Team Process: Relational Coordination (Communication and Coordination)		Green (Effective) Team			Red (Ineffective) Team			<i>t</i>	<i>Df</i>	<i>p</i>
		<i>n</i>	Mean	<i>SD</i>	<i>n</i>	Mean	<i>SD</i>			
Communication	Frequent Communication ^a	127	4.28	.638	127	3.04	.840	13.081	126	.001*
	Timely Communication ^b	127	4.29	.565	127	2.69	.774	19.005	126	.001*
	Accurate Communication ^c	128	4.30	.541	128	2.64	.771	19.823	127	.001*
	Problem Solving ^d	128	1.96	.195	128	1.13	.332	25.438	127	.001*
Relationships/ Coordination	Shared Goals ^e	127	4.36	.613	127	2.65	.929	20.404	126	.001*
	Shared Knowledge ^f	126	4.30	.623	126	3.00	1.004	13.313	125	.001*
	Mutual Respect ^g	127	4.51	.602	127	2.73	.980	17.481	126	.001*

Note. Bonferroni adjusted alpha was used, $*p < .007$; a. Cohen's *d* is valued at 1.44 resulting in a large effect size; b. Cohen's *d* is valued at 1.96 resulting in a large effect size; c. Cohen's *d* is valued at 2.21 resulting in a large effect size; d. Cohen's *d* is valued at 1.62 resulting in a large effect size; e. Cohen's *d* is valued at 1.95 resulting in a large effect size; f. Cohen's *d* is valued at 1.44 resulting in a large effect size; and g. Cohen's *d* is valued at 2.00 resulting in a large effect size.

Figure 4.2 shows the means. There were significant differences between effective and ineffective teams in all seven relational coordination characteristics using the Bonferroni adjusted alpha levels of .007 (.05/7). All effective teams also had significantly higher communication characteristic means than ineffective teams. Analyses from the communication characteristics of relational coordination resulted in higher frequent communication (4.28 vs. 3.04, $p < .007$), higher timely communication (4.29 vs. 2.69, $p < .007$), higher accurate communication (4.30 vs. 2.64, $p < .007$), and higher problem-solving communication (1.96 vs. 1.13, $p < .007$). Furthermore, analyses from the relationship characteristics of relational coordination resulted in higher shared knowledge (4.36 vs. 2.65, $p < .007$), higher shared goals (4.30 vs. 3.00, $p < .007$), and higher mutual respect (4.51 vs. 2.73, $p < .007$). Thus, the results of H1 indicate that as relational

coordination increases, team effectiveness also increases. Cohen's *d* ranged from 1.44 to 2.21.

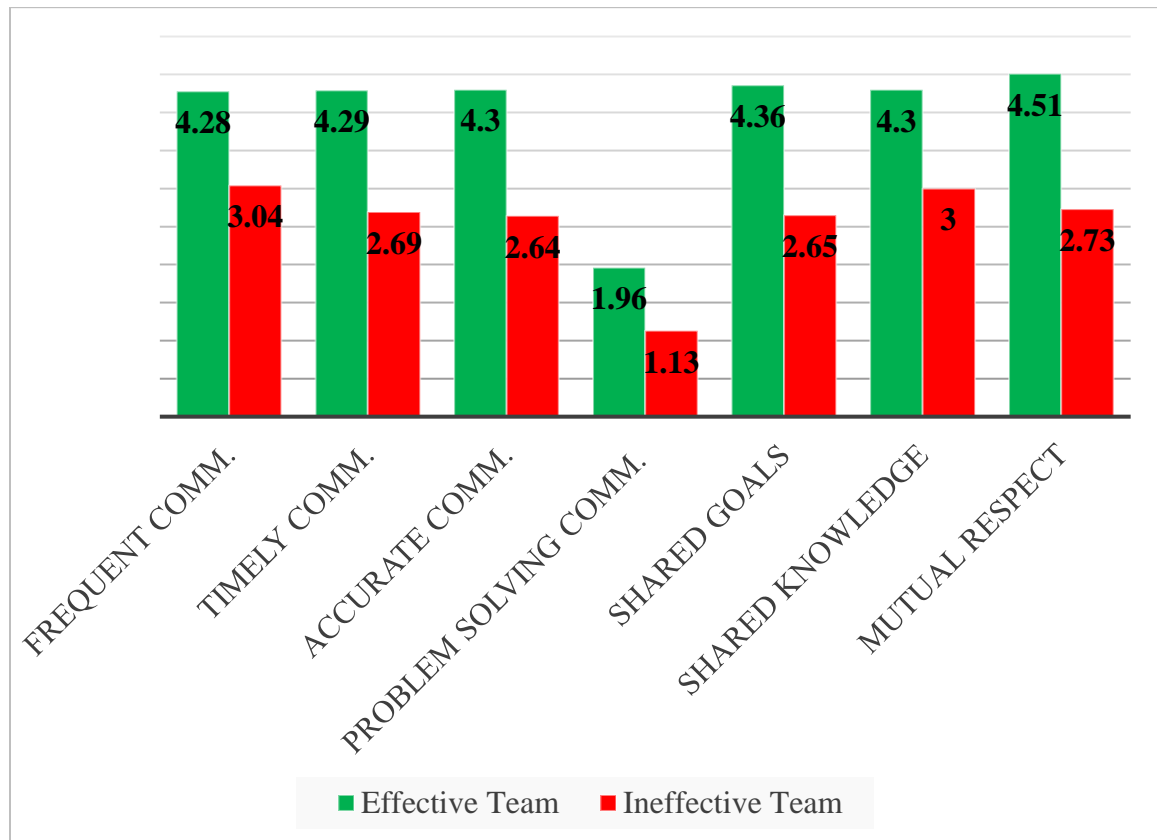


Figure 4.2. Team Process-Relational Coordination (Communication and Relationships).

Frequencies from Table 4.7 compared team process decision making and cohesion characteristics using a single chi-square test of independence to estimate each characteristic. There were differences in effective and ineffective teams regarding team decision making where teams defined the problem (93% vs. 51.6%), gathered information (93% vs. 49.2%), discussed and evaluated alternatives (95.3% vs. 34.4%), collaborated on decisions (93% vs. 12.5%), and had psychological safety (71.7% vs. 94.4%). All decision-making characteristics were statistically significant at the standard $p < .05$ level. However, groupthink was the only decision-making characteristic where

there was no evidence to support any difference between effective and ineffective teams (50.8% vs. 39.1%, ns).

