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A Delphi Study: Identifying Practices Used to Build Cohesive Teams in a Virtual Setting

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A Delphi Study: Identifying Practices Used to Build Cohesive Teams in a Virtual Setting

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ABSTRACT

A Delphi Study: Identifying Practices Used to Build Cohesive Teams in a Virtual Setting

by Barbara Thiss

The purpose of this Delphi study was to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented. Organizations are challenged to remain competitive in a rapidly changing climate. Leaders in business, education, manufacturing, healthcare and nonprofit organizations look for answers to the economic, environmental, competitive and technological issues they face. Greater utilization of teams in organizations provides a better response to competitive forces, mines greater efficiencies from existing resources, and offers an ability to produce better results. Carron, Widmeyer and Brawley's (1985) study on cohesion found a significant relationship between team cohesion and performance. They noted that previous research had focused on student groups or sports teams, definitions of cohesion, and levels of cohesiveness. Casey-Campbell & Martens (2009) recommended broadening the theoretical framework by using different types of teams, looking at what forces kept groups together. Lurey & Rasinghani (2001), in studying virtual teams, found that cohesion had a significant impact on the performance and success of a team. Studies by von Treuer et al (2010, 2013) on the factors of cohesion offered an opportunity to look at the practices teams used to build cohesiveness rather than just trying to measure it. These factors were used to create a six-point Likert-scale online survey for this Delphi study. The Delphi study asked the selected virtual team leaders of Fortune 500 companies to rate practices they felt were important to building the cohesiveness of their virtual teams. Frequencies of responses in each round

were grouped by strongly agree/agree, slightly agree/slightly disagree, and disagree/strongly disagree and responses were ranked. After multiple rounds, 16 expert participants identified 74 practices they felt were used to build cohesiveness in virtual teams. Forty-eight practices were identified as task-oriented, 21 practices were social-oriented, and 5 were both. A "Framework of Cohesive Practices" was created with these practices to be used as an observation checklist, survey, or reference tool for understanding teams dynamics and helping organizations achieve the next level of performance by introducing strategies to build cohesive teams.

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CHAPTER I: INTRODUCTION

Working together for a common purpose is seen throughout history (Kozlowski & Ilgen, 2006). Exploration parties to America charted unknown lands and waters in search of a better life. People joined together to hunt, fish, raise families and build communities (Dinerstein, 1998; Kozlowski & Ilgen, 2006). It is from these types of groups that individuals derived their "actions, thoughts and feelings" (Forsyth, 2006).

Groups can perform amazing feats (Pescosolido & Saavedra 2012). They can form, explore, achieve, and conquer, but they can also devastate, obstruct, disband, and fail (Janis, 1971; Basadur, 2004). Groups sent men to the moon in the Apollo space program (Gisler & Sornette, 2009). They were the Pittsburgh Steelers football team that won six Super Bowls. They are branches of the military that shape behaviors of individuals for the common purpose of defending freedom in the United States (Rumsfeld, 2002). Their esprit de corps has them doing things together they would not be able to do individually (Dinerstein, 1998; State-Davey, 2009). But they can also be groups who lobby for the big oil and coal companies that hinder the progress of energy legislation (Friedman & Mandelbaum, 2011). They were bankers that offered subprime loans to homebuyers between 2003 and 2007 that caused the collapse of the American economy (Friedman & Mandelbaum, 2011). What is it that makes some groups a positive, productive, energetic force that can deliver the vision for an organization and other groups a negative, energy-draining inhibitor of organizational success?

In the 19th and 20th centuries, organizational development took the focus from individual jobs like the cobbler, seamstress, baker, and soda jerk and turned them into household names like Birkenstock (1774), Levi's (1853), Sara Lee (1939) and Coca-Cola

(1886). Using employee groups rather than individual suppliers was instrumental to

developing America as a powerhouse in the industrial age (Porter, 2006; Prude, 2006). In

the 1980s and 1990s there was a shift away from employee groups that took direction

from the top, to the development of collaborative teams that were able to accomplish

more by working together in a positive and effective manner (Dinerstein, 1998; DeShon

et al., 2004). In the last decade, there has been growth in virtual teams (Gilson, 2015). A

survey by "World at Work" found that 42% of U.S. companies and 40% of Canadian

firms have telework programs (Fisher, 2011).

There have been several recent change drivers that forced leaders to reevaluate

how they do business. The economic crisis in 2008 resulted in layoffs, cutbacks, and

reduced revenues (Lazear, Shaw, & Stanton, 2016; Matsa & Miller, 2017). War,

"terrorism, environmental disaster, and political turmoil" (Jenster, 2011) caused

organizations to look for ways to improve their overall health (Rose & Krausmann,

2013).

Technological advances in the mid-1990s allowed businesses to expand beyond

their brick-and-mortar buildings and create a worldwide reach (Martin, 2007). Leaders

realized that these events would create lasting change. According to *Harvard Business

Review*, "85% of market leaders get dislodged during a recession" (Gulati, Nohria, &

Wohlgezogen, 2010). To maintain their jobs and their businesses, leaders realized that

cost-cutting alone was not enough. One of the greatest predictors of survival was cutting

costs *and* improving operational efficiencies, which included developing their teams

(Gulati, Nohria, & Wohlgezogen, 2010).

Kozlowski & Ilgen (2006) felt that teams were central to what successful

organizations did every day and were looking at team effectiveness for answers (DeShon, 2004). Team effectiveness includes internal factors such as: leadership, attitude, personality, performance, autonomy, diversity, and task complexity (Mathieu, Maynard, Rapp, & Gilson, 2008; Andrews, 2012). External factors include environment, disruptions, and process measurements. These factors could "determine how well the team works as a unit" (Choi, 2002; Andrews, 2102). The group of individuals brings together a variety of talents and expertise that can be used toward common goals (Salas et al., 2015). These groups can be virtual or face-to-face, temporary or permanent. This increase in resources helps organizations succeed and remain competitive (Hackman, 1990; Volz-Peacock, 2006).

Teams are the building blocks of organizations (Dinerstein 1998; Volz-Peacock, 2006; State-Davey, 2009). Understanding the "antecedents, processes, and emergent states" provides important insight into team effectiveness and how to maximize their positive contributions to the success of the organization (Viswesvaran & Ones, 2000; Deeter-Schmelz & Kennedy, 2003; Burke et al., 2006).

Background

Transitions in the workplace

Early in the 20th century, American industry was seeing rapid growth due in part to railroad expansion, new machinery, and immigration (Fisk, 2001; Dubofsky & Dulles, 2004). Corporations and businesses were working employees long hours in less-than-ideal working conditions to maximize production and profits (Dubofsky & Dulles, 2004; Landy & Conte, 2016). Psychologists began to focus on the needs of management and how improvements could be made to production and worker productivity (Landy &

Conte, 2016). Hugo Munsterberg was one of the first psychologists that studied how

workers' abilities could be tied to performance (Carley, 2015; Giberson, 2015; Landy &

Conte, 2016). He felt that industry efficiency was key to economic development in the

United States (Landy & Conte, 2016). Walter Dill Scott and Walter Van Dyke Bingham

developed methods for selection and training of personnel, which were used by the Army

as well as businesses (Carley, 2015; Landy & Conte, 2016). Fredrick Taylor and Lillian

Gilbreth did time-and-motion studies to see how production could be improved (Carley,

2015; Landy & Conte, 2016). Elton Mayo studied workers' emotions and mental state,

which showed how attitudes affected productivity (Landy & Conte, 2016). These

psychologists were "in demand for this new science of human behavior" (Landy &

Conte, 2016). This "scientific study of the workplace" transitioned into the Industrial and

Organizational Psychology of today (Giberson, 2015; Landy & Conte, 2016).

The results of these studies started the "Human Relations Movement", which

looked at job satisfaction and theories of motivation (Landy & Conte, 2016). These early

studies were termed "content studies" because they identified factors of motivation

(Steers & Shapiro, 2004). In 1943, Abraham Maslow made a significant contribution to

management development with his theory of human motivation (Carter-Steward, 2009;

Kremer & Hammond, 2013). He created one of the most recognized explanations of

motivation with his hierarchy of needs: physiological, safety, social, esteem, and self-

actualization (Pardee, 1990; Carson, 2005; Brooks, 2007). In this hierarchy, "individuals

will respond to whatever satisfies the lowest unfulfilled need" (Landy & Conte, 2016).

McCelland also studied "needs" but from a work-behavior standpoint and with the goal

of achievement (Steers & Shapiro, 2004).

Several changes came about in the 1960s. The Civil Rights Act of 1964 addressed discrimination, which helped change the diversity of the workforce to include more women and ethnic minorities (Carley, 2015; Landy & Conte, 2016). The mid-1960s brought about changes in thinking by researchers about the effects of employee-employer relationships around which "work motivation theories" were developed (Steers & Shapiro, 2004). Researchers began to use a multi-level analysis that looked at the individual perspective as well as the organizational and group dynamics (Landy & Conte, 2016). Douglas McGregor proposed his "Y Theory", which held that, "the average human being learns, under proper conditions, not only to accept but to seek responsibility" (Carson, 2005). Building on previous research, J. Richard Hackman and Greg Oldham developed an approach to job design to increase motivation by adding meaning to the job through "skill variety, task identity, and task significance" (Ramlall, 2004).

Expectancy theory was another of the work-motivation theories (Steers & Shapiro, 2004). Victor Vroom argued that employees chose their behaviors based on the expected outcome or reward they would receive (Steers & Shapiro, 2004). Lyman Porter and Edward Lawler also noted that by adding feedback in behavioral outcomes employee performance could be improved (Steers & Shapiro, 2004). John Stacy Adams developed the equity theory that studied employees' perception of fairness in the workplace and how it could influence their behaviors and attitudes (Cropanzano & Rupp, 2003; Steers & Shapiro, 2004). Edwin Locke's goal-setting theory found that when employees are committed to an attainable goal, whether individual or organizational, their level of performance could increase (Locke & Latham, 1990). This led to the development of

individual goals and "management-by-objective" as a way to judge performance (Locke & Latham, 1990; Steers & Shapiro, 2004). These theories continued to be refined by researchers in the 1980s focusing on "goal-setting theory, job design, reward systems, punishment, procedural justice, innovation and creativity, and cross-cultural influences on work behavior" (Steers & Shapiro, 2004).

Transitioning into the 21st century, Peter Cappelli noted that, "Most observers of the corporate world believe that the traditional relationship between employer and employee is gone, but there is little understanding of why it ended and even less about what is replacing that relationship" (1999). Steers and Shapiro (2004) felt part of the reason was changes in workplace dynamics. Employees tended to have multiple careers in their lifetime. There tended to be more emphasis on teams in organizations rather than the individual employee-employer relationship (Steers and Shapiro, 2004).

Team versus Group

Groups can be explained as an "informal collection of individuals" (Moray, 1994; State-Davey, 2009). Their development could be in any of the four stages as defined by Tuckman (1965): forming, storming, norming, and performing. In the forming stage, people are brought together at a base level of expectations with an understanding of a common goal. The storming stage is where they learn to compromise and look for clarity of purpose. The consensus brings about the norming stage to work on unity and group decision-making. It is in the performing stage that groups develop into teams. In this stage, teams are collaborative, sharing vision and autonomy. These stages are not sequential. Teams can move back and forth between stages at various rates (State-Davey, 2009).

Teams consist of two or more people who are interdependent and form for a specific purpose or goal (Davenport, 2013). Team members have a connection with those in their group. Their tasks are interrelated; they collaborate and are held accountable as a team (Jones & Bearley, 2001; Klein et al., 2009). Teams provide additional resources in achieving their purpose or goal (Forsyth, 2006; Salas, 2015)

Benefits and development of teams. Frederick Herzberg, in studying worker motivation, found that there were two factors that promoted employee job satisfaction: the working environment and the job itself (Carson, 2005). Both Herzberg and McGregor felt that employees were looking for responsibility, growth, and recognition (Carson, 2005). When management began applying these ideas, their organizations and employees flourished (Carson, 2005).

As the building block of organizational performance, teams have many benefits. Members can bring a wide range of ideas, motivate themselves, take more risks and act as support mechanisms for one another (Dinerstein, 1998; Stashevsky & Koslowsky, 2006; Volz-Peacock, 2006; Anderson & Ackerman Anderson, 2010). When they pool their resources, they have the potential to increase productivity, innovation, customer service and profits for their organizations (Burke et al., 2006; Casey-Campbell & Martens, 2009; Andrews, 2012; Salas et al., 2015). Team members themselves have agreed that the team environment was key to their success (Malcarne 2012).

Teams and performance. Stashevsky and Koslowsky (2006) found a positive correlation between teams and performance (House, 1996; Casey-Campbell & Martens, 2009). Teams have been used to achieve, increase, and sustain the best possible overall performance in constantly changing environments (Beal et al., 2003; Casey-Campbell &

Martens, 2009). They provide the motivation to advance the organizations' goals and objectives (House, 1966; Evans & Dion, 1991; Mullen and Copper, 1994; Klein et al., 2009; Davenport, 2013). However, building teams is not as simple as having team-building programs (Casey-Campbell & Martens, 2009; Klein et al., 2009). To be especially effective and efficient in attaining their goals, teams must develop the skills and knowledge to become truly cohesive (Volz-Peacock, 2006).

Definitions of cohesive teams. The difference between teams and cohesive teams tends to be their level of commitment (Pillai & Williams, 2004; Malcarne, 2012). In the face of adversity, less cohesive teams break apart. Highly cohesive teams will be successful, efficient problem-solvers, able to handle stress (Knouse, 2007; State-Davey, 2009). Several studies have tried to define cohesive teams. Festinger's study (1950) provided a long-standing definition in cohesion research focusing on forces that had members wanting to stay with the group. Shaw's study (1981) was similar in that it looked at team members wanting to remain together. It was not until Carron (1982) that cohesion was defined as a dynamic process in which teams build social bonds and unite together to reach their objectives. This definition persists in the recent research of State-Davey (2009), Malcarne (2012), and Casey-Campbell & Martens (2009).

Cohesive teams

To understand the how cohesive-team research fits in the growth of workplace studies, we need to look at how research has changed. Early researchers, like Munsterberg, Taylor, and Gilbreth, studied worker productivity and employee-employer relationships (Steers & Shapiro, 2004; Carson, 2005; Landy & Conte, 2016). These studies were about managers getting the most out of their employees (Landy & Conte,

2016). When Mayo began studying the workplace environment effects on workers in what became known as the "Hawthorne Studies", he learned that workers' attitudes could change behavior (Carson, 2005; Landy & Conte, 2016). This led other researchers, like Maslow, McClelland, and Hackman, to look at the attitudes, needs and behaviors of the worker themselves (Maslow, 1954; McClelland, 1971; Hackman & Oldham, 1976; Locke & Latham, 1990; Steers & Shapiro, 2004; Landy & Conte, 2016).

Over the last 50 years, research has looked at factors, behaviors, and processes of workgroups to determine the relations between performance and cohesiveness (Beal, Cohen, Burke, & McLendon, 2003). Many researchers felt that cohesiveness maximizes team effectiveness (Rapisarda, 2002; Stashevsky & Koslowsky, 2006; Volz-Peacock, 2006). To build high-performing teams, a combination of task and social cohesion is needed to promote collaboration and communication within the team (Mullen & Cooper, 1994; Carless & DePaola, 2000; Chang & Bordia, 2001; Malcarne, 2012; Salas, Grossman, Hughes, & Coultas, 2015). This will help teams create and understand their goals and roles. It fosters an environment where members are active participants in their jobs and meetings. Researchers have not been able to come to consensus on the definition of cohesiveness (Rapisarda, 2002; Beal, Cohen, Burke, & McLendon, 2003; State-Davey, 2009). Nor have they found an instrument that measures the level of cohesiveness in all teams (Rapisarda, 2002; Beal, Cohen, Burke, & McLendon, 2003; State-Davey, 2009).

This Delphi study takes a different approach and works with experts from Fortune 500 companies to create a list of practices that have been used in building cohesiveness in their virtual teams. Currently, no other research has been found to use this approach.

Types of cohesion

　　Social and task cohesion are predictors of high performance across different types of teams (Carron, Widmeyer and Brawley, 1985; Zaccaro & Lowe, 1998; Carless and DePaola 2000; Carron, Bray, and Eys 2002; Stashevsky & Koslowsky, 2006; Malcarne, 2012; Davenport, 2013).

　　Social cohesion. Social cohesion develops and maintains social relationships within a group (Casey-Campbell & Martens, 2009; Grossman, Rosch, Mazer, & Salas, 2015). It "shapes the attitudes and behaviors that influence an individual's perceptions of the group's level of cohesion" (Casey-Campbell & Martens, 2009). Chang and Bordia (2001) found a strong relationship between social cohesion and team performance. Measuring social cohesion may also be useful in identifying individual needs for intervention or mentoring (Malcarne, 2012).

　　Task cohesion. Task cohesion is the use of skills and abilities to complete goals, jobs or assignments of the team (Knouse, 2007). Task cohesion was thought to be a better predictor of performance in work-groups than social cohesion (Zaccaro & Lowe, 1988; Carless & DePaola 2000; Casey-Campbell & Martens, 2009). Davenport (2013) surmised that task interdependence was an integral part of cohesion and should be considered part of team requirements.

　　Multidimensionality of cohesion. Carron, Widmeyer, and Brawley (1985) conceptualized cohesion using a multidimensional model distinguishing between (a) group and individual aspects of cohesion and (b) task and social aspects of cohesion (Malcarne, 2012). The group aspect looked at the unity of the group through elements such as bonding and closeness. The individual aspect took into account team members'

personal motivations, roles, and involvement in the group. Task was the sense of direction toward the team's purpose, whether group or individual. Social was about building and keeping relationships. These were the component they used in their Group Environment Questionnaire (GEQ).

Their research focused on sports teams but they wanted to create a model that would be applicable to all types of teams. Cota et al. (1995) noted that the "multidimensional" model was useful because it brought in aspects of cohesion that worked independently of one another. Prior to Carron et al.'s (1985) study, models of cohesion were unidimensional looking only at the individual's desire to be a part of a group (Cota et al., 1995).

Chang and Bordia (2001) combined these elements into four concepts. Group integration-task (GI-T) denoted how team members perceived their connection with the team and their task. Individual attraction to group-task (ATG-T) was the individual's personal involvement in the task or objectives. Group integration-social (GI-S) was how group members perceived their connection as a social unit. Individual attraction to group-social (ATG-S) was group members' personal acknowledgement by other team members in the social dealings of the team. Defining these components in this manner helped to target areas needing improvement. If the task or social piece was missing, researchers looked to see whether it was a function of the team or the individual (State-Davey, 2009).

Attempts to measure cohesive teams

Over the years, researchers looked to measure cohesiveness as a way to cultivate quality in their teams (Carron et al., 1985; Davenport, 2013; State-Davey, 2009). Early

research was replete with inconsistencies in defining, conceptualizing, and measuring cohesion (Cota et al., 1995; Hogg, 1992; Mudrack, 1989). Some of the issues with the scales have come from the type of teams researchers used. Components that apply to military, sports teams and therapy groups do not always apply to work-groups (Man and Lam, 2003; Davenport, 2013). Another approach was to measure task and social cohesion as predictors of cohesive teams (State-Davey, 2009).

Group Environmental Questionnaire (GEQ). Carron, Widmeyer and Brawley originally created the Group Environmental Questionnaire (GEQ) in 1985 to measure levels of cohesion in sports teams. The questionnaire used a theoretical framework of task and social cohesion at the individual and group levels (Davenport, 2013) with language that specifically targeted sports teams (Carless & DePaola, 2000). Examples of two of the questions: "Our team would like to spend time together in the off-season" (Carron et al., 1985) and "I am not happy with the amount of playing time I get" (Carron et al., 1985).

The GEQ was a "multidimensional" tool that was thought to be promising and could be applicable to other types of groups (Evans & Dion, 1991). Davenport (2013) modified the GEQ to get a better understanding of work teams. He changed Carron's (1985) questions to: "I am not going to miss the members of this team when the team disbands" and "I am unhappy with my team's level of commitment to the task" (State-Davey, 2009). Carless & DePaola (2000) used the GEQ in their study but had to revise it to use with public-sector retail employees in Australia. They felt it was still a poor fit because it missed the role and motivation of the individuals. Some researchers noted that understanding of group cohesion might be better served by expanding research within the

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particular groups used in their studies such as sports teams (Carron, Widmeyer and

Brawley, 1985), work teams (Carless and DePaola 2000; Davenport, 2013), education

(Ensby & Mahmoodi, 1997; Chang & Bordia, 2001; Malcarne, 2012), and the military

(Dinerstein, 1998).

Work Team Cohesiveness Scale (WTCS). Davenport (2013) researched work

teams and felt the previous studies failed to measure levels of cohesiveness in work teams

(Mullen & Cooper, 1994). He wanted to "measure some aspect of an individual's affinity

toward their work group" (Davenport, 2013). Many of the questions were adapted from

the GEQ (Carron et al., 1985). Others came from questions raised in previous studies

(Mullen & Cooper, 1994). These became the basis for the Work Team Cohesiveness

Scale (WTCS) to use with organizational work teams. It started with 59 items but the

expert panel could only agree on 13, resulting in a single factor interdependence of team

being measured. The other factors not included were task orientation of the group,

distinct team identity, and positive interpersonal relationships (Davenport, 2013). Casey-

Campbell & Martens (2009) suggested that researchers look at changes in cohesion and

performance instead of testing levels of cohesion. These changes would help to resolve

challenges encountered in prior studies such as the instruments used, applying results to

different types of teams, noting the effects over time and how cohesion can be developed

(Carless & DePaola, 2000; Casey-Campbell & Martens, 2009; Klein et al., 2009;

Malcarne, 2012; Davenport, 2013; Salas et al., 2015).

Multidimensional Team Cohesive Scale (MTCS). State-Davey (2009) worked

from the GEQ and developed the Multidimensional Team Cohesion Scale (MTCS),

which looked at the task and social orientation of industrial and public service teams as a

way to understand their cohesion. While Davenport's GEQ measured cohesion levels, State-Davey's (2009) MTCS provided areas of strengths and weakness that could be addressed. This led to the question of how to make teams more cohesive. State-Davey (2009) cautioned that it was not meant to be the only tool to review social and task cohesion. No other research has been identified that has used the MTCS.

Fortune 500 companies

The types of teams used in previous cohesive team research have varied. None have been found that used Fortune 500 companies. These are the top 500 U.S. companies as selected by *Fortune* magazine (Fortune.com, 2016). According to *Fortune's* editor, Alan Murray, "these companies are still the guts of the U.S., and the global, economy" (2015). They set the standard of business success (Murray, 2015). While these companies are ranked on their sales, some researchers have looked to them as a standard to follow based on being an "early adopter of leading technology capabilities" (Huang, 2012) and "traditional leadership in the use of technologies and business practices" (Huang, 2012).

Statement of the Research Problem

Despite team-building practices, activities, and incentives, results in building cohesive teams can be hard to achieve (Carron, Widmeyer and Brawley, 1985; Davenport, 2013). When teams do not achieve performance excellence, it negatively impacts customers, shareholders and stakeholders (Jenster, 2010). Several studies reviewed group-cohesion literature in an attempt to create a collective summary of its theories and use in research (Casey-Campbell & Martens, 2009: vonTreuer, Fuller-Tyzkiewic, & Atkinson, 2010; Salas et al., 2015). They noted that previous research had

focused on student groups or sports teams, definitions of cohesion, and levels of cohesiveness. Casey-Campbell & Martens (2009) recommended broadening the theoretical framework by using different types of teams, looking at what "forces" kept groups together, and the effects over time (Klein et al., 2009; Malcarne, 2012; Salas et al., 2015).

Virtual teams bring new dynamics to teams (Gilson et al., 2015). Building strong relationships can be hard to achieve when teams are geographically spread out (Cummings and Haas, 2012). Different cultures and time zones mean they have to learn new ways to relate to one another (Brett, Behfar & Melymuka, 2006: Robertson & Vink, 2012; Zaccaro & Bader, 2003). More information is needed about the specific practices of high-performing teams to identify strategies that build team cohesiveness (Volz-Peacock, 2006). While results of previous studies have varied, most findings support the positive correlation between cohesiveness and performance (Cohen, 1994; Beal, Cohen, Burke, & McLendon, 2003; Casey-Campbell & Martens, 2009).

There is no agreement as to what components are needed to evaluate cohesiveness in work teams (Davenport, 2013). Social and task cohesion were found to be effective components in sports teams (Carron, Widmeyer & Brawley, 1985; Carron, Bray & Eys, 2002) and student groups (Chang & Bordia, 2001; Stashevsky & Koslowsky, 2006; Malcarne, 2012). Carless & DePaola (2000) used only task cohesion in their study of public-sector employees. Salas et al. (2015) suggested task and social cohesion be given priority as a multidimensional approach to cohesion. The lack of knowledge and skill in task and social cohesion may be a contributing factor to underachieving teams (Carless & DePaola 2000; Chang & Bordia, 2001; Carron, Bray & Eys 2002; Stashevsky &

Koslowsky, 2006; Casey-Campbell & Martens, 2009; State-Davey, 2009; Malcarne, 2012). Leaders need to understand how to lead and build a cohesive team environment as virtual teams become more prevalent (Desper, 2013). This will be critical to everyone's success since virtual teams tend to fail more often than they succeed (Desper, 2013).

Purpose Statement

The purpose of this Delphi study was to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented.

Research Questions

1. What are the practices virtual teams used to build cohesiveness?

2. Are the practices of these teams task-oriented or social-oriented?

Significance of the Problem

Organizations today face challenges to remain competitive in a rapidly changing climate. Leaders in business, education, manufacturing, healthcare and nonprofit organizations look for answers to the economic, environmental, competitive and technological issues they face. With the recession's effects still weighing on their minds, organizations search for ways to bring about sustainable flexibility in their structures (Panwar, Vlosky & Hansen, 2012). Susan Solovic, a business expert, suggests leaders turn their focus from what they cannot control-for example, the economy-to what they can "their business and delivering value to the market" (Snyder, 2014). Gaffey (2015) found that organizations like Zappos and Southwest Airlines, which changed from hierarchical structures to a more collective decision-making model saw increases in productivity. General Stanley McChrystal, leader of the Joint Special Operations Task

Force in Iraq in 2003, did just that and created a "team of teams" in the U.S. military (McChrystal et al., 2015). He said, "The smartest response for those in charge is to give small groups the freedom to experiment while driving everyone to share what they learn across the entire organization" (McChrystal et al., 2015). Findings from this study will help organizations who want to build teams and address some of their major challenges.

Tapping into organizations' most precious resource, their people, creates building blocks for organizational success (Dinerstein 1998; Salas, Stagl & Burke, 2004; Volz-Peacock, 2006; State-Davey, 2009). When they pool the individuals' talents and develop them into cohesive teams, these teams will collaborate, communicate and work together to achieve their goals (Salas et al., 2015). They are successful, efficient problem-solvers, able to handle stress (Knouse, 2007; State-Davey, 2009). They have the potential to increase productivity, innovation, customer service and profits for their organizations (Burke et al., 2006; Casey-Campbell & Martens, 2009; Andrews, 2012; Salas et al., 2015). Findings from this study will help organizations, which have teams in place, achieve the next level of performance by introducing strategies that can help them build cohesion.

According to a Duke University/CFO Global Business Outlook survey, "Ninety-three percent of U.S. companies say they have job openings in key positions and nearly half of these firms say it is difficult to fill these slots. CFOs list the difficulty in attracting and retaining qualified employees as one of their top three overall business concerns" (Duke, 2015; Reuters, 2016). High-performing, cohesive teams are attractive to new members because of the prestige that can be associated with them and the teams' ability to help new members reach their goals (State-Davey, 2009). This can help organizations

that are struggling to recruit qualified individuals.

Studying the practices different types of organizations used to build their cohesive teams provides other organizations with tools they can use to build their infrastructure and potentially increase productivity and performance excellence. Looking at the correlation between task/social cohesion and the teams' performance highlights areas that can be targeted for improvement (Carron, Widmeyer & Brawley, 1985; Zaccaro & Lowe, 1998; Carless & DePaola 2000; Carron, Bray, & Eys 2002; Stashevsky & Koslowsky, 2006; Malcarne, 2012; Davenport, 2013). This study will also produce findings that will be useful to universities, which have leadership and management programs and wish to expand their curriculum to include the development of cohesive teams.

Definitions

Behavior – How individuals or teams act or perform in response to their environment to achieve of their goals (Abel, 2000)

Characteristics – The kind of person one is on the inside. These are distinctive qualities or traits that distinguish individuals or teams. (Abel, 2000: Andrews, 2012)

Computer-mediated communication (CMC) – Processes used to share information between two or more electronic devices. Examples included: email, instant messaging, text, video chat, and social media (Gilson, 2015).

Cohesive Group or Team - "A dynamic process, which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982; Malcarne, 2012).

Delphi Study – Developed by Dalkey and Helmer at the RAND Corporation in the 1950s. It is a process where researchers gather the opinions of subject-matter experts,

usually via a series of questionnaires. It is effective when time or distance may be a factor (Abel, 2000; Sandford & Hsu, 2007).

Effective Team – Group of individuals whose input combines to drive the team processes toward a common goal or task while maintaining the emotional health of the group (Andrews, 2012; Mathieu et al., 2008; Oleson, 2011)

Knowledge, skills and abilities (KSA) - Attributes necessary to perform an action. Knowledge is the summative information that people have learned or need to learn to complete an action. Skills are the proficiency needed to complete an action. Abilities are the observable behaviors when knowledge and skills are applied (Buckholtz, 2013).

Social-Oriented – Having a closeness or attraction to a group based on community relationships and feeling a sense of belonging (Casey-Campbell & Martens, 2009; Grossman, Rosch, Mazer, & Salas, 2015; Salas, Grossman, Hughes, & Coultas, 2015).

Social network sites (SNS) – websites that allow users to share information with multiple users. Users set up profiles to share with friends, colleagues or other users with like interests. Examples include: Facebook, Twitter, Classmates.com, and LinkedIn (Buckholtz, 2013).

Task-Oriented – An association among group members that is based on a shared commitment to achieving group performance goals (Casey-Campbell & Martens, 2009; Grossman, Rosch, Mazer, & Salas, 2015; Salas, Grossman, Hughes, & Coultas, 2015).

Team – "A distinguishable set of two or more people who interact, dynamically, interdependently, and adaptively toward a common and valued goal /objective /mission,

who have been assigned specific roles or functions to perform" (Salas, Dickinson, Converse, and Tannenbaum, 1992; Kelbaugh, 2003)

Telecommuting – The practice of individuals working from a location other than the traditional office using technology to complete tasks (Rhoads, 2010, Desper, 2013).

Virtual Team (VT) – A group of individuals working together toward a common goal or objective using electronic media to connect and communicate. These teams can be culturally diverse and geographically dispersed. They allow for flexibility in length and number of projects they are working on (Desper, 2013; Kozlowski & Bell, 2002; Nydegger & Nydegger, 2010).

Delimitations

This Delphi study was delimited to Fortune 500 companies with offices in California, which had virtual teams that worked together for over a year. The participants were leaders whose job titles, team size, and geographical distribution varied based on the organization. The sample size for the study is limited to 25 - 30 participants within specific organizations; therefore it may not be generalizable to other organizations. The study gathered data on the practices virtual team leaders used to build cohesiveness with their teams. The participants responded to online surveys that asked for their views on the importance of specific practices their team used to build cohesiveness.

Organization of the Study

This research study included five chapters with a bibliography and appendix. Chapter I provided an introduction to the study, focusing on the problem statement, purpose statement, research questions, significance of the study, definition of terms and delimitations. Chapter II reviewed and synthesized relevant literature pertaining to the

cohesiveness of teams and the Delphi technique. Chapter III outlined the methodology

utilized for the study including the research design, population, sample, instrumentation,

and data-collection procedures for the Delphi technique, data-analysis methods, and

limitations. Chapter IV contained the research findings and analysis of each round of the

Delphi. Chapter V concluded the dissertation by providing a summary, conclusions,

implications for action, and recommendations for future research.

CHAPTER II: REVIEW OF THE LITERATURE

Chapter II reviews the literature background and context for this study. The chapter is divided into seven sections: history of working together, importance of teams, team effectiveness, cohesiveness, types of teams, and summary. It begins by reviewing U.S. history and how communities worked together to survive. The Industrial Revolution changed the face of business and communities by drawing people into the cities and immigrants to the United States to work in the growing number of businesses (Zivick, 2013).

In the late 1800s and early 1900s, psychologists like Gilbreth, Mayo, Munsterberg, and Taylor began to study people and processes in these new companies to learn how to make them more efficient and profitable for the owners (Landy & Conte, 2016). In the late 1920s, Mayo's research team worked with Western Electric to study productivity in their Hawthorne Works plant in Cicero, Illinois (Landy & Conte, 2016). They manipulated lighting, rest breaks, and lunch periods to see effects on workers (Landy & Conte, 2016). They were surprised to find that productivity did not always increase when things improved (Landy & Conte, 2016). This was later dubbed the "Hawthorne Effect" "change in behavior that results from researchers paying attention to the workers" (Landy & Conte, 2016).

Mayo determined that work groups and teams form their own social structure and behavioral norms, including what is deemed acceptable levels of productivity (Mayo, 1945). A sense of belonging to the group is often more important to individuals than the working conditions (Mayo, 1945). This discovery began the shift from studying individuals to studying teams and their importance to the organization by researchers

including Lewin (1948), Festinger (1950), Tuckman (1965), Forsythe (2006), and many others.

McGrath (1964) studied how teams processed work in the concept of "input-process-output" that combined resources to do more together than could be done individually. Their behaviors were either maintenance behaviors that would build, strengthen and regulate group life or task behaviors that enabled the group to reach their goals (Gladstein, 1984). Many researchers found that this cohesiveness was a critical factor in team effectiveness (Loperena, 2004; Rapisarda, 2002; Salas, Grossman, Hughes, & Coultas, 2015: Stashevsky & Koslowsky, 2006; Volz-Peacock, 2006).