Table 4.7

Frequencies of Team Process: Decision Making and Cohesion Characteristics From Effective Teams

Team Process: Decision Making	Green (effective) Team		Red (ineffective) Team		X^2	p
	n	%	N	%		
Define the problem	119	93.0	66	51.6	42.5	.001*
Gather information	119	93.0	63	49.2	45.6	.001*
Discuss and evaluate alternatives	122	95.3	44	34.4	72.3	.001*
Collaborative decisions	119	93.0	16	12.5	65.7	.001*
Groupthink	65	50.8	50	39.1	1.5	.214
Psychological safety	91	71.1	12	9.4	17.3	.001*
Team Process: Cohesion						
Team stability	107	83.6	23	18.0	38.9	.001*
Team pride	101	78.9	13	10.2	26.2	.001*
Feeling of unity	104	81.3	8	6.3	22.7	.001*
Team satisfaction	103	80.5	4	3.1	13.1	.003*
Strong norms	85	66.4	21	16.4	17.0	.001*
Pressure to conform	16	12.5	87	68.0	17.1	.001*
Positive engagement	110	85.9	7	5.5	27.5	.001*
Great communication	112	87.5	0	0.0	6.5	.010*
All of the above	15	11.7	0	0.0	0.1	.726

Note. * $p < .05$

A chi-square test of independence was also estimated for each cohesion characteristic of effective and ineffective teams. Team cohesion frequencies were greater for effective teams than ineffective teams. Additionally, there were differences in team cohesion between effective and ineffective teams on team stability (83.6% vs. 18%), team pride (78.9% vs. 10.2%), feeling of unity (81.3% vs. 6.3%), team satisfaction (80.5% vs. 3.1%), strong norms (66.4% vs. 16.4%), pressure to conform (12.5% vs.

68%), positive engagement (85.9% vs. 5.5%), and great communication (87.5% vs. 0%). Results were significant at the standard $p < .05$ level. All of the above characteristics that include cohesion characteristics showed no detectable evidence to support any difference between the effective and ineffective teams (11.7% vs. 0%, ns).

Output score. Table 4.8 shows that the frequencies of effective team experiences scored at almost the opposite of ineffective team experiences regarding team effectiveness outcomes. There was no detectable evidence between the outcome characteristics of the effective and ineffective teams.

Table 4.8

Frequencies of Team Output: Output Characteristics Between Effective Teams and Ineffective Teams

Team Output	Effective Team		Ineffective Team		X^2	p
	n	%	N	%		
Productivity	49	38.3	3	2.3	1.560	.212
Performance	33	25.8	6	4.7	1.260	.262
[Team] Member Satisfaction	16	12.5	2	1.6	.199	.655
Innovation	29	22.7	3	2.3	.666	.415
Outcomes						
Lack of Productivity	0	0.0	34	26.6	.398	.555
Lack of Performance	0	0.0	23	18.0	.208	.648
Lack of [Team] Member Satisfaction	0	0.0	37	28.9	.392	.532
Lack of Innovation	0	0.0	14	10.9	.113	.737
None of the above	0	0.0	0	0.0		

Note. * $p < .05$

H2. Effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process, and output measures. Table 4.9 show each participants' employment status during their respective effective and ineffective work experiences. Overall, the participant work experiences included a rough balance

between supervisory and nonsupervisory roles and work sectors. There was also a rough balance in diversity regarding participants' position level.

Table 4.9

Employment Characteristics of Participants (N = 128)

Characteristics	Effective Team		Ineffective Team	
	<i>n</i>	%	<i>n</i>	%
Supervisor Status				
Supervisor	76	59.4	48	37.5
Non-Supervisor	51	39.8	79	61.7
Unanswered	1	00.8	1	00.8
Total	128	100.0	128	100.0
Sector				
Nonprofit	70	54.7	68	53.1
For Profit	24	18.8	24	18.8
Government	32	25.0	33	25.8
Unanswered	2	1.6	3	2.3
Total	128	100.0	128	100.0
Employer Level				
Executive	43	33.6	32	25.0
First Middle, Officers or Manager	29	22.7	32	25.0
Professional	52	40.6	55	43.0
Administrative Support Worker	1	00.8	2	1.6
Operative	0	00.0	2	1.6
Laborer/Helper	0	00.0	1	00.8
Craftworker	1	00.8	0	00.0
Service Worker	1	00.8	2	1.6
Unanswered	1	00.8	2	1.6
Total	128	100.0	128	100.0

To test H2, a Mann-Whitney U Test was estimated. Table 4.10 shows the difference in scores between supervisors and nonsupervisors regarding all effective team characteristics. There was no detectable evidence to support any difference in supervisors

and nonsupervisors scores regarding team input, team process, or team output measures.

Mean ranks ranged from 8.00 to 68.03 for the effective teams and 8.00 to 63.54 for the ineffective teams. Results were statistically nonsignificant at the standard $p < .05$ level.

Table 4.10

IPOMTE Characteristics Effects Between Supervisors and Non-Supervisors

IPOMTE Variables	IPOMTE Characteristics	Supervisors Green (Effective) Teams			Nonsupervisors Green (Effective) Teams			Total	Mann-Whitney U Test	P	SD
		n	%	Mean Rank	n	%	Mean Rank				
		Team Input: Organizational Context	Leadership Styles	76	60	67.69	51				
	Team Makeup	76	60	65.91	50	40	59.84	126	1717.0	.231	NS
	Department	76	60	66.80	50	40	58.48	126	1649.0	.147	NS
Team Inputs: Team Tasks	Autonomy	76	60	65.64	50	40	60.25	126	1737.5	.161	NS
	Meaning and Importance	75	60	62.64	50	40	63.54	125	1848.0	.886	NS
	Performance Feedback	72	64	54.52	41	36	61.35	113	1297.5	.272	NS
	Conflict resolution	59	58	51.00	42	42	51.00	101	1239.0	1.000	NS
	Collaborative problem solving	73	59	62.00	50	41	62.00	123	1825.0	1.000	NS
Team Inputs: Skills, Abilities, Experiences, Personal Characteristics	Communication	74	60	62.00	49	40	62.00	123	1813.0	1.000	NS
	Self-management	59	60	50.00	40	40	50.00	99	1180.0	1.000	NS
	Planning and task coordination	75	65	58.50	41	35	58.50	116	1537.5	1.000	NS
	Demographic diversity	62	63	49.50	36	37	49.50	98	1116.0	1.000	NS
	Psychological diversity	68	64	53.50	38	36	53.50	106	1292.0	1.000	NS
Team Process: Norms	Norm	76	60	64.68	51	40	62.99	127	1886.5	.778	NS
	Frequent Communication	76	60	67.17	50	40	57.92	126	1621.0	.121	NS
	Timely Communication	75	60	66.23	51	40	59.49	126	1708.0	.230	NS
Team Process: Relational Coordination	Accurate Communication	76	60	68.03	51	40	57.99	127	1631.5	.077	NS
	Problem Solving	76	60	64.83	51	40	62.76	127	1875.0	.358	NS
	Shared Goals	76	60	67.50	51	40	58.78	127	1672.0	.139	NS
	Shared Knowledge	76	60	65.16	50	40	60.97	126	1773.5	.480	NS
	Mutual Respect	76	60	64.36	51	40	63.46	127	1910.5	.877	NS

IPOMTE Variables	IPOMTE Characteristics	Supervisors Green (Effective) Teams			Nonsupervisors Green (Effective) Teams			Total	Mann-Whitney U Test	P	SD
		n	%	Mean Rank	n	%	Mean Rank				
Team Process: Decision Making	Define the problem	72	61	60.00	47	39	60.00	119	1692.0	1.000	NS
	Gather info.	73	61	60.00	46	39	60.00	119	1679.0	1.000	NS
	Discuss and evaluate alternatives	74	61	61.50	48	39	61.50	122	1776.0	1.000	NS
	Collaborative decisions	74	62	60.00	45	38	60.00	119	1665.0	1.000	NS
	Group think	37	57	33.00	28	43	33.00	65	518.0	1.000	NS
	Psychological safety	58	64	16.00	33	36	46.00	91	957.0	1.000	NS
	Team stability	66	62	54.00	41	38	54.00	107	1353.0	1.000	NS
Team Process: Cohesion	Team pride	60	59	51.00	41	41	51.00	101	1230.0	1.000	NS
	Feeling of unity	62	60	52.50	42	40	52.50	104	1302.0	1.000	NS
	Team satisfaction	64	62	52.00	39	38	52.00	103	1248.0	1.000	NS
	Strong norms	52	61	43.00	33	39	43.00	85	858.0	1.000	NS
	Pressure to conform	7	44	8.50	9	56	8.50	16	31.5	1.000	NS
	Positive engagement	67	61	55.05	43	39	55.50	110	1440.5	1.000	NS
	Great communication	67	60	56.60	45	40	56.60	112	1507.5	1.000	NS
Team Output	All the above	6	40	8.00	9	60	8.00	15	27.0	1.000	NS
	Outcomes	76	60	65.84	51	40	61.25	127	1798.0	.471	NS

Note. NS: $p < .05$

Research Question

In addition to the two hypotheses, there was one overarching research question that pertained to this study: *What are the input, process, and output characteristics of team effectiveness?* The table in Appendix A displays the univariate analyses that were conducted to obtain the frequencies of each item.

Input measures. The profile of team effectiveness, based on the feedback and experience of leaders, included input dimensions that consist of integrated leadership with a high level of inclusivity and employee engagement. Integrated leadership was the most effective team organizational context. Integrated leadership operates by a multidirectional approach where it utilizes leadership from managers (top-down leadership), subordinates (bottom-up leadership) and both simultaneously (shared

leadership). Effective team tasks included utilizing employees from many position levels and departments of the organization, having individual- and team-level autonomy with weekly performance feedback, and developing a team that is meaningful and important to every direct and indirect individual served. Last, effective team composition consists of communication, collective problem solving and conflict resolution, self-management and team and task coordination, and demographic and psychological diversity.

Process measures. Team effectiveness also included process dimensions with self-developed norms, high relational coordination, decision making, and cohesion characteristics. Effective norms were said to be developed through explicit statements by team members. Effective communication and relationships for effective teams were frequent, timely, accurate, and problem-solving communication, and relationships that had shared knowledge, shared goals, and mutual respect. The process for effective decision making consisted of defining the problem, gathering information, discussing and evaluating alternatives, and collaborating on decisions by ensuring psychological safety and some groupthink. Finally, team effectiveness included cohesion that ensures great communication and positive engagement; strong norms with the feeling of unity, stability and pride; and team satisfaction.

Outcome measures. According to Landy and Conte's (2013) IPOMTE, the more effective the input and process dimensions, the more influence the dimensions have on outputs. Thus, the effective output dimensions can result in productivity, performance, satisfaction, and innovation.

Summary of Results

There were 128 current students, alumni, faculty, and staff members from an academic leadership program of a private college who participated in a researcher-developed Team Effectiveness Survey that was distributed to describe the characteristics of team input, process, and output measures. There were two hypotheses and one overall research question.

Table 4.11 shows the outcome of the two proposed hypotheses. H1 stated that, effective teams will score differently than ineffective teams on input, process, and output measures. H1 supported all input, process, and output dimension characteristics. However, team task characteristics were supported, in part, by evidence.

Table 4.11

Hypotheses and Outcomes

Hypothesis (H)	Measures	Characteristics	Supported/ Not Supported
H1. Effective teams will score differently than ineffective teams on input, process, and output measures.	Input	1. Leadership	1. Supported
		2. Tasks Characteristics	2. Supported in part
		3. Team Composition	3. Supported
	Process	1. Norms	1. Supported
		2. Relational Coordination	2. Supported
		3. Decision Making	3. Supported
4. Cohesion		4. Supported	
Output	1. Productivity, Performance, Innovation	1. Supported	
H2. Effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process, and output measures.	Input	1. Leadership	1. Not Supported
		2. Tasks Characteristics	2. Not Supported
		3. Team Composition	3. Not Supported
	Process	1. Norms	1. Not Supported
		2. Relational Coordination	2. Not Supported
		3. Decision Making	4. Not Supported
4. Cohesion		5. Not Supported	
Output	1. Productivity, performance, innovation	1. Not Supported	

In contrast, H2 stated that, effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process, and output measures. However, there was no detectable evidence for any input, process, or output dimension characteristics to support H2.

The overall research question asked, What are the input, process, and output characteristics of team effectiveness? Team input, process, and output frequencies were analyzed to obtain the results detailed in Figure 4.3. Team effectiveness included input characteristics that consisted of integrated leadership with diverse employee positions from different departments. Effective teams also consisted of inclusive autonomy with weekly performance feedback, and the team is meaningful and important to all who are directly or indirectly impacted. Process characteristics for effective teams consisted of norms that are developed through explicit statements by team members, high relational coordination, strong decision making, and a high level of cohesion characteristics. Last, effective team input and process characteristics result in outcomes that ensures high productivity, performance, member satisfaction, and innovation.

In Chapter 5, the implications of the findings, limits of the study, specific recommendations, and overall conclusions will be presented based on the analysis and findings provided in Chapter 4.