Researchers have struggled to come to an agreement on the definition, antecedents, and measurements of cohesive teams (Casey-Campbell & Martens, 2009; Cota, Longman, Evans, Dion, & Kilik, 1995; Hogg, 1992; Mudrack, 1998; Salas, Grossman, Hughes, & Coultas, 2015). Burke et al. (2006) noted the "explosion of theoretical and empirical work" in the area of team cohesion over the last 30 years. One factor that has remained consistent is the notion that "…teams are central and vital to everything we do in modern life" (Kozlowski and Ilgen, 2006).

The types of teams in these studies have varied from military, students, and sports teams to retail employees, businesses, and artificial groups (Davenport, 2013). There was a shift from the manufacturing workers in early research to workers who were in education, offices, sales, and service (Landy & Conte, 2016). The 21st century has brought about another change to work that is supported by technology (Carter-Steward, 2009). "The ideas of mobility and multilocality are new to literature and present a number of challenges and opportunities for future research and practice" (Gilson et al.,

2015). This global connectedness has provided greater diversity in teams, especially the virtual team (Landy & Conte, 2016). Research has yet to fully understand the group dynamics of virtual teams (Gilson et al., 2015). "As global business competition increases, organizational leaders will continue to face challenges regarding how to manage the most important resource within their organizations, the people" (Callaghan, 2014).

History of Working Together

"A group of individuals can maximize their creativity, resources and talents, share valuable information, work together on tasks leading toward a common goal and yield results that are far greater than any one person could deliver individually" (Volz-Peacock, 2006). This can be seen throughout history (Lipnack & Stamps, 1999; Nemiro, 2002; Robinson, 2015; Tyldesley, 2007). Long before the Spanish, French, and other European settlers came to America in the late 15th century, Native Americans existed in tribes formed by cultures and languages (ushistory.org, 2016b). They survived by working for the benefit of the tribe: hunting, fishing, working the land, raising families, and defending their land (ushistory.org, 2016b). In the 1590s, the Iroquois even established an elaborate political system and constitution that helped warring tribes work together (ushistory.org, 2016b)

European settlers came to America in 1607, looking for fame, fortune, and gold in the new land (ushistory.org, 2016c). This single focus caused many to lose their lives because they had not planned on what to do when their supplies ran out (ushistory.org, 2016c). Many literally starved to death (ushistory.org, 2016c). It took the leaders mandating that men work in the fields four hours a day to replenish their stores

(ushistory.org, 2016c). Other settlers, like those in Plymouth in 1620, set up their charter

before they ever stepped off the ship (ushistory.org, 2016a). This helped everyone

understand the expectations once they went ashore (ushistory.org, 2016d). As others

followed, they built communities that helped them flourish in the new land

(ushistory.org, 2016d).

As growth in the U.S. continued, colonies turned into states that continued to

work together to plan their expansion and economic growth (ushistory.org, 2016e). They

learned to find balance among the group, community, and town dynamics that helped

them succeed (ushistory.org, 2016e). As agriculture gave way to industry in the 1800s,

new group dynamics had to be learned (ushistory.org, 2016g).

Organizational development

In the late 19th and early 20th centuries, there was a shift in business from

employment centered on agriculture (Figure 1) to a diversified industrial employment

structure (Hirschman & Mogford, 2009; ushistory.org, 2016g). This era became known

as the Industrial Revolution, which changed the way businesses operated (Hirschman &

Mogford, 2009; ushistory.org, 2016h). These companies were primarily manufacturing

firms that relied heavily on labor to produce their product (Hirschman & Mogford, 2009).

"Employment in the manufacturing sector expanded four-fold from 2.5 to 10 million

workers from 1880 to 1920" (Hirschman & Mogford, 2009). Immigrants coming to the

U.S. added to the supply of workers businesses needed, and these immigrants were happy

to have any job no matter the wage or conditions (Wright, 1990).

The Industrial Revolution also saw a shift from businesses run by owners to

salaried and multiple layers of management (Landy & Conte, 2016). Instead of

individuals working to support their communities, they were working for the benefit of

the company with little say in what they did or how they were compensated (Landy &

Conte, 2016). This era also saw a rise in other areas like education, health, public safety,

banking real estate and accounting (Hirschman & Mogford, 2009). Research into the

nature and dynamics of group behavior emerged during the Second World War due to the

interest in increasing efficiency and production of goods needed for the war effort

(Patchell, 2007). The objective of much of this research was to effectively construct

groups that would interact in a positive way, be more productive, and focus on a common

group goal (Patchell, 2007).
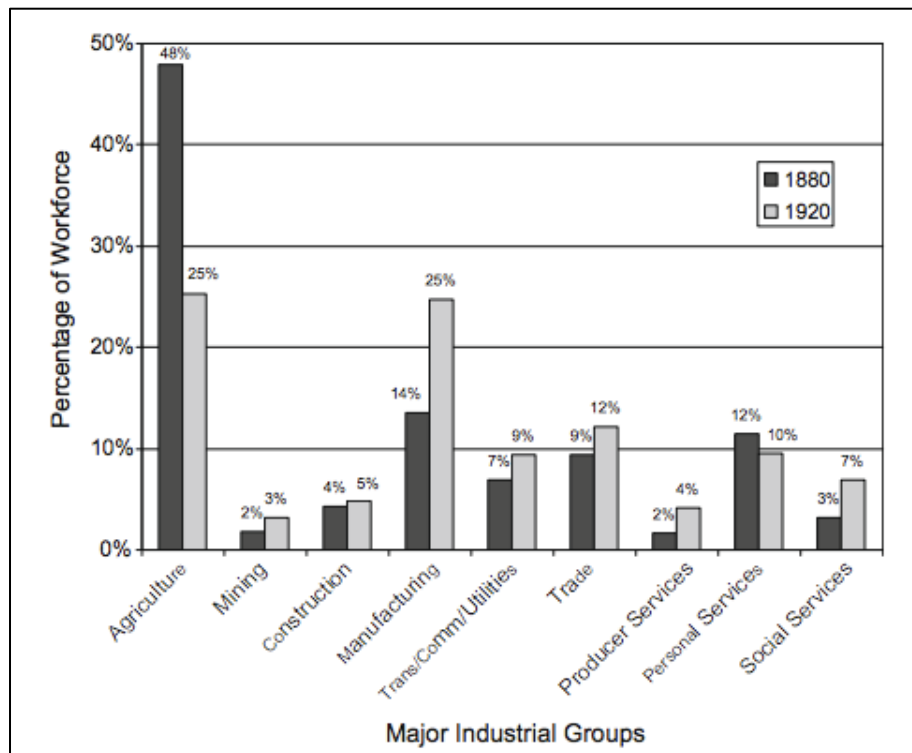
Figure 1: Major Industrial Groups 1880 & 1920 from Hirschman, C. & Mogford, E.

(2009)

In 1946, Drucker was hired by General Motors (GM) to review their policies and procedures (Wells, 2007). What he actually did was look at the company through his lens of how a company should operate (Wells, 2007). He felt companies should offer opportunities for employees to be promoted, give employees a way to offer suggestions, and provide a process for dealing with worker issues (Wells, 2007). His book *Concepts of the Corporation* (Drucker, 1946) was based on his findings at GM.

As the human-relations movement gained traction in the 1940s and 1950s, Kurt Lewin (1948) developed the concept of group (team) dynamics (Pryor et al., 2009). McGregor called for integration between organizational and individual needs (Carson, 2005). This tied in to Maslow's (1954) work on meeting individuals' basic needs for food, clothing, and shelter and growing to the point of self-actualization, where they became the best they could be. The nature of organizational life continued to change and so too did the expectations of the workforce (Carter-Stewart, 2009). Group dynamics and group problem-solving became the focus of researchers like Tuckman during the 1960s and 1970s (Zivick, 2013). The team and importance of teamwork began to emerge during the 1960s and 1970s (Dinerstein, 1998).

TQM or total quality management in the 1980s and 1990s gave rise to the popularity of self-managed work teams (Laughridge, 2012). Through empowerment, team members had a vested interest in organizational results (Millward, Banks, & Riga, 2010). Self-managed teams had great success during the 1990s with improved quality and productivity, lower turnover and absenteeism, and better management-labor relations (Attaran & Attaran, 2003; Harvey and Bowen, 1996). This led the way to ISO 9000 quality management, lean manufacturing, and Six Sigma process improvement.

Importance of Teams

"Teams of people working together for a common cause touch all our lives. From everyday activities like air travel, firefighting, and running the United Way drive to amazing feats of human accomplishment like climbing Mt. Everest and reaching for the stars, teams are at the center of how work gets done in modern life."

-Kozlowski and Ilgen, 2006

Teams and groups can mean different things to different researchers and have been used interchangeably in some research (Guzzo & Dickson, 1996; Kozlowski & Ilgen, 2006; State-Davey, 2009). Groups are an informal collection of people who are aware of one another but do not necessarily interact (State-Davey, 2009). Some researches felt that groups become teams as they mature (State-Davey, 2009). In Tuckman's (1965) model of team development, groups would go through the "norming" and "storming" stages to the "forming" stage where they began to operate as a unit or team. Teams can move back and forth between stages on the group-team continuum; this could possibly explain why the terms were used interchangeably (State-Davey, 2009).

Teams are thought to be "…a distinguishable set of two or more people who interact interdependently toward a common and valued goal/object/mission, who have each been assigned specific roles or functions to perform, and who have a limited life span membership" (Salas, Dickinson, Converse, and Tannenbaum, 1992). Stashevsky and Koslowsky (2006) added that there are separate responsibilities or assignments that help the team reach its goals.

Over the last 30 years, organizations have found that teams were critical to their success (Andrews, 2012; Davenport, 2013; DeShon et al., 2004; Miles, 2014). They can draw on the teams' resources, creativity, and talents to achieve common goals with greater results (Forsyth, 2006; Kozlowski & Bell, 2003; Volz-Peacock, 2006). This

helped organizations respond to change and remain competitive (State-Davey, 2009) The

University of Southern California's Marshall School of Business found that "Fortune

1,000" corporations employing a team-based compensation system had grown

dramatically (Garvey, 2002). "Greater utilization of teams in organizations provides a

better response to competitive forces, mines greater efficiencies from existing resources,

and offers an ability to produce better results" (DeChurch & Mesmer-Magnus, 2010;

Kozlowski & Bell, 2003). The team dynamics create a spirit of cooperation that

encourages members to stay with the team (Miles, 2014). A study by Sundstrom et al.

(1999) found that organizations that used teams saw "tenfold reductions in error rates and

quality defects, productivity gains of two hundred percent and more, ninety percent

reductions in response time, process steps reduced in number to one-tenth what they

were, and product-to-market cycles cut by half".

In addition to the skills and abilities team members bring to organizations, there

are psychological and social benefits (Landy & Conte, 2016). Team members gain a

"sense of empowerment and belonging, increasing an individual's sense of satisfaction

and well-being" (State-Davey, 2009). Lewin (1948) felt a key attribute of groups was

interdependence, where at least one person influences or is influenced by others (Forsyth,

1990). They have become vital to everything in modern life (Kozlowski & Ilgen, 2006).

"A growing number of organizations are turning to teams as a way to develop and deploy

their human capital in search of peak operational performance"(Salas, Stagl & Burke,

2004).

The differentiation of the terms "group" and "team" is significant in research

findings and the ability to generalize from the study (State-Davey, 2009). This has been

thought to add to the lack of consistency in cohesive-teams literature (State-Davey, 2009).

Size

In reviewing twenty studies to help understand the team-building process, Klein, Diazgranado, and Salas (2009) found that cohesion was stronger and performance higher in smaller teams (Mullen & Cooper, 1995). Individuality seemed to get lost in larger groups and the enjoyment of the group decreased (Pramlal, 2004; Snowdeal-Carden, 2013). Larger teams seemed to require more efforts in teambuilding to help bring them together (Klein et al., 2009). Some researchers felt that the size of the team also played a role in the effectiveness of the team but the size of teams varied depending on their purpose (Burke et al., 2006; Castaño et al., 2013; Pramlal, 2004). Huczynski and Buchanan (2007) suggested that groups contain 12 or fewer members, but none of the studies tested an ideal size. Kozlowski and Ilgen (2006) suggested further research.

Building blocks

Teams are important to organizations because they are the building blocks or foundations on which organizations are built (Dinerstein, 1996; Kozlowski & Ilgen, 2006; State-Davey, 2009). They have even been touted as critical to the survival of the organization (Volz-Peacock, 2006). Teams can increase quality and productivity and foster creativity and innovation (Volz-Peacock, 2006). Since they are so important to organizations, it is critical that effective teams be supported and built into cohesive units (Andrews, 2012).

Team Effectiveness

"Team effectiveness can broadly be defined as a combination of internal and external factors that determine how well a team works as a unit" (Andrews, 2012). Research on team effectiveness has been built over the last 50 years as teams became more prevalent in organizations (Kozlowski & Ilgen, 2006). McGrath (1964) and other researchers based their research on an "input-process-output concept" that is a combination of the individual, team, and organizational attributes and resources that are put in motion toward reaching their goals, and top performance (Hackman, 1987; Kozlowski et al., 1999; Mathieu et al., 2008; Salas et al., 1992; Tjosvold & Yu, 2004).

Inputs are the resources available to the team at all levels: individual, team, and organization (Kozlowski & Ilgen, 2006). Burke's (2014) study on "teaching teams" found that organizational structures and optimal individual contributions focusing on administration, time, trust, and conflict helped teams to work together effectively. Mickan and Rodger (2000) also found that organizational structures helped teams become effective by providing clear purpose, specific tasks, distinct roles and adequate resources. Other inputs that are included are demographics, team design, and training (Kozlowski & Bell, 2003)

Processes are the team's activities and interactions that engage individual talents and resources to achieve the team's goals (Kozlowski & Ilgen, 2006). Individuals' skill level and their motivation throughout the process could also change the outcome (Kozlowski & Ilgen, 2006). Mickan and Rodger (2000) noted the characteristics of the individuals and the team for effective teamwork. Individual contributions included self-knowledge, trust commitment, and flexibility. The team processes included coordination,

communication, cohesion, decision-making, conflict management, social relations and

performance feedback. Working together increased team effectiveness far beyond what

could be achieved individually (Tjosvold & Yu, 2004). Table 1 provides a list of the

characteristics of effective teamwork from several researchers (Bakken, 2007; Mickan &

Rodgers, 2000; Parker, 1990).

Outputs are the performance outcomes of teams (Mathieu et al., 2008). They are

based on three criteria: team performance, impact of input and process on the team

members, and the team's ability to perform better in the future (Choi, 2002). The

effectiveness of the team also directly impacts the effectiveness of the organization

(Rapisarda, 2003). Some outcomes include: quality, quantity, customer satisfaction, team

satisfaction, or personal growth (Choi, 2002; Guzzo & Dickson, 1996; Hackman, 1987;

Sundstrom et al., 1990).

Table 1: Characteristics of Effective Teamwork

Organizational Structure	Individual Contribution	Team process
Clear purpose	Self-knowledge	Coordination
Appropriate culture	Trust	Communication
Specified task	Commitment	Cohesion
Distinct roles	Flexibility	Decision-making
Suitable leadership	Diversity	Conflict management
Relevant members		Social relationships
Adequate resources		Performance feedback
Informality		Accountability
		Team interaction
		Listening
		Distinct identity

(Bakken, 2007; Mickan & Rodgers, 2000; Parker, 1990)

"A team is effective when the team members cooperate and put the team before

themselves and their personal expectations" (Loperena, 2004). There are many factors

that go into creating an effective team (Kozlowski & Ilgen, 2006). Cohen and Bailey

(1997) divided effectiveness into three categories: performance, attitudes, and behaviors.

Kozlowski and Bell (2003) suggest looking at the specific type of team to determine which factors are applicable. One factor that has been found consistently in work teams is cohesiveness (Rapisarda, 2002; Volz-Peacock, 2006). It has even been thought of as a critical component for effective teams (Loperena, 2004; Rapisarda, 2002; Salas, Grossman, Hughes, & Coultas, 2015: Stashevsky & Koslowsky, 2006; Volz-Peacock, 2006).

Neuroscience and teams

In trying to understand the factors of team effectiveness and performance, some researchers felt that neuroscience could provide insight into team behaviors (Corr et al. 2016; Stephens, 2015). There are observable networks of brain systems and processes responsible for workplace attitudes and behaviors (Becker, Cropanzano & Sanfey, 2011; Ward, Volk & Becker, 2015). Corr et al. (2016) noted that behaviors and motivation were not a "one-size-fits-all". There appeared to be a specific biological make-up in individuals in relation to different stimuli (Corr et al. 2016; Waldman, Wang & Fenters, 2016). Technology has become more user-friendly, affordable, and practical for organizational research (Waldman, Wang & Fenters, 2016). Unsworth, Fukuda, Awh & Vogel (2015) used EEG to measure activity in the prefrontal cortex as changes occurred in cognitive activity.

Neuroscience is not looking to replace traditional methods of team research (Becker, Cropanzano & Sanfey, 2011). The strategies are to combine it with the latest management thinking to provide a 'shared language' to address the needs of effective, high performing teams (Stephens, 2015). It provides a way to measure teams without the biases found in surveys or interviews (Waldman, Wang & Fenters, 2016). Neuroscience

is being offered as a better way to understand connection between the brain and the organizational environment (Ward, Volk & Becker, 2015).

Cohesiveness

"Though long considered a key contributor to team success, cohesion is perhaps more important than ever as organizations continue to seek competitive advantage. Teams are increasingly looked to in hopes of facilitating knowledge, morale, and creativity" (Salas, Grossman, Hughes, & Coultas, 2015). While cohesiveness has been thought of as a critical component in work teams, studies have struggled to come to agreement on its definition, antecedents, and measurements (Casey-Campbell & Martens, 2009; Cota, Longman, Evans, Dion, & Kilik, 1995; Hogg, 1992; Mudrack, 1998; Salas, Grossman, Hughes, & Coultas, 2015). McLeod and von Treuer (2013) used Cohen's Cumulative Research Program (CRP) to analyze the theory of cohesion. This program "offers a means to evaluate the progress of any given theory in the social sciences" (McLeod & von Treuer, 2013). They found that the cohesion theory is in its early-to-immediate stages of development (McLeod & von Treuer, 2013). In other words, there are ideas and theories available but they need to be refined and tested (McLeod & von Treuer, 2013).

Several researchers found positive correlation between cohesion and performance (Chang & Bordia, 2001; Mullen & Cooper, 1994; Stashevsky & Koslowsky, 2006). In Carron, Widmeyer and Brawley's (1985) study on cohesion, there was a significant relationship between team cohesion and performance. Other studies had similar results where team cohesiveness was a predictor of team performance (Mullen & Cooper, 1994; Stashevsky & Koslowsky, 2006). The meta-analysis done by Chiocchio and Essiembre

(2007) found that the strength of the association between cohesion and performance varied by type of team and type of performance. When studying a group of students, Chang and Bordia (2001) found a stronger relationship between task cohesion and performance than between social cohesion and performance. With the inconsistency of results, researchers have questioned whether results could be generalized to other groups (Casey-Campbell, 2008).

Definitions of cohesion

There have been many definitions of cohesion (Table 2) but none that has emerged as applicable to all groups (Grossman, Roach, Mazer, & Salas, 2015; State-Davey, 2009). The classic definition of group cohesiveness came from Festinger's (1950) research, which looked at "The forces acting on individuals to remain in the group. These forces may depend on the attractiveness or unattractiveness of either the prestige of the group, members in the group, or the activities in which the group engages". Other researchers have used Festinger's definition or used individual factors in trying to define cohesion in their models (Beal et al., 2003: Carless & DePaola, 2000; Carron, Widmeyer, & Brawley, 1985; Mullen & Cooper, 1994). Carron's (1982) research on sports teams provided a more up-to-date definition of cohesion: "The dynamic process which is reflected in the tendency or a group to stick together and remain united in pursuit of its goals and objectives".

There were some researchers that felt cohesion was uni-dimensional in that it was an attraction to the group (Goodman, Ravlin, & Schminke, 1987; Piper, Marrache, Lacroix, Richardsen, & Jones, 1983). This simple definition was thought to increase the ease of measuring the group's cohesiveness (McLeod, & von Treuer, 2013). In

Cartwright's (1968) review of 35 research papers on small groups, it was found that cohesion was multi-dimensional including motive, group goals, expectancy, and outcome. Carron (1985) later went on to expand the multi-dimensional model with Widmeyer and Brawley (1985) to include categories of task cohesion and social cohesion from the perspective of the individual and the group (Figure 2). They also felt that cohesion was not a "trait" but part of the team that changed as the team matured (State-Davey, 2009).

Table 2: Definitions of Cohesion

Festinger, (1950)	The forces acting on individuals to remain in the group. These forces may depend on the attractiveness or unattractiveness of either the prestige of the group, the members in the group, or the activities in which the group engages.
Gross & Martin, (1952)	The resistance of the group to disruptive forces.
Carron, (1982)	The dynamic process, which is reflected in the tendency or a group to stick together and remain united in pursuit of its goals and objectives.
Stewart, Manz & Sims, (1999)	Members readily share resources and information in order to make the group processes more efficient.
Beal, Cohen, Burke, & McLendon, (2003)	The extent to which group members exhibit liking for the status or the ideologies that the group supports or represents, or the shared importance of being a member of the group.
Aoyagi, Cox, & McGuire, (2008)	How individual members of a team relate to one another and work together as a unit.
May et al., (2008)	The bond with the group as a whole.
Salisbury, Parent, & Chin, (2008)	The stick-togetherness of a group.
Forsyth, (2009)	The degree to which team members desire to remain in the team and are committed to the team goal
Casey-Campbell & Martens, (2009)	A shared bonding or attraction that's driven by the task and social features of a team and that causes members to remain together.
Hausknecht, Trevor, & Howard, (2009)	Shared commitment to the group task and a shared attraction and mutual liking for one another.
Jenster, (2010)	May be thought of as the strength or the "glue" holding a group of people together which makes them perceive themselves as a tight-knit group
Grossman, Rosch, Mazer, & Salas, (2015)	Considered key within virtual teams as it serves as a sort of glue that connects physically and culturally disconnected members.

With the number of definitions of cohesion, Friedkin (2004) suggested that researchers use a definition of cohesion that relates to their study but also provide a clear and logical argument for their choice. The definition used in this study is "a dynamic process, which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982; Malcarne, 2012).
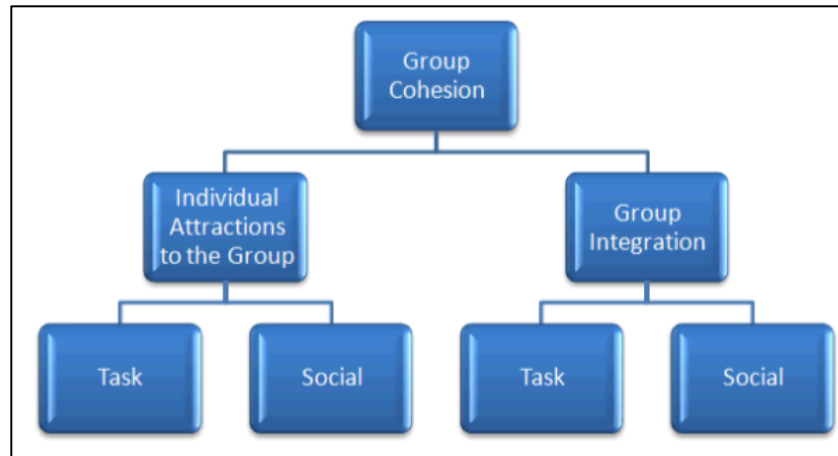
Figure 2: Conceptual Model of Cohesion from Carron et al. (1985)
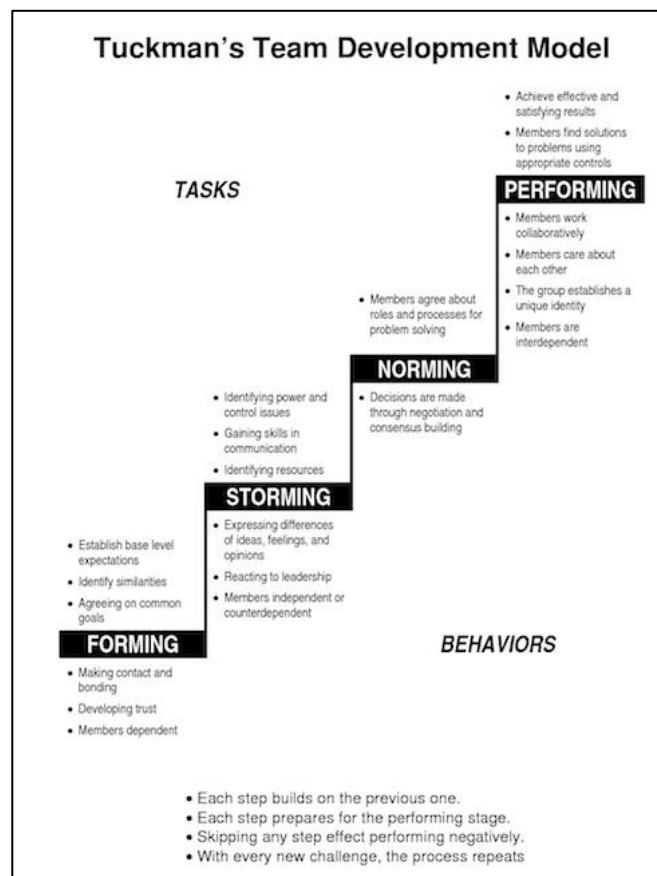
Figure 3: Tuckman's Team Development Model from Tuckman (1965)

Cohesiveness has shown to vary based on the length of time a team has been together (Carless & DePaola, 2000; Kozlowski et al., 1999). Tuckman's (1965) team development model (Figure 3) shows how teams develop over time. Teams go through

the "norming" and "storming" stages before getting to the "forming" stage where the team is working toward common goals. Then in the "performing" stage, the team begins to care about one another and form a group identity (Tuckman, 1965). This is also present in Kozlowski's (1999) team development theory where formation and identification of tasks happen early in the team's life. Salas, Grossman, Hughes, and Coultas (2015) noted that task cohesion tended to form early in group dynamics while social cohesion required more time to build and to influence performance.

Antecedents of cohesion

Some studies have identified factors that have led to cohesiveness (Cartwright, 1968; Deeter-Schmelz & Kennedy, 2003). Deeter-Schmelz and Kennedy (2003), in their study on patient care, found that team training was a factor in building team cohesiveness. The team approach helped to build communication skills, goal development, and connectedness (Deeter-Schmelz & Kennedy, 2003). Team members' willingness to work in a team or remain with the team had been identified as another antecedent of cohesiveness (Cartwright, 1968: Deeter-Schmelz & Kennedy, 2003). The structure of the group may also have an impact on dynamics, as groups with greater diversity may experience lower levels of cohesion, but it may depend on the type of diversity (van Knippenberg and Schippers 2007; Webber and Donohue 2001). While several researchers were able to identify circumstances that enabled teams to become cohesive, Kozlowski and Ilgen (2006) were unable to identify what they termed "true" antecedents of cohesion.

Types of cohesion

Many researchers felt that cohesiveness maximized team effectiveness and performance (Mullen & Cooper, 1994; Rapisarda, 2002; Stashevsky & Koslowsky, 2006; Volz-Peacock, 2006). Chang & Bordia's (1998) study on the relationship between cohesion and performance supported a two-factor structure of task cohesion and social cohesion. While other researchers tested a four-factor structure, the results only supported the two-factors of task and social cohesion (Carless & DePaola, 2000; Dyce Cornell, 1996). Other researchers went on to say that to build high-performing teams a combination of task and social cohesion was needed to promote collaboration, communication, and balance within the team (Carron, Widmeyer, & Brawley, 1985; Ravindran, 2008).

Understanding the differences between task cohesion and social cohesion has helped in the development of the teams by creating an understanding of goals and roles, and by fostering an environment where members are active participants in their jobs (Grossman et al., 2015; Zaccaro, 1991; Zaccaro & Lowe, 1998). "Cohesion is indeed the ultimate dimensional construct and clarifying that task and social cohesion should be prioritized when measuring cohesion…"(Grossman, Rosch, Mazer, & Salas, 2015; Salas, Grossman, Hughes, & Coultas, 2015).

Social cohesion. Social cohesion involves the individual members' attitudes and behaviors that develop by maintaining social relationships within a group (Casey-Campbell & Martens, 2009; Castaño et al., 2013; Friedkin, 2004). Individuals may join a group because of members' personalities or shared views (Pavitt, 1998). Festinger (1950) looked to explain the individual team members' responses in the group setting. It

was found that increased social cohesion led to greater commitment (Pillai, & Williams, 2004), higher morale (Bollen & Hoyle, 1990; Evans et al., 2008), increased trust and confidence (Pavitt, 1998), and greater overall job satisfaction (Forrester & Tashchian, 2006; Pavitt, 1998).

There is disagreement on whether task or social cohesion develops first (Castaño, Watts, & Tekleab, 2013; Salas, Grossman, Hughes, & Coultas, 2015; Zacarro & Lowe, 1998). Salas, Grossman, Hughes, and Coultas (2015) observed the development of social cohesion in teams that have been together longer. Zacarro and Lowe (1998) found evidence that social cohesion actually came before task cohesion. This may be due in part to the type of teams being studied (Castaño, Watts, & Tekleab, 2013). Castaño, Watts, and Tekleab (2013) determined the amount of social cohesion could vary significantly between sports and business teams.

Figure 4: Social-Cohesion Themes Identified from State-Davey (2009)

Chang and Bordia (2001) looked at ways to improve group cohesion and ultimately group performance by specifically targeting types of cohesion. They felt that if the group wanted to improve turnover and absenteeism, they needed to work on their

social cohesion. Social cohesion was also a way to pinpoint the need for development or

coaching (Malcarne, 2012). State-Davey (2009) created a diagram of components of

social cohesion (Figure 4).

     Task cohesion. Task cohesion is the "use of skills and abilities to complete

goals, jobs or assignments" (Castaño et al., 2013). This builds a sense of unity and

commitment (Beal et al., 2003). Task cohesion was thought to be more closely related to

performance than social cohesion (Chang & Bordia, 2001; Mullen & Copper, 1995;

Zaccaro, 1991; Zaccaro & Lowe, 1988). Task cohesion builds as tasks, projects, or

assignments are completed successfully (Knouse, 2007). It was thought that the group

members apply themselves to the task for the genuine pleasure that they take from it

(Mullen & Cooper, 1995). Several researchers felt that commitment to the task was the

most important factor of the "cohesive-performance" effect (Grossman, Rosch, Mazer, &

Salas, 2015; Mullen, 1995).
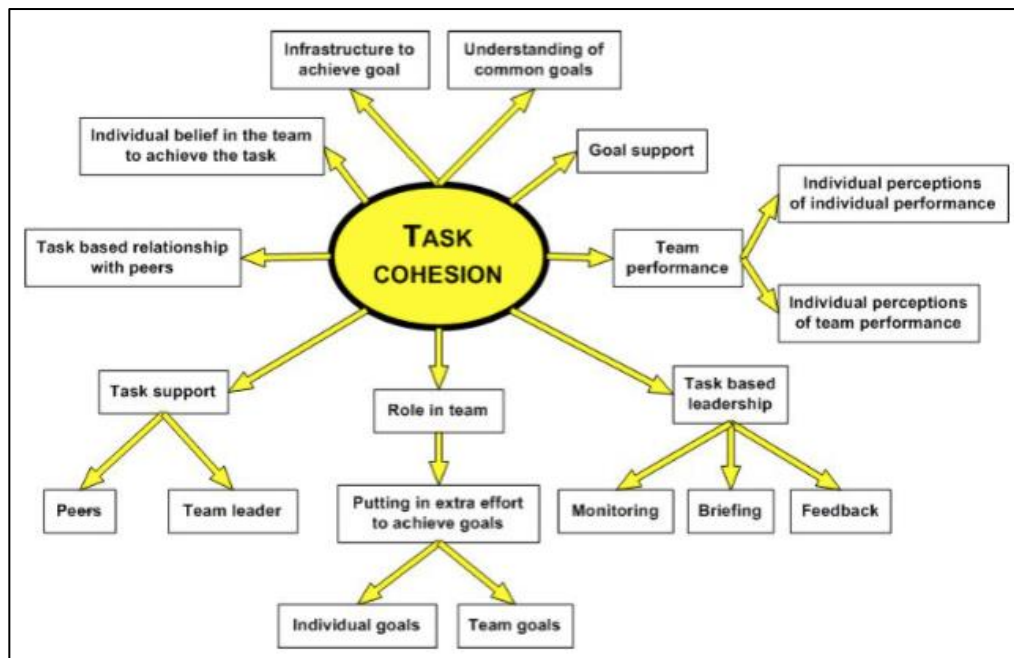
Figure 5: Task-Cohesion Themes Identified from State-Davey (2009)

Chang & Bordia (2001) looked at ways to improve group cohesion and ultimately group performance by specifically targeting types of cohesion. Targeting factors like commitment to the task was likely to improve group performance (Carless & DePaola 2000; Chang & Bordia, 2001). State-Davey (2009) created a diagram of components of task cohesion (Figure 5).
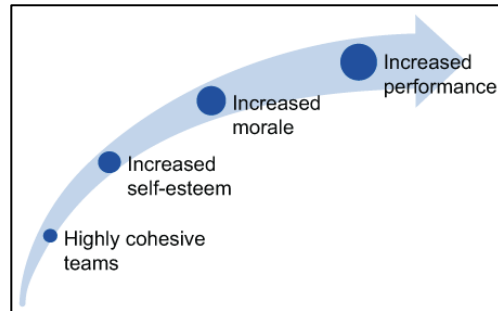
Figure 6: Cohesiveness to Performance from Molnau (2013)

Advantages of cohesive teams

Cohesion has been shown to have a positive effect on group performance over the years (Beal et al., 2003; Evans & Dion, 2012; Greer, 2012; Mullen & Cooper, 1994). Cohesion is multi-dimensional (Salas, Grossman, Hughes, & Coultas, 2015). It brings about increased morale, self-esteem, and performance (Figure 6). "The major advantages (of cohesion) are the diversity of knowledge, ideas, and tools contributed by team members, and the camaraderie among members" (Anderson & Ackerman Anderson, 2010; Dinerstein, 1998; Molnau, 2013; Stashevsky & Koslowsky, 2006; Volz-Peacock, 2006). When teams pool their resources, they have the potential to improve productivity, innovation, customer service, and profits for their organizations (Andrews, 2012; Burke et al., 2006; Casey-Campbell & Martens, 2009; Salas et al., 2015). There is increased team satisfaction when team members are involved in the problem-solving and innovation generation (Boule, 2008). They are better able to influence one another in a

positive manner (Pavitt, 1998). It fulfills the psychological needs for power, affiliation, status, and evaluation of one's beliefs (Pavitt, 1998).

Disadvantages of cohesion

As presented there are many advantages to cohesion in teams but some researchers have found that there are some drawbacks as well (Andrews, 2012; Burke et al., 2006; Casey-Campbell & Martens, 2009; Janis, 1971; Molnau, 2013; Pavitt, 1998; Salas et al., 2015; Wise, 2014). In an attempt to be cohesive, team members may spend too much time coming to agreement and making everyone happy, which can delay progress (Molnau, 2013; Pavitt, 1998). Too much cohesiveness can lead to groupthink and stagnation of innovation (Wise, 2014). Groupthink is "a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members' striving for unanimity overrides their motivation to realistically appraise alternative course of actions" (Janis, 1971). It can lead to a "deterioration of mental efficiency, reality testing, and moral judgment as a result of group pressures" (Janis, 1971). It is not the intelligence of the group that is called into question but the dynamics (Janis, 1971).

An example of this phenomenon was seen in the Kennedy Administration with the invasion of the Bay of Pigs, where the president and advisors felt they could keep the plan a secret and that they could not fail, but the plan in fact did fail (Janis, 1971). A more recent example is the case of Enron, where the company's board of directors had no idea they were in financial trouble (O'Connor, 2003). The board failed to question the CEO, CFO, and auditors on business practices (O'Connor, 2003). It only took a couple of months for financial tables to turn and Enron to go bankrupt (O'Connor, 2003).

Cohesion measurements

      Casey-Campbell & Martens (2009) concluded that there were as many methods for measuring cohesion as there were researchers. This was due to the complex nature of cohesion (Cota, Longman, Evans, Dion, & Kilik, 1995; Salas, Grossman, Hughes, & Coultas, 2015). Measures have captured cohesion at the individual level, focusing on attitudes, behaviors, and attraction to the group (Davenport, 2013; Grossman, Roach, Mazer, & Salas, 2015). They also looked at team-level measures, which is the performance of the team as a whole, as performance tended to be the outcome of cohesion in literature (Carron et al., 1985; Grossman, Roach, Mazer, & Salas, 2015). Castaño, Watts, and Tekleab (2013) noted that the more general the measure of cohesion the lower its relationship with performance.

      McLeod and von Treuer (2013) felt the challenge in measuring cohesion was the lack of consistency among studies. They felt there should have been a progression from one study to the next (McLeod & von Treuer, 2013). Other suggestions for measuring cohesion have been to move away from measuring the "levels of cohesion and performance to testing changes in cohesion and performance" (Casey-Campbell & Martens, 2009).

      They felt there should have been a progression from one study to the next (McLeod & von Treuer, 2013). Other suggestions for measuring cohesion have been to move away from measuring the "levels of cohesion and performance to testing changes in cohesion and performance" (Casey-Campbell & Martens, 2009). In Table 3, Grossman, Roach, Mazer and Salas (2015) provided guidance around key themes with six major questions to use when studying cohesion. DeVillis (2013) also suggested that

researchers be specific in the questions they ask and focus on that context in their data-gathering tools.

Table 3: Summary of What Matters for Cohesion Measurement

Measurement Question	What Matters?
Who?	Assessing both the individual and the team level.
What?	Adopting a multidimensional scope (for both defining and measuring cohesion), with particular emphasis on task and social dimensions.
When?	Evaluating cohesion at multiple points across a team's lifespan…
	Focus on task cohesion early in team development and social cohesion later on.
Where?	Considering where, or in what the context in which the team operates…
	The team type, task, and the situation will influence what aspect of cohesion is
	e.g. task cohesion may be less important in contexts with low interdependence.
Why?	Taking into account why cohesion is being measured, or the construct(s) that cohesion will be empirically related to…
	Performance: measure both task and social cohesion.
	Behaviors and processes: task cohesion is more important but a mixed measure that also captures social cohesion can be beneficial.
	Attitudes and emergent states: measure ATG-social and generic task cohesion
	Leadership: measure generic task cohesion; mixed measures are equally beneficial, but lack explanatory capabilities
	Individual differences: ATG-task shown to get most significant results, but a lack of data suggests that this method should be used with caution.
How?	Maximizing reliability and validity, and capturing both attitudinal and behavioral manifestations of cohesion…
	Always consider reliability and validity.
	There is not a "one size fits all" measure.
	Match conceptualization and measurement.
	Avoid solely relying on self-reports when possible.
	Shouldn't necessarily ignore the individual level of analysis.

(Grossman et al., 2015)

Group Environmental Questionnaire (GEQ). The Group Environmental Questionnaire (GEQ) (Appendix A) has been widely used in research to measure the level of cohesion. It was originally created by Carron, Widmeyer, and Brawley (1985) for use with sports teams. The 18-item, 9-point Likert-scale survey was designed to be used to assess the perceptions of individual group members (Snowdeal-Carden, 2013). It focuses on three assumptions: (a) "cohesion can be assessed through the perception of group members"; (b) "social cognitions that each group member holds about the

cohesiveness of the group are related to the group as a totality and to the manner in which

the group satisfies personal needs and objectives"; and, finally, (c) "there are two

fundamental focuses to a group member's perceptions: a task orientation and a social

orientation" (Carron, Brawley, & Widmeyer, 2002). This used a task–social and

individual–group dimension (Davenport, 2013). The survey was reduced from the

original 345 items to 18 items (State-Davey, 2009).

Dion and Evans (1992) felt that this tool had the potential for broad application.

Patchell (2007) found it effective when studying track teams and could make

comparisons to previous studies. Despite the popularity of the GEQ in studying

cohesion, certain reservations about its psychometric properties have been discussed in

the literature. For instance, empirical tests of the model within and outside of the

sporting context have yielded mixed results (Carless & DePaola, 2000).

Work Team Cohesiveness Scale (WTCS). John Davenport (2013) developed

the Work Team Cohesiveness Scale (WTCS) (Appendix B). He was looking for an

instrument that would measure cohesiveness in organizational work teams whose results

could be generalized. Existing instruments had generated inconsistent results and were

not specific to work teams (Carless & De Paola, 2000). Researchers had suggested that

group cohesion be studied in its specific context (Man & Lam, 2003; Mullen & Copper,

1994). This led Davenport (2013) to create a 13-item, 10-point Likert-scale survey for

work teams that targeted: "(a) interpersonal relationships and personal satisfaction, (b)

cohesion, (c) idea sharing and group tasks and goals, (d) task orientation, and (e) team

identity".

There were several concerns about broad use of this scale by Davenport (2013). The original survey had 59 items that were reviewed by experts and only 13 made the final survey. There was only one sample test and no retest and no conclusion could be made regarding consistency of responses (Davenport, 2013).

Multidimensional Cohesive Team Scale (MCTS). The Multidimensional Cohesive Team Scale (MCTS) (Appendix C) is like the GEQ in that it captures the perceptions of the individual and the team (State-Davey, 2009). The focus on the organizational work team makes it different from other models (State-Davey, 2009). With the lack of consistent definitions and measurements, State-Davey (2009) used subject matter experts (SME) to help validate the items used on the scale. Using the GEQ, the researcher was able to use a broader definition of cohesion and better develop the dimensions (State-Davey, 2009). The scale included the team leader as well to better understand the relationship in building cohesion. This instrument was created in 2009 but no other research has been found that has used this scale.

Factors of cohesion. Von Treuer, Fuller-Tyzkiewicz, and Atkinson (2010) took a step back to understand the multiple components of cohesion. Their exploratory study discovered frequently used factors that measured cohesion from multiple studies (Von Treuer et al., 2010). The commonalities they found are shown in Appendix D. Their results yielded similarities to other studies but did not map to any one. The factors they found were:

- Factor 1 – Task Cohesion – problem-solving, task-planning, team co-ordination, and goal attainment for work-related tasks.
- Factor 2 – Social Cohesion – interpersonal attraction – interest and

opportunity to forge friendships in the workplace.

- Factor 3 – Social Cohesion –harmonious environment, as characterized by friendship, goodwill, lack of hostility and conflict, and successful integration of differing personalities

- Factor 4 – Vertical Cohesion – relationship between employee and supervisor

Given the challenges facing researchers in trying to measure cohesion, von Treuer in his study with Fuller-Tyszkiewicz, McLeod, & Hamilton (2013) changed their focus and looked at factors of cohesion to identify features and practices individuals felt led to cohesive teams. After interviewing 28 Australian employees, they compiled a list of "provisional measures of cohesion" (Appendix E). They felt their list was more specific than other tools and could be utilized in a variety of studies.

Types of Teams

When Mayo conducted the Hawthorne Studies in the 1920s, researchers began to see the importance of the worker and their motivation (Landy & Conte, 2016). The teams the individuals belonged to exerted strong influences over their work habits, their attitudes, and their sense of belonging (State-Davey, 2009). But researchers found that not all teams were alike (State-Davey, 2009). Widmeyer's Group Environmental Questionnaire (GEQ) proved useful in understanding cohesion in sports teams. When Davenport (2013) tried to apply these same items to the organizational work team, the language was not appropriate and had to be modified. Carron & Brawley (2012) recommended when applying cohesion research in a new setting that researchers "take into account the contextual factors such as: interdependence, team identification,

arrangement, and feedback immediacy, to gain a clear picture of the effects of cohesion…" (Pescosolido, 2012). While many teams try to be cohesive, there are aspects and requirements that vary by team (Davenport, 2013). Researchers have looked at cohesion in artificial groups, military, sports teams, education, and business (Castaño et al., 2013; Mullen & Cooper, 1995).

The 21st century has brought about a change in the business landscape (Bennis, 2000). With technological advances, organizations have seen a rise in the use of virtual teams (VT) (Gilson et al., 2015; Quisenberry, 2011). It is critical that businesses and researchers learn how to best operate in this new virtual climate (Ginsburg, 2009).

Virtual teams

"A recent survey suggests that approximately 66% of multinational organizations utilized VT's (Society for Human Resource Management, 2012), and 80% of companies surveyed believed this number will grow" (Perry, 2008). This allows organizations to have a larger global presence, reduce business costs, increase organizational diversity, work from anywhere, at anytime, and outsource operations (Aksu, 2009; Robinson, 2013). Virtual teams have changed the face of business and have become almost indispensable to organizations (Paul & Ray, 2009). An organization can assemble a pool of talent in a virtual team quickly in response to a specific need or goal without the team knowing one another (Bergiel, Bergiel, & Balsmeier, 2008; Munkvold and Zigurs, 2007). Figure 7 shows some of the changes organizations have been seen in teams (Aksu, 2009).

Figure 7: Change in Team Perspective from Aksu (2009)

History. The virtual workforce was seen as early as 1972 when University of

Southern California researcher Jack Nilles merged the idea of telecommunication with

transportation and gave us "telecommuting" (Joice, 1998). Nilles' (2000) studies

continued to focus on the workplace efficiencies telecommuting provided and the

environmental impact of not driving to work every day. In 1981, J.C. Penney adapted the

"flexiplace" to launch its first home-based catalog call center (Gladys, 2015; Joice,

1998). Other names that have been used to describe the teleworker include: digital

nomads, web-workers, portable professionals, location-independent professionals,

iworkers, eworkers, mobile professionals, remote workers, technomads, virtual worker,

virtual team, virtual workforce, telework organizations, and mobile workforce (Gibson,

Blackwell, Dominicis, & Denerath, 2002: Pinola, 2012). The 1990s saw increasing

technological capabilities with the wider distribution of broadband Internet (Attaran &

Attaran, 2003).

The "global economy" was named in the early 2000s as organizational boundaries

were expanded and work distributed beyond central locations (Karayaz, 2008). This

globalization brought about teams of "geographically dispersed individuals working

collaboratively on projects" (Karayaz, 2008; Nydegger & Nydegger, 2010). The number

of Americans working in the virtual environment was growing rapidly (Laughridge,

2012). As early as 2001, over two-thirds of Fortune 1000 companies regularly used

virtual teams (Boiney, 2001). In 2004, the number of Americans working in the virtual

environment at least part-time reached 44.4 million (Green & Roberts, 2010). The

momentum of the virtual workforce continued and 2008 became the year rumored to

have had the greatest impact on telework due to "recessionary impacts, increased

commuting costs, reactions to terrorism and continuity of service, increased emphasis on

well-being, and dramatic improvements in technical connectivity" (Hunton & Norman,

2010). Johns & Gratton (2013) expected the number of virtual workers to grow to 1.3

billion by 2017.

Roebuck, Brock, and Moodie (2004) noted, "virtual teams have become an

integral part of many organizations because of an increase in corporate restructuring,

competition and globalization". Virtual teams have expanded to almost every industry

"where the communication and information technologies that support it are available"

(Booth, 2011). Through virtual teams, organizations achieve many key business

objectives, such as reduced operational costs, increased productivity, higher profits,

greater access to global markets, increased speed, and flexibility and adaptability to

respond to customers (Arnold, 2008; Cascio, 2000; Duarte & Snyder, 2006; Johnson,

2005; Robinson, 2015; Sutanto, Tan, Battistini, & Phang, 2011).

There have been many studies on virtual teams in the last two decades (Robinson,

2015). They have provided theoretical framework and recommendations on virtual teams

but many them have used lab studies or case studies as opposed to "real teams," so

practical research on virtual teams is limited (Hertel, Geister, & Konradt, 2005; Gilson et al. 2015; Martins et al., 2004; Robinson, 2015).

Early research on virtual teams focused on demographics, knowledge, skills, and abilities (Gilson et al., 2015). It has only been in the last seven years that researchers have looked at team dynamics and the performance of virtual teams (Gilson et al., 2015). The mobility and multilocality of virtual teams were relatively new to research and presented challenges as well as opportunities (Gilson et al., 2015). Some of the challenges were a lack of physical contact where non-verbal cues could be picked up and assumptions that all members were equally proficient with technology, which can affect performance (Robinson, 2013). "All teams, including virtual teams, embody dynamics within the team that may affect its overall effectiveness" (Robinson, 2013). Communication was key in the development of virtual teams (Zivick, 2013). When used early in the life cycle of virtual teams it was shown to foster cohesiveness (Mellon-Ramos, 2016). Schwanda et al. (2011) stated "team cohesiveness is a vital social dynamic that is difficult to achieve in virtual teams".

Definitions of virtual teams. There has been no single definition of virtual teams (Robinson, 2015). Virtual teams have been described as a "groups of geographically and/or organizationally dispersed coworkers that are assembled using a combination of telecommunications and information technologies to accomplish a variety of critical tasks" (Beyerlein, Freedman, McGee, & Moran, 2003; Lipnack & Stamps, 1997; Martins, Gilson, & Maynard, 2004; Piccoli et al., 2004; Townsend, DeMarie & Hendrickson, 1998). They are also considered "a group of individuals who work across time and traditional boundaries on a temporary basis to bring different perspectives and skills to

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the team" (Combs & Peacocke, 2007). Staples, Hulland, and Higgins (1999) defined employees as virtual if they worked in a different building from their manager regardless of the distance between buildings (Fischer, 2011). Hertel, Geister, & Konradt (2005) provided a more detailed explanation: "(a) two or more persons who (b) collaborate interactively to achieve common goals, while (c) at least one of the team members works at a different location, organization, or at a different time so that (d) communication and coordination is predominantly based on electronic media (e-mail, fax, phone, video conference, etc.)."

More recent definitions of virtual teams use degrees of "virtuality" as not all teams are 100% virtual (Fischer, 2011; Robinson, 2015). There is thought to be a continuum in which the more spread-out a team is, the more virtual it becomes (Zigurs, 2003). A study by Chudoba, Wynn, Lu, and Watson-Manheim (2005) examined the differences among teams exhibiting high, medium, and low levels of virtuality.

Regardless of the details, each definition describes virtual teams in terms of multiple interconnected dimensions, such as task interdependency, shared or common goals, geographic dispersion and the use of technology to interact (Robinson, 2015). They are knowledge workers who are grouped together spanning space and time with the intent of taking advantage of the knowledge and expertise of each team member (Ebrahim et al., 2009).

Characteristics of virtual teams. Not everyone belongs on a virtual team (Quisenberry, 2011). Leaders look for members who can take responsibility and work in a self-managed environment (Quisenberry, 2011). They need to create a collective awareness of the interdependent tasks and shared responsibilities (Cohen and Gibson,

2003; Goodbody, 2005). Technology is critical to the team's success so continual

training and knowledge transfer is key (Booth, 2011; Cohen and Gibson, 2003;

Goodbody, 2005). Virtual teams require trust, communication, and collaboration to be

successful and manage conflict (Barron, 2003; Duarte & Snyder, 2006; Leinonen,

Jarvela, & Lipponen, 2003).

Horwitz et al. (2006) found value in building strong relationships, which can be

hard to do when teams are more geographically spread out (Cummings & Haas, 2012).

This distance can create conflict within virtual teams over issues like the lack of

knowledge-sharing, contextual misunderstandings and the development of subgroups

(Hinds & Mortensen, 2005). Teams need to learn a new way to interface with team

members and leaders (Robertson & Vink, 2012; Zaccaro & Bader, 2003). If they are

working from home, they need to create a space where they can work uninterrupted

(Montero, 2004; Walker, 2010)

Diversity. Virtual teams offer organizations geographic diversity, which allows

them to operate in multiple countries without large capital investments (Quisenberry,

2011). Studies have produced mixed results on the effectiveness of geographically

dispersed teams (Cummings, 2004; Gratton & Erickson, 2007). Cummings (2004) found

that these teams completed projects and assignments more accurately, effectively, and

rapidly due to their ability to leverage their contacts, communication strategies, and

diversity. In contrast, Gratton & Erickson (2007) did not find that diversifying these

teams would increase performance. One of the ways that performance was shown to

increase was by operating in multiple time zones so that when one shift ends, teams in the

next time zone can pick up the work, creating a virtual 24-hour operation (Brett, Behfar & Melymuka, 2006).

Global presence brings with it cultural diversity (Booth, 2011; Gilson et al., 2015). Pauleen (2004) found that this created boundaries for virtual teams as they communicate and interpret discussions, processes, and goals through their cultural filters. Their difference can "undermine trust, communication, accountability, and organization, as well as productivity among virtual team members" (Monalisa et al., 2008). While this may be challenging for some teams, those that are aware of the differences and work with the various perspectives can become successful (Dekker, Rutte, & Van den Berg, 2008).

Age and generational differences have been found to create another level of diversity (Quisenberry, 2011). The millennial generation or Generation Y is the first to grow up with computers and access to multiple means of computer-mediated communication (CMC), and its members are accustomed to instantaneous access to information (Eisner, 2005; Gorman, Nelson, & Glassman, 2004; Hershatter & Epstein, 2010). They are believed to have a different set of priorities than earlier generations (Gilson et al. 2015). They put a greater focus on work-life balance and look for greater flexibility and mobility in their work (Carless & Wintle, 2007). Some researchers feel that this younger generation may find working in a virtual team as commonplace as working in a face-to-face environment (Gilson et al., 2015; Morris & Venkatesh, 2000).

"Diverse teams offer an increased number of alternatives and perspectives, increased opportunities to find errors or discover key information, enhanced probability that an adequate solution will be proposed and increased access to more varied external networks" (Thomas, 2005).

Technology. Unlike teams that interact face-to-face, virtual teams rely heavily on technology to communicate, collaborate, conduct meetings, complete tasks, and interact with fellow team members (Gilson et al., 2015). "Over the past decade, the range of computer-mediated communication (CMC) products has continued to grow, and teams can now leverage collaboration tools (e.g., Huddle, Blackboard Collaborate), document sharing (e.g., Sharepoint, Dropbox), document cocreation (e.g., Scribblar, Google Docs), meeting tools (e.g., GoToMeeting, Google Hangouts), project management tools (e.g., Microsoft Project, Basecamp), and social networking (e.g., Yammer, Jive)" (Gilson et al., 2015). Teams that are comfortable with CMC use can increase overall satisfaction (Chi et al., 2012), reduce conflict (Anderson, McEwan, Bal, & Carletta, 2007), and work together to successfully complete tasks (Avolio, Kahai, & Dodge, 2001; Kock & Lynn, 2012; Sutanto et al., 2011; Yoo & Alavi, 2004).

"Technology glitches can (also) breed frustration, personality conflicts among team players, and cultural misinterpretations" (Roy, 2012). Verbal and nonverbal cues can be missed depending on the technology used (Balthazard, Waldman, & Warren, 2009; Robinson, 2015). In a recent survey, 94% of participants found the inability to read nonverbal cues interfered with team-building (Nancherla, 2010). Working in isolation can reduce social interaction and relationship-building (Buhlmann, 2006; Roy, 2012; Schwalbe, 2009). Thomas and Bostram (2005) recommended "virtual team leaders adopt a role as technology facilitators to enhance the use of technology by team members in addition to pre-team training" (Anderson et al., 2007). Using the right technology is critical to the team's success "because it serves as the essence of virtuality and work in the virtual context" (Mihhailova, Oun, & Turk, 2009).

Team engagement. "Team leaders should help members build relationships with each other, and roles and responsibilities should be clearly defined when the team is created to establish the required foundation and support required to lead virtual teams that operate under less restriction and hierarchy" (Quisenberry, 2011). Teams that are trained and understand the organization's mission and vision statement are better able to overcome inefficiencies in the group (Yeh et al., 2006). Fischer's (2011) research found that teams were equally engaged whether in the same location or virtual.

The communication patterns were different between virtual teams and traditional teams (Thompson, 2007). Virtual teams that were engaged communicated more and more effectively (Ebrahim, Shamsuddin, & Taha, 2009; Laughridge, 2012). There was more interaction, participation, idea generation and problem-solving (de Jong, Schalk, & Curseu, 2008; Ocker & Fjermestad, 2008; Thompson & Ku, 2010). Participants in Robinson's (2015) study identified keeping team members up to date and sharing opinions as important to the success of the team.

Cramton (2002) highlighted the frustration virtual team members experienced with interpreting or misinterpreting silence or lack of response. They were unsure whether other team members were researching a response, on vacation or just not paying attention (Cramton 2002). Unable to see communication cues, virtual team members experience challenges with coordination of task-related knowledge expertise (Cramton, 2001; Yoo & Alavi, 2004), further impacting knowledge transfer among team members (Moose, 2013; Robinson, 2015). Team members can feel isolated at times so the virtual workplace should facilitate communication and collaboration that moves with the team member (Baskerville & Nandhakumar, 2007; Gilson et al., 2015).

There are two types of computer-mediated communication (CMC): synchronous and asynchronous (Booth, 2011). Some synchronous communication types are instant messaging, video conferencing, VOIP (Voice Over Internet Protocol), and chats (Booth, 2011). Asynchronous communications include e-mail, voice mail, websites, databases, and bulletin boards (Booth, 2011). Using the various types of communication, virtual teams can gather "viewpoints and knowledge from globally dispersed team members that will add more value to the strategy and decisions of the organization" (Quisenberry, 2011). Using this active collaboration and communication leads to "positive team outcomes, project success, and improved productivity" (Alsharo, 2013; Booth, 2011, Quisenberry, 2011; Qureshi, Liu, & Vogel, 2006)

Performance. Early researchers found that the performance of face-to-face teams was superior to that of virtual teams (Baltes, Dickson, Sherman, Bauer, & LaGanke, 2002; Olson & Olson, 2000; Warkentin, Sayeed, & Hightower, 1997). They cited the need for interdependence and finding common ground, and noted that collaboration was hard to achieve in a virtual team (Olson & Olson, 2000). Booth (2011) noted that this could be due to team members' level of experience with technology and working in a virtual team environment. Like collocated teams, virtual team members should be "on board" "to reap the benefits of enhanced productivity in the virtual team" (Booth, 2011).

Other researchers such as Chudoba et al. (2005) found no relationship between the type of team and performance measures, including "trust among team members, effectiveness of communications, and coordination, commitment, and contributions of individual team members, and quality and punctuality of team products". Virtual teams

are made up of three components: task, social, and technology (Seung-Hee, Bonk, Maggiura, Bude, & Xiaojing, 2006). Focusing on only one or two areas can contribute to project failure (Seung-Hee et al., 2006). To help overcome some of the barriers in virtual environments, Intel worked with their teams to build an understanding and sensitivity to cultural and geographic differences (Fischer, 2011).

Teams that were involved in the decision-making process, allowed to share ideas, and be proactive tended to be more successful and cohesive (Cordery & Soo, 2008; Quisenberry, 2011; Robinson, 2015). Bourgault and Drouin (2007) identified 10 conditions that promote virtual team performance: "good communication processes; availability of adequate technological tools and the training to use them; trust throughout the project lifecycle; standardized team practices; a common vision and goals; strong and shared leadership; team competence; formal decision-making process; shared information and know-how; and support from upper management at all locations" (Sherif, 2009).

Cohesion. Rapisarda (2002) found that "teams who develop a high level of cohesiveness when conducting their normal teamwork, and develop a true understanding of team dynamics, are better positioned to solve complex problems and respond quicker to meet the organization's needs". Lurey and Rasinghani (2001) in studying virtual teams found that cohesion had "significant impact on the performance of a team, and, therefore, the success of it" (Melon-Ramos, 2016). Encouraging virtual teams to build trust, resolve conflict, create relationships, communicate, and be empowered provided the necessary resources to build cohesiveness and be successful (Gratton & Erickson, 2007; Green & Roberts, 2010; Lurey & Raisinghani, 2001; Maznevski & Chudoba, 2001;

Quisenberry, 2011). Melon-Ramos (2016) found that there was more satisfaction in virtual teams that were cohesive.

High levels of communication and establishing goals "early in the life of virtual teams foster team cohesiveness" (Brahm & Krunze, 2012; Jarvenpaa & Leidner, 1999; Piccoli et al., 2004). Cohesiveness provides a social dynamic that can be hard to achieve in the virtual environment (Horwitz, Bravington, & Silvis, 2006; Schwanda et al., 2011). Not all researchers find that social relationships are important in the virtual world (Gilson et al., 2015). Cummings and Haas (2012) discussed the need for virtual teams to stay focused on the task to improve performance. This can lead to incentives to improve performance where group-based rewards are possible (Bryant et al., 2009; Quigley et al., 2007).

Summary

Teams have shown themselves to be a valuable part of our everyday lives (Kozlowski and Ilgen, 2006). Cohesiveness of these teams can increase team effectiveness and improve performance (Hackman, 1987; Kozlowski et al., 1999; Mark et al., 2001; Mathieu et al., 2008; Salas et al., 1992; Tjosvold & Yu, 2004). The challenge for researchers has been to define and measure team cohesion (Casey-Campbell & Martens, 2009; Cota, Longman, Evans, Dion, & Kilik, 1995; Hogg, 1992; Mudrack, 1998; Salas, Grossman, Hughes, & Coultas, 2015). Grossman, Roach, Mazer & Salas (2015) suggested that cohesion not be "operationalized simply based on common practice but, rather that measures of cohesion closely align with the research or practical objective." The studies by von Treuer et al. (2010, 2013) on factors of cohesion offer the opportunity to look at the practices teams use to build cohesiveness rather than merely measuring it. The synthesized literature matrix is provided for Chapter II in Appendix G.

With technological advances and the advent of globalization, a new type of team has emerged in the last 25 years the virtual team (Aksu, 2009; Paul & Ray, 2009; Robinson, 2013). They bring greater diversity and the challenge of operating in remote locations rather than face-to-face settings (Cummings, 2004; Gratton et al., 2007). If the most important resource within organizations is their people, then understanding the practices of cohesiveness in the virtual team is critical to organizational performance (Lurey & Rasinghani, 2001; Melon-Ramos, 2016)

CHAPTER III: METHODOLOGY

Chapter III describes the methodology and processes used in this Delphi study. It includes the purpose statement, research questions, research design, population, sample, instrument, data collection, data-analysis process, study limitations, and summary.

Purpose Statement

The purpose of this Delphi study was to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented.

Research Questions

1. What were the practices virtual teams used to build cohesiveness?

2. Are the practices of these teams task-oriented or social-oriented?

Research Design

This Delphi study used a non-experimental survey research design to gather opinions of experts about practices virtual teams used to build cohesiveness (McMillan & Schumacher, 2010). The non-experimental design looked to describe the phenomena without any manipulation of conditions (McMillan & Schumacher, 2010). The survey provided quantitative data that made it "possible to measure the reactions of a great many people to a limited set of questions, thus facilitating comparison and statistical aggregation of the data" (Patton, 2015).

Dalkey and Helmer (1963) developed the Delphi technique while working for the RAND Corporation. RAND's researchers were looking for "scientific use of expert opinions" (Landeta, 2006). Their original study used a multiple-round Delphi process to forecast likely scenarios related to national defense issues for the U.S. military

(Kelbaugh, 2003). This method was thought to be extremely helpful in exploring new areas of research (Sori & Sprenkle, 2004). The Delphi technique allowed for consensus-building by using a series of surveys to collect data (Hsu & Sanford, 2007). The process prompted panelists to think and rethink their feedback (Khungar, 2011) The process collated and synthesized the opinions of experts until they could come to group consensus (Clay-Williams & Braithwaite, 2009; Linstone & Turoff, 2002; Stewart, 2001). The defining characteristics of this process were: "anonymity of participants, iterative polling rounds interspersed with feedback, and statistical analysis of group results" (Clay-Williams & Braithwaite, 2009; Kelbaugh, 2003).

The Delphi research design was appropriate for this study because it sought consensus of experts rather than precise analytical measures (Callaghan, 2015; Linstone & Turoff, 2006). The anonymity of participants reduces the influence of others' responses or pressure to get on the "bandwagon" (Linstone & Turoff, 2006). It allows the diversity of the group to preserve the validity of the results (Linstone & Turoff, 2006). This type of study provided "enough freedom to start with a broad theme and narrow it to specifics, staying within the guidelines the researcher constructed but structured by the expert participants' responses" (Ahmad, 2015).

There were two parts to this research. A Survey test was done to create a list of practices virtual teams used to build cohesiveness. The test was done with a group of 6 - 10 participants from 1 - 2 Fortune 500 companies. The list of practices from the Survey test became the survey that was used in the Delphi study where 15 - 25 expert panelists from up to 10 Fortune 500 companies ranked the items based on whether each panelist felt the practice was important to building cohesive virtual teams. Participants from the

Survey test also participated in the Delphi study.

Population

The population in a research study is a group from which a sample is drawn and to which the results can be generalized (Roberts, 2010; McMillan & Schumacher, 2010). The exact number of virtual teams is "humanly impossible to gather" (Khungar, 2011). In the last decade, there has been growth in virtual teams (Gilson et al., 2015). "A recent survey suggests that approximately 66% of multinational organizations utilized VT's (Society for Human Resource Management, 2012), and 80% of companies surveyed believed this number will grow" (Perry, 2008). A target population narrows down the total population by finding a group that is more accessible and likely to participate in the study (Roberts, 2010). To find experts in virtual teams, the target population for this study looked at virtual-team leaders from Fortune 500 companies. These leaders were defined as having led a virtual team of five or more geographically dispersed people who had been together for more than one year. "The information obtained by the Delphi study is only as good as the experts who participate on the panel" (Yousuf, 2007).

Sample

The number of panelists in a Delphi study can vary depending on the study (Kelbaugh, 2003). Witkin and Altschuld (1995) generally found that a panel under 50 was sufficient. In reviewing studies, Ludwig (1997) found many Delphi studies used between 15 and 20 panelists (Delbecq et al., 1975; Ulschak, 1983). Hsu and Sanford (2007) recommended that the size of the panel be large enough to get a good sampling but not so large that it is hard to achieve consensus (Yousuf, 2007). The sample for this Delphi study consisted of 15 - 25 experts from up to 10 different Fortune 500 companies.

Sample Selection

Purposeful sampling was used in this research to "study information-rich cases (that) yields insight and in-depth understanding rather than empirical generalizations" (Patton, 2015). The characteristics necessary for this sampling were to be virtual team leaders in companies on the Fortune 500 who had led a virtual team of five or more people who were geographically dispersed and had been together for more than one year. Fortune 500 companies were chosen because they were noted as the top performers among U.S. companies (Fortune.com, 2016). These companies set the standard of business success (Murray, 2015). Initial contact was made with several leaders at Fortune 500 companies that met the criteria to see if there was interest in participating in this study. A nomination process was used to select participants for this study. Jones and Twiss (1978) and Ludwig (1994) felt that the nomination process to find "well-known and respected" individuals was recommended in Delphi studies (Hsu & Sanford, 2007).

The researcher identified nominators based on the requirements of this study. To prevent manipulation of data results, care was taken in explaining the purpose of the study. Each nominator was asked to provide a list of people with expertise in virtual teams who worked in Fortune 500 companies that were willing to participate. Nominators selected participants based on their perception of what an expert was. The researcher contacted identified participants to see if they would be willing to participate. A list of 20 - 30 prospective panelists was collected.

Once Brandman's Institutional Review Board (IRB) granted approval of this study, the researcher contacted the prospective panelists by email to invite them to participate in this study (Appendix H). The email included a request to complete a

demographic and qualifying information survey (Appendix I). Panelists that met the

criteria became the expert panel. The final sample size for this study's expert panel was

15 - 25.