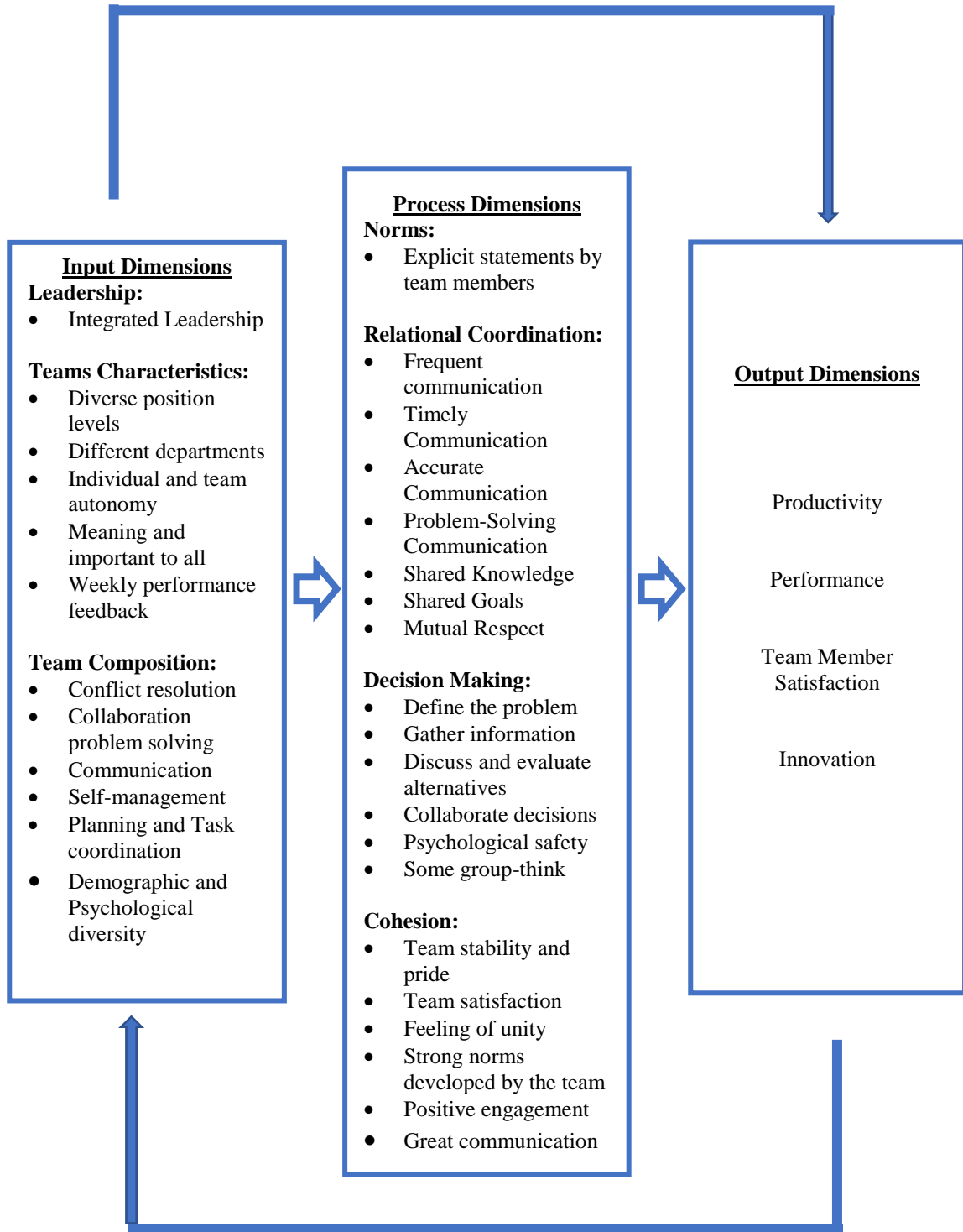


Figure 4.3. Profile of Team Effectiveness.

Chapter 5: Discussion

Team effectiveness and team leadership effectiveness are critical to the success of workforce efficiency, productivity, and performance (Gallup, 2018; Landy & Conte, 2013; Schwarts et al., 2016). Team effectiveness helps to decrease costs, turnover, and errors (Gallup, 2017, 2018, Gittell, 2016), and it promotes high level communication, engagement, job satisfaction, quality, safety, retention, and well-being (Gallup, 2016; Gittell, 2016). Thus, this study examined the characteristics of team effectiveness and team leadership to address the historical discrepancies of team performance.

The discussion chapter is framed based on the input, process, and output dimensions of the IPOMTE (Landy & Conte, 2013). The IPO model dimensions include leadership styles and communication and relationship dimensions from relational coordination theory (Gittell, 2002a). This study sought to test and identify the characteristics of team effectiveness, differences between effective and ineffective teams, and team effectiveness differences by supervisory roles. In order to test and identify the characteristics and differences of team effectiveness, the researcher utilized a self-developed survey that resulted in several outcomes.

The results of this study and the implications of the results are discussed and interpreted based on input, process, and output dimensions. Then, the study's limitations are examined as they relate to the skewedness of participant and employment characteristics, the interpretation of terms used in the survey, the cognitive direction of the survey, methodology, and potential leadership gaps to the established profile of team

effectiveness model. Any problems or weaknesses that may have affected the study results are also outlined. Next, recommendations for future research and scholarly opportunities; team, team leadership, and organizational practices and developments; theory and framework implementation; and policy development are provided. Finally, conclusions are drawn based on a synopsis of the problem, literature review, methodology, analyses and results, and additional connections to the literature and the IPOMTE.

Overview and Problem

It is important to review the significance of this study to the scholarly body of knowledge before reviewing the discussion of the chapter. The purpose of this study was threefold: (a) to prescribe the most effective input, process, and output characteristics of team effectiveness based on the IPOMTE that results in team effectiveness; (b) to compare the most effective team results to the most ineffective team results; and (c) to compare the differences of team effectiveness results between supervisors and nonsupervisors.

There are three notions that undergird the problems of team effectiveness within this study: the consistent underperformance of teams in the workplace (Burke et al., 2003; Coutu, 2009; Franz, 2012; Gallup, 2010, 2013, 2017, 2018; Impraise Blog, n.d.; Qualtrics, 2016; Stein, 2012; Visix, n.d.; Wigert, n.d.; Witt, 2012), companies concerned with team leadership and the role of the team leader (Beck & Harter, 2015; Bersin, 2016; Cross et al., 2016; Foster, 2017; Gallup, 2016, 2017, 2018; Martin & Bal, 2015; Rigoni & Nelson, 2016; Salas et al., 2004; Schwarts et al., 2016; SHRM, 2005; Spence, 2015; Zenger & Folkman, 2015), and the current ambiguous team effectiveness models (Bersin,

2016; Henderson & Walkinshaw, 2002; Ilgen et al., 2005; Mathieu et al., 2008; Salas et al., 2009).

The researcher of this study utilized a self-developed survey to test and analyze two hypotheses and one research question:

H1: Effective teams will score differently than ineffective teams on input, process, and output measures;

H2: Effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process and output measures, and

RQ: What are the input, process and output characteristics of team effectiveness?

The results from the hypotheses and research question contribute toward the implications of the findings.

H1: Effective and Ineffective Teams

Team input: leadership styles. According to Landy and Conte (2013), managerial support is considered an example of an input dimension of the IPOMTE. Leadership style was considered a type of managerial support and was tested as an input dimension for this study. Effective teams scored almost 100% (96.9%) regarding the utilization of a horizontal or collaborative leadership approach that included shared or integrated leadership (Table 4.2). Incorporating an integrated leadership approach aligns with the literature that suggests that because of the transition in time and leadership, there is a need to incorporate more team-level leadership (Gallup, 2016, 2017, 2018; Schwartz et al., 2016). Even though shared and integrated leadership scored as the highest leadership style for team effectiveness, 14.8% of the respondents reported that a shared or integrated leadership style had been utilized, but those teams were still ineffective (Table

4.2). Thus, the ineffective aspect of the teams that utilized a shared or integrated leadership may be associated with process dimensions and characteristics.

On the contrary, the 14.8% of the respondents who had ineffective team experiences while implementing a shared or an integrated leadership approach may be associated with the survey outcomes reported by Gallup (2018). The results from Gallup (2018) concluded that matrixed employees, or employees who work on many teams and report to many supervisors, did not have clear job descriptions, the job did not align with the work that the employee was asked to perform, and the employees did not trust their team members. So, possibly the higher matrixed an employee who participates in many shared or integrated driven teams, the more ineffective the employee or other members are on that team. Potentially, teams that utilize an integrated leadership approach that consists of matrixed employees can maximize effectiveness by ensuring a high rate of process characteristics within the team. Increasing process characteristics for matrixed employees can combat typical communication, coordination, and relationship deficits that were emphasized in the research.

Team input: task characteristics. Results from this study show that both effective and ineffective teams consisted of employees from many levels and position types in which there were no differences. However, there were differences when including employees from different departments on the team. This may suggest that a difference between effective and ineffective teams consists of having psychological diversity and a lack of groupthink based on employee experience and expertise.

Even though there were no detected differences regarding autonomy between effective and ineffective teams (Figure 4.3), the frequencies of scores and the research

suggest differently. Compared to effective teams that scored 86% of having individual- and team-level autonomy, ineffective teams scored the highest as having little to no autonomy at 45.3%. Hence, six of 10 U.S. employees admitted that the company's purpose did not make them feel that their jobs were important (Gallup, 2017) while another study indicated that 40% of leaders did not consider the opinions of employees (Stein, 2012). On the other hand, the participants on effective teams had individual- and team-level autonomy, which aligns with Fleishman and Zaccaro (1992), Hackman (1987), and Landy and Conte (2013) who suggested that task characteristics requires a continuum of autonomy. Overall, the autonomy characteristics scores were predictable given that effective teams utilize a shared or integrated leadership that consists of mutual accountability, and ineffective teams use a top-down leadership approach where accountability is on the supervisor and/or the individual.

Additionally, the results of performance feedback in Table 4.3 are important to mention: 39% of the participants from ineffective teams received feedback on a monthly or greater basis. Statistics indicate that the lack of feedback increases disengagement, turnover, and a lack of understanding of consistent roles and responsibilities (Gallup, 2017, 2018), which is consistent with the process and outcome deficits of this study. Studies have indicated that employees who were disengaged did not have the opportunity to learn and grow, no one encouraged their development (Gallup, 2017), and management did not recognize their achievements or nor gave them clear instructions (Foster, 2017). Yet, effective team resulted in high levels of consistent feedback: 78.1% of participants were provided feedback that was daily (16.4%), weekly (30.5%), biweekly

(15.6%), or monthly (15.6%). This can also relate to the high frequent-communication score from the relationship dimension of relational coordination.

Team input: composition. There was no surprise that effective teams scored high on all team composition characteristics, and there were differences between each characteristic (Table 4.4). There was also no surprise that collaborative problem solving and communication scored as the highest team composition characteristics because these characteristics align with integrated leadership for effective teams. Comparatively, collaborative problem solving and communication scored the lowest. On the contrary, ineffective teams scored highest in self-management and demographic and psychological diversity-team composition characteristics. These characteristics can be related to individual attributes that contribute to a top-down leadership approach.

Furthermore, conflict resolution scored as one of the lowest team composition scores for effective and ineffective teams. Since effective teams were considered to be performing well, according to the participants, there may not be a need for much conflict resolution (79.7%). On the other hand, since ineffective teams were considered not to be performing well, according to the participants, the conflict resolution characteristic may be too low (10.9%).

Team process: norms. Although the literature has not discussed blatantly or in detail the most effective team process, norm characteristic results can potentially relate well to other effectiveness literature and data. In Table 4.5, the most effective teams are said to process norms through explicit statements by team members, whereas most team norms for ineffective teams had not been developed nor had mostly been carried-over behaviors from past situations. Both effective and ineffective team norm characteristics

can potentially be associated with other characteristics from the profile of team effectiveness, such as leadership, performance feedback, and team composition aspects. For example, since effective teams utilize shared leadership that incorporates all members of the team obtaining consistent feedback while having strong conflict resolution, collaborative problem solving and communication, it is obvious that norms for effective teams would occur through explicit statements by team members. On the other hand, because ineffective teams use a one-directional leadership approach (i.e., top-down leadership) that consists of implementing directives from leaders; sporadic performance feedback; and low conflict resolution, collaborative problem solving and communication, it is evident that there were few effective teams (Table 4.5).

Team process: relational coordination. The results that pertain to relational coordination outcomes align with empirical research. In this study, the higher the relational coordination, the more effective the outcome (Figure 4.2 and Table 4.6). All seven relational coordination dimensions scored high for effective teams, and all seven relational coordination dimensions scored higher for effective teams than ineffective teams. Furthermore, the empirical literature has proven that relational coordination influences inputs (interagency and interdepartmental collaboration), process (teamwork and worker engagement), and outputs (quality, innovation, and performance) dimensions (Gittell, 2016). This suggests that relational coordination dimensions may be the core process characteristics of ensuring effective teams.

Team process: decision making and cohesion. Groupthink is a level of engagement and high involvement within a cohesive group where agreement overrides taking a more realistic course of action (Janis, 1982; Landy & Conte, 2013). The results

of team decision-making characteristics for both effective and ineffective teams seem to contradict the literature. Landy and Conte (2013) stated that groupthink is attributed to poor or faulty decision making. However, in this study, there were no detected differences between effective and ineffective teams on groupthink at 50.8% and 39.1%, respectively (Table 4.7).