Instrumentation

The goal of this study was to identify practices used to build cohesive virtual

teams. To create an instrument for this Delphi study, a Survey test was conducted using

the Delphi technique to establish practices cohesive teams used (Figure 8).
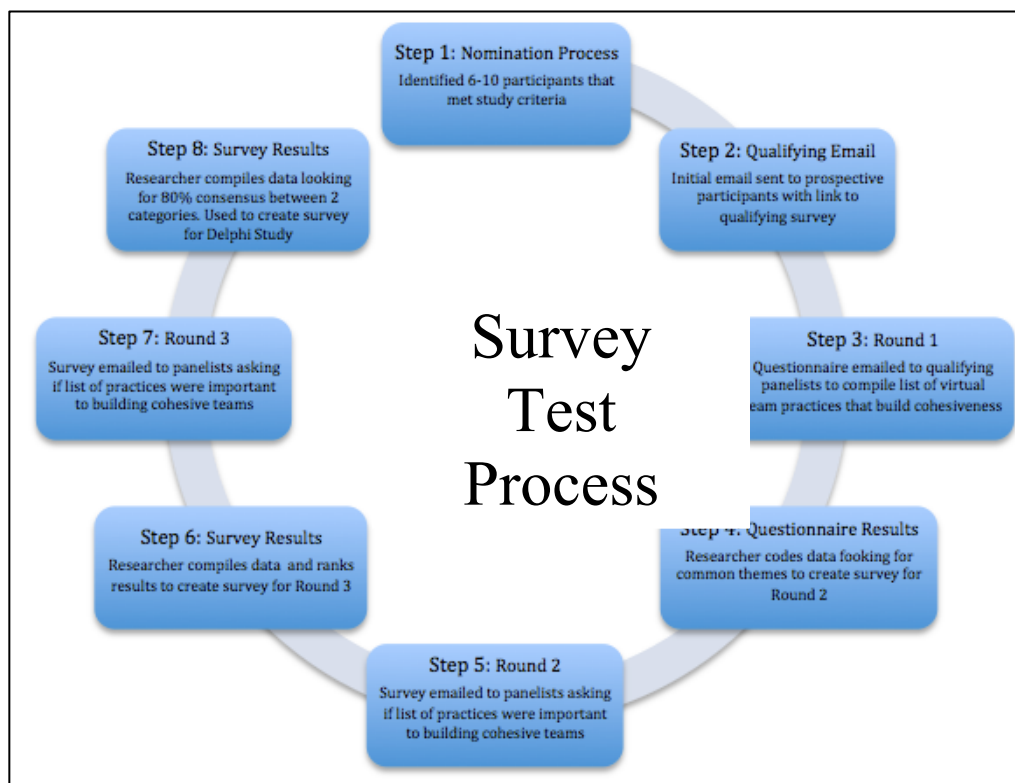
Figure 8: Survey Test Process adapted from Dalkey & Hemler (1963) Delphi Method

The process consisted of eight steps:

- Step 1: Researcher initiated a nomination process to identify 6 - 10 participants

  who had worked for Fortune 500 companies and had led a virtual team of five or

  more people who were geographically dispersed, and who had been together for

  more than one year.

- Step 2: Researcher emailed those participants identified in Step 1 an Invitation

  Letter (Appendix H) and link to the Demographic Survey (Appendix I)

  Participants had seven days to respond. Participants who returned the

  demographics survey and met the criteria become the survey panel.

Questionnaire: Practices Virtual Teams Use to Build Cohesiveness

1. What specifically does your virtual team do to build task cohesion? (List as many
   practices as you like for each of these factors)
   - Open communication between group members
   - Commitment to the objectives
   - Respect of group members
   - Share common purpose
   - Trust
   - Supportive leaders
   - Group efficacy (ability) and success

2. What specifically does your virtual team do to build social cohesion? (List as many
   practices as you like for each of these factors)
   - Camaraderie
   - Altruism (kindness) towards members
   - Workplace friendliness
   - Bonding
   - Sense of belonging
   - Identification with group members
   - Group pride

3. What other things do you do, as a leader, to build the cohesiveness of your virtual
   team? (List as many practices as you like)

4. Additional Comments:

Figure 9: Survey Test - Questionnaire for Round 1

- Step 3: Researcher conducted Round 1 of the survey process by emailing the

  survey panelists directions for completing the questionnaire (Appendix L), link to

  the online questionnaire (Figure 9), Letter of Consent (Appendix J) and Research

  Participant's Bill of Rights (Appendix K). The survey was created on

  www.surveymonkey.com. The first-round questions were created using

  parameters from von Treuer, Fuller-Tyzkiewicz, and Atkinson (2013)'s study

  (Appendix E & F) on the features that "epitomize cohesion" to create a list of

  practices used to build cohesive teams in a virtual setting (Callaghan, 2014).

  Some of their factors included: problem-solving, team coordination, goal

  attainment, friendship, trust, and belonging (Appendix E & F). A questionnaire

was used because it "provide(s) a broader base of respondents" than interviews

(Cox & Cox, 2008). Survey panelists were asked to complete the questionnaire

by listing as many practices as possible that they used with virtual teams to build

cohesiveness for each of the factors listed.

- Step 4: The researcher gathered data from the questionnaires, coded statements,

    and combined like statements on cohesive virtual-team practices. The researcher

    used the list of practices to create an online Likert-scale survey that would be used

    for Round 2. "Likert-type scales provide great flexibility because the descriptors

    on the scale can vary to fit the nature of the question or statement" (McMillan &

    Schumacher, 2010). Using the rating-scale methodology is also "quick, easy to

    comprehend, and is psychologically comforting" (Scheibe, Skutsch, & Schofer,

    1975). There are varied opinions on the number of points to use on the Likert-

    type scales. Cicchetti, Showalter, and Tyrer (1985) suggest a seven-point Likert

    scale is significantly better than a five-point scale to offer variable responses. The

    odd-numbered scale allows for "neutral" to be added as the midpoint (State-

    Davey, 2009). Cox and Cox (2008) felt that "neutral" or "undecided" added a

    level of ambiguity that could indicate either no opinion or an on-the-fence

    opinion. They suggest using an even number of items to allow for grouping

    responses for example: strongly agree/agree, slightly agree/slightly disagree,

    disagree/strongly disagree (Cox & Cox, 2008). They preferred that neutral

    responses be left off the scale because "some researchers question whether these

    responses are actually part of the 'intensity' scale". A sample of the Likert-scale

    used in this study is shown in Table 4**.**

Table 4: Likert Scales Used in Research

Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

- Step 5: The researcher conducted Round 2 of the survey process by emailing a link to the survey created in Step 4 to the survey panelists. The survey was a list of statements compiled from the questionnaire about team practices asking whether they felt each practice was important to building cohesive virtual teams. Survey panelists rated the list of practices using a six-point Likert scale: strongly agree, agree, slightly agree, slightly disagree, disagree, and strongly disagree. They had seven days to complete the survey.

- Step 6: The researcher compiled data from Round 2 survey. Data for "strongly agree" and "agree" categories were combined and the list of practices was ranked by percentage from highest to lowest. This new list was used to create the survey in Round 3.

- Step 7: The researcher conducted Round 3 of the survey process by emailing a link to the survey created in Step 6 to the survey panelists. The survey listed ranked practices, and asked participants to think about each practice and decide whether they felt each practice was important to building cohesive virtual teams using the same Likert scale. Panelists had seven days to respond.

- Step 8: The researcher compiled data from Round 3. Data for "strongly agree" and "agree" categories were combined and the list of practices was ranked by percentage from highest to lowest. The goal was to find 80% consensus within the "strongly agree" and "agree" categories for each individual practice to make the final list of practices of cohesive virtual teams. Practices that achieved 80%

consensus were used to create a survey for Round 1 of the Delphi study.

By using multiple rounds in the Survey test, the researcher obtained a list of specific practices of cohesive virtual teams. Results from each round are listed in Appendices O - Q. This created a better measurement by looking for stability of group opinions from round to round rather than relying strictly on the individuals (Figaro, 2015; Scheibe, Skutsch & Schofer, 1975). The use of the Internet to administer the surveys provided an opportunity to reach a broader group of people (Brill, Bishop & Walker, 2006; Khungar, 2011).

Data Collection

Once written approval was received from Brandman University's Internal Review Board (IRB), the data-collection process began. A Delphi technique was used to collect data via online surveys and analyze that data to build consensus on the practices virtual teams used to build cohesiveness in this study (Yousuf, 2007). This process allowed for anonymous feedback from the panel of experts. The experts were: "(1) not aware of other panelists' identities; and (2) responses by participants were not credited to a specific expert" (Ainsworth, 2015). Magnuson (2013) wrote "...the anonymity and lack of in-person group dynamics of the Delphi are factors cited by several Delphi researchers who feel the process contributes to more thoughtful and deliberative analysis". The number of rounds in a Delphi study can vary (Clay-Williams & Braithwaite, 2009). Dalkey and Hemler (1963) recommended three to four iterations. Other researcher felt three iterations were sufficient to collect data and reach consensus (Brooks, 1979; Custer, Scarcella & Stewart, 1999; Cyphert & Gant, 1971; Ludwig, 1994). The researcher chose to do three rounds for the Delphi study if there was consensus (Figure 10).
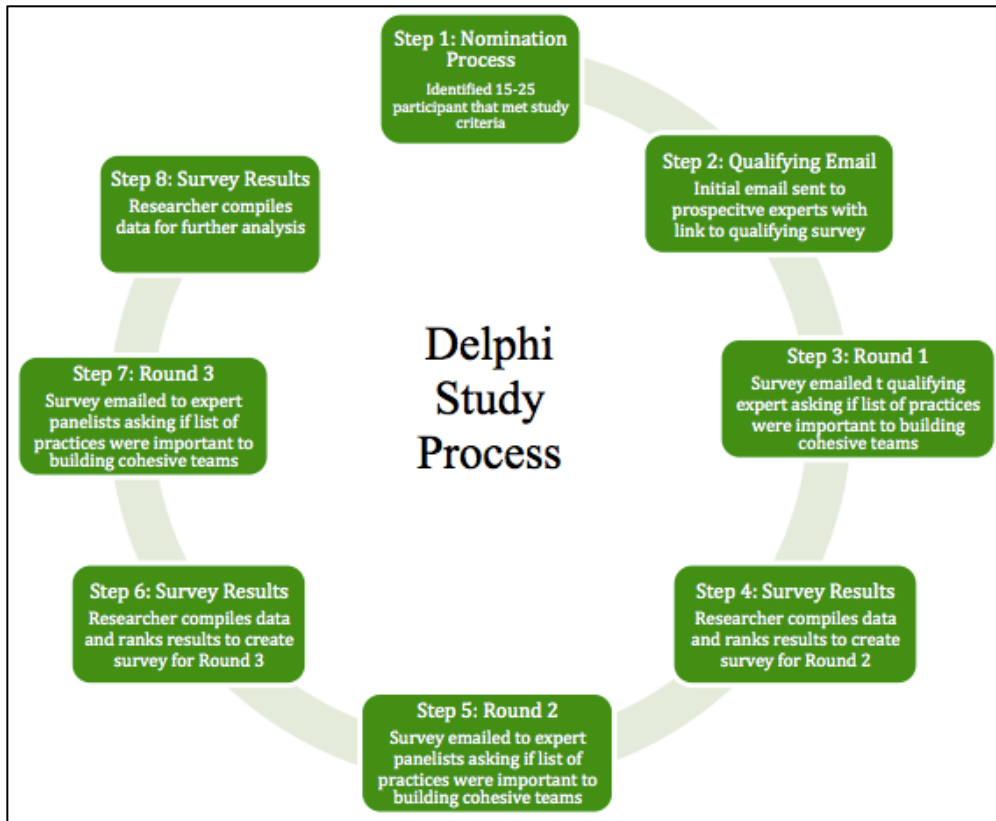
Figure 10: Delphi Study Process adapted from Dalkey & Hemler (1963) Delphi Method

Delphi Study

The survey instrument used in each round of the Delphi study was created on Survey Monkey. The survey used the same Likert scale created for the Survey test, "strongly agree" to "strongly disagree", which "yielded the numerical data needed for the statistical correlations" (Khungar, 2011). Round 1 used the survey created from practices compiled in Round 3 of the Survey test. The researcher sent an email to the expert panelists with directions for completing the survey (Appendix R), Letter of Informed Consent (Appendix N), and Bill of Rights (Appendix L). Panelists were asked to complete the survey by asking whether they felt each practice was important to building cohesive virtual teams. Panelists had seven days to complete the survey. On day eight, the researcher compiled results from Round 1. Data for "strongly agree" and "agree"

categories were combined and the list of practices was ranked by percentage from highest to lowest. These ranked items were used to create the survey for Round 2.

For Round 2, the researcher sent an email to the same list of experts with a link to the new survey created from Round 1. Panelists were again asked to think about whether each practice was important to building cohesive virtual teams. Panelists had seven days to complete the survey. On day eight, researcher compiled results from Round 2. Data for "strongly agree" and "agree" categories were combined and the list of practices was ranked by percentage from highest to lowest. A survey was again created listing items in rank order to use for a third round. Determination of conducting additional rounds has varied by researcher (Hsu & Sanford, 2007). Some researchers suggested, "when experts' forecasts have changed little between rounds, the process is stopped and the final round forecasts are combined by averaging" (Scheibe, Skutsch, & Schofer, 1975; Yousuf, 2007). "To minimize the number of required Delphi rounds, it is important to give panel members as much information about the research question as possible" (Clay-Williams & Braithwaite, 2009). Ulschak (1983) recommended stopping the process when 80 percent of the votes fall within two categories. Green (1982) felt that 70 percent was sufficient to reach consensus. This study used Ulschak's (1983) recommendation to reach 80 percent consensus within two categories (Hsu & Sandford, 2007).

The researcher determined that a third round was needed. Panelists were emailed a link to the Round 3 survey and had seven days to complete it. Results from the final round were compiled and analyzed for measures of mean, median, mode, and standard deviation. This allowed for further analysis by the researcher. "The Delphi process has a tendency to create convergence, and though this was usually to a single point, there was

the possibility of polarization or clustering of the results around two or more points"
(Dalkey et al., 1971).

Data Analysis

Data for this Delphi study was gathered from 16 expert panelists using Survey
Monkey. Rounds 1 and 2 produced quantitative data, which was analyzed using Excel.
The final results from Round 3 produced quantitative data that was analyzed using Excel
statistical formulas to return the mean, median, mode, and standard deviation (Ahmad,
2015). The goal of the study was to identify practices used to build cohesiveness in a
virtual setting. The expert panelists made independent judgments on the practices they
felt were important to build cohesiveness in virtual teams. They were provided an
opportunity to revisit their choices in Rounds 2 and 3 to build group consensus.

The participation and survey responses by the expert panel are tracked for the
Delphi study. Frequencies of responses from Round 3 are grouped by strongly
agree/agree, slightly agree/slightly disagree, and disagree/strongly disagree. The mean,
median, mode, and standard deviation are calculated as well. The mean averages the
total responses for each practice and summarizes the data (Patton, 2015). However, it
fails to differentiate between a common opinion and a highly divided opinion across a
wide range (Koski, 2011). "The median indicates the middle value in a data set wherein
half the variables have values greater than the median and the other half values which are
less" (Cann, 2003). Median is thought to be more appropriate if data has outliers (Azmy,
2012). The mode is the number repeated most often or the most popular response
(Azmy, 2012). For standard deviation, "the larger the standard deviation the more
variation there is in the scores. The smaller the standard deviation the closer the scores

are grouped around the mean and the less variation" (Ahmad, 2015).

Limitations

This study used a Delphi technique that required opinions of experts working with virtual teams to come to consensus. Some researchers have criticized the use of this type of study for not meeting scientific standards for selection of participants and interpretation of results (Clayton, 1997; Sackman, 1974). The researcher is responsible for compiling and ranking data, which could be distorted by the researcher's biases. There were some limitations on the panel size of 15 - 20 experts even though it was within the guidelines of Delphi studies (Delbecq et al., 1975).

Purposeful sampling was used for this study, which does not allow for study results to be generalized to other fields (Koski, 2011). A nomination process for selecting experts may have biases on the part of the researcher and those doing the nominating. The level of expertise of the expert panelists could vary causing results to be more general rather than specific to the topic (Altschuld & Thomas, 1991). No criteria were used to determine if the teams the experts led were cohesive, which could result in practices that were not valuable to building cohesive teams. Panelists could rate responses differently in subsequent rounds or they could feel pressure to conform, which would change validity of data (Altschuld, 2003; Cyphert & Gant, 1971; Scheibe, Skutsch & Schofer, 1975).

Summary

The methodology described in this chapter outlined the Delphi study data-collection approach that provided the researcher the opportunity to identify the practices virtual teams used to build cohesiveness. The chapter included purpose statement,

research questions, and research design as well as the population, sample, expert panel selection, instrumentation, data collection, data analysis, and limitations.

Brandman's Internal Review Board (IRB) reviewed this study to ensure it abided by the ethical considerations of the University before data collection began. The multiple-round Delphi technique lent itself to "scientific use of expert opinions" (Landeta, 2006) and a chance to build consensus allowing for validity of the results (Linstone & Turoff, 2006). The Survey test consisting of qualitative and quantitative data was used to create the instrument for the Delphi study. Using the multiple-round process, expert panelists who had led virtual teams of five or more people for a year or longer reviewed and rated the practices of virtual teams using factors identified by von Treuer et al. (2013).

The next chapter, Chapter 4, will include all the results obtained in this exploratory Delphi study. Chapter 5 will include interpretation and discussion of the findings, implications, and recommendations for future research.

CHAPTER IV: RESEARCH, DATA COLLECTION, AND FINDINGS

Overview

Chapter IV begins with the purpose statement and research questions of this study. It continues with a review of the research methods, population, sample, instrument, data-collection process and approach to data analyses. Finally, there is a presentation of the data and findings.

Purpose Statement

The purpose of this Delphi study was to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented.

Research Questions

1. What were the practices virtual teams used to build cohesiveness?

2. Are the practices of these teams task-oriented or social-oriented?

Research Methods and Data-collection Procedures

Methodology

This Delphi study used a non-experimental survey research design to gather opinions of experts about practices virtual teams used to build cohesiveness (McMillan & Schumacher, 2010). The non-experimental design looked to describe the phenomena without any manipulation of conditions (McMillan & Schumacher, 2010). The survey provided quantitative data that made it "possible to measure the reactions of a great many people to a limited set of questions, thus facilitating comparison and statistical aggregation of the data" (Patton, 2015).

Dalkey and Helmer (1963) developed the Delphi technique while working for the RAND Corporation. RAND's researchers were looking for "scientific use of expert opinions" (Landeta, 2006). Their original study used a multiple-round Delphi process to forecast likely scenarios related to national defense issues for the U.S. military (Kelbaugh, 2003). This method was thought to be extremely helpful in exploring new areas of research (Sori and Sprenkle, 2004). The Delphi technique allowed for consensus-building by using a series of surveys to collect data (Hsu & Sanford, 2007). The process prompted panelists to think and rethink their feedback (Khungar, 2011). The process collated and synthesized the opinions of experts until they could come to group consensus (Clay-Williams & Braithwaite, 2009; Linstone & Turoff, 2002; Stewart, 2001). The defining characteristics of this process were: "anonymity of participants, iterative polling rounds interspersed with feedback, and statistical analysis of group results" (Clay-Williams & Braithwaite, 2009; Kelbaugh, 2003).

The Delphi research design was appropriate for this study because it sought consensus of experts rather than precise analytical measures (Callaghan 2015; Linstone & Turoff, 2006). The anonymity of participants reduces the influence of others' responses or pressure to get on the "bandwagon" (Linstone & Turoff, 2006). It allows the diversity of the group to preserve the validity of the results (Linstone & Turoff, 2006). This type of study provided "enough freedom to start with a broad theme and narrow it to specifics, staying within the guidelines the researcher constructed but structured by the expert participants' responses" (Ahmad, 2015).

There were two parts to this research. A Survey test was done to create a list of practices virtual teams used to build cohesiveness. The test was done with a group of 6

participants. These participants were intended to come from 1-2 Fortune 500 companies using the nomination process. The final group of people that agreed to participate actually came from six different Fortune 500 companies. The list of practices from the Survey test became the survey that was used in the Delphi study, where 16 expert panelists from 15 different Fortune 500 companies ranked the items based on whether each panelist felt the practice was important to building cohesive virtual teams. Participants from the Survey test also participated in the Delphi study. The final number of Fortune 500 companies represented in this study was 15, which is over the 10 that were originally anticipated.

Data collection

A Delphi technique was used to collect data via online surveys and analyze that data to build consensus on the practices virtual teams used to build cohesiveness in this study (Yousuf, 2007). This process allowed for anonymous feedback from the panel of experts. The experts were: "(1) not aware of other panelists identities; and (2) responses by participants were not credited to a specific expert" (Ainsworth, 2015). Magnuson (2013) wrote "...the anonymity and lack of in-person group dynamics of the Delphi are factors cited by several Delphi researchers who feel the process contributes to more thoughtful and deliberative analysis". The number of rounds in a Delphi study can vary (Clay-Williams & Braithwaite, 2009). Dalkey and Hemler (1963) recommended three to four iterations. Other researcher felt that three iterations were sufficient to collect data and reach consensus (Brooks, 1979; Custer, Scarcella & Stewart, 1999; Cyphert & Gant, 1971; Ludwig, 1994). The Survey test had used a three-round Delphi technique to create the survey instrument used in the Delphi study. Using this instrument, the Delphi study

that was originally planned for three rounds to provide the opportunity of consensus among the experts. The experts were able to achieve consensus after only two rounds so a third round was not done in the Delphi study (Figure 10).

The Survey test collected practices the qualified leaders in Fortune 500 companies used to build cohesive virtual teams. The first round gathered qualitative data from the leaders who described their practices. The second and third rounds built consensus on these practices. The final list had 76 practices. The Delphi study used these 76 practices as its survey created on Survey Monkey for Round 1. The survey used the same Likert scale created for the Survey test, "strongly agree" to "strongly disagree", which "yielded the numerical data needed for the statistical correlations" (Khungar, 2011).

Round 1. For Round 1 of the Delphi study, the survey used the final list of practices compiled from Round 3 of the Survey test. The researcher sent an email to expert panelists with directions for completing the survey (Appendix R), Letter of Informed Consent (Appendix N), and Bill of Rights (Appendix K). Panelists were asked to complete the survey by asking whether they felt each practice was important to building cohesive virtual teams. Panelists had seven days to complete the survey. On day eight, the researcher compiled results from Round 1. Data for "strongly agree" and "agree" categories were combined and the list of practices was ranked by percentage from highest to lowest. These ranked items were used to create the survey for Round 2.

Round 2. For Round 2 of the Delphi study, the researcher sent an email to the same list of experts as Round 1 with a link to a survey created from Round 1's list of practices in ranked order. Panelists were again asked to think about whether each practice was important to building cohesive virtual teams. Panelists had seven days to

complete the survey. On day eight, the researcher compiled results from Round 2. Using

the suggestion from Cox & Cox (2008), the six categories were combined into three:

strongly agree/agree, slightly agree/slightly disagree, and disagree/strongly disagree.

Practices for "strongly agree" and "agree" categories were ranked by percentage from

highest to lowest. A survey was again created listing these practices in rank order to use

for a third round if needed. Determination of conducting additional rounds has varied by

researcher (Hsu & Sanford, 2007). Some researchers suggested, "when experts' forecasts

have changed little between rounds, the process is stopped and the final round forecasts

are combined by averaging" (Scheibe, Skutsch, & Schofer, 1975; Yousuf, 2007). "To

minimize the number of required Delphi rounds, it is important to give panel members as

much information about the research question as possible" (Clay-Williams &

Braithwaite, 2009). Ulschak (1983) recommended stopping the process when 80 percent

of the votes fall within two categories. Green (1982) felt that 70 percent was sufficient to

reach consensus. This study used Ulschak's (1983) recommendation to reach 80 percent

consensus within two categories (Hsu & Sandford, 2007).

    Round 3. Based on Ulschak's (1982) recommendation, the researcher

determined that a third round was not needed since 80% consensus was reached after two

rounds. The results from the final round were compiled and analyzed for measures of

mean, median, mode, and standard deviation. This allowed for further analysis by the

researcher. "The Delphi process has a tendency to create convergence, and though this

was usually to a single point, there was the possibility of polarization or clustering of the

results around two or more points" (Dalkey et al., 1971).

Population

The target population for this study was virtual team leaders from Fortune 500 companies. The exact number of virtual teams is "humanly impossible to gather" (Khungar, 2011). These leaders were defined as having led a virtual team of five or more people who were geographically dispersed and had been together for more than one year.

Sample

The sample for the Delphi study was to consist of 16 experts from 15 different Fortune 500 companies. The actual number of experts was 16 and they represented 15 different Fortune 500 companies, which is more than 10 that were anticipated. The characteristics necessary for this sampling was virtual team leaders in companies on the Fortune 500 list having led a virtual team of five or more people who were geographically dispersed and had been together for more than one year. Fortune 500 companies were chosen because they were noted as the top performers in U.S. companies (Fortune.com, 2016). These companies set the standard of business success (Murray, 2015).

Presentation and Analysis of Data

While reviewing literature on cohesive teams, no survey was found that identified practices of cohesive teams. To have a valid instrument, a Survey test was done using von Treuer et al. (2013)'s study on the factors of cohesion (Appendix F). Practices were identified using each of these factors. The Survey test panel consisted of eight leaders of virtual teams in Fortune 500 companies that met study criteria by having led a virtual team of five people for more for longer than one year. After three rounds, the Survey test produced a list of 76 practices that were compiled to use for the Delphi study survey.

The Delphi study consisted of 16 experts from Fortune 500 companies that met the same study criteria. They completed two rounds of surveys to produce the final list of 74 practices.

Instrument Creation, Data Collection and Analysis for the Survey Test

A Survey test was done to create an instrument that could be used in the Delphi study. This presented an opportunity to check the wording of the survey, instructions, reliability and validity of results, and whether information obtained was consistent (Simon, 2011). It used the Delphi technique to allow for consensus-building and anonymity of participants (Yousuf, 2007).

Demographic data for survey test. Recruitment of participants for the Survey test was done using a nomination process by reaching out to known leaders in Fortune 500 companies. Contact was made throughout the month of January and February 2017. A link to the demographic survey (Appendix I) created on Survey Monkey was sent to those people who were thought to meet the qualifications of this study. Table 5 provides information on the people who met the qualifications and participated in the Survey test.

Table 5: Survey Test - Fortune 500 Leaders' Demographic Survey Results

	Year born	Gender	Organization Category	Job Title	Length of time leading virtual team(s)	Number of virtual teams led.	Size of virtual team(s)
Participant 1	1946 - 1964	Female	Information - Other	Senior Manager - Complex Customer Billing	3 - 5 years	3 - 5	16 or more
Participant 2	1946 - 1964	Female	Manufacturing - Other	6 Sigma Black Belt	More than 6 years	6 -10	16 or more
Participant 3	1946 - 1964	Female	Manufacturing - Other	Manager, Quality Assurance	1 - 2 years	0 -2	1 - 4
Participant 4	1946 - 1964	Female	Manufacturing - Other	Contract Manager	3 - 5 years	11 or more	5 - 10
Participant 5	1946 - 1964	Male	Health Care and Social Assistance	Director	3 – 5 years	3 – 5	5 – 10
Participant 6	1946 -1964	Male	Information – Services and Data	Operations Manager	More than 6 years	3 – 5	16 or more
Participant 7	1965 - 1980	Male	Information – Services and Data	Sr. Director Business Systems	More than 6 years	3 – 5	16 or more
Participant 8	1946 -1964	Male	Information – Services and Data	Director	1 - 2 years	0 -2	5 – 10

The resulting pool of experts consisted of four females and four males. Seven were Baby Boomers and one was from Generation X. Their organizational categories were: three from manufacturing, three from information services and data, one from information other, and one from health care and social assistance. The length of time they led virtual teams was from one year to over six years. Most of the participants had led virtual teams for over three years with sizes up to sixteen or more.

Round 1 of survey test. As qualified experts completed the demographic survey, they were sent an email link to the Round 1 survey on Survey Monkey. All experts provided consent to participate (Appendix J) and were furnished the Research Participants' Bill of Rights (Appendix K). The survey asked them to list practices virtual teams use to build cohesiveness using the 14 factors from von Treuer et al. (2013) study of teams (Figure 11). Participants also had the opportunity to add additional practices and offer comments.

Questionnaire: Practices Virtual Teams Use to Build Cohesiveness

1. What specifically does your virtual team do to build task cohesion? (List as many practices as you like for each of these factors)
   - Open communication between group members
   - Commitment to the objectives
   - Respect of group members
   - Share common purpose
   - Trust
   - Supportive leaders
   - Group efficacy (ability) and success

2. What specifically does your virtual team do to build social cohesion? (List as many practices as you like for each of these factors)
   - Camaraderie
   - Altruism (kindness) towards members
   - Workplace friendliness
   - Bonding
   - Sense of belonging
   - Identification with group members
   - Group pride

3. What other things do you do, as a leader, to build the cohesiveness of your virtual team? (List as many practices as you like)

4. Additional Comments:

Figure 11: Survey Test - Questionnaire for Round 1

It took until mid-February 2017 to get the minimum number of participants (6) to continue with the Survey test. That same day, two more Round 1 surveys were returned bringing the total to eight participants. Response rate was 100% and 251 practices were identified that built cohesiveness in virtual teams. A few panelists noted that some of the practices were not really practices but were more of an observation or a quote. The practices were reviewed by the researcher, similar comments combined and statements and quotes removed. A total of 171 practices for the 14 categories were identified (Appendix O).

Round 2 of survey test. For Round 2, the 171 practices from Round 1 were listed in the survey by factor. The eight participants that had completed Round 1 were asked to rate practices as to whether they were important to building cohesive virtual teams using "strongly agree" to "strongly disagree". All eight participants responded. Using the suggestion by Cox & Cox (2008), responses were grouped by strongly agree/agree, slightly agree/slightly disagree, and disagree/strongly disagree so they could be ranked. Round 2 frequencies are listed in Appendix P.

Round 3 of survey test. Round 3 used the frequencies from Round 2 and listed them in rank order for the survey. The researcher removed 12 duplicate practices and added 7 practices listed in comments section in Round 2. This brought the number of practices to 166. Factors were removed to present one complete list. Participants were asked to again rate practices as to whether they were important to building cohesive virtual teams using strongly agree to strongly disagree. All Round 3's frequency of responses is listed in Appendix Q. Consensus for this study was to achieve 80% or higher in the "strongly agree/agree" categories combined. Table 6 shows 94 practices where the

panelists attained consensus. Participants again noted similar practices in the Round 3

list. Three experts agreed to review the list, which brought the total down to 76.