Whereas groupthink is constant team member agreement on team decision-making aspects, pressure to conform is based on the influence from team members to agree and comply with team decisions. Even though there were no detected differences in groupthink, there were differences in pressure to conform between effective teams and ineffective teams at 12.5% and 68%, respectively. This suggests that groupthink for effective teams may be attributed to true individual agreement compared to ineffective teams where agreement is forced. The literature also complements the rate of groupthink in this study as this notion can be associated with the results from the Gallup (2018) study. The Gallup (2018) study indicated that only three out of 10 employees felt like their opinions mattered, and 51% of employees in Foster (2017) stated that management refused to talk to subordinates.

Additionally, communication and relationship characteristics were scored at the relational coordination (Table 4.6) and the team cohesion (Table 4.7) process dimensions. As a result, relational coordination communication and relationship characteristics were associated with team cohesion communication and relationship characteristics. For effective teams, having a high level of frequent, timely, accurate, and problem-solving communication (relational coordination communication dimensions) resulted in an increase in cohesion regarding the team, ensuring great communication (85.9%).

Whereas, lower relational coordination communication dimensions for ineffective teams resulted in the lack of great communication scores (0%). Furthermore, high relationship characteristics for effective teams that include shared goals, shared knowledge, and mutual respect (relational coordination relationship dimensions) created high cohesion regarding the team having positive engagement (87.5%). Where in opposition, ineffective teams had lower relational dimension scores that resulted in the lack of positive engagement scores (5.5%).

Team output: outcomes. The outcomes for effective teams are supported by the research in which effective teams are guaranteed to ensure productivity, performance, satisfaction, and innovation (Gittell, 2002b, 2011, 2016; Landy & Conte, 2013). On the other hand, about 11% of ineffective teams produced similar outcomes. Thus, the definition and scores of team effectiveness for the 11% of the participants may go beyond just the outcome dimension of the team but expand to the input and process dimensions. Also, the participants may have viewed effectiveness through different levels of the team (individual, group, or collective lenses).

H2: Supervisory Status and Team Effectiveness

When analyzing the employment characteristics of the participants from the study, there was a great balance of representation regarding supervisory status and employment sector. However, the participant employment levels were top heavy with 97% professionals: first/middle, officers or managers, and professional participants. Even though the literature emphasizes that supervisors and nonsupervisors have two different workplace perceptions on team effectiveness and leadership that include lack of alignment (Qualtrics, 2016) and the lack of company strategy and direction (Witt, 2012),

surprisingly there were no detected differences between supervisors and nonsupervisors on team effectiveness. Having no detectable evidence regarding differences of team effectiveness between supervisory and nonsupervisory roles may suggest that employees may have, in general, similar perceptions and experiences of team effectiveness. One implication of why there were no detectable differences between supervisors and nonsupervisors is because of the high rate of leaders within this study. Since all participants from this study were recruited from a leadership program and had leadership experience, there may be a sense of psychological homogeneity based on a similar leadership education and practice.

Research Question: Profile of Team Effectiveness

The participants of the survey reported that the most effective teams implement an integrated leadership approach that includes top-down, bottom-up, and shared leadership strategies. Team norms are developed through explicit statements by team members and the team practically defines the problem, gathers information, discusses and evaluates alternatives, and allows psychological safety with some groupthink when making decisions. Team effectiveness consists of members with team composition (skills, abilities, experiences, and personal characteristics) that include conflict resolution, collaborative problem solving, communication, self-management, planning and task coordination, demographic diversity, and psychological safety. An effective team also includes diverse levels and positions from different departments within an organization. Additionally, individual- and team-level autonomy is granted, and feedback is provided weekly. Effective team communication is often attributed to consistent, frequent, timely, accurate, and problem solving; and effective team relationships often consistently share

goals, share knowledge, and have mutual respect. Overall, the team and the team's projects should be meaningful and important to all affiliates and those teams and team projects should be inclusive of the person, organization, or community serviced; the employees; the participants of the project; the department head; and the organization.

Last, an effective team should have stability, team pride, a feeling of unity, and incorporate positive engagement. Obtaining the effective team characteristics will ensure productivity, performance, team member satisfaction, and innovation. The team effectiveness characteristics reported from the participants of this study helped to develop the emergence of what the researcher is calling, a *profile of team effectiveness* model (Figure 4.3). The established profile of team effectiveness model is important as it aligns with the input, process, and output dimensions.

The generation of the profile of team effectiveness emerges with literary, theoretical, practical, and policy implications. Since there was a transformation of team effectiveness models over time that were inconclusive or not empirically tested, the established profile of team effectiveness can potentially be used as the new team effectiveness model for research. Furthermore, the profile of team effectiveness can be used as a tool for teams. Thus, the profile can be used to assess, monitor, and evaluate teams for standardized practice, given that the profile suggests characteristics that have been proven to be effective, organizations can utilize this profile toward departmental and organization policy to help increase output dimensions (productivity, performance, satisfaction, and innovation).

Limitations

There were several limitations to this study: (a) the skewedness of participant and employment characteristics, (b) the interpretation of the terms used in the survey, (c) the cognitive direction of the survey, (d) the methodology utilized for the study, and (e) potential leadership gaps to the profile of team effectiveness model. The survey included between 71.9 to 94.5% female participants who were either Black/African American and Caucasian, and who were 35 years of age and older, with a master's degree or higher education (Table 4.1). With that, one limitation of this study was the lack of demographic diversity to include more men, other minority groups and underrepresented races, and a younger population who possessed a range of educational backgrounds. Similar to the demographic characteristics, another limitation was the high rate of participation from top leadership that included executive, first/middle officers or managers, and other professionals (Table 4.9). Expanding the participants' demographic and employment characteristics may have potentially shifted the results of this study.

Second, the survey that was developed and distributed had potential limitations. One limitation may have been the scenario at the beginning of the survey where the participants were asked to think about an experience where they were members of an effective and ineffective team, in general. However, there may have been a shift in outcomes if the participants were asked to think about their experience on an effective and ineffective team at the same employer location and within the same team. Thus, potential departmental and organizational factors may have influenced the participants' decisions or changed the dynamic of how the question was answered.

The next limitation was possibly the undefined use of the terms within the survey. Since terms that were used were not defined, the participants may have defined or interpreted those terms differently based on that particular participant's education, experience, or area of focus. For example, effectiveness for some may be the execution of team outcomes, where others may consider effectiveness as the successful execution of input, process, and output.