Table 6: Survey Test - Round 3 Results (94 that were 80% or higher)

	Round 3 List of Practices	Task or Social Oriented	Strongly Agree/Agree %	Mean	Median	Mode	Standard Deviation
1	Schedule regular group calls/meetings.	Both	100%	5.5	5.5	5.0	0.5
2	Encourage open communication between all members.	Task	100%	5.5	5.5	6.0	0.5
3	Share what you are working on.	Task	100%	5.5	5.5	6.0	0.5
4	Share issues.	Task	100%	5.7	6.0	6.0	0.5
5	Provide contact information of all the team to everyone.	Task	100%	5.5	5.5	5.0	0.5
6	Establish roles and responsibilities early in project.	Task	100%	5.7	6.0	6.0	0.5
7	Ensure each member has a stake in the final goal.	Task	100%	5.5	5.5	6.0	0.5
8	Be on time.	Task	100%	5.5	5.5	6.0	0.5
9	Ask questions if something is not understood.	Task	100%	5.3	5.0	5.0	0.5
10	Team leader must be able to listen.	Both	100%	5.5	5.5	6.0	0.5
11	Follow through on commitments.	Task	100%	5.7	6.0	6.0	0.5
12	Focus on the issue not the person.	Task	100%	5.5	5.5	5.0	0.5
13	Review and agree on objectives.	Task	100%	5.2	5.0	5.0	0.4
14	Follow up when you say you are going to.	Task	100%	5.7	6.0	6.0	0.5
15	Be truthful at all times.	Task	100%	5.5	5.5	5.0	0.5
16	Have open, honest and complete communications.	Task	100%	5.7	6.0	6.0	0.5
17	Do what you say and follow up.	Task	100%	5.3	5.0	5.0	0.5
18	Support the team (being an advocate) to upper management is crucial.	Task	100%	5.7	6.0	6.0	0.5
19	Keep the team informed.	Task	100%	5.2	5.0	5.0	0.4
20	Work together to achieve same goals.	Task	100%	5.3	5.0	5.0	0.5
21	Train as required.	Task	100%	5.7	6.0	6.0	0.5
22	Encourage team to help each other and work together to achieve common goals.	Social	100%	5.3	5.0	5.0	0.5
23	Encourage discussion of all perspectives of an issue.	Social	100%	5.5	5.5	6.0	0.5
24	Listen.	Task	100%	5.3	5.0	5.0	0.5
25	Encourage common courtesy.	Social	100%	5.7	6.0	6.0	0.5
26	Talk with everyone and encourage communication.	Social	100%	5.3	5.0	5.0	0.5
27	Deliver on all commitments.	Task	100%	5.2	5.0	5.0	0.4
28	Share lessons learned/past learnings.	Social	100%	5.5	5.5	6.0	0.5

29	Trust develops over time as team members get to know and respect each other, share a common purpose and are fully committed to objectives.	Task	100%	5.5	5.5	5.0	0.5
30	Thank staff for their hard work often.	Social	100%	5.8	6.0	6.0	0.4
31	Be attentive to staff needs (listen, listen, listen).	Social	100%	5.5	5.5	6.0	0.5
32	Celebrate successes when project is completed.	Both	100%	5.7	6.0	6.0	0.5
33	Tell staff to feel free to reach out if they need assistance.	Task	100%	5.7	6.0	6.0	0.5
34	Communicate what went right (on budget/on time/winning a deal, etc.)	Social	100%	5.5	5.5	6.0	0.5
35	Designate a lead who can assist with some of the day to day questions especially if there are different time zones.	Social	100%	5.7	6.0	6.0	0.5
36	Engage staff in discussions about objectives.	Task	100%	5.5	5.5	6.0	0.5
37	Clearly define objectives.	Task	100%	5.5	5.5	6.0	0.5
38	Encourage positive feedback on progress.	Task	100%	5.2	5.0	5.0	0.4
39	Avoid secrets.	Task	100%	5.2	5.0	5.0	0.4
40	Stop gossip.	Task	100%	5.5	5.5	6.0	0.5
41	Play to individual strengths.	Task	100%	5.2	5.0	5.0	0.4
42	Clearly articulate specific attainable goals/objectives along with some that are very challenging.	Task	100%	5.2	5.0	5.0	0.4
43	Allow each member to have their own thoughts and ideas and if needed, nicely disagree.	Social	100%	5.5	5.5	6.0	0.5
44	Make periodic trips to home office.	Social	100%	5.3	5.0	5.0	0.5
45	Fire the incompetent.	Task	100%	5.2	5.0	5.0	0.4
46	Have members introduce themselves.	Both	100%	5.3	5.0	5.0	0.5
47	Be respectful of cultural differences.	Social	100%	5.2	5.0	5.0	0.4
48	Avoid "backroom" meetings.	Task	100%	5.2	5.0	5.0	0.4
49	Team leader must listen and lead by example.	Social	100%	5.2	5.0	5.0	0.4
50	Follow established corporate beliefs.	Task	100%	5.0	5.0	5.0	0.0
51	Conduct routine staff meetings.	Social	100%	5.3	5.0	5.0	0.5
52	Point out successes.	Task	100%	5.3	5.0	5.0	0.5
53	Use first meeting to introduce each other, discuss the objectives and clarify any misunderstandings.	Task	100%	5.3	5.0	5.0	0.5
54	Engage staff in corrective action discussions if any objectives have fallen behind.	Task	83%	5.0	5.0	5.0	0.6
55	Help where needed.	Task	83%	5.0	5.0	5.0	0.6
56	When the team is respectful, is committed to objectives, supports each other, is successful and shares a common purpose, those behaviors spill out to the workplace.	Social	83%	5.0	5.0	5.0	0.6
57	Engage staff in corrective action discussions if any objectives have fallen behind.	Task	83%	5.5	6.0	6.0	0.8
58	Be aware of staff strengths.	Task	83%	5.0	5.0	5.0	0.6
59	Emphasize goal-oriented behavior with a very specific timeline/deadline.	Task	83%	5.0	5.0	5.0	0.6

60	Ensure staff has an understanding of interdependencies through project plans and clearly defining responsibilities.	Task	83%	4.7	5.0	5.0	1.4
61	Provide an environment in virtual meetings for staff to always feel their input is valuable.	Task	83%	5.0	5.0	5.0	0.6
62	Hold team building events when the entire team is present.	Social	83%	5.0	5.0	5.0	0.6
63	Establish rules/code of conduct early.	Social	83%	5.0	5.0	5.0	0.6
64	New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they want to share.	Social	83%	4.8	5.0	5.0	1.0
65	Have open dialogue and welcome different perspectives.	Social	83%	5.0	5.0	5.0	0.6
66	Use document-sharing sites for all member access and confidentiality.	Task	83%	5.0	5.0	5.0	0.6
67	Include objectives for the year in prior year performance review.	Task	83%	5.0	5.0	5.0	0.6
68	Be sure your boss is aware of the schedule and the importance of these meetings.	Task	83%	5.0	5.0	5.0	0.6
69	When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.	Social	83%	5.0	5.0	5.0	0.6
70	Teaming people together for projects.	Social	83%	5.0	5.0	5.0	0.6
71	Offer to pick up lunch or team-building event for team members in close proximity.	Social	83%	5.0	5.0	5.0	0.6
72	Track progress during periodic status calls/meetings.	Task	83%	5.5	6.0	6.0	0.8
73	Ground rules for meetings are well understood.	Task	83%	4.8	5.0	5.0	0.4
74	Encourage staff to help each other.	Task	83%	5.2	5.0	5.0	0.8
75	Have a clear plan for each function/task.	Task	83%	4.8	5.0	5.0	0.4
76	Ensure that the team's successes are visible to upper management and to the team itself.	Task	83%	5.2	5.0	5.0	0.8
77	"Talk up" your team to stakeholders and celebrate successes.	Social	83%	5.0	5.0	5.0	1.1
78	Assure that input is solicited from all members.	Task	83%	5.3	5.5	6.0	0.8
79	Spend time up front developing the team.	Task	83%	5.2	5.0	5.0	0.8
80	If you cannot share something then say that. Let the team know you will share when you can.	Task	83%	4.7	5.0	5.0	0.8
81	Leaders stress working as a team.	Social	83%	5.2	5.0	5.0	0.8
82	Share status of company results.	Social	83%	4.8	5.0	5.0	0.4
83	Leaders help their team members grow individually and get exposure.	Social	83%	4.8	5.0	5.0	1.5
84	Respect time-zone issues.	Social	83%	4.8	5.0	5.0	0.4
85	Announce all new hires and promotions with some information about each.	Social	83%	5.2	5.0	5.0	0.8
86	Make sure leader manages well to avoid overpowering members.	Task	83%	5.3	5.5	6.0	0.8
87	Develop metrics to constantly measure efficacy and success.	Task	83%	4.8	5.0	5.0	0.4

88	Annual team meetings, which typically include an outing (golf, boating, etc.)	Social	83%	4.8	5.0	5.0	0.4
89	Remind folks that the goal is important and when completed, the outcome will be used by employees worldwide.	Social	83%	5.2	5.0	5.0	0.8
90	Take time during virtual calls to point out a job well done.	Social	83%	4.8	5.0	5.0	0.4
91	Always set your availability status so others know when you are busy.	Task	83%	4.8	5.0	5.0	0.4
92	Reward the great.	Task	83%	5.0	5.0	5.0	1.1
93	Include objectives for the year in prior year performance review.	Task	83%	4.8	5.0	5.0	0.4
94	Have each other's back.	Task	83%	5.0	5.5	6.0	1.5

Data analysis of survey test. Research question one asked: What were the practices virtual teams used to build cohesiveness? The 14 factors of cohesive teams (von Treuer et al., 2013) supplied participants in the Survey test a framework for listing their practices. Practices were noted in all 14 factors. The factor "Respect of group members" and "Group efficacy (kindness) and success" received the highest number of practices with fourteen each. "Workplace friendliness" had the lowest number of practices with four. In the "strongly agree/agree" categories, 53 practices received 90-100% and 41 practices received 80-89%.

Research question two asked: Are the practices of these teams task-oriented or social-oriented? Table 6 lists the practices that survey participants used to build cohesive virtual teams. Each practice is identified as task-oriented, social-oriented, or both. This rating is based on the Round 1 survey, where participants listed practices by factor. The factors were categorized based on von Treuer et al. (2013)'s study (Appendix F). Of the 94 responses, 59 were task-oriented, 31 were social-oriented and 4 were both.

The Likert-scale categories were converted to numeric values as shown in Table 7 to find the mean, median, mode, and standard deviation. Calculations for each practice are listed in Table 6. These practices received over 80% consensus in the top two

categories, which were valued at 5 and 6. This would mean that the mean or average would be between 5 and 6. Median is the number that falls in the middle in the list of values showing from 5 to 6. The mode has value in this study because it shows the number that appears most often. An example of this is for the practice "Encourage open communication between all members". This practice had a 6.0 for the mode which means that strongly agree was selected most often. A total of 33 practices had 6.0.

Table 7: Likert-scale Category Numeric Values

Category	Value
Strongly agree	6
Agree	5
Slightly agree	4
Slightly disagree	3
Disagree	2
Strongly disagree	1

These metrics were analyzed to see how the data compared and whether there was a range of answers. Since the requirements for this study was to find 80% or higher consensus in the top two categories, the mean, median, and mode would be between 5 and 6. The standard deviation looks to see how far apart the values are. For standard deviation, "the larger the standard deviation the more variation there is in the scores. The smaller the standard deviation the closer the scores are grouped around the mean and the less variation" (Ahmad, 2015). Here again, given the study requirements, the standard deviation was below 1.0 for most practices.

Data Collection and Analysis for the Delphi Study

The purpose of the Delphi study was to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented. Opinions were gathered from leaders who worked in Fortune 500 companies and had led a virtual team of five or more people who were geographically dispersed and had been together for more than one year. These leaders made up the

expert panel used throughout the Delphi study. The study consisted of two rounds of surveys to obtain participants' opinion of practices used to build cohesiveness in virtual teams. The Round 1 survey was created from the results of the three round Survey test conducted by this researcher.

Demographic Data for the Delphi Study. The researcher used a nomination process to identify individuals who worked as leaders in Fortune 500 companies to provide their opinion of cohesive practices of virtual teams. These people were asked to reach out to others they felt met the criteria of the study and would participate. Fifty-four people were contacted directly by the researcher, but only 10 responded. These 10 were asked to nominate others they felt qualified and would be willing to participate in the study. Several people were recommended, but none of them responded back. Participants in the Survey test were given the option to be part of the Delphi study. All eight from the Survey test agreed to participate. A total of 18 experts agreed to participate, but only 16 completed both rounds and were used in the analysis.

Table 8: Delphi Study - Participation of Expert Panel

	Invited	Agreed to Participate	Formally Withdrew	Demographics completed	Round I completed	Round II completed
Expert Panel	54	18	0	19	16	16

Invitations to participate in the study were sent by email throughout January and February 2017 (Appendix M). A link to the demographic survey (Appendix I) created on Survey Monkey was sent to those people who were thought to meet the qualifications of this study and had not participated in the Survey test. The experts for the Delphi study were drawn for the fields of manufacturing, military, information systems, retail, and health care. Table 9 provides demographics of all those who met the qualifications and participated in both rounds of the Delphi study including those from the Survey test.

Table 9: Delphi Study - Fortune 500 Leaders' Demographic Survey Results

	Year born	Gender	Organization Category	Job Title	Length of time leading virtual team(s)	Number of virtual teams led.	Size of virtual team(s)
Participant 1	1946 - 1964	Female	Information - Other	Senior Manager	3 - 5 years	3 - 5	16 or more
Participant 2	1946 - 1964	Female	Manufacturing - Other	6 Sigma Black Belt	More than 6 years	6 - 10	16 or more
Participant 3	1946 - 1964	Female	Manufacturing - Other	Manager, Quality Assurance	1 - 2 years	0 - 2	5 - 10
Participant 4	1946 - 1964	Female	Manufacturing - Other	Contract Manager	3 - 5 years	11 or more	5 - 10
Participant 5	1946 - 1964	Male	Health Care and Social Assistance	Director	3 – 5 years	3 - 5	5 - 10
Participant 6	1946 - 1964	Male	Information – Services and Data	Operations Manager	More than 6 years	3 - 5	16 or more
Participant 7	1965 – 1980	Male	Information – Services and Data	Sr Director Business Systems	More than 6 years	3 - 5	16 or more
Participant 8	1946 – 1964	Male	Information – Services and Data	Director	1 – 2 years	0 - 2	5 - 10
Participant 9	1946 - 1964	Male	Military	Sr Program Manager	More than 6 years	3 - 5	16 or more
Participant 10	1946 - 1964	Female	Education – Other	HR Expert	More than 6 years	0 - 2	5 - 10
Participant 11	1946 - 1964	Female	Military	Buyer	1 – 2 years	3 - 5	5 - 10
Participant 12	1946 - 1964	Female	Retail	Quality Supervisor	1 – 2 years	0 - 2	5 - 10
Participant 13	1946 - 1964	Male	Hotel and Food Services	Director	3 – 5 years	3 - 5	16 or more
Participant 14	1965 – 1980	Male	Retail	IT Supervisor	More than 6 years	6 - 10	11 – 15
Participant 15	1900 - 1945	Female	Retail	VP	More than 6 years	0 - 2	5 - 10
Participant 16	1900 - 1945	Female	Arts, Entertainment, or Recreation	Director	3 – 5 years	3 - 5	5 - 10

Round 1 of the Delphi study. The survey for Round 1 was an instrument created

in the Survey test. It consisted of 76 practices representing each of the 14 factors from

von Treuer et al. (2013)'s study on cohesion. The survey initial round was conducted in

the first week of March 2017. Eighteen experts were invited to complete Round 1 of the

Delphi study. They were emailed the survey link to Survey Monkey. All experts

provided a Letter of Consent (Appendix N) and were furnished the Research Participants'

Bill of Rights (Appendix K). The expert panelists were asked to rate 76 practices on the

level of importance to building cohesiveness in virtual teams. Sixteen experts completed

the survey. Using Cox & Cox (20008) suggestion, responses were grouped by strongly

agree/agree, slightly agree/slightly disagree, and disagree/strongly disagree. Round 1's

frequency of responses is listed in Appendix S. Seventy-five out of 76 practices had a combined percentage of 80% or higher in the "strongly agree/agree" categories.

Round 2 of the Delphi study. All 76 practices from Round 1 were put in ranked order by percentage for "strongly agree" and "agree" categories combined and used for the Round 2 survey. The survey link was emailed to the same experts that completed Round 1. Sixteen experts completed the Round 2 survey. Responses were again grouped by strongly agree/agree, slightly agree/slightly disagree, and disagree/strongly disagree. Table 10 shows the 74 practices that had a combined percentage of 80% or higher in the "strongly agree/agree" categories.

Table 10: Delphi Study - Round 2 Responses > 80% Consensus

	Round 2 List of Practices	Task or Social Oriented	Strongly Agree/Agree %	Mean	Median	Mode	Standard Deviation
1	Have open, honest and complete communications.	Task	100%	5.8	6.0	6.0	0.4
2	Team leader must be able to listen.	Both	100%	5.8	6.0	6.0	0.4
3	Be on time.	Task	100%	5.6	6.0	6.0	0.5
4	Follow through on commitments.	Task	100%	5.8	6.0	6.0	0.4
5	Be truthful at all times.	Task	100%	5.8	6.0	6.0	0.4
6	Keep the team informed.	Task	100%	5.7	6.0	6.0	0.5
7	Encourage common courtesy.	Social	100%	5.7	6.0	6.0	0.5
8	Communicate what went right (on budget/on time/winning a deal, etc.)	Social	100%	5.4	5.0	5.0	0.5
9	Designate a lead who can assist with some of the day to day questions especially if there are different time zones.	Social	100%	5.4	5.0	5.0	0.5
10	Clearly articulate specific attainable goals/objectives along with some that are very challenging.	Task	100%	5.7	6.0	6.0	0.5
11	Be respectful of cultural differences.	Both	100%	5.6	6.0	6.0	0.5
12	Encourage discussion of all perspectives of an issue.	Social	100%	5.7	6.0	6.0	0.5
13	Establish rules/code of conduct early.	Social	100%	5.6	6.0	6.0	0.5
14	Be sure your boss is aware of the schedule and the importance of these meetings.	Task	100%	5.6	6.0	6.0	0.5
15	Encourage staff to help each other.	Task	100%	5.7	6.0	6.0	0.5
16	Ground rules for meetings are well understood.	Task	100%	5.7	6.0	6.0	0.5
17	Provide an environment in virtual meetings for staff to always feel their input is valuable.	Task	100%	5.6	6.0	6.0	0.5
18	Assure that input is solicited from all members.	Task	100%	5.4	5.0	5.0	0.5
19	Ensure each member has a stake in the final goal.	Task	100%	5.4	5.0	5.0	0.5

20	Establish roles and responsibilities early in project.	Task	100%	5.6	6.0	6.0	0.5
21	Focus on the issue not the person	Task	100%	5.5	5.5	5.0	0.5
22	Encourage open communication between all members.	Task	100%	5.6	6.0	6.0	0.5
23	Follow up when you say you are going to.	Task	100%	5.8	6.0	6.0	0.4
24	Do what you say and follow up.	Task	100%	5.8	6.0	6.0	0.4
25	Schedule regular group calls/meetings.	Both	100%	5.5	5.5	6.0	0.5
26	Work together to achieve same goals.	Task	100%	5.6	6.0	6.0	0.5
27	Train as required.	Task	100%	5.3	5.0	5.0	0.4
28	Encourage team to help each other and work together to achieve common goals.	Social	100%	5.8	6.0	6.0	0.4
29	Share lessons learned/past learnings.	Social	100%	5.5	5.5	6.0	0.5
30	Be aware of staff strengths.	Task	100%	5.6	6.0	6.0	0.5
31	Ensure staff has an understanding of interdependencies through project plans and clearly defining responsibilities.	Task	100%	5.6	6.0	6.0	0.5
32	Ask questions if something is not understood.	Task	100%	5.6	6.0	6.0	0.5
33	Leaders help their team members grow individually and get exposure.	Task	100%	5.5	5.5	5.0	0.5
34	If you cannot share something then say that. Let the team know you will share when you can.	Task	100%	5.6	6.0	6.0	0.5
35	Play to individual strengths.	Task	100%	5.5	5.5	5.0	0.5
36	Have a clear plan for each function/task.	Task	100%	5.5	5.5	6.0	0.5
37	Spend time up front developing the team.	Task	100%	5.6	6.0	6.0	0.5
38	Engage staff in discussions about objectives.	Task	100%	5.6	6.0	6.0	0.5
39	Use document-sharing sites for all member access and confidentiality.	Task	100%	5.4	5.0	5.0	0.5
40	Remind folks that the goal is important and when completed, the outcome will be used by employees worldwide.	Social	100%	5.6	6.0	6.0	0.5
41	Share status of company results.	Task	100%	5.5	5.5	6.0	0.5
42	Avoid secrets.	Task	100%	5.6	6.0	6.0	0.5
43	Thank staff for their hard work often.	Social	94%	5.6	6.0	6.0	0.6
44	Celebrate successes when project is completed.	Both	94%	5.7	6.0	6.0	0.6
45	Encourage positive feedback on progress.	Task	94%	5.5	6.0	6.0	0.6
46	Emphasize goal-oriented behavior with a very specific timeline/deadline.	Task	94%	5.6	6.0	6.0	0.6
47	Have open dialogue and welcome different perspectives.	Social	94%	5.4	5.5	6.0	0.6
48	Have members introduce themselves.	Both	94%	5.4	5.5	6.0	0.6
49	Include objectives for the year in prior year performance review.	Task	94%	5.4	5.0	5.0	0.6
50	Track progress during periodic status calls/meetings.	Task	94%	5.6	6.0	6.0	0.6
51	Allow each member to have their own thoughts and ideas and if needed, nicely disagree.	Social	94%	5.5	6.0	6.0	0.6
52	Follow established corporate beliefs.	Task	94%	5.6	6.0	6.0	0.6
53	Engage staff in corrective action discussions if any objectives have fallen behind.	Task	94%	5.6	6.0	6.0	0.6
54	Leaders stress working as a team.	Social	94%	5.6	6.0	6.0	0.8
55	Support the team (being an advocate) to upper management is crucial.	Task	94%	5.7	6.0	6.0	0.6
56	Ensure that the team's successes are visible to upper management and to the team itself.	Task	94%	5.4	6.0	6.0	1.0

57	Take time during virtual calls to point out a job well done.	Social	94%	5.3	5.5	6.0	1.0
58	Stop gossip.	Task	94%	5.6	6.0	6.0	0.6
59	Develop metrics to constantly measure efficacy and success.	Task	94%	5.5	6.0	6.0	0.6
60	"Talk up" your team to stakeholders and celebrate successes.	Social	94%	5.4	5.5	6.0	0.6
61	Hold team building events when the entire team is present.	Social	94%	5.5	6.0	6.0	1.0
62	Provide contact information of all the team to everyone.	Task	94%	5.3	5.0	5.0	0.8
63	Reward the great.	Task	88%	5.1	5.0	6.0	1.3
64	Teaming people together for projects.	Social	88%	5.4	6.0	6.0	0.7
65	Respect time-zone issues.	Task	88%	5.4	6.0	6.0	0.7
66	Make sure leader manages well to avoid overpowering members.	Task	88%	5.4	6.0	6.0	0.7
67	When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.	Social	88%	5.4	6.0	6.0	0.7
68	Make periodic trips to home office.	Social	88%	5.3	5.0	5.0	0.7
69	New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they want to share.	Social	88%	5.1	5.0	5.0	0.6
70	Talk with everyone and encourage communication.	Social	88%	5.4	5.5	6.0	0.7
71	Annual team meetings, which typically include an outing (golf, boating, etc.)	Social	88%	5.1	5.0	5.0	0.6
72	Always set your availability status so others know when you are busy.	Task	88%	5.3	5.0	5.0	0.7
73	Avoid "backroom" meetings.	Task	81%	5.3	5.0	6.0	0.8
74	Fire the incompetent.	Task	81%	5.2	5.0	5.0	0.8

Round 3 of the Delphi study. Delphi studies are about building consensus. This study required 80% or higher combined percentage in the "strongly agree" and "agree" categories. In all, 74 of the 76 practices listed in the survey met the criteria. Therefore, a third round was not conducted in the Delphi study.

Data analysis of the Delphi study. Research question one asked: What were the practices virtual teams used to build cohesiveness? Table 10 lists the practices the 16 expert panelists reviewed and rated. Consensus was reached when a practice received 80% or higher in the categories of "strongly agree" and "agree" combined. The experts identified 74 practices they felt virtual teams use to build cohesiveness.

The Likert-scale categories were converted to numeric values as shown in Table 7 to find the mean, median, mode, and standard deviation. Calculations for each practice are listed in Table 12. These practices received over 80% consensus in the top two

categories, which were valued at 5 and 6. This would mean that the mean or average

would be between 5 and 6. Median is the number that falls in the middle in the list of

values showing from 5 to 6. The mode provides value in this study because it shows the

number that appears most often. For example, there was a 6.0 for the practice "Have

open, honest and complete communications." This would mean that strongly agree was

selected most often.

Table 11: Delphi Study - Practices Used to
Build Cohesiveness by Factor

Practices That Build Task Cohesion
Open communication between group members
Provide contact information of all the team to everyone.
Encourage open communication between all members.
Schedule regular group calls/meetings. *
Avoid "backroom" meetings.
Use document-sharing sites for all member access and
Announce all new hires and promotions with some
Share status of company results. *
Commitment to the objectives
Establish roles and responsibilities early in project.
Celebrate successes when project is completed. *
Engage staff in discussions about objectives.
Ensure each member has a stake in the final goal.
Engage staff in corrective action discussions if any objectives
Have members introduce themselves. *
Track progress during periodic status calls/meetings. *
Ground rules for meetings are well understood.
Designate a lead that can assist with some of the day-to-day
Share status of company results. *
Respect of group members
Team leader must be able to listen. *
Be on time.
Follow through on commitments. *
Focus on the issue not the person
Encourage positive feedback on progress.
Engage staff in corrective action discussions if any objectives
Be aware of staff strengths.
Ask questions if something is not understood.
Encourage staff to help each other.
Assure that input is solicited from all members.
Make sure leader manages well to avoid overpowering
Always set your availability status so others know when you
Be respectful of cultural differences. *
Respect time-zone issues. *
Share common purpose
Celebrate successes when project is completed. *
Emphasize goal-oriented behavior with a very specific
Include objectives for the year in prior year performance
Spend time up front developing the team.
Share status of company results. *
Trust
Have open, honest and complete communications
Follow through on commitments. *
Follow up when you say you are going to.
Be truthful at all times.
Do what you say and follow up.
Avoid secrets.
Stop gossip.
Be sure your boss is aware of the schedule and the importance
If you cannot share something then say that. Let the team
Supportive leaders
Support the team (being an advocate) to upper management is
Keep the team informed.
Designate a lead who can assist with some of the day-to-day
Leaders help their team members grow individually and get
Respect time-zone issues. *
Group efficacy (ability) and success
Work together to achieve same goals.
Train as required.
Celebrate successes when project is completed. *
Reward the great.
Play to individual strengths.
Clearly articulate specific attainable goals/objectives along
Fire the incompetent.
Ensure staff has an understanding of interdependencies
Provide an environment in virtual meetings for staff to always
Track progress during periodic status calls/meetings. *
Have a clear plan for each function/task.
Ensure that the team's successes are visible to upper
Develop metrics to constantly measure efficacy and success.
Leaders help their team members grow individually and get

Practices That Build Social Cohesion
Camaraderie
Encourage team to help each other and work together to achieve common goals. *
Encourage discussion of all perspectives of an issue.
Hold team-building events when the entire team is present.
Annual team meetings, which typically include an outing (golf, boating, etc.)
Altruism (kindness) towards members
Team leader must be able to listen. *
Encourage team to help each other and work together to achieve common goals. *
Encourage common courtesy. *
Establish rules/code of conduct early.
When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.
Allow each member to have their own thoughts and ideas and if needed, nicely disagree.
Be respectful of cultural differences. *
Workplace friendliness
Team leader must be able to listen. *
Encourage common courtesy. *
Offer to pick up lunch or team-building event for team members in close proximity. *
Bonding
Team leader must be able to listen. *
Talk with everyone and encourage communication.
Make periodic trips to home office.
Have members introduce themselves. *
Offer to pick up lunch or team building event for team members in close proximity. *
Sense of belonging
Remind folks that the goal is important and when completed, the outcome will be used by employees worldwide.
Schedule regular group calls/meetings. *
New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something
Leaders stress working as a team.
Identification with group members
Share lessons learned/past learnings.
Have open dialogue and welcome different perspectives.
Teaming people together for projects.
Announce all new hires and promotions with some information about each. *
Group pride
Thank staff for their hard work often.
Celebrate successes when project is completed. *
Communicate what went right (on budget/on time/winning a deal, etc.)
"Talk up" your team to stakeholders and celebrate successes.
Take time during virtual calls to point out a job well done.
*practice appears in multiple categories

These metrics were analyzed to see how the data compared and see if there was a range of answers. Since the requirement for this study was to find 80% or higher consensus in the top two categories, the mean, median, and mode would be expected to be between 5 and 6. The standard deviation looks to see how far apart the values are. For standard deviation, "the larger the standard deviation the more variation there is in the scores. The smaller the standard deviation the closer the scores are grouped around the mean and the less variation" (Ahmad, 2015). Here again, given the study requirement, the standard deviation was below 1.0 for most practices.

Table 12: Delphi Study - Final Round List of Practices & Data Analysis

	List of Practices 80% or higher	Task or Social Oriented	Strongly Agree/Agree %	Mean	Median	Mode	Standard Deviation
1	Have open, honest and complete communications.	Task	100%	5.8	6.0	6.0	0.4
2	Team leader must be able to listen.	Both	100%	5.8	6.0	6.0	0.4
3	Be on time.	Task	100%	5.6	6.0	6.0	0.5
4	Follow through on commitments.	Task	100%	5.8	6.0	6.0	0.4
5	Be truthful at all times.	Task	100%	5.8	6.0	6.0	0.4
6	Keep the team informed.	Task	100%	5.7	6.0	6.0	0.5
7	Encourage common courtesy.	Social	100%	5.7	6.0	6.0	0.5
8	Communicate what went right (on budget/on time/winning a deal, etc.)	Social	100%	5.4	5.0	5.0	0.5
9	Designate a lead who can assist with some of the day to day questions especially if there are different time zones.	Social	100%	5.4	5.0	5.0	0.5
10	Clearly articulate specific attainable goals/objectives along with some that are very challenging.	Task	100%	5.7	6.0	6.0	0.5
11	Be respectful of cultural differences.	Both	100%	5.6	6.0	6.0	0.5
12	Encourage discussion of all perspectives of an issue.	Social	100%	5.7	6.0	6.0	0.5
13	Establish rules/code of conduct early.	Social	100%	5.6	6.0	6.0	0.5
14	Be sure your boss is aware of the schedule and the importance of these meetings.	Task	100%	5.6	6.0	6.0	0.5
15	Encourage staff to help each other.	Task	100%	5.7	6.0	6.0	0.5
16	Ground rules for meetings are well understood.	Task	100%	5.7	6.0	6.0	0.5
17	Provide an environment in virtual meetings for staff to always feel their input is valuable.	Task	100%	5.6	6.0	6.0	0.5
18	Assure that input is solicited from all members.	Task	100%	5.4	5.0	5.0	0.5
19	Ensure each member has a stake in the final goal.	Task	100%	5.4	5.0	5.0	0.5

20	Establish roles and responsibilities early in project.	Task	100%	5.6	6.0	6.0	0.5
21	Focus on the issue not the person	Task	100%	5.5	5.5	5.0	0.5
22	Encourage open communication between all members.	Task	100%	5.6	6.0	6.0	0.5
23	Follow up when you say you are going to.	Task	100%	5.8	6.0	6.0	0.4
24	Do what you say and follow up.	Task	100%	5.8	6.0	6.0	0.4
25	Schedule regular group calls/meetings.	Both	100%	5.5	5.5	6.0	0.5
26	Work together to achieve same goals.	Task	100%	5.6	6.0	6.0	0.5
27	Train as required.	Task	100%	5.3	5.0	5.0	0.4
28	Encourage team to help each other and work together to achieve common goals.	Social	100%	5.8	6.0	6.0	0.4
29	Share lessons learned/past learnings.	Social	100%	5.5	5.5	6.0	0.5
30	Be aware of staff strengths.	Task	100%	5.6	6.0	6.0	0.5
31	Ensure staff has an understanding of interdependencies through project plans and clearly defining responsibilities.	Task	100%	5.6	6.0	6.0	0.5
32	Ask questions if something is not understood.	Task	100%	5.6	6.0	6.0	0.5
33	Leaders help their team members grow individually and get exposure.	Task	100%	5.5	5.5	5.0	0.5
34	If you cannot share something then say that. Let the team know you will share when you can.	Task	100%	5.6	6.0	6.0	0.5
35	Play to individual strengths.	Task	100%	5.5	5.5	5.0	0.5
36	Have a clear plan for each function/task.	Task	100%	5.5	5.5	6.0	0.5
37	Spend time up front developing the team.	Task	100%	5.6	6.0	6.0	0.5
38	Engage staff in discussions about objectives.	Task	100%	5.6	6.0	6.0	0.5
39	Use document-sharing sites for all member access and confidentiality.	Task	100%	5.4	5.0	5.0	0.5
40	Remind folks that the goal is important and when completed, the outcome will be used by employees worldwide.	Social	100%	5.6	6.0	6.0	0.5
41	Share status of company results.	Task	100%	5.5	5.5	6.0	0.5
42	Avoid secrets.	Task	100%	5.6	6.0	6.0	0.5
43	Thank staff for their hard work often.	Social	94%	5.6	6.0	6.0	0.6
44	Celebrate successes when project is completed.	Both	94%	5.7	6.0	6.0	0.6
45	Encourage positive feedback on progress.	Task	94%	5.5	6.0	6.0	0.6
46	Emphasize goal-oriented behavior with a very specific timeline/deadline.	Task	94%	5.6	6.0	6.0	0.6
47	Have open dialogue and welcome different perspectives.	Social	94%	5.4	5.5	6.0	0.6
48	Have members introduce themselves.	Both	94%	5.4	5.5	6.0	0.6
49	Include objectives for the year in prior year performance review.	Task	94%	5.4	5.0	5.0	0.6
50	Track progress during periodic status calls/meetings.	Task	94%	5.6	6.0	6.0	0.6
51	Allow each member to have their own thoughts and ideas and if needed, nicely	Social	94%	5.5	6.0	6.0	0.6

	disagree.						
52	Follow established corporate beliefs.	Task	94%	5.6	6.0	6.0	0.6
53	Engage staff in corrective action discussions if any objectives have fallen behind.	Task	94%	5.6	6.0	6.0	0.6
54	Leaders stress working as a team.	Social	94%	5.6	6.0	6.0	0.8
55	Support the team (being an advocate) to upper management is crucial.	Task	94%	5.7	6.0	6.0	0.6
56	Ensure that the team's successes are visible to upper management and to the team itself.	Task	94%	5.4	6.0	6.0	1.0
57	Take time during virtual calls to point out a job well done.	Social	94%	5.3	5.5	6.0	1.0
58	Stop gossip.	Task	94%	5.6	6.0	6.0	0.6
59	Develop metrics to constantly measure efficacy and success.	Task	94%	5.5	6.0	6.0	0.6
60	"Talk up" your team to stakeholders and celebrate successes.	Social	94%	5.4	5.5	6.0	0.6
61	Hold team-building events when the entire team is present.	Social	94%	5.5	6.0	6.0	1.0
62	Provide contact information of all the team to everyone.	Task	94%	5.3	5.0	5.0	0.8
63	Reward the great.	Task	88%	5.1	5.0	6.0	1.3
64	Teaming people together for projects.	Social	88%	5.4	6.0	6.0	0.7
65	Respect time-zone issues.	Task	88%	5.4	6.0	6.0	0.7
66	Make sure leader manages well to avoid overpowering members.	Task	88%	5.4	6.0	6.0	0.7
67	When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.	Social	88%	5.4	6.0	6.0	0.7
68	Make periodic trips to home office.	Social	88%	5.3	5.0	5.0	0.7
69	New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they want to share.	Social	88%	5.1	5.0	5.0	0.6
70	Talk with everyone and encourage communication.	Social	88%	5.4	5.5	6.0	0.7
71	Annual team meetings, which typically include an outing (golf, boating, etc.)	Social	88%	5.1	5.0	5.0	0.6
72	Always set your availability status so others know when you are busy.	Task	88%	5.3	5.0	5.0	0.7
73	Avoid "backroom" meetings.	Task	81%	5.3	5.0	6.0	0.8
74	Fire the incompetent.	Task	81%	5.2	5.0	5.0	0.8
75	Have open, honest and complete communications.	Task	100%	5.8	6.0	6.0	0.4
76	Team leader must be able to listen.	Both	100%	5.8	6.0	6.0	0.4

Summary

The purpose of this study was to identify practices used to build cohesive teams in

a virtual setting and to determine whether the practices were task-oriented or social-

oriented. This study used a two-round Delphi technique and asked 16 experts to rate

practices based on their level of importance in building cohesiveness in their virtual teams. The six-point Likert-scale ranked practices for the Delphi study from strongly agree to strongly disagree. Sixteen experts consented to participate in the study and completed all surveys. For final analysis, the Likert-scale categories were grouped by strongly agree/agree, slightly agree/slightly disagree, and disagree/strongly disagree to determine percentages. Based on the experts' responses, 74 practices received a rating of 80% or higher as to being important to building cohesiveness in virtual teams. The practices that received 80% or higher were also listed by specific factors as noted by von Treuer et al. (2013). This determined whether practices were task-oriented or social-oriented. In all, 48 practices were task-oriented, 21 were social-oriented and 5 were both.