Last, the profile of team effectiveness model is prescriptive regarding certain input, process, and output variables. However, some aspects of this model were also left to interpretation and dependent upon organizational leaders to creatively coordinate and implement the most effective team characteristics. For example, Figure 4.3 describes the characteristics of each input, process, and output measure. However, teams may need support on how to implement best practices for each input, process, and outcome dimension. Thus, the absence of utilizing qualitative research methods could also be a potential limitation. However, if a qualitative component was added to identify best practices and implementation of the profile of team effectiveness model, then this model would be even more effective.

Despite the identified limitations of this study, the research design can potentially contribute to test-retest reliability over time, internal consistency across the IPO model, IPOMTE, relational coordination items, and by interrater reliability across different research (Price, Jhangiani, & Chiang, 2012). This study can also contribute to criterion and predictive validity (Price et al., 2012).

Recommendations

With the shift in leadership and the need for highly effective teams (Schwartz et al., 2016), this study can contribute much value for teams in all sectors of the workforce. There are scholarly, workforce, and developmental recommendations that result from this study. Recommendations include the replication of this study, further research and implementation of the profile of team effectiveness model within organizations and teams, and the utilization of the established profile as a standardized quality-assurance and improvement tool.

Recommendations for Research

The first recommendation calls for the replication of this study to include enough demographically diverse participants to create generalization of the results. This replication can include expanding the survey to recruit a general population including international participants. In addition to generalization, conducting targeted studies on the profile of team effectiveness would be beneficial. Targeted studies based on this study can focus on personal (age, gender, race, education) or professional (job type, position level, sector, supervisory role) demographics where the inputs, processes, and outputs can be even more clearly defined. In fact, targeted studies on each input, process, and output dimension would also be valuable. For example, replicating the same study to focus on employees who have participated in integrated teams would further create value for effective teams given that effective teams utilize an integrated leadership approach. Thus, additional quantitative studies based on the profile can assist with a diverse practice of teams or a qualitative component may also further define team practices. Moreover, it would be important to further set the tone of the survey to include a list of terminology to

eliminate assumptions and so that participants are in one accord when responding. Last, narrowing the direction of the survey to possibly have participants focus on effective and ineffective team experiences at the same employer or setting may have more objective results.

Recommendations for team implementation. Since the results of this study helped in the development of a profile of team effectiveness to include characteristics that would ensure best outcomes, results of the profile should be utilized as a quality assurance and improvement tool by way of an assessment, monitoring, and evaluation tool and as an implementation strategy. The profile can assess existing established teams to identify the characteristics that the teams possess or lack based on the profile. The profile can also be used as a checklist for newly developed teams for implementation. Additionally, the profile should be used to monitor progress that can also ensure performance feedback and other team characteristics that ensures highly effective teams. The profile can also evaluate the progress that has been made to make any necessary applicable changes or based on the nature of the team or the project.

This profile can also be added to organizational policy, procedure, and implementation manuals at the team, project, and departmental level. The profile can also be used as a standardized tool for practice and organization, business or team strategy. Parallel to using the established profile as a quality-assurance and improvement tool, there may be a shift for employers regarding team implementation as the profile may include new input and process approaches. With that, teams should consistently have internal and external support and interdependability to further define, practice, and implement all the characteristics of the model.

Ultimately, findings from this study created a valuable profile that was established by leaders that transitioned from ambiguous team aspects to prescriptive characteristics that are effective based on leadership experience. Thus, the researcher has an opportunity to promote and recommend the profile of team effectiveness for organizations of every job sector. Studies have reported the need for highly empowered teams (Gallup, 2017; Schwarts et al., 2016) within organizations and academic institutions to evaluate group performance during projects (Schumpeter Blog, 2016). Thus, the first action step is to introduce and apply the profile to the academic leadership program where the participants of this study were recruited. Then the researcher can utilize the practical aspects toward other organizations and sectors.

The overall significance of the findings from this study will yield light on the IPO model, IPOMTE, relational coordination theory, organizational psychology, and leadership and team-based performance literature. Thus, relational coordination increases team effectiveness can be validated since this study utilized the validated RCS (Gittell, 2002a, 2002b).

Conclusion

From at least the 1960s (McGrath, 1964) to present (Gallup, 2018), emphasis has been placed on the issue of team ineffectiveness as an international problem that negatively impact individuals, teams, and organizational performance. As a result, many frameworks (Blendell et al., 2001; Burke et al., 2006; Cohen & Bailey, 1997; Driskell, Salas, & Hogan, 1987; Essens et al., 2005; Gladstein, 1984; Hackman, 1987; Hackman & Morris, 1975; Ilgen et al., 2005; Klimoski & Jones, 1995; McGrath, 1964; Rasker et al., 2001; Salas et al., 1992; Tannenbaum et al., 1992; Zaccaro et al., 2001) have been

developed, but there continues to be a need for highly effective teams as there has been consistent underperformance of workplace teams (Impraise Blog, n.d.; Qualtrics, 2016; Stein, 2012; Visix, n.d.; Wigert, n.d.; Witt, 2012), concern for leadership and leadership roles (Beck & Harter, 2015; Bersin, 2016; Coutu, 2009; Cross et al., 2016; Foster, 2017; Gallup, 2016, 2017, 2018; Martin & Bal, 2015; Rigoni & Nelson, 2016; Salas et al., 2004; Schwarts et al., 2016; SHRM (2005); Spence, 2015; Zenger & Folkman, 2015). Therefore, this study examined the IPOMTE, relational coordination, and leadership styles as contributors to a profile of team effectiveness based on the feedback of professional team experiences.

The genesis of the team effectiveness models comes from the IPO model (McGrath, 1964). As the model eventually developed, Landy and Conte (2013) established the IPOMTE. The IPOMTE incorporate IPO measures that contribute to team effectiveness outcomes. This study is currently the only evidence of IPOMTE empirical research. However, the IPOMTE is one of the latest IPO models. Relational coordination research has contributed toward IPO items that have been proven to increase effectiveness through interagency collaboration and coordination (Bond & Gittell, 2010; Hartgerink, 2014b; Hean et al., 2017; Khosla et al., 2016; Perloff et al., 2017); team communication, relationships, and engagement (Albertsen et al., 2014; Carmeli & Gittell, 2009; Daniel et al., 2018; Gittell et al., 2008; Havens et al., 2013; Lee, 2013; Lundstrøm et al., 2014; McDermott et al., 2017; Naruse et al., 2016; Warshawsky et al., 2012; Sakai et al., 2016); and quality, safety, satisfaction, innovation, and performance (Cramm et al., 2014; Cramm & Nieboer, 2012a, 2012b; Ghafoor & Qureshi, 2013; Gittell et al., 2010; Gittell et al., 2008; Havens et al., 2018; Khosla et al., 2016; McIntosh et al., 2014; Noël

et al., 2012; Perloff et al., 2017; Riaz, 2016). Additionally, hierarchical, bottom-up, horizontal, and integrated leadership styles are what decipher the type of team practice that will be performed which can directly or indirectly impact outcomes. With that, a total of 128 alumni, faculty, and staff members participated in this study for a 25% response rate.