This study used email and Survey Monkey to communicate with participants during each round. The day before the deadline, the researcher took the opportunity to remind participants that their survey had not been received yet. The findings of this group of experts will be discussed further in Chapter V.

CHAPTER V: FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Chapter V contains a synopsis of the study, purpose statement, research questions, research methods, and data-collection process procedures. It presents the major and unexpected findings based on data-analysis posed in Chapter IV. Lastly, the researcher offers the implications for action, recommendations for future research, and conclusions drawn from the data.

Synopsis of the Study

This Delphi study embarked on the research path to identify what practices virtual teams used to build cohesiveness. The definition of a cohesive team used in this study was "a dynamic process, which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982; Malcarne, 2012). Chapter I looked at the history of teams to understand how they had evolved in the working world. It focused on the problem statement, purpose statement, research questions, significance of the study, definition of terms and delimitations. Chapter II reviewed and synthesized relevant literature pertaining to the cohesiveness of teams. Cohesiveness of teams was shown to increase team effectiveness and improve performance (Hackman, 1987; Kozlowski et al., 1999; Mark et al., 2001; Mathieu et al., 2008; Salas et al., 1992; Tjosvold & Yu, 2004). The challenge for researchers has been to define and measure team cohesion (Casey-Campbell & Martens, 2009; Cota, Longman, Evans, Dion, & Kilik, 1995; Hogg, 1992; Mudrack, 1998; Salas, Grossman, Hughes, & Coultas, 2015). The studies by von Treuer et al. (2010, 2013) on the factors of cohesion offered the opportunity to look at the practices teams used to build cohesiveness rather than just trying to measure it.

Chapter III outlined the methodology utilized for the study including the research design, population, sample, instrumentation, data-collection procedures, data-analysis methods, and limitations. The Delphi technique was chosen for its ability to gain consensus of experts. Virtual teams were chosen as the population for this study due to technology advances and the advent of globalization. Chapter IV contained the research findings and analysis of each round of the Survey test and Delphi study. It contained the surveys and list of practices virtual teams used to build cohesiveness as identified by an expert panel of Fortune 500 leaders. Chapter V concludes the dissertation by sharing the purpose statement, research questions, research methods, data-collection procedures again, as well as, a major findings, implications for action, and recommendations for future research.

Purpose Statement

The purpose of this Delphi study was to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented.

Research Questions

1. What were the practices virtual teams used to build cohesiveness?
2. Are the practices of these teams task-oriented or social-oriented?

Research Methods and Data-Collection Procedures

Methodology

The Delphi study used a non-experimental survey research design to gather the opinions of experts about practices virtual teams used to build cohesiveness (McMillan & Schumacher, 2010). The non-experimental design looked to describe the phenomena

without any manipulation of conditions (McMillan & Schumacher, 2010). The survey

provided quantitative data that made it "possible to measure the reactions of a great many

people to a limited set of questions, thus facilitating comparison and statistical

aggregation of the data" (Patton, 2015).

Dalkey and Helmer (1963) developed the Delphi technique while working for the

RAND Corporation. RAND's researchers were looking for "scientific use of expert

opinions" (Landeta, 2006). Their original study used a multiple-round Delphi process to

forecast likely scenarios related to national-defense issues for the U.S. military

(Kelbaugh, 2003). This method was thought to be extremely helpful in exploring new

areas of research (Sori & Sprenkle, 2004). The Delphi technique allowed for consensus-

building by using a series of surveys to collect data (Hsu & Sanford, 2007). The process

prompted panelists to think and rethink their feedback (Khungar, 2011). The process

collated and synthesized the opinions of experts until they were able to come to group

consensus (Clay-Williams & Braithwaite, 2009; Linstone & Turoff, 2002; Stewart,

2001). The defining characteristics of this process were: "anonymity of participants,

iterative polling rounds interspersed with feedback, and statistical analysis of group

results" (Clay-Williams & Braithwaite, 2009; Kelbaugh, 2003).

The Delphi research design was appropriate for this study because it sought

consensus of experts rather than precise analytical measures (Callaghan, 2015; Linstone

& Turoff, 2006). The anonymity of participants reduces the influence of others'

responses or pressure to get on the "bandwagon" (Linstone & Turoff, 2006). It allows

the diversity of the group to preserve the validity of the results (Linstone & Turoff,

2006). This type of study provided "enough freedom to start with a broad theme and

narrow it to specifics, staying within the guidelines the researcher constructed but structured by the expert participants' responses" (Ahmad, 2015).

There were two parts to this research. A Survey test was done to create a list of practices virtual teams used to build cohesiveness. The test was done with a group of 6 - 10 participants. These participants were intended to come from 1 - 2 Fortune 500 companies using the nomination process. The final group of people that participated actually came from six different Fortune 500 companies. The list of practices from the Survey test became the survey used in the Delphi study, where 15 - 25 expert panelists from up to 10 Fortune 500 companies ranked the items based on whether each panelist felt the practice was important to building cohesive virtual teams. Participants from the Survey test also participated in the Delphi study. The final number of Fortune 500 companies represented in this study was 15, which is more than 10 that were anticipated.

Instrumentation

The goal of this study was to identify practices used to build cohesive virtual teams. In order to create an instrument for this Delphi study, a Survey test was conducted first, using the Delphi technique to establish practices cohesive teams used.

The process consisted of eight steps:

- Step 1: The researcher initiated a nomination process to identify 6 - 10 participants who had worked for Fortune 500 companies and had led a virtual team of five or more geographically dispersed people who had been together for more than one year. Six qualified participants for the study were contacted directly by the researcher. Two additional participants were nominated, qualified, and agreed to participate bringing the total to eight participants for Survey test.

- Step 2: The researcher emailed those participants identified in Step 1 an Invitation Letter (Appendix H) and link to the Demographic Survey (Appendix I). Participants had seven days to respond. Eight participants who returned the demographics survey and met the criteria become the survey panel.

> **Questionnaire:** Practices Virtual Teams Use to Build Cohesiveness
>
> 1. What specifically does your virtual team do to build task cohesion? (List as many practices as you like for each of these factors)
>   - Open communication between group members
>   - Commitment to the objectives
>   - Respect of group members
>   - Share common purpose
>   - Trust
>   - Supportive leaders
>   - Group efficacy (ability) and success
>
> 2. What specifically does your virtual team do to build social cohesion? (List as many practices as you like for each of these factors)
>   - Camaraderie
>   - Altruism (kindness) towards members
>   - Workplace friendliness
>   - Bonding
>   - Sense of belonging
>   - Identification with group members
>   - Group pride
>
> 3. What other things do you do, as a leader, to build the cohesiveness of your virtual team? (List as many practices as you like)
>
> 4. Additional Comments:

Figure 12: Survey Test - Questionnaire for Round 1

- Step 3: The researcher conducted Round 1 of the survey process by emailing the survey panelists directions for completing the questionnaire (Appendix L), link to the online questionnaire (Figure 12), Letter of Consent (Appendix J), and Research Participant's Bill of Rights (Appendix K). The survey was created on www.surveymonkey.com. The first-round questions were created using parameters from von Treuer, Fuller-Tyzkiewicz, & Atkinson (2013)'s study (Appendix E & F) on the features that "epitomize cohesion" to create a list of practices used to build cohesive teams in a virtual setting (Callaghan, 2014). Some of their factors included problem-solving, team coordination, goal attainment, friendship, trust, and belonging (Appendix E & F). A questionnaire

was used because it "provide(s) a broader base of respondents" than interviews (Cox & Cox, 2008). Survey panelists were asked to complete the questionnaire by listing as many practices as possible that they used with virtual teams to build cohesiveness for each of the factors listed. Panelists had seven days to complete the survey.

- Step 4: The researcher gathered data from the questionnaires, coded statements, and combined like statements on cohesive virtual-team practices. The researcher used the list of practices to create an online Likert-scale survey that would be used for Round 2. "Likert-type scales provide great flexibility because the descriptors on the scale can vary to fit the nature of the question or statement" (McMillan & Schumacher, 2010). Using the rating-scale methodology is also "quick, easy to comprehend, and is psychologically comforting" (Scheibe, Skutsch & Schofer, 1975). There are varied opinions on the number of points to use on the Likert-type scales. Cicchetti, Showalter, and Tyrer (1985) suggest a seven-point Likert scale is significantly better than a five-point scale to offer variable responses. The odd-numbered scale allows for "neutral" to be added as the midpoint (State-Davey, 2009). Cox and Cox (2008) felt that "neutral" or "undecided" added a level of ambiguity that could indicate either no opinion or an on-the-fence opinion. They suggest using an even number of items to allow for grouping responses for example: strongly agree/agree, slightly agree/slightly disagree, disagree/strongly disagree (Cox & Cox, 2008). They preferred that neutral responses be left off the scale because "some researchers question whether these responses are actually part of the 'intensity' scale". A sample of the Likert-scale

used in this study is shown in Table 13. These six categories were grouped into three categories as suggested by Cox & Cox (2008) when calculating survey results.

Table 13: Likert Scales Used in Research

Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

- Step 5: The researcher conducted Round 2 of the survey process by emailing a link to the survey created in Step 4 to the survey panelists. The survey was a list of statements compiled from the questionnaire about team practices, asking whether they felt each practice was important to building cohesive virtual teams. Survey panelists rated the list of practices using a six-point Likert scale: strongly agree, agree, slightly agree, slightly disagree, disagree, and strongly disagree. They had seven days to complete the survey.

- Step 6: The researcher compiled data from Round 2. Data for "strongly agree" and "agree" were combined and the list of practices was ranked by percentage from highest to lowest. This new list was used to create the survey in Round 3.

- Step 7: The researcher conducted Round 3 of the survey process by emailing a link to the survey created in Step 6 to the survey panelists. The survey listed ranked practices, and asked participants to think about each practice and decide whether they felt each practice was important to building cohesive virtual teams using the same Likert scale. Panelists had seven days to respond.

- Step 8: The researcher compiled data from Round 3. Data for "strongly agree" and "agree" categories were combined and the list of practices was ranked by percentage from highest to lowest. The goal was to find 80% consensus within

the "strongly agree" and "agree" categories for each individual practice to make

the final list of practices of cohesive virtual teams. Practices that achieved 80%

consensus were used to create a survey for Round 1 of the Delphi study

(Appendix Q).

By using multiple rounds in the Survey test, the researcher obtained a list of

specific practices virtual teams used to build cohesiveness. Results from each round are

listed in Appendix O - Q. The multiple rounds allowed for validation of the instrument

as long as participants were answering honestly (Mertens, 2005). This created a better

measurement by looking for stability of group opinions from round to round rather than

relying strictly on the individuals (Figaro, 2015; Scheibe, Skutsch & Schofer, 1975). The

use of the Internet to administer the surveys provided an opportunity to reach a broader

group of people (Brill, Bishop & Walker, 2006; Khungar, 2011).

Data Collection

A Delphi technique was used to collect data via online surveys and analyze that

data to build consensus on the practices virtual teams used to build cohesiveness in this

study (Yousuf, 2007). This process allowed for anonymous feedback from the panel of

experts. The experts were: "(1) not aware of other panelists' identities; and (2) responses

by participants were not credited to a specific expert" (Ainsworth, 2015). Magnuson

(2013) wrote "...the anonymity and lack of in-person group dynamics of the Delphi are

factors cited by a number of Delphi researchers who feel the process contributes to more

thoughtful and deliberative analysis". The number of rounds in a Delphi study can vary

(Clay-Williams & Braithwaite, 2009). Dalkey and Hemler (1963) recommended three to

four iterations. Other researcher felt that three iterations were sufficient to collect data

and reach consensus (Brooks, 1979; Custer, Scarcella & Stewart, 1999; Cyphert & Gant, 1971; Ludwig, 1994). The Survey test had used a three-round Delphi technique to create the survey instrument used in the Delphi study.

The survey instrument used in each round of the Delphi study was created on Survey Monkey. The survey used the same Likert scale created for the Survey test, "strongly agree" to "strongly disagree", which "yielded the numerical data needed for the statistical correlations" (Khungar, 2011). Using this instrument, the experts in the Delphi study were able to achieve consensus after only two rounds (Figure 10).

Round 1 of the Delphi study. Round 1 used the survey created from practices compiled in Round 3 of the Survey test. The researcher sent an email to the expert panelists with directions for completing the survey (Appendix R), Letter of Informed Consent (Appendix N), and Bill of Rights (Appendix K). Panelists were asked to complete the survey by asking whether they felt each practice was important to building cohesive virtual teams. The researcher compiled results from Round 1. Data for "strongly agree" and "agree" categories were combined and the list of practices was ranked by percentage from highest to lowest. These ranked items were used to create the survey for Round 2.

Round 2 of the Delphi study. For Round 2, the researcher sent an email to the same list of experts as Round 1 with a link to the survey created from Round 1 ranked responses. Panelists were again asked to think about whether each practice was important to building cohesive virtual teams. The researcher compiled results from Round 2. Data for "strongly agree" and "agree" categories were combined and the list of practices was ranked by percentage from highest to lowest.

Determination of conducting additional rounds has varied by researcher (Hsu &

Sanford, 2007). Some researchers suggested, "when experts' forecasts have changed

little between rounds, the process is stopped and the final round forecasts are combined

by averaging" (Scheibe, Skutsch & Schofer, 1975; Yousuf, 2007). "To minimize the

number of required Delphi rounds, it is important to give panel members as much

information about the research question as possible" (Clay-Williams & Braithwaite,

2009). Ulschak (1983) recommended stopping the process when 80 percent of the votes

fall within two categories. Green (1982) felt that 70 percent was sufficient to reach

consensus. This study used Ulschak's (1983) recommendation to reach 80 percent

consensus within two categories to satisfy both the 70 and 80 percent requirements found

in other research (Hsu & Sandford, 2007). An 80% or greater consensus was reached

with 74 of the 76 practices listed in the survey after two rounds. Therefore, a third round

was not conducted in the Delphi study.

Population

The target population for this study was virtual team leaders from Fortune 500

companies. The exact number of virtual teams is "humanly impossible to gather"

(Khungar, 2011). These leaders were defined as having led a virtual team of five or more

people, who were geographically dispersed and had been together for more than one year.

Sample

The sample for this Delphi study was to consist of 15-25 experts from up to 10

different Fortune 500 companies. The actual number of experts was 16 and they

represented 15 different Fortune 500 companies, which is more than 10 that were

anticipated. The characteristics necessary for this sampling was virtual team leaders in

companies on the Fortune 500 list having led a virtual team of five or more people who were geographically dispersed and had been together for more than one year. Fortune 500 companies were chosen because they were noted as the top performers in U.S. companies (Fortune.com, 2016). These companies set the standard of business success (Murray, 2015).

Major Findings

A summary of the major findings discovered during data-collection is presented in this section by research question.

Research Question One

Question one asked: What were the practices virtual teams used to build cohesiveness? The 16 expert panelists were able to identify 74 practices used build cohesive virtual teams (Appendix T). The experts achieved consensus on 75 practices after the first round. Even when practices were reordered, the experts still found consensus on 74 practices. Some of the practices were to: schedule regular meetings, establish roles and responsibilities, be on time, celebrate successes, be truthful, respect time-zone issues, and work together to achieve same goals. The practices identified were well rounded in that they covered all 14 factors used to build cohesiveness identified by von Treuer et al. (2013) (Appendix F). They also aligned with many of the characteristics of effective teams (Table 1) presented by other researchers in their studies (Bakken, 2007; Mickan & Rodgers, 2000). Those characteristics included: clear purpose, distinct roles, suitable leadership, trust, communication, performance feedback, listening, and team interaction. Rather than trying to measure cohesiveness like Carron (1985), Davenport (2013), and State-Davey (2009) had, this study created a "Framework of

Cohesive Team Practices" leaders could use to build cohesive virtual teams (Figure 13).

It then broke out the type of cohesion by task and social orientation, and lists the

practices this study found to build cohesive virtual teams (Figure 13 - Figure 15).

Research Question Two

Question two asked: Are the practices of these teams task-oriented or social-

oriented? The factors of cohesion (Appendix F) served as the categories used in creating

the survey instrument. The 74 practices were applied back to their original categories to

help understand whether they were task-oriented or social-oriented. Some practices

appeared in multiple categories and are noted with an asterisk (*). In all, 48 practices

were task-oriented, 21 practices were social-oriented, and 5 appeared in both categories.

This study showed that even though these were virtual teams, there are still social

practices that are important to building a cohesive team. This study found several of the

same themes that State-Davey (2009) had found in her research on task and social

cohesion: sense of belonging, understanding goals, roles in the team, and support. All of

this supported previous research that found that high-performing teams needed a

combination of task and social cohesion (Mullen & Cooper, 1994; Carless & De Paola,

2000; Chang & Bordia, 2001; Malcarne, 2012; Salas, Grossman, Hughes, & Coultas,

2015).

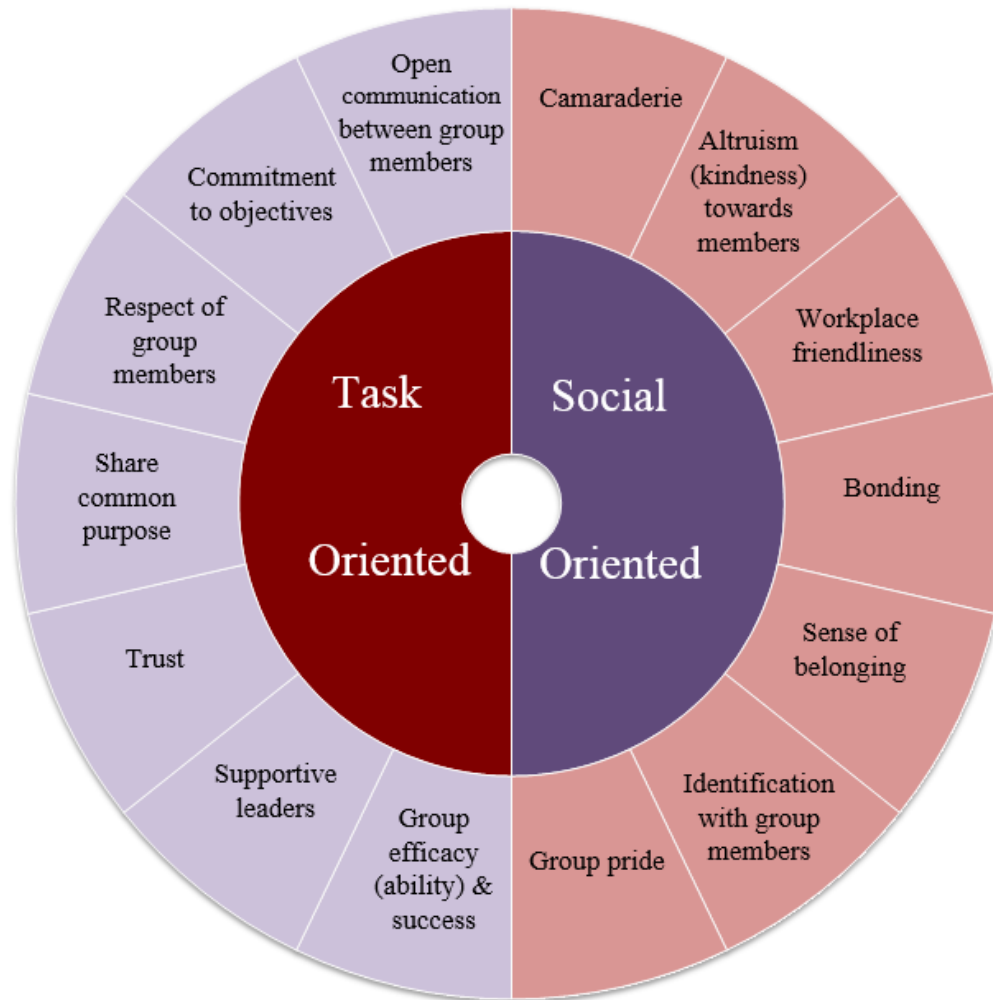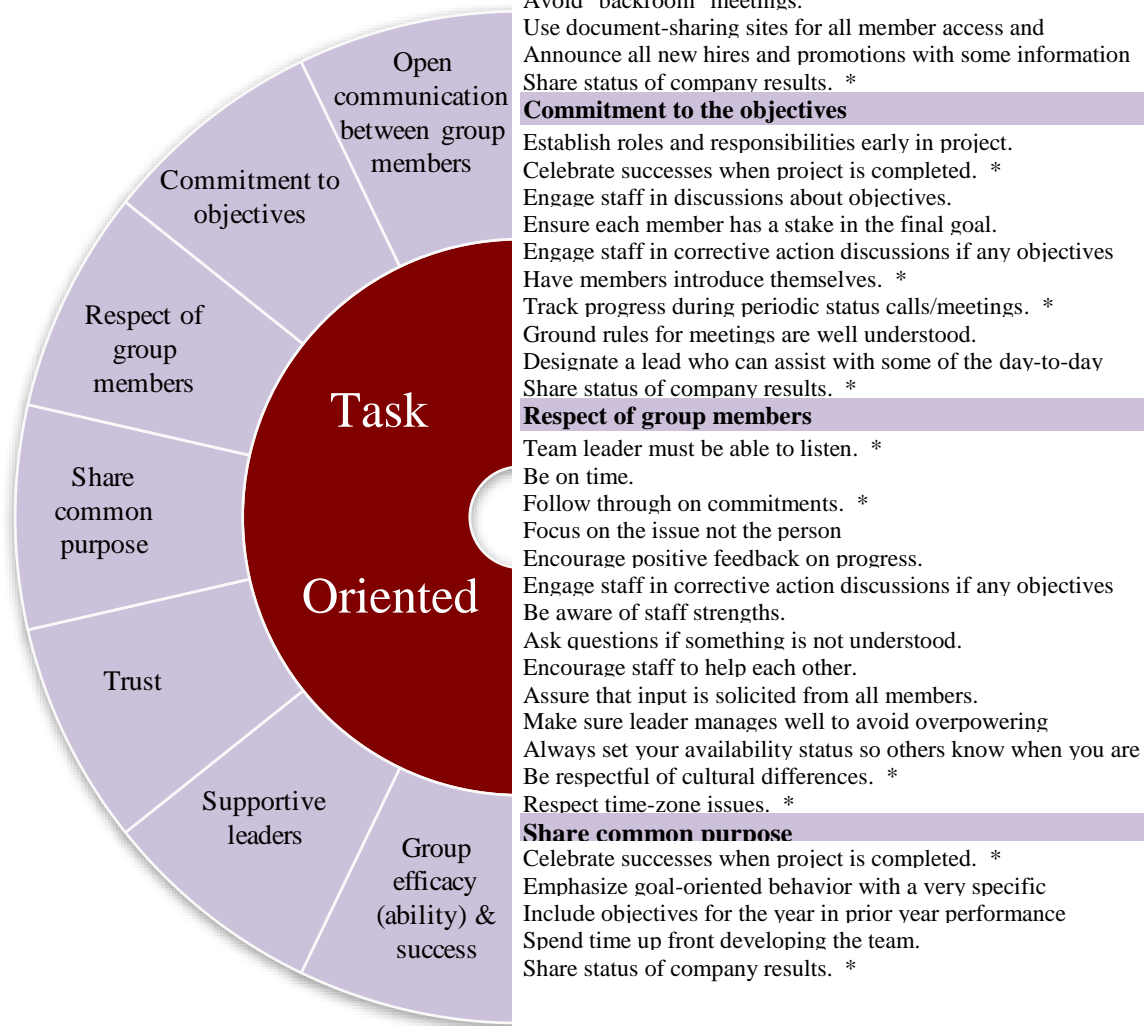# Framework of Cohesive Team Practices

Figure 13: Framework of Cohesive Team Practices – Overview
(Adapted from von Treuer et al., 2013)

Figure 14: Framework of Cohesive Team Practices – Task

Open communication between group members

Provide contact information of all the team to everyone.
Encourage open communication between all members.
Schedule regular group calls/meetings. *
Avoid "backroom" meetings.
Use document-sharing sites for all member access and
Announce all new hires and promotions with some information
Share status of company results. *

Commitment to the objectives

Establish roles and responsibilities early in project.
Celebrate successes when project is completed. *
Engage staff in discussions about objectives.
Ensure each member has a stake in the final goal.
Engage staff in corrective action discussions if any objectives
Have members introduce themselves. *
Track progress during periodic status calls/meetings. *
Ground rules for meetings are well understood.
Designate a lead who can assist with some of the day-to-day
Share status of company results. *

Respect of group members

Team leader must be able to listen. *
Be on time.
Follow through on commitments. *
Focus on the issue not the person
Encourage positive feedback on progress.
Engage staff in corrective action discussions if any objectives
Be aware of staff strengths.
Ask questions if something is not understood.
Encourage staff to help each other.
Assure that input is solicited from all members.
Make sure leader manages well to avoid overpowering
Always set your availability status so others know when you are
Be respectful of cultural differences. *
Respect time-zone issues. *

Share common purpose

Celebrate successes when project is completed. *
Emphasize goal-oriented behavior with a very specific
Include objectives for the year in prior year performance
Spend time up front developing the team.
Share status of company results. *

Trust

Have open, honest and complete communications.
Follow through on commitments. *
Follow up when you say you are going to.
Be truthful at all times.
Do what you say and follow up.
Avoid secrets.
Stop gossip.
Be sure your boss is aware of the schedule and the importance
   of these meetings.
If you cannot share something then say that. Let the team know
   you will share when you can.

Supportive leaders

Support the team (being an advocate) to upper management is
Keep the team informed.
Designate a lead who can assist with some of the day-to-day
   questions especially if there are different time zones.
Leaders help their team members grow individually and get
Respect time-zone issues. *

Group efficacy (ability) and success

Work together to achieve same goals.
Train as required.
Celebrate successes when project is completed. *
Reward the great.
Play to individual strengths.
Clearly articulate specific attainable goals/objectives along with
   some that are very challenging.
Fire the incompetent.
Ensure staff has an understanding of interdependencies through
Provide an environment in virtual meetings for staff to always
Track progress during periodic status calls/meetings. *
Have a clear plan for each function/task.
Ensure that the team's successes are visible to upper
   management and to the team itself.
Develop metrics to constantly measure efficacy and success.
Leaders help their team members grow individually and get
   exposure. *

Figure 15: Framework of Cohesive Team Practices – Social

Camaraderie

Encourage team to help each other and work together to achieve common goals. *

Encourage discussion of all perspectives of an issue.

Hold team-building events when the entire team is present.

Annual team meetings, which typically include an outing (golf, boating, etc.)

Altruism (kindness) towards members

Team leader must be able to listen. *

Encourage team to help each other and work together to achieve common goals. *

Encourage common courtesy. *

Establish rules/code of conduct early.

When the members of the team see altruistic behavior modeled by   the team leader that gives them the ability to do the same.

Allow each member to have their own thoughts and ideas and if needed, nicely disagree.

Be respectful of cultural differences. *

Workplace friendliness

Team leader must be able to listen. *

Encourage common courtesy. *

Offer to pick up lunch or team-building event for team members in close proximity. *

Bonding

Team leader must be able to listen. *

Talk with everyone and encourage communication.

Make periodic trips to home office.

Have members introduce themselves. *

Offer to pick up lunch or team-building event for team members in close proximity. *

Sense of belonging

Remind folks that the goal is important and when completed, the outcome will be used by employees worldwide.

Schedule regular group calls/meetings. *

New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they want to share.

Leaders stress working as a team.

Identification with group members

Share lessons learned/past learnings.

Have open dialogue and welcome different perspectives.

Teaming people together for projects.

Announce all new hires and promotions with some information about each. *
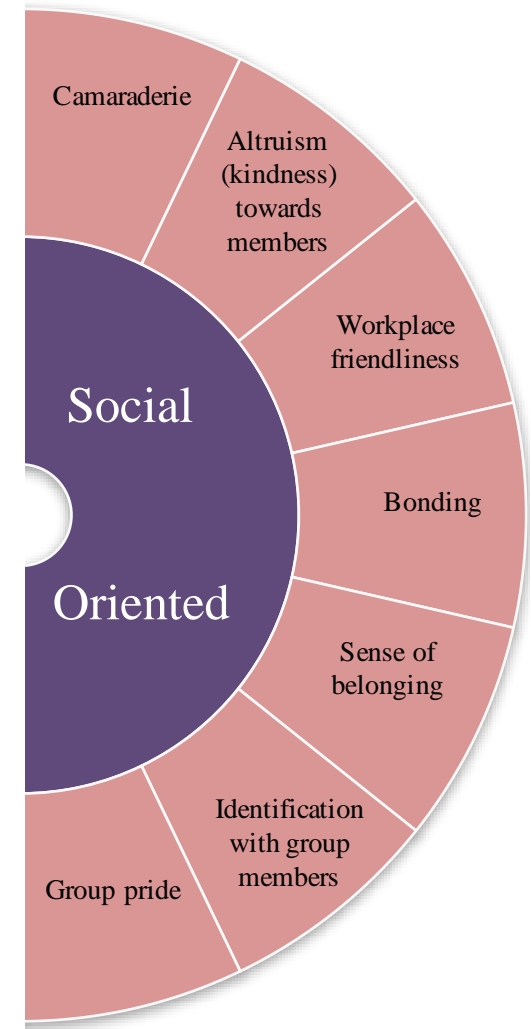
Group pride

Thank staff for their hard work often.

Celebrate successes when project is completed. *

Communicate what went right (on budget/on time/winning a deal, etc.)

"Talk up" your team to stakeholders and celebrate successes.

Take time during virtual calls to point out a job well done.

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Unexpected Findings

There were a few unexpected findings in this study. The final number of practices was encouraging. The researcher wanted to have enough data in the final results to make this study meaningful and have practical application. Based on results in previous studies, the final number of practices was not expected to be very high. Taking the time to do the Survey test helped to narrow down the practices that were used in the actual Delphi study. The eight participants in the Survey test originally had 186 practices they felt were used to build cohesive virtual teams. They were able to quickly narrow down the practices to the 76 practices used in the Delphi study. The practices included every factor that was the original basis for the Survey test. When these 76 practices were sent out to 8 additional people that were not part of the Survey test, the 16 people quickly achieved consensus. The consensus-building supported the notion that the study was on the right track, especially after seeing challenges in other studies on cohesive teams.

Another unexpected finding was that almost all of these practices could be applied to a face-to-face team. Things like "Being on time", "Keep the team informed", and "Encourage staff to help each other" are relevant in other types of teams. This was rather surprising considering there were 10 different types of industries represented in this study. The only practice that could possibly be attributed to a virtual team alone was "Respect time zones". There could be a number of reasons for this. These leaders had led face-to-face teams as well as virtual ones. All but one participant was a Baby Boomer and had not had to use technology their entire life. None of these companies was entirely virtual in nature. The researcher was unable to determine the exact reasons from the parameters of this study.

The Delphi study was planned to be three rounds but achieved consensus after only two rounds. This was unexpected in that most Delphi studies do at least three rounds. The reason there was consensus after two rounds can be partially attributed to how the Survey test was done. It used a three-round Delphi technique to provide a list of practices used to build consensus in virtual teams. This list was what was used in the Delphi study. Another reason could be that 8 of the 16 participants in the Delphi study had participated in the Survey test where consensus had been achieved.

Conclusions

Based on the findings of this study and supported by literature, it is concluded that building cohesive virtual teams requires a variety of practices that are both task and social-oriented in order to provide an environment where teams work well together. This study identified 74 practices leaders and teams can use to build cohesiveness. They are presented in the "Framework of Cohesive Practices" (Figure 13 - Figure 15) to help identify areas that can be affected.

These practices came from a variety of industries: healthcare, retail, manufacturing, military, information services and data, hotel and food services, and arts and entertainment. Although some previous cohesive team research was limited to specific organizations or industries, this study showed that the cohesive practices were applicable in multiple settings. When the practices were grouped under the 14factors of cohesion, not all experts had practices in each of the 14 factors. Therefore, care must be taken when applying these practices to all virtual teams.

The researcher chose to study cohesive teams because of the many benefits cohesiveness offers teams and organizations. It has been found to increase morale, self-

esteem, and performance (Beal et al., 2003; Evans & Dion, 2012; Greer, 2012; Molnau, 2013; Mullen & Cooper, 1994). Using the "Framework of Cohesive Practices" created by the researcher will encourage virtual teams to build trust, create relationships, communicate, and be empowered to build cohesiveness and be successful.

Implications for Action

Based on the data reported by this researcher, it is recommended that leaders of virtual teams apply the 74 practices identified to build the cohesiveness of their teams. The "Framework of Cohesive Team Practices" (Figure 13 - Figure 15), gives individuals, teams, leaders, and organizations a way to narrow their focus on specific areas for team improvement. This framework will help organizations achieve the next level of performance by introducing strategies that can help them build cohesiveness in their teams. The researcher offers three different ways the results of this research can be applied.

Observation Checklist

1. The "Framework of Cohesive Team Practices – Overview" (Figure 13) gives leaders a tool to look at how their teams are performing at task and social levels. It helps to narrow the focus on the strengths and weaknesses of a team. Understanding the differences between task cohesion and social cohesion helps in the development of the teams by creating an understanding of goals and roles, and fostering an environment where members are active participants in their jobs (Grossman et al., 2015; Zaccaro, 1991; Zaccaro & Lowe, 1998).

2. The "Framework of Cohesive Team Practices – Task" (Figure 14) and

"Framework of Cohesive Team Practices – Social" (Figure 15) provide a more detailed list of practices leaders can look for in their teams.

3. A team development plan can then be created using those areas leaders have identified as missing or not occurring consistently.

Team Survey

1. The "Framework of Cohesive Team Practices – Overview, Task, and Social" (Figure 13 - Figure 15) all provide items to survey teams to learn their observations and feelings on team cohesiveness.

2. A survey can be created on SurveyMonkey.com using a Likert scale, similar to the one used in this study (Table 13).

4. Once survey results are gathered, team development plans can be created using areas identified as missing or not occurring consistently.

Leadership Development Programs

In addition to organizational application, the "Framework of Cohesive Team Practices" (Figure 13 - Figure 15) will be useful to schools and universities that have leadership and management programs and wish to expand their curriculum to include the development of cohesive teams. While this study looked at virtual teams, many of these practices were generic enough to be applied in many other settings like artificial groups, military, sports teams, education, and business.

<p align="center">Recommendations for Further Research</p>

This study presented an in-depth look at practices leaders of Fortune 500 companies used to build cohesiveness in virtual teams. Although this study is limited by a relatively small sample size and thus limited in its ability to generalize to all Fortune

500 companies or all virtual teams, it does lay the groundwork for future studies on cohesive teams. Here are some suggestions for further research.

Recommendation One. Increase the number of participants since this study had a relatively small sample size. By increasing the number of respondents, different practices maybe revealed. There were 16 experts from 15 different organizations and 9 organizational categories. Future research could focus on a specific category or organization, which could provide different results.

Recommendation Two. The recommendation is to repeat this study using the new instrument that has been created to see if results change. Eight of the panelists participated in both the Survey test and the Delphi study. This meant that they did five rounds of surveys. This could have affected their answers by the last few rounds.

Recommendation Three. Use this instrument with other types of teams. It targets areas of improvement starting with task or social perspective then drilling down to the individual factors. There are other studies on cohesiveness but they have focused on different types of teams (Castaño et al., 2013; Mullen & Cooper, 1995) or ones that measure the level of cohesiveness in teams (Carron et al., 1985; Davenport, 2013; State-Davey, 2009). This instrument could change the focus of cohesive-team research.

Recommendation Four. Conduct this study on cohesive team-building from the perspective of what not to do. Identifying and ranking those practices would create an alternative instrument for research. Sometimes it is easy to know what not to do.

Recommendation Five. Use a different survey site. This study used the Delphi technique for data collection where multiple-round surveys were collected using Survey Monkey. It was remarked by participants that the size of the survey response boxes in

Round 1 of the Survey test seemed to limit the size of the response. Unfortunately, Survey Monkey's box on the survey appeared to only allow about 30 characters even though in fact it would hold much more. The participants could not see their entire response if it was longer and some hesitated to write more. Some chose to use a Word document to write out their answer and then copied and pasted it into Survey Monkey survey. This took additional time in completing the survey. The researcher did reach out to Survey Monkey to see if there was another options, but they did not have another way to gather responses.

Recommendation Six. Use a different methodology for this study. Gather practices used to build cohesive teams by doing interviews or focus groups instead of surveys. This would give qualitative data. Interviews allow for additional and probing questions. Open-ended questions can be used to help expand on answers. Interviews tend to have a better response rate than surveys. Getting survey responses was a challenge in this study.

Recommendation Seven. Study the effectiveness of the practices identified in this study. Expert panelists were able to gain consensus around 74 practices but there were no determination as to whether some practices were more effective than others. This study defined an effective team as, **"**Group of individuals whose input combines to drive the team processes toward a common goal or task while maintaining the emotional health of the group" (Andrews, 2012; Mathieu et al., 2008; Oleson, 2011). Future researchers will need to determine if they will use the same definition.

Recommendation Eight. Apply neuroscience methods of studying the brain to determine if team members felt the practices identified built cohesiveness. It could use

the individual practices or group of factors and see how they affected brain activity. This study used virtual teams so there would need to be a way to reach participants at geographically dispersed locations.

Concluding Remarks and Reflections

I have a passion for building teams. I am a firm believer in Together Everyone Achieves More (TEAM). The question for me was how I would create something that leaders could use to develop successful teams. In my research on teams, I found that "cohesive teams" encompassed many facets of the team experience. But how do you get an effective, high-performing team? I wanted to bring an understanding of this type of team to other leaders.

While the focus was on virtual teams, the results of the surveys identified many practices that could be used with different types of teams. I was impressed with the 8 participants in the Survey test. They gave me 251 practices in the first-round qualitative survey. I was expecting short answers but instead got ones that were detailed and even provided examples. After combining similar statements, I still had 171 practices. I felt really good about this because I still had a large number of practices to work with. In reading different dissertations, I found many had fewer than 30 responses to their surveys.

My hope had been to have practices in each of the 14 factors of cohesion categories so leaders had something to work with and it happened. This happened partially because the original list of practices was gathered using the 14 factors of cohesion. It would not guarantee that all 14 factors would be represented in the final list however. I think a better reason for the fact that all 14 factors were represented was that

the experts used in this study really did understand what a cohesive virtual team was about. They had led their virtual teams for longer than one year and their team sizes were greater than 5 and in some cases over 16. They came from Fortune 500 companies, which are the standard of business success (Murray, 2015).

The "Framework of Cohesive Team Practices" created by this study gives leaders a tool to use with their teams. I tried to make it simple and versatile. It can be used in several ways. It can be a checklist or survey. It can be used by working one factor at a time or by looking at the type of cohesion, task or social. It can also be used to set team expectations by setting standards. I had done my Transformational Change Project for a class assignment on learning organizations. In that process, I created multiple tools, which gave leaders options on what they wanted to use. I wanted the same flexibility in this study.

The definition a cohesive team used in this study was, "A dynamic process, which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982; Malcarne, 2012). This study demonstrated just that by identifying 74 practices virtual teams could use to build cohesiveness. There was not just a single factor needed to build a cohesive virtual team. There were 14 that required active participation by the team members to build that cohesiveness. It is cohesion that has been shown to have a positive effect on group performance and increase morale and self-esteem (Beal et al., 2003; Molnau, 2013). Which in turn has the potential to increase productivity, innovation, customer service, and profits for organizations (Andrews, 2012; Burke et al., 2006; Casey-Campbell & Martens, 2009; Salas et al., 2015).

There are several ways that the list of practices identified in this study could be used. To improve organizational effectiveness, the list of practices could be used as a survey to identify what practices the team feels they currently are using. The "Framework of Cohesive Practices" is set up to be tackled in several different ways. A team could review the surveys and decide what areas they wanted to work on. If you are looking for a more efficient and effective team, you may start with those practices under task-oriented. There are seven factors under task-oriented. Or you could start with a specific factor or specific practices and develop a game plan to increase the use of this practice. If your team seems pretty efficient but they don't seem very happy, look to the social-oriented practices to see what areas the team feels are not in place. The list of practices is not an absolute list. It is just a starting point that experts in the field found to be necessary to build cohesive virtual teams.

If you are new to leadership, this list of practices provides a checklist you can use to see how you are working with your team. You may be great at helping the team set up goals and objectives but fail to provide updates on the progress to the team. This is just as important as setting the goal. Look for ways to incorporate that additional communication. Being on time is also important to building cohesive teams. If you tend to run late to meetings, look at what you can do to change that. Even though you may think "I am a busy person people will understand", it does not set the expectation of what you are asking the rest of the team to do. Do a monthly check-in to see how you are doing and add practices as you feel they are needed.

Where I struggled in this study was in trying to get survey participants. It was a lot harder than I imagined. People I knew had volunteered to help but never took the

time to respond to the surveys. I had heard that this could happen. I lost almost a month trying to get my required number of participants. If I had to do this again, I would like to have been able to start contacting people sooner to have a firm list of people by the time I started data-collection. However, this is not an option in the Brandman dissertation process in order to protect the participants, Brandman University, and the researcher. Brandman University's Internal Review Board (BUIRB) reviews all dissertations to ensure safeguards are in place for the ethical treatment of participants and an understanding of any risks or benefits. Doing a Delphi study, it was also important that the anonymity of participants be protected.

In conducting this study, I learned that it was important to stay organized. Research that may not have seemed important at first glance could help later in the study, but only if I could find where I had originally found it. Something else I learned was that having the support of multiple references helped to strengthen my position by letting me know I was on the right track. It helped in the choice for my dissertation to look at practices of cohesive teams rather than trying to measure them. There were quite a few studies on measuring cohesion but there was no consensus on what worked best. I also needed to have research that was current, especially in studying virtual teams where technology has seen rapid changes.

The biggest thing I learned in this dissertation process was to be flexible and open to new ideas. There were many changes in this study from the time it was a prospectus to the final proposal defense. I had to rely on the insight of experts who were there to help me be successful. I needed faith in my abilities to use what I have learned and to trust the process.

On a final note, as a leader, it is my responsibility to bring about transformational change. To do that, I have to be open to possibilities around me. I need to ask questions and listen, really listen. To be successful, I have to help others succeed remembering always as Mahatma Gandhi said, to "Be the change that you wish to see in the world."

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APPENDICES

APPENDIX A

Group Environmental Questionnaire (GEQ)

Group Environment Questionnaire (GEQ)

Name: _____   Team: _____   Date: _____

This questionnaire is designed to assess your perceptions of your team. There are no wrong or right answers, so please give your immediate reaction. Some of the questions may seem repetitive, but please answer ALL questions. Your personal responses will be kept in strictest confidence.

The following statements are designed to assess your feelings about YOUR PERSONAL INVOLVEMENT with this team. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of these statements.

1. I do not enjoy being a part of the social activities of this team.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

2. I'm not happy with the amount of playing time I get.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

3. I am not going to miss the members of this team when the season ends.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

4. I'm unhappy with my team's level of desire to win.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

5. Some of my best friends are on this team.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

6. This team does not give me enough opportunities to improve my personal performance.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

7. I enjoy other parties rather than team parties.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

8. I do not like the style of play on this team.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

9. For me, this team is one of the most important social groups to which I belong.

    1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

The following statements are designed to assess your perceptions of YOUR TEAM AS A WHOLE. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of these statements.

10. Our team is united in trying to reach its goals for performance.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

11. Members of our team would rather go out on their own than get together as a team.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

12. We all take responsibility for any loss or poor performance by our team.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

13. Our team members rarely party together.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

14. Our team members have conflicting aspirations for the team's performance.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

15. Our team would like to spend time together in the off season.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

16. If members of our team have problems in practice, everyone wants to help them so we can get back together again.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

17. Members of our team do not stick together outside of practice and games.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

18. Our team members do not communicate freely about each athlete's responsibilities during competition or practice.

   1   2   3   4   5   6   7   8   9
   Strongly   Strongly
   Disagree   Agree

APPENDIX B

Work Team Cohesiveness Scale (WTCS)

Item 1: Our unified understanding of the team mission is a large part of what draws us together.

Item 2: Our team is united in trying to reach its goals for performance.

Item 3: Members of the team genuinely like one another.

Item 4: Members of my team work collaboratively to achieve the team's objectives.

Item 5: Team members spend a good deal of time talking about the team's tasks and goals.

Item 6: My team socializes regularly outside of work.

Item 7: I socialize with some members more than others within the team. (R)

Item 8: I consider my work team a distinct entity within the broader organization.

Item 9: Others within the organization recognize my work team as a distinct entity.

Item 10: Problem solving within the team is an open and collaborative process.

Item 11: The team collectively enjoys the challenge of meeting its goals.

Item 12: Our team members have conflicting aspirations for the team's performance. (R)

Item 13: I'm unhappy with my team's level of desire to perform at its best. (R)

(Davenport, 2013)

Multidimensional Team Cohesiveness Scale (MTCS)

Multidimensional Team Cohesion Scale (MTCS)

Task Cohesion - Horizontal Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
I am content with the tasks that I do within the team.	☐	☐	☐	☐	☐	☐	☐
The team provides me with good opportunities to improve my skills.	☐	☐	☐	☐	☐	☐	☐
I do not feel that my peers in the team adequately support me in achieving my tasks.	☐	☐	☐	☐	☐	☐	☐
I am comfortable with the time demands placed on me within the team to achieve my objectives.	☐	☐	☐	☐	☐	☐	☐
I am willing to take on new tasks within the team.	☐	☐	☐	☐	☐	☐	☐
I am satisfied with the way the team progresses with tasks.	☐	☐	☐	☐	☐	☐	☐
I value the other members in the team.	☐	☐	☐	☐	☐	☐	☐
I am satisfied with the team's accomplishments	☐	☐	☐	☐	☐	☐	☐
I do not feel a sense of belonging to the team.	☐	☐	☐	☐	☐	☐	☐
I am strongly committed to the mission of the team.	☐	☐	☐	☐	☐	☐	☐
I have confidence in the equipment and technology that support us.	☐	☐	☐	☐	☐	☐	☐
I have confidence in the skills and abilities of my peers within the team.	☐	☐	☐	☐	☐	☐	☐
My peers help me develop new skills within the team.	☐	☐	☐	☐	☐	☐	☐
I try to avoid missing a team meeting.	☐	☐	☐	☐	☐	☐	☐

Members of the team share the same levels of commitment in conducting the task of the team.	☐	☐	☐	☐	☐	☐	☐
Members of the team enjoy the tasks conducted.	☐	☐	☐	☐	☐	☐	☐
Members of the team are comfortable with the time demands placed on them to achieve their targets.	☐	☐	☐	☐	☐	☐	☐
Members of the team are willing to take on new tasks within the team.	☐	☐	☐	☐	☐	☐	☐
Members of the team are unsatisfied with the way the team progresses with tasks.	☐	☐	☐	☐	☐	☐	☐
We help each other develop new skills within the team.	☐	☐	☐	☐	☐	☐	☐
Members of the team help each other in their tasks through sharing information.	☐	☐	☐	☐	☐	☐	☐
Team members (usually) feel free to share information.	☐	☐	☐	☐	☐	☐	☐
Team members provide each other with encouragement in completing their tasks.	☐	☐	☐	☐	☐	☐	☐
Team members are receptive to feedback and criticism from peers.	☐	☐	☐	☐	☐	☐	☐
There is a lot of teamwork and co-operation among team members.	☐	☐	☐	☐	☐	☐	☐
Team members generally agree on team goals.	☐	☐	☐	☐	☐	☐	☐
Team members generally agree on what to do to reach our team goals.	☐	☐	☐	☐	☐	☐	☐
Communication between team members is clear.	☐	☐	☐	☐	☐	☐	☐
The team does not work well together to overcome obstacles the team is facing.	☐	☐	☐	☐	☐	☐	☐
The team provides me with the opportunity to improve my personal performance.	☐	☐	☐	☐	☐	☐	☐

(State-Davey, 2009)

Task Cohesion - Vertical Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
I value the feedback that my immediate superior gives me.	☐	☐	☐	☐	☐	☐	☐
I am receptive to feedback and criticism from my immediate superior.	☐	☐	☐	☐	☐	☐	☐
I am confident in my superior's ability to do their job.	☐	☐	☐	☐	☐	☐	☐
I do not feel my immediate superior knows their job.	☐	☐	☐	☐	☐	☐	☐
I have confidence in my immediate superior.	☐	☐	☐	☐	☐	☐	☐
I have confidence in the decisions made by my immediate superior.	☐	☐	☐	☐	☐	☐	☐
My immediate superior is committed to the long term success of the team.	☐	☐	☐	☐	☐	☐	☐
Communication from my immediate superior is clear.	☐	☐	☐	☐	☐	☐	☐
There are clear boundaries between my superior and team members.	☐	☐	☐	☐	☐	☐	☐
My superior is critical to the success of the team.	☐	☐	☐	☐	☐	☐	☐
I feel my immediate superior helps me to develop my skills within the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superiors do not share a common direction.	☐	☐	☐	☐	☐	☐	☐
I feel that my superior provides me with adequate guidance in my tasks.	☐	☐	☐	☐	☐	☐	☐
My superior freely shares information with me to support my tasks.	☐	☐	☐	☐	☐	☐	☐
My superior does not provide me with encouragement in my tasks.	☐	☐	☐	☐	☐	☐	☐
I am unclear about what my superior expects of me.	☐	☐	☐	☐	☐	☐	☐
Team members are receptive to feedback from our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior usually gives willing and wholehearted co-operation to team members.	☐	☐	☐	☐	☐	☐	☐
Team members have confidence in our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Team members do not have confidence in the decisions made by our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Team members are unhappy with the guidance provided by our superior.	☐	☐	☐	☐	☐	☐	☐
Team members believe that our superior is committed to the long-term success of the team.	☐	☐	☐	☐	☐	☐	☐
Team members do not feel that our superior is critical to the success of the team.	☐	☐	☐	☐	☐	☐	☐
Team members feel that our superior provides clear communication to the team.	☐	☐	☐	☐	☐	☐	☐
Team members are content with the level of encouragement provided by our superior in completing our tasks.	☐	☐	☐	☐	☐	☐	☐
Team members value our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Team members do not value the feedback provided by our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Most team members are clear about what our superior expects of them.	☐	☐	☐	☐	☐	☐	☐

(State-Davey, 2009)

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Social Cohesion - Horizontal Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
I am good friends with my peers in the team.	☐	☐	☐	☐	☐	☐	☐
This team is an important social unit for me.	☐	☐	☐	☐	☐	☐	☐
I enjoy my social interactions within this team.	☐	☐	☐	☐	☐	☐	☐
I enjoy working with the individuals within this team.	☐	☐	☐	☐	☐	☐	☐
If the team was to disband, I would not miss my contact with the other team members.	☐	☐	☐	☐	☐	☐	☐
I enjoy the opportunity to share experiences with the others in the team.	☐	☐	☐	☐	☐	☐	☐
The social interactions that I have in the team are important to me.	☐	☐	☐	☐	☐	☐	☐
I want to remain a member of the team.	☐	☐	☐	☐	☐	☐	☐
I like being part of the team.	☐	☐	☐	☐	☐	☐	☐
I feel a part of what happens in the team.	☐	☐	☐	☐	☐	☐	☐
I feel included in the team.	☐	☐	☐	☐	☐	☐	☐
Compared to other teams I know of, I feel my team is better than most.	☐	☐	☐	☐	☐	☐	☐
I feel it would make a difference to the team if I were not here.	☐	☐	☐	☐	☐	☐	☐
I do not feel that I am a member of the team.	☐	☐	☐	☐	☐	☐	☐
I am enthusiastic about the team.	☐	☐	☐	☐	☐	☐	☐
When I joined the team, other members of the team went out of their way to help me learn how to do my job effectively.	☐	☐	☐	☐	☐	☐	☐
I often go out of my way to help others in the team.	☐	☐	☐	☐	☐	☐	☐
I am proud to be part of the team.	☐	☐	☐	☐	☐	☐	☐

I am proud of my team.	☐	☐	☐	☐	☐	☐	☐
I feel what I do in my team is worthwhile.	☐	☐	☐	☐	☐	☐	☐
My peers make me feel an accepted member of the team.	☐	☐	☐	☐	☐	☐	☐
I feel I can go to most of the members of my team when I have a personal problem.	☐	☐	☐	☐	☐	☐	☐
I do not socialise with my team members.	☐	☐	☐	☐	☐	☐	☐
We are all good friends in this team.	☐	☐	☐	☐	☐	☐	☐
Members of the team do not see the team as an important social unit.	☐	☐	☐	☐	☐	☐	☐
A valuable aspect of the team is our social interactions.	☐	☐	☐	☐	☐	☐	☐
Team members enjoy each others company.	☐	☐	☐	☐	☐	☐	☐
Members of the team regularly socialise together.	☐	☐	☐	☐	☐	☐	☐
We spend time socialising with each other before and after conducting our task.	☐	☐	☐	☐	☐	☐	☐
Members of the team regularly share their experiences with one another.	☐	☐	☐	☐	☐	☐	☐
Members of the team usually work out their disagreements.	☐	☐	☐	☐	☐	☐	☐
Members of the team feel very close to one another.	☐	☐	☐	☐	☐	☐	☐
Members of the team look out for each other.	☐	☐	☐	☐	☐	☐	☐
My closest friendships are with the team members that I work with.	☐	☐	☐	☐	☐	☐	☐
In spite of individual differences, feelings of togetherness exist in the team.	☐	☐	☐	☐	☐	☐	☐
Team members would not miss the social contact in the team if it were to disband.	☐	☐	☐	☐	☐	☐	☐
The team is closely knit.	☐	☐	☐	☐	☐	☐	☐
Team members are not proud to be part of the team.	☐	☐	☐	☐	☐	☐	☐

(State-Davey, 2009)

Social Cohesion - Vertical Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
My immediate superior is a good role model to me.	☐	☐	☐	☐	☐	☐	☐
My immediate superior does not take an interest in my personal welfare.	☐	☐	☐	☐	☐	☐	☐
My immediate superior is interested in what I think about things.	☐	☐	☐	☐	☐	☐	☐
My immediate superior is not interested in the way I feel about things.	☐	☐	☐	☐	☐	☐	☐
My immediate superior talks to me personally outside normal duties.	☐	☐	☐	☐	☐	☐	☐
I socialise with my immediate superior on a regular basis.	☐	☐	☐	☐	☐	☐	☐
I do not share my experiences with my superior.	☐	☐	☐	☐	☐	☐	☐
I feel close to my immediate superior.	☐	☐	☐	☐	☐	☐	☐
When I joined the team, I feel that my immediate superior went out of his way to help me fit in.	☐	☐	☐	☐	☐	☐	☐
My immediate superior looks out for me.	☐	☐	☐	☐	☐	☐	☐
I do not feel that my superior is there for me when I need advice.	☐	☐	☐	☐	☐	☐	☐
I am friends with my immediate superior.	☐	☐	☐	☐	☐	☐	☐
I don not get on socially with my immediate superior.	☐	☐	☐	☐	☐	☐	☐
I am proud to be working with my immediate superior.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior is not a good role model to team members.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior is interested in the personal welfare of team members.	☐	☐	☐	☐	☐	☐	☐
Team members do not get on socially with our immediate superior.	☐	☐	☐	☐	☐	☐	☐

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
Our immediate superior socialises with us outside of normal duty hours.	☐	☐	☐	☐	☐	☐	☐
Team members regularly share their experiences with our superior.	☐	☐	☐	☐	☐	☐	☐
Team members do not feel close to our superior.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior goes out of his way to help team members to feel happy within the team.	☐	☐	☐	☐	☐	☐	☐
Team members do not feel that our immediate superior looks out for them.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior does not provide team members with advice when they need it.	☐	☐	☐	☐	☐	☐	☐
Team members are friends with our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior does not care about the people in the team.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior takes an interest in the way team members feel about things.	☐	☐	☐	☐	☐	☐	☐
Team members are proud to be working with our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior never asks team members how they are feeling.	☐	☐	☐	☐	☐	☐	☐

Valued Roles - Horizontal Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
I am happy with my role in the team.	☐	☐	☐	☐	☐	☐	☐
My peers within the team support me in my role.	☐	☐	☐	☐	☐	☐	☐
I am unclear about my role within the team.	☐	☐	☐	☐	☐	☐	☐
I am proud to be conducting my role within the team.	☐	☐	☐	☐	☐	☐	☐
My superior clearly describes what my role entails within the team.	☐	☐	☐	☐	☐	☐	☐

(State-Davey, 2009)

I understand how my role fits within the team.	☐	☐	☐	☐	☐	☐	☐
I do not understand how my role contributes to the goals of the team.	☐	☐	☐	☐	☐	☐	☐
I do not know what the roles of other team members are.	☐	☐	☐	☐	☐	☐	☐
I feel I am adequately rewarded for my contributions to the team.	☐	☐	☐	☐	☐	☐	☐
I feel that the other members of the team value my role within the team.	☐	☐	☐	☐	☐	☐	☐
I feel that my fellow team members help me to develop competencies to fulfil my role.	☐	☐	☐	☐	☐	☐	☐
I do not feel that my contributions to the team are valued by my fellow team members.	☐	☐	☐	☐	☐	☐	☐
I feel I have sufficient opportunity to develop my role within the team.	☐	☐	☐	☐	☐	☐	☐
I feel that my team provides adequate feedback on my performance.	☐	☐	☐	☐	☐	☐	☐
Members of the team are happy with their roles.	☐	☐	☐	☐	☐	☐	☐
Members of the team generally seem as though they receive sufficient support in their role.	☐	☐	☐	☐	☐	☐	☐
Members of the team understand how their role contributed to the goals of the team.	☐	☐	☐	☐	☐	☐	☐
Members of the team are clear about their role within the team.	☐	☐	☐	☐	☐	☐	☐
Team members are proud of their roles within the team.	☐	☐	☐	☐	☐	☐	☐
Team members do not understand how their role fits within the team.	☐	☐	☐	☐	☐	☐	☐
Team members understand each others roles.	☐	☐	☐	☐	☐	☐	☐
Team members do not feel adequately rewarded for their contribution to the team.	☐	☐	☐	☐	☐	☐	☐
Team members value each others roles within the team.	☐	☐	☐	☐	☐	☐	☐
Team members help each other to develop competencies to fulfil their roles.	☐	☐	☐	☐	☐	☐	☐

Members of the team do not value the contributions made by other team members.	☐	☐	☐	☐	☐	☐	☐
Members of the team feel that they have sufficient opportunity to develop their role within the team.	☐	☐	☐	☐	☐	☐	☐
Members of the team provide adequate feedback to one another regarding their individual performance.	☐	☐	☐	☐	☐	☐	☐

Valued Roles - Vertical Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
I do not feel that my superior adequately supports me in my role.	☐	☐	☐	☐	☐	☐	☐
I do not feel I receive sufficient feedback from my superior to support my role.	☐	☐	☐	☐	☐	☐	☐
My superior does not help me understand my role within the team.	☐	☐	☐	☐	☐	☐	☐
I am unclear about what my immediate superior expects of me within the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superior helps me to understand how my role fits within the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superior helps me understand how my role contributes to the goals of the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superior does not describe to me what my role is within the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superior ensures I understand the roles of other team members.	☐	☐	☐	☐	☐	☐	☐
My immediate superior adequately rewards me for my contribution to the team.	☐	☐	☐	☐	☐	☐	☐
I do not feel that my immediate superior values my role within the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superior helps me to enhance my competencies to fulfil my role.	☐	☐	☐	☐	☐	☐	☐
I feel that my immediate superior values the contributions I make to the team.	☐	☐	☐	☐	☐	☐	☐

(State-Davey, 2009)

Unity of Purpose - Horizontal Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
I share similar beliefs (for example, sharing the same opinions about people or ideas whether positive or negative) as my team members.	☐	☐	☐	☐	☐	☐	☐
I do not share similar same values (i.e. similar fundamental principles) as my team members.	☐	☐	☐	☐	☐	☐	☐
The rules in the team make good sense to me.	☐	☐	☐	☐	☐	☐	☐
I feel that my immediate superior treats people fairly.	☐	☐	☐	☐	☐	☐	☐
I clearly understand the goals of the team.	☐	☐	☐	☐	☐	☐	☐
I have shared similar experiences with others in the team.	☐	☐	☐	☐	☐	☐	☐
I do not feel that the team works together to achieve the goals of the team.	☐	☐	☐	☐	☐	☐	☐
I feel that the team sticks together in pursuit of its goals despite any tensions that arise within the team.	☐	☐	☐	☐	☐	☐	☐
I feel that I am encouraged to express my opinions within the team.	☐	☐	☐	☐	☐	☐	☐
I share the same way of thinking with my fellow team members about how to achieve the goals of the team.	☐	☐	☐	☐	☐	☐	☐
Members of the team share similar beliefs (for example, sharing the same opinions about people of ideas whether positive or negative) as one another.	☐	☐	☐	☐	☐	☐	☐
Members of the team share similar values (i.e. similar fundamental principles) as one another.	☐	☐	☐	☐	☐	☐	☐
Members of the team do not work towards the same goal.	☐	☐	☐	☐	☐	☐	☐
Team members do not have a shared understanding of the goals of the team.	☐	☐	☐	☐	☐	☐	☐
There is a sense of shared purpose within the team.	☐	☐	☐	☐	☐	☐	☐
Team members share the same way of thinking about how to achieve the goals of the team.	☐	☐	☐	☐	☐	☐	☐

Members of the team have shared similar experiences.	☐	☐	☐	☐	☐	☐	☐
Members of the team work well together to achieve the goals of the team.	☐	☐	☐	☐	☐	☐	☐
Team members feel that the team sticks together in pursuit of its goals despite any tensions that arise within the team.	☐	☐	☐	☐	☐	☐	☐
Team members encourage one another to express their opinions within the team.	☐	☐	☐	☐	☐	☐	☐
The rules in the team do not make sense to team members.	☐	☐	☐	☐	☐	☐	☐

Unity of Purpose - Vertical Aspects

	Strongly Agree	Agree	Slightly Agree	Don't Know	Slightly Disagree	Disagree	Strongly Disagree
My immediate superior sets me clear goals to work towards.	☐	☐	☐	☐	☐	☐	☐
My immediate superior instils a sense of shared purpose within the team.	☐	☐	☐	☐	☐	☐	☐
I have shared similar experiences with my immediate superior.	☐	☐	☐	☐	☐	☐	☐
I share similar values (i.e. similar fundamental principles) with my immediate superior.	☐	☐	☐	☐	☐	☐	☐
I do not share similar beliefs (for example, sharing the same opinions about people of ideas whether positive or negative) with my immediate superior.	☐	☐	☐	☐	☐	☐	☐
I feel that my immediate superior succeeds in helping the team work towards achieving its goals.	☐	☐	☐	☐	☐	☐	☐
My immediate superior helps to resolve any tensions that arise in the team to ensure it sticks together in pursuit of its goals.	☐	☐	☐	☐	☐	☐	☐
My immediate superior encourages me to express my opinions within the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superior does not share the same goals as the team.	☐	☐	☐	☐	☐	☐	☐
My immediate superior sets clear rules within the team.	☐	☐	☐	☐	☐	☐	☐

(State-Davey, 2009)

Our immediate superior shares similar beliefs (for example, sharing the same opinions about people of ideas whether positive or negative) as members of the team.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior shares similar values (i.e. similar fundamental principles) as members of the team.	☐	☐	☐	☐	☐	☐	☐
Our immediate superior does not set clear goals for the team to work towards.	☐	☐	☐	☐	☐	☐	☐
Team members have shared similar experiences with our immediate superior.	☐	☐	☐	☐	☐	☐	☐
Team members have a shared sense of purpose within the team.	☐	☐	☐	☐	☐	☐	☐
Team members feel that our immediate superior does not succeed in helping the team work towards achieving its goals.	☐	☐	☐	☐	☐	☐	☐
Team members feel that our immediate superior helps to resolve any tensions that arise in the team to ensure it sticks together in pursuit of its goals.	☐	☐	☐	☐	☐	☐	☐
Team members do not feel that our immediate superior encourages them to express their opinions within the team.	☐	☐	☐	☐	☐	☐	☐
Team members feel that our immediate superior shares the same goals as the team.	☐	☐	☐	☐	☐	☐	☐
Team members feel that our immediate superior sets clear rules within the team.	☐	☐	☐	☐	☐	☐	☐

(State-Davey, 2009)

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Cohesion Commonalities and Factor Loading

Communalities and Factor Loadings

Item	Factor 1	Factor 2	Factor 3	Factor 4	General F	h^2 1st	h^2 G	h^2 Total
1. As team members we coordinate efficiently	.553	-.040	.050	-.033	.711	.311	.506	.817
2. Our team engages in successful problem solving	.549	.033	-.053	-.020	.690	.306	.477	.782
3. My team really wants to meet its objectives successfully	.547	-.012	-.056	.028	.633	.303	.400	.633
4. People on my team encourage each other to work as a team	.543	-.003	.017	-.016	.700	.295	.489	.784
5. In my work team valuable resources (expertise) are used effectively	.534	-.052	-.028	-.032	.624	.290	.389	.679
6. People on my team emphasise team goal	.525	-.039	-.004	-.003	.629	.277	.396	.673
7. Our team develops appropriate recommendations	.524	-.056	-.012	-.078	.634	.264	.402	.686
8. People on my team encourage each other to give their best effort	.523	.036	.057	.069	.706	.283	.498	.781
9. The team is committed to the goals of the task	.521	-.042	.008	.035	.618	.274	.381	.656
10. My team is able to respond to unusual work demands placed on it	.512	.086	-.055	.108	.642	.264	.412	.696
11. Our team monitors activities in our area of operations	.512	-.055	-.069	.052	.536	.272	.288	.560
12. The team focuses appropriate effort on the task	.500	.021	-.010	.099	.607	.260	.369	.629
13. Our team is united in trying to reach its goals for performance	.492	-.004	-.077	-.002	.565	.248	.319	.567
14. We respond flexibly to many types of problems	.488	.019	.012	-.011	.643	.238	.413	.652
15. People in the team cooperate in order to help develop and apply new ideas	.481	.040	.049	-.047	.690	.238	.476	.714
16. In my department we make good decisions	.470	-.063	.041	-.051	.589	.229	.346	.576
17. In problem solving, we use different perspectives	.461	.054	-.105	-.089	.584	.234	.341	.575
18. I believe our team communicates effectively	.460	-.017	.185	-.068	.720	.251	.519	.770
19. In our team we develop an understanding of new team members' capabilities	.445	.045	-.070	-.149	.601	.227	.361	.588
20. People on my team exchange opinions and ideas	.429	.064	.145	-.089	.725	.217	.525	.742
21. I am able to work with my co-workers to collectively solve problems	.422	.040	.070	-.122	.656	.199	.430	.630
22. People I work with are helpful in getting the job done	.421	.105	.111	.004	.693	.201	.480	.681
23. In our department, we have a 'we are in it together' attitude	.402	.042	.124	-.060	.649	.182	.421	.604
24. People I work with are competent in doing their jobs	.402	.000	.111	.028	.575	.174	.330	.505
25. The people I work with encourage each other to work together	.393	.111	.128	.004	.674	.183	.454	.637
26. In my workplace, we overcome cultural differences in work practices	.362	.067	-.027	-.135	.538	.154	.289	.443