The three elements of this study (IPOMTE, relational coordination, and leadership) led to two hypotheses and answered one research question:

H1. Effective teams will score differently than ineffective teams on input, process, and output measures.

H2. Effective teams will score differently between leadership (supervisors) and nonleadership (nonsupervisors) on input, process, and output measures.

RQ. What are the input, process, and output characteristics of team effectiveness?

This study established a profile of team effectiveness that utilizes the IPOMTE framework, the 7-item RCS as a modifier for the communication and coordination process measures, and integrated leadership as the most effective leadership style (Figure 4.1). Evidence did not support effective teams from the study scoring differently than ineffective teams on leadership styles, and the evidence only supported task characteristics in part. All other input, process, and output characteristics regarding differences in scores between effective and ineffective teams were fully supported (Appendix A). Last, there was no evidence that showed effective teams scoring differently between supervisors and nonsupervisors. As a result, the profile of team effectiveness can be used for assessment, monitoring, and evaluation of a newly

developed team or teams that are in need of development. Following the discovered profile will ensure team effectiveness outcomes since these difference were found in the study between effective and ineffective teams. Finally, because there was no evidence regarding differences between supervisor and nonsupervisors on team effectiveness, supervisors and nonsupervisors have relatively similar perceptions toward the characteristics of team effectiveness. These results indicate that more needs to be done by organizations to increase best-team effectiveness practices.

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Appendix A

Input, Process, and Output Characteristics of Team Effectiveness (N = 128)

IPOMTE Group	IPOMTE Variables	IPOMTE Characteristics	<i>n</i>	%
Team Input: Organizational Context	Leadership	Top Down	0	0.0
		Bottom Up	4	3.1
		Shared	34	26.6
		Integrated	90	70.3*
		Total	128	100.0
Team Inputs: Team Tasks	Team Make up	Same Level/Type positions	33	25.8
		Many Level/Type positions	94	73.4*
		Unanswered	1	.8
		Total	128	100.0
Team Inputs: Team Tasks	Department	Same	58	45.3
		Different	69	53.9*
		Unanswered	1	.8
		Total	128	100.0
Team Inputs: Team Tasks	Autonomy	Little to no	1	.8
		Individual Level	2	1.6
		Team Level	13	10.2
		Individual and Team Level	111	86.7*
		Unanswered	1	.8
		Total	128	100.0
Team Inputs: Team Tasks	Meaning and Importance	Consumer, student, client	12	9.4
		Employee	1	.8
		Participants of Project	7	5.5
		Department head of Team	1	.8
		The Organization	13	10.2
		All of the Above	52	40.6*
		Combination of the above	40	31.3
		Unanswered	2	1.6
		Total	128	100.0

Team Inputs: Team Tasks	Performance Feedback Team Makeup	Daily	21	16.4
		Weekly	39	30.5*
		Biweekly	20	15.6
		Monthly	20	15.6
		Quarterly	6	4.7
		More than Quarterly	8	6.3
		No Feedback Provided	0	0.0
		Unanswered	14	10.9
		Total	128	100.0
Team Inputs: Team Composition	Skills, Abilities, Experiences, Personal Characteristics	Conflict Resolution	102	79.7
		Collaboration Problem Solving	124	96.9
		Communication	124	96.9
		Self-Management	99	77.3
		Planning and Task Coordination	117	91.4
		Demographic Diversity	99	77.3
		Psychological Diversity	106	82.8
		None of the above	1	.8
Team Process: Norms	Norms	Through explicit statements by team members	72	56.3*
		As carryover behaviors from past situations	23	18.0
		From the first behavior pattern that emerges in the team	21	16.4
		There were no norms developed	7	5.5
		I don't know	5	3.9
		Total	128	100
Team Process: Communication	Relational Coordination-Frequent Communication	Never	0	0.0
		Rarely	0	0.0
		Occasionally	13	10.2
		Often	66	51.6*
		Constantly	48	37.5
		Unanswered	1	.8
		Total	128	100
Team Process: Communication	Relational Coordination-Timely Communication	Never	0	0.0
		Rarely	1	.8
		Occasionally	4	3.1
		Often	79	61.7*
		Constantly	43	33.6
		Unanswered	1	.8
		Total	128	100.0

Team Process: Communication	Relational Coordination- Accurate Communication	Never	0	0.0
		Rarely	0	0.0
		Occasionally	5	3.9
		Often	79	61.7*
		Constantly	44	34.4
		Unanswered	0	0.0
		Total	128	100.0
Team Process: Communication	Relational Coordination- Problem Solving Communication	Blame Others	5	3.9
		Share Responsibility	123	96.1*
		Unanswered	0	0.0
		Total	128	100
Team Process: Coordination	Relational Coordination- Shared Goals	Never	0	0.0
		Rarely	1	.8
		Occasionally	6	4.7
		Often	66	51.6
		Constantly	54	99.2*
		Unanswered	1	.8
		Total	128	100
Team Process: Coordination	Relational Coordination- Shared Knowledge	Never	0	0.0
		Rarely	0	0.0
		Occasionally	11	8.6
		Often	66	51.6*
		Constantly	49	38.3
		Unanswered	2	1.6
		Total	128	100.0
Team Process: Coordination	Relational Coordination- Mutual Respect	Never	0	0.0
		Rarely	0	0.0
		Occasionally	7	5.5
		Often	48	37.5
		Constantly	72	56.3*
		Unanswered)	1	0.8
		Total	128	100.0
Team Process: Decision Making	Decision Making	Define the problem	119	93
		Gather info.	119	93.0
		Discuss and evaluate alternatives	122	95.3
		Collaborative decisions	119	93.0
		Group think	65	50.8
		Psychological safety	91	71.1

Team Process: Cohesion	Cohesion	Team stability	107	83.6
		Team pride	101	78.9
		Feeling of unity	104	81.3
		Team satisfaction	103	80.5
		Strong norms	85	66.4
		Pressure to conform	16	12.5
		Positive engagement	110	85.9
		Great communication	112	87.5
		All the above	15	11.7
Team Output	Outcomes	Productivity	49	38.3*
		Performance	33	25.8
		[Team] Member Satisfaction	16	12.5
		Innovation	29	22.7
		Lack of Productivity	0	0.0
		Lack of Performance	0	0.0
		Lack of [Team] Member Satisfaction	0	0.0
		Lack of Innovation	0	0.0
		None of the above	0	0.0

Note. *Highest Score