(Von Treuer, Fuller-Tyzkiewicz, & Atkinson, 2010)

Item	Factor 1	Factor 2	Factor 3	Factor 4	General F	h^2 1st	h^2 G	h^2 Total
27. We always integrate new team members	.361	-.001	.063	-.110	.537	.147	.288	.435
28. I have trust and confidence in the people on my team	.359	.112	.235	-.066	.731	.201	.534	.735
29. Information about important events and situations is shared within my team	.357	.106	.086	-.117	.636	.160	.405	.565
30. There is lots of give and take among people I work with	.341	.107	.120	-.031	.611	.143	.374	.517
31. Our team members have conflicting aspirations for the team's performance	.331	-.102	.245	.142	.457	.200	.209	.408
32. People are generally frank about how they feel	.303	.122	-.111	.096	.372	.128	.138	.267
33. Our team can overcome language barriers	.294	.015	-.052	-.165	.403	.116	.163	.279
34. People go out of their way to help a new employee feel comfortable	.288	.104	-.017	-.108	.472	.105	.223	.328
35. We identify and resolve conflicts within our team successfully	.283	.059	.259	-.174	.645	.181	.416	.597
36. This team does not give me enough opportunities to improve my personal performance	.263	.003	.157	.148	.394	.116	.155	.271
37. I'm unhappy with my team's level of commitment to the task	.250	-.070	.232	.246	.337	.182	.113	.295
38. People in the team never feel tense with one another	.235	-.031	.204	-.014	.419	.098	.175	.273
39. I could become close friends with my co-workers	.029	.663	-.045	.180	.482	.475	.233	.707
40. I have formed strong friendships at work	.034	.635	-.112	-.243	.564	.476	.318	.794
41. I socialise with co-workers outside of the workplace	-.074	.621	-.054	-.107	.409	.405	.168	.573
42. Some of my best friends are in this team	.031	.611	-.269	.004	.346	.446	.120	.566
43. I think people on this team could be friends of mine	.115	.559	-.022	.255	.498	.391	.248	.639
44. Being able to see my co-workers is one reason why I look forward to my job	.045	.557	.089	-.084	.565	.321	.320	.641
45. I can confide in people at work	.072	.536	.005	-.061	.552	.297	.304	.601
46. I do not feel that anyone I work with is a true friend	.041	.514	.101	-.038	.553	.277	.305	.583
47. My colleagues would be pleasant to be with outside of work	.088	.460	.288	.143	.603	.297	.363	.660
48. I have the opportunity to develop close friendships at my work place	.020	.448	.115	-.384	.601	.362	.362	.724
49. For me this team is one of the most important social groups to which I belong	-.002	.444	-.049	-.016	.330	.200	.109	.309
50. People I work with take a personal interest in me	.152	.440	.185	-.125	.722	.267	.521	.788
51. I feel I can trust many co-workers a great deal	.138	.436	.146	-.133	.676	.246	.458	.706
52. Employees rarely do things together after work	-.139	.436	.146	-.005	.283	.230	.080	.310
53. I would like to have a friendly chat with people on my team	.124	.432	.082	.122	.524	.223	.274	.498

(Von Treuer, Fuller-Tyzkiewicz, & Atkinson, 2010)

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Communalities and Factor Loadings

Item	Factor 1	Factor 2	Factor 3	Factor 4	General F	h^2 1st	h^2 G	h^2 Total
54. My co-workers care about me	.158	.412	.185	-.119	.704	.243	.496	.739
55. I would not like to spend time socialising with co-workers	.008	.377	.376	.211	.501	.328	.251	.579
56. People take a personal interest in each other.	.116	.368	.146	-.108	.585	.182	.342	.523
57. Employees often talk to each other about their personal problems	.019	.367	.073	-.046	.388	.143	.151	.293
58. My colleagues just would not fit into my circle of friends	.058	.347	.345	.061	.428	.246	.184	.430
59. Co-workers on my team are sociable with me	.154	.341	.219	.071	.600	.193	.360	.553
60. I have the opportunity to get to know my co-workers	.170	.340	.110	-.321	.677	.260	.458	.718
61. Employees often eat lunch together	.040	.266	-.038	-.163	.296	.100	.088	.188
62. Some colleagues are not very friendly	-.010	-.025	.594	.030	.371	.354	.137	.491
63. Often people make trouble by talking behind each other's backs	.096	-.050	.529	-.048	.466	.294	.218	.512
64. Employees who differ greatly from the others in the department don't get on well	.007	.003	.483	-.176	.407	.264	.166	.431
65. I am exposed to hostility and conflict from the people I work with	.093	-.036	.442	-.117	.436	.219	.190	.408
66. People on our team could never establish a personal friendship with each other	-.001	.186	.439	.128	.413	.244	.170	.415
67. In my team, my co-workers are unpleasant to be around	.060	.039	.431	-.062	.428	.195	.184	.379
68. It would be difficult to meet and talk with some people on my team	.061	.003	.419	-.039	.385	.181	.148	.329
69. People I work with are friendly	.131	.172	.397	-.178	.643	.236	.413	.649
70. The work atmosphere is somewhat impersonal	.010	.210	.384	-.121	.493	.207	.243	.450
71. My co-workers are easy to get along with	.231	.153	.335	.092	.619	.198	.383	.581
72. There are consistently harmonious relationships between people in the team	.131	.095	.268	-.060	.450	.102	.203	.304
73. In my department, I have the chance to talk informally and visit with others	.109	.116	.131	-.523	.501	.316	.251	.568
74. Informal talk is tolerated by my department as long as the work is completed	.102	.004	.156	-.518	.417	.303	.174	.478
75. Communication among employees is encouraged by my department	.197	.070	.105	-.480	.542	.285	.294	.579

Sum of squared loadings	Factor 1		Factor 2	Factor 3		Factor 4		General F	Total
H2	7.584		5.466	3.307		1.846		23.593	41.795
%	18.1		13.1	7.9		4.4		56.4	
Cronbach's alpha	.98		.95	.88		.83		.98	
Percentage of extracted variance explained by the general factor	56.4%								
Percentage of extracted variance explained by first-order factors	43.6%								

(Von Treuer, Fuller-Tyzkiewicz, & Atkinson, 2010)

Provisional Measures of Cohesion

Item	Corresponding feature	Operates at individuals level or group as a whole
I trust that people in my workgroup will be honest	Trust	Individual
I trust that people in my workgroup will be competent	Trust	Individual
In this workgroup, the manager trusts that people in this workgroup will complete their tasks effectively	Trust	Group
I feel that people in my workgroup will help one another during stressful times	Altruism towards members	Group
I feel that people in this workgroup are willing to sacrifice their own needs to help the group	Altruism towards members	Group
People in my workgroup greet each other warmly	Friendly environment	Group
People in my workgroup are willing to share their private life or feelings to one another	Friendly environment	Group
I feel like I really belong to this workgroup	Belonging	Individual
I feel like an integral member of this workgroup	Belonging	Individual
I feel that people in this workgroup share important similarities with one another	Identification with group members	Group
I feel a sense of connection with people in this workgroup	Identification with group members	Individual
People in this workgroup have shared many emotional experiences together, such as challenging, upsetting, or enjoyable occasions	Bonding	Group
People in this workgroup work in close proximity to one another	Bonding	Group
People in this workgroup enjoy the company of one another	Camaraderie	Group
I like socializing with people in this workgroup	Camaraderie	Individual
People in this workgroup share important information with one another	Open communication between group members	Group
To reach important decisions, people in this workgroup consult one another extensively	Open communication between group members	Group
People in this workgroup share a common goal and purpose	Share a common purpose	Group
People in this workgroup share a common set of values	Share a common purpose	Group
My colleagues are passionate about the goals and objectives of this workgroup	Commitment to the objectives	Group
I feel passionate about the goals and objectives of this workgroup	Commitment to the objectives	Individual
The leaders of this workgroup highlight our achievements and capabilities to other individuals	Supportive leaders	Group
The leaders of this workgroup are encouraging and inspiring	Supportive leaders	Group
The leaders of this workgroup clarify our goals and purpose in the organization	Supportive leaders	Group
In this workgroup, people feel excited whenever one of their colleagues achieves some goal or excels on some task	Group pride	Group
In this workgroup, people feel proud of the role and achievements of this team	Group pride	Group
This workgroup often achieves challenging goals and targets	Workgroup efficacy	Group
People in this workgroup respect the qualities and attributes of one another	Respect of group members	Group
I feel respected by people in this group	Respect of group members	Individual

(von Treuer, Fuller-Tyszkiewicz, McLeod, & Hamilton, 2013)

Factors of Cohesion

Coded Feature of Cohesion	% of participants who alluded to this facet
Camaraderie	89
Altruism towards members	79
Supportive leaders	79
Commitment to the objectives	71
Respect of group members	61
Open communication between group members	61
Share common purpose	54
Identification with group members	54
Bonding	46
Trust	43
Group efficacy and success	43
Workplace friendliness	39
Sense of belonging	36
Group pride	29

(von Treuer, K., Fuller-Tyszkiewicz, M., Moss, S., McLeod, J., & Hamilton, S., 2013)

APPENDIX G

Synthesis Matrix

Author		Reference	Definitions	Team/group	Cohesion	Social Cohesion	Task Cohesion	Behaviors	Performance/Productivity	Benefits-Learning/Development/Size	Leadership	Scale	Virtual Teams	Drawbacks	Industrial-Organizational Psychology
Abel, 2000	D	Abel, A. T. (2000). *The characteristics, behaviors, and effective work environments of servant leadership: A Delphi Study.* (Doctoral Dissertation), Virginia Tech. Retrieved from https://vtechworks.lib.vt.edu/bitstream/handle/10919/29753/Abel.pdf?sequence=1&isAllowed=y							x						
Ackerman Anderson & Anderson, 2010	B	Ackerman Anderson, L. & Anderson, D. (2010). *The change leader's roadmap: How to navigate your organization's transformation* (2nd ed.). San Francisco, CA: Pfeiffer								x					
Adrian, 2008	A	Adrian, N. (2008). Small business, Big feast. *Quality Progress, 41*(7), 40-43							x	x	x				
Anderson & Ackerman-Anderson, 2010	B	Anderson, D., & Ackerman Anderson, L. (2010). *Beyond change management: How to achieve breakthrough results through conscious change leadership.* (2nd ed.). San Francisco, CA: Pfeiffer.			x	x									
Anderson, McEwan, Bal, & Carletta, 2007	A	Anderson, A., McEwan, R., Bal, J., & Carletta, J. (2007). Virtual team meetings: An analysis of communication and context. *Computers in Human Behavior, 23*(5), 2558-2580.												x	
Andrews, 2012	D	Andrews, D. S. (2012). *Leadership and team effectiveness* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Order No. 1112275126)	x	x					x	x	x	x			
Aoyagi, Cox, & McGuire, 2008	A	Aoyagi, M.W., Cox, R.H., McGuire, R.T. (2008). Organizational citizenship behavior in sport: Relationships with leadership, team cohesion, and athlete satisfaction. *Journal of Applied Sport Psychology, 20:* 25-41	x												
Aksu, 2009	M M	Aksu, D. (2009). Virtual and multicultural teams of IBM. Retrieved December 10, 2012, from: http://www.slideshare.net/aksudevrim/virtual-and-multicultural-teams-of-ibm-2615733 -btnNext	x												
Attaran & Attaran, 2003	A	Attaran, M., & Attaran, S. (2003). The coming of age of virtual teaming: Guidelines for managers. *International Journal of Management, 20*(2), 171.		x											
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Salas, Grossman, Hughes, & Coultas, 2015	A	Salas, E., Grossman, R., Hughes, A. M., & Coultas, C. W. (2015). Measuring team cohesion: Observations from the science. *Human Factors, 57*(3), 365-374. doi:10.1177/0018720815578267		X	X	X	X		X					X	
Snowdeal-Carden, 2013	D	Snowdeal-Carden, B. (2013). *Investigating team cohesion in COCOMO II.2000* (Doctoral Dissertation). Retrieved from ProQuest Dissertations & Theses database. (Order No. 1314593212)	X	X			X	X		X		X			
Stashevsky & Koslowsky, 2006	A	Stashevsky, S., & Koslowsky, M. (2006). Leadership team cohesiveness and team performance. *International Journal of Manpower, 27*(1), 63-74. doi:10.1108/01437720610652844		X		X	X		X	X	X				
State-Davey, 2009	D	State-Davey, H. M. (2009). *The development of a multidimensional measure of cohesion for organizational work teams* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Order No. 898786967)	X	X			X	X				X			
Steers & Shapiro, 2004	A	Steers, R. M., Mowday, R. T., & Shapiro, D. L. (2004). Introduction to special topic forum: The future of work motivation theory. *The Academy of Management Review, 29*(3), 379-387.								X					
Stewart et al., 1999	B	Stewart, G. L., Manz, C. C., & Sims, H. P. (1999). *Team work and group dynamics.* New York, NY: John Wiley.	X	X	X										
Sundstrom, DeMeuse & Futrell, 1990	A	Sundstrom, E., De Meuse, K.P., & Futrell, D. (1990). Work Teams: Applications and Effectiveness, *American Psychologist, 45*(2), 120- 133. doi: 10.1037/0003-066x.45.2.120		X											
Taveira, et al., 2003	A	Taveira, A. D., James, C. A., Karsh, B.-T., & Sainfort, F. (2003). Quality management and the work environment: an empirical investigation in a public sector organization. *Applied Ergonomics, 34*(4), 281. doi:10.1016/S0003-6870(03)00054-1							X		X			X	
Volz-Peacock, 2006	D	Volz-Peacock, M. (2006). *Values and cohesiveness: A case study of a federal team* (Doctorate Dissertation). Retrieved from ProQuest Dissertations and Theses database. (Order No. 305335825)	X	X	X				X						
von Treuer, K., Fuller-Tyzkiewicz, M., & Atkinson, B., 2010	A	von Treuer, K., & Fuller-Tyzkiewicz, M. A., B. (2010). A factor-analytic study exploring the factors of co-worker cohesion. *The Australian and New Zealand Journal of Organizational Psychology, 3,* 42-53. Retrieved from: https://chapman.illiad.oclc.org/illiad/illiad.dll?Action=10 &Form=75&Value=152558	X	X									X		
Weeden, et al., 2011	A	Weeden, C., Woolley, J., & Lester, J. (2011). Cruise and learn: Reflections on a cruise field trip. *Journal of Teaching in Travel & Tourism, 11*, 349-366		X											
Wise, 2014	A	Wise, S. (2014). Can a team have too much cohesion? The dark side to network density. *European Management Journal,32,* 703-711			X				X						
Zaccaro & Lowe, 1998	A	Zaccaro, S., & Lowe, C. (1988). Cohesiveness and performance: Evidence for multidimensionality. *Journal of Social Psychology, 128*, 547-558				X	X		X						
Zivick, 2013	D	Zivick, J. (2013). *What organizational support is needed for effective virtual teams? A synthesis of evidence* (Doctoral Dissertation). Available from ProQuest Database. (Order No. 1448522937)	X	X									X		

APPENDIX H

Letter of Invitation to Participants in Survey Test

Participation and Information Request to Leaders of Virtual Teams

I am a doctoral candidate at Brandman University, Irvine, in Organizational Leadership in Education and employed at the San Diego County Office of Education. I am conducting a Delphi research study to identify the practices leaders of virtual teams use to build cohesiveness. There are two stages for this study. The first stage is the Survey test with a small group of people to help create the survey that will be used in the Delphi study. The second stage is the actual Delphi study, which will gather data to answer my research questions on building cohesiveness in virtual teams.

I am inviting you to participate in the first stage, the Survey test, to identify practices your virtual team uses to build cohesiveness. I felt that you would provide insight in practices of cohesive virtual teams.

This Survey test consists of two or possibly three rounds of online questionnaires and surveys completed during the month of January. Each round will take approximately 15-20 minutes to complete. Rounds will be administered in increments of 7-10 days. You will have the opportunity to respond to each round at your own convenience during the designated time.

To participate in this research, use this link: https://www.surveymonkey.com/r/vtleader_demographics_01_2017 to take a brief intake survey submitting your name, email, and information relevant to your experience. If you are screened in for the Survey test, you will be sent the Informed Consent Form and Research Participant's Bill of Rights accompanied by a first-round questionnaire. Be assured that your participation will be voluntary and confidential. Participants' and organization names will not be reported in the findings. Participants in the Survey test will have the opportunity to be part of the second stage, the Delphi study, if they would like. Separate information will be sent out when that stage begins.

I would be more than happy to answer any questions. Please contact me at barbthiss@gmail.com or 619-990-0223. Your participation and time in this research study is greatly appreciated.

Sincerely,

Barbara Thiss

APPENDIX I

Demographic Survey to Prospective Research Participants

Survey Link: https://www.surveymonkey.com/r/vtleader_demographics_01_2017

Demographic Survey of Leaders of Virtual Teams

My name is Barbara Thiss. I am a doctoral candidate at Brandman University, Irvine, in Organizational Leadership in Education and employed at the San Diego County Office of Education. I am conducting a Delphi research study to identify the practices leaders of virtual teams use to build cohesiveness.

You have been referred to me by someone that felt your expertise in virtual teams would be helpful in my study. This demographic survey is used to find leaders that meet the criteria of the study. Be assured that your participation is voluntary and confidential. Participants' and organization names will not be reported in the findings.

A follow-up email will be sent letting you know if you met the study criteria. Your participation and time in this research study is greatly appreciated. I would be more than happy to answer any questions you may have. Please contact me at barbthiss@gmail.com or 619-990-0223.

1. Name:
2. Phone Number:
3. Email Address:
4. Year you were born:
    a. 1900 - 1945
    b. 1946 – 1964
    c. 1965 – 1980
    d. 1981 – 2000
5. Gender:
    a. Female
    b. Male
6. Name of your organization:
7. What category best describes your organization?
    a. Agriculture, Forestry, Fishing, or Hunting
    b. Arts, Entertainment, or Recreation
    c. Broadcasting
    d. Education – College, University, or Adult
    e. Education – Primary/Secondary (K-12)
    f. Education – Other
    g. Construction
    h. Finance and Insurance

       i.   Government and Public Administration
       j.   Health Care and Social Assistance
       k. Hotel and Food Services
       l.   Information – Services and Data
       m. Information – Other
       n. Legal Services
       o. Manufacturing – Computer and Electronics
       p. Manufacturing – Other
       q. Military
       r.   Publishing
       s.   Real Estate, Rental, or Leasing
       t.   Religious
       u. Retail
       v.   Scientific or Technical Services
       w. Telecommunications
       x. Transportation and Warehousing
       y. Utilities
       z.   Wholesale
       aa. Other

8. Job Title:
9. Department/division:
10. How long have you led your virtual team(s)?
       a. Less than 1 year
       b. 1 – 2 years
       c. 3 – 5 years
       d. More than 6 years
11. Number of virtual teams you have led.
       a. 0 – 2
       b. 3 – 5
       c. 6 – 10
       d. 11 or more
12. Size of the virtual team(s)
       a. 1 – 4
       b. 5 – 10
       c. 11 – 15
       d. 16 or more
13. Was the virtual team you led geographically dispersed?
       a. Yes
       b. No

Informed Consent Form

Consent to Participate in Survey Test

**Survey Test: Identifying Practices Used to Build
Cohesive Teams in a Virtual Setting**

DATE: January 9, 2017

BRANDMAN UNIVERSITY

16355 LAGUNA CANYON ROAD

IRVINE, CA 92618

Principal Investigator: Barbara Thiss

Background: You are being invited to take part in a Survey test. Before you decide to participate in this study, it is important that you understand why the study is being done and what it will involve. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear of if you need more information.

Purpose of Study: The purpose of this Survey test is to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented. A list of practices will be gathered from leaders who have worked with virtual teams of 5 or more for longer than a year.

Study Procedures: This study will consist of three rounds of questionnaires and surveys to obtain you opinion of practices used to build cohesiveness in virtual teams. Your expected time commitment for this study is: 15-20 minutes per round based on your response time

Round 1: First round electronic questionnaire will require participants to list practices virtual teams use to build cohesiveness using factors from von Treuer et al. (2014) study.

Round 2: Responses from Round 1 will be compiled and ranked. The list of practices will be sent out in survey form where participants will state whether they feel each practice is important to building cohesive virtual teams.

Round 3: If an 80% agreement is not attained, a third survey will go out with the items from Round 2 in rank order where participants will state whether they feel each

practice is important to building cohesive virtual teams.

_____

Consent:

I understand that:

a) There are minimal risks associated with participating in this research. Participation in surveys is voluntary. The surveys should take approximately 15-20 minutes of time to fill out. All responses will be combined to develop the next round of survey consolidation. The responses are anonymous. The Researcher will protect my confidentiality by keeping the research materials in a password-protected computer that is available only to the researcher and retained for five years. No personally identifiable information (PII), (such as, names, Social Security Numbers [SSNs], e-mail addresses, Internet Protocols [IP] addresses, street addresses, telephone numbers) will be attached to the answers once they have been received from the respondent.

b) The possible benefit of this study to me is that my input may help add to the research regarding practices virtual teams from different organizations used to build their cohesive teams by providing other organizations tools they can use to build their infrastructure and potentially increase productivity and performance excellence. It will also produce findings that will be useful to universities, which have leadership and management programs and wish to expand their curriculum to include the development of cohesive teams.

c) Any questions I have concerning my participation in this study will be answered at any time by Barbara Thiss. She can be reached by email at: barbthiss@gmail.com. Her school email is: this2801@mail.brandman.edu or Dr. Shelly Neal (Dissertation Chair) at sneal@brandman.edu.

d) My participation in this research study is voluntary. I may decide to not participate in the study and I can withdraw at any time. I can also decide not to answer particular questions during the process if I so choose. I understand that I may refuse to participate or may withdraw from this study at any time without any negative consequences. Also, the Researcher may stop the study at any time.

e) No information that identifies me will be released without my separate consent and that all identifiable information will be protected to the limits allowed by law. If the

study design or the use of the data is to be changed, I will be so informed and my consent re-obtained. I understand that if I have any questions, comments, or concerns about the study or the informed consent process, I may write or call the Office of the Executive Vice Chancellor of Academic Affairs, Brandman University, at 16355 Laguna Canyon Road, Irvine, CA 92618, (949) 341-7641.

ACKNOWLEDGEMENT: I acknowledge that I have received a copy of this form and the "Research Participant's Bill of Rights."

I have read the above and understand it and hereby consent to the procedure(s) set forth.

_____   _____
Printed Name of Participant   Email Address

_____   _____
Signature of Participant   Date

_____

APPENDIX K

Bill of Rights

BRANDMAN UNIVERSITY INSTITUTIONAL REVIEW BOARD

Research Participant's Bill of Rights

Any person who is requested to consent to participate as a subject in an experiment, or who is requested to consent on behalf of another, has the following rights:

1. To be told what the study is attempting to discover.

2. To be told what will happen in the study and whether any of the procedures, drugs or devices are different from what would be used in standard practice.

3. To be told about the risks, side effects or discomforts of the things that may happen to him/her.

4. To be told if he/she can expect any benefit from participating and, if so, what the benefits might be.

5. To be told what other choices he/she has and how they may be better or worse than being in the study.

6. To be allowed to ask any questions concerning the study both before agreeing to be involved and during the course of the study.

7. To be told what sort of medical treatment is available if any complications arise.

8. To refuse to participate at all before or after the study is started without any adverse effects.

9. To receive a copy of the signed and dated consent form.

10. To be free of pressures when considering whether he/she wishes to agree to be in the study.

If at any time, you have questions regarding a research study, you should ask the researchers to answer them. You also may contact the Brandman University Institutional Review Board, which is concerned with the protection of volunteers in research projects.

The Brandman University Institutional Review Board may be contacted either by telephoning the Office of Academic Affairs at (949) 341-9937 or by writing to:

Vice Chancellor of Academic Affairs Brandman University
6355 Laguna Canyon Road
Irvine, CA, 92618

APPENDIX L

Survey Test: Identifying Practices Used to Build Cohesiveness in a Virtual Setting

Survey Link: https://www.surveymonkey.com/r/vtleader_factorquestionnaire_01_2017

Introduction: My name is Barbara Thiss. I am a doctoral student with Brandman University in Irvine, CA. I am working on my dissertation on identifying practices used to build cohesive teams in a virtual setting.

Purpose of this questionnaire: I am conducting a Survey test on virtual teams to create a valid and reliable list of practices virtual teams use to build task cohesion and social cohesion. This is Part 1 of a 3-part process. In Parts 2 and 3, you will have an opportunity to review the completed list to rate the practices that have been compiled. Once participants of the Survey test have reached 80% consensus, the list will then be used as part of my dissertation study.

Definition of cohesive team or group: "a dynamic process, which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982; Malcarne, 2012).

Background: Von Treuer et al. (2013) in their study of teams, found that there were many features of cohesive teams from a task and social perspective. This questionnaire has listed these factors to help identify specific practices your virtual team uses to build cohesiveness.

Instructions: Questions 1 and 2 list factors of task and social cohesion. Please share the specific practices your virtual team uses to build these factors. You can list multiple practices for each factor or leave it blank. Question 3 looks at any specific practices you as a leader use to build a cohesive virtual team. Question 4 gives you the opportunity to add any additional comments.

Questionnaire: Practices Virtual Teams Use to Build Cohesiveness

1. What specifically does your virtual team do to build task cohesion? (List as many practices as you like for each of these factors)
   - Open communication between group members
   - Commitment to the objectives
   - Respect of group members
   - Share common purpose
   - Trust
   - Supportive leaders
   - Group efficacy (ability) and success

2. What specifically does your virtual team do to build social cohesion? (List as many practices as you like for each of these factors)
   - Camaraderie
   - Altruism (kindness) towards members
   - Workplace friendliness
   - Bonding
   - Sense of belonging
   - Identification with group members
   - Group pride

3. What other things do you do, as a leader, to build the cohesiveness of your virtual team? (List as many practices as you like)

4. Additional Comments:

APPENDIX M

Letter of Invitation to Research Participants

Delphi Study: Participation and Information Request to Leaders of Virtual Teams

I am a doctoral candidate at Brandman University, Irvine in Organizational Leadership in Education and employed at the San Diego County Office of Education. I am conducting a Delphi research study to identify practices used to build cohesive teams in a virtual setting.

I am inviting you to participate as an expert panelist in my study. A nomination process was used to identify participants that friends and colleagues felt would provide insight in practices of cohesive virtual teams.

This Delphi study consists of three rounds of online surveys completed during the months of January and February. Each round will take approximately 15-20 minutes to complete. Rounds will be administered in increments of 7-10 days. You will have the opportunity to respond to each round at your own convenience during the designated time.

To participate in this research, use this link:

https://www.surveymonkey.com/r/vtleader_demographics_01_2017 to take a brief intake survey submitting your name, email, and information relevant to your experience. If you are screened in for the study, you will be sent the Informed Consent form and Research Participant's Bill of Rights accompanied with a first round of survey. Be assured that your participation will be voluntary and confidential. Participants' and organization names will not be reported in the findings.

I would be more than happy to answer any questions. Please contact me at barbthiss@gmail.com or 619-990-0223. Your participation and time in this research study is greatly appreciated.
Sincerely,

Barbara Thiss

Informed Consent Form

Consent to Participate in Research:

A Delphi Study: Identifying Practices Used to Build
Cohesive Teams in a Virtual Setting

DATE:

BRANDMAN UNIVERSITY

16355 LAGUNA CANYON ROAD

IRVINE, CA 92618

Principal Investigator: Barbara Thiss

Background: You are being invited to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear of if you need more information.

Purpose of Study: The purpose of this Delphi study is to identify practices used to build cohesive teams in a virtual setting and to determine whether the practices were task-oriented or social-oriented. Opinions will be gathered from leaders who work in companies on the Fortune 500 list and have led a virtual team of five or more people who were geographically dispersed and had been together for more than one year. These leaders will comprise the expert panel that will be used throughout this study.

Study Procedures: This study will consist of three rounds of surveys to obtain you opinion of practices used to build cohesiveness in virtual teams. Your expected time commitment for this study is: 15-20 minutes based on expert panel response time

Round 1: First round electronic survey will require the expert panelists to rate the level of importance the practices virtual teams use to build cohesiveness.

Round 2: Responses from Round 1 will be compiled and ranked and a second survey will be distributed to the expert panelists.

Round 3: If an 80% agreement is not attained, a third survey will go out with the

items from Round 2 in rank order.

_____

Consent:

I understand that:

a) There are minimal risks associated with participating in this research. Participation in surveys is voluntary. The surveys should take approximately 15-20 minutes of time to fill out. All responses will be combined to develop the next round of survey consolidation. The responses are anonymous. The Researcher will protect my confidentiality by keeping the research materials in a password-protected computer that is available only to the researcher and retained for five years. No personally identifiable information (PII), (such as, names, Social Security Numbers [SSNs], e-mail addresses, Internet Protocols [IP] addresses, street addresses, telephone numbers) will be attached to the answers once they have been received from the respondent.

b) The possible benefit of this study to me is that my input may help add to the research regarding practices virtual teams from different organizations used to build their cohesive teams by providing other organizations tools they can use to build their infrastructure and potentially increase productivity and performance excellence. It will also produce findings that will be useful to universities, which have leadership and management programs and wish to expand their curriculum to include the development of cohesive teams.

c) Any questions I have concerning my participation in this study will be answered at any time by Barbara Thiss. She can be reached by email at: barbthiss@gmail.com. Her school email is: this2801@mail.brandman.edu or Dr. Shelly Neal (Dissertation Chair) at sneal@brandman.edu.

d) My participation in this research study is voluntary. I may decide to not participate in the study and I can withdraw at any time. I can also decide not to answer particular questions during the process if I so choose. I understand that I may refuse to participate or may withdraw from this study at any time without any negative consequences. Also, the Researcher may stop the study at any time.

e) No information that identifies me will be released without my separate consent and that all identifiable information will be protected to the limits allowed by law. If the

study design or the use of the data is to be changed, I will be so informed and my consent re-obtained. I understand that if I have any questions, comments, or concerns about the study or the informed consent process, I may write or call the Office of the Executive Vice Chancellor of Academic Affairs, Brandman University, at 16355 Laguna Canyon Road, Irvine, CA 92618, (949) 341-7641.

ACKNOWLEDGEMENT: I acknowledge that I have received a copy of this form and the "Research Participant's Bill of Rights."

I have read the above and understand it and hereby consent to the procedure(s) set forth.

_____   _____

Printed Name of Participant   Email Address

_____   _____

Signature of Participant   Date

_____

Survey Test: Round 1 Results (171 practices)

	What specifically does your virtual team do to build task cohesion?
1.0 Open communication between group members	
1.01	Schedule regular group calls/meetings.
1.02	Each team member is provided an opportunity to share at each meeting.
1.03	Share what you are working on.
1.04	Share issues.
1.05	Ask for help.
1.06	If an offline meeting is needed, entire team is aware of it.
1.07	Avoid "backroom" meetings.
1.08	Share all communications with the team.
1.09	Utilize productivity/communication tools such as instant messaging, video conferencing, and online presentations
1.10	Have some face-to-face (F2F) meetings.
1.11	Use document-sharing sites for all member access and confidentiality.
1.12	Do not use social media.
1.13	Encourage open communication between all members.
1.14	Provide contact information of all the team to everyone.
2.0 Commitment to the objectives	
2.01	Communicate corporate and department objectives in team meetings.
2.02	Engage staff in discussions about objectives.
2.03	Different team members are assigned responsibility to provide status updates.
2.04	Point out successes.
2.05	Engage staff in corrective action discussions if any objectives have fallen behind.
2.06	Include objectives for the year in prior year performance review.
2.07	Provide one on one virtual performance feedback
2.08	Establish roles and responsibilities early in project.
2.09	Track progress during periodic status calls/meetings.
2.10	Publish objective documents; discuss and resolve any that are unclear.
2.11	Ground rules for meetings are well understood.
2.12	Use first meeting to introduce each other, discuss the objectives and clarify any misunderstandings.
2.13	Review and agree on objectives.
2.14	Ensure each member has a stake in the final goal.
2.15	A weekly reminder of the objective is read to the team to keep the focus.
3.0 Respect of group members	
3.01	Set rules about respecting others.
3.02	Be on mute unless you are talking.
3.03	Be on time.
3.04	Be responsive to instant message requests.
3.05	Always set your availability status so others know when you are busy.
3.06	Zero tolerance for disrespectful behavior and interrupting when someone is talking.
3.07	Encouraging staff to help each other.

3.08	Be aware of staff strengths.
3.09	Provide opportunities during virtual meetings for sharing strengths.
3.10	Help match staff skill set to help others on the team.
3.11	Take time to point out when an individual has taken time to help another member.
3.12	Assure that input is solicited from all members.
3.13	Make sure leader manages well to avoid overpowering members.
3.14	Follow established corporate beliefs.
3.15	As the team meets and gets to know each other, each team member is responsible to hold each other accountable.
3.16	Ask questions if something is not understood.
3.17	Team leader must be able to listen.
3.18	Follow through on commitments.
3.19	Allow for constructive criticism.
3.20	Encourage positive feedback on progress.
3.21	Focus on the issue not the person.
4.0 Share common purpose	
4.01	Communicate corporate and department objectives in team virtual meetings.
4.02	Engage staff in discussions about objectives.
4.03	Assign team members different responsibilities to provide status updates.
4.04	Point out successes.
4.05	Engage staff in corrective action discussions if any objectives have fallen behind.
4.06	Include objectives for the year in prior year performance review.
4.07	Do one on one performance feedback.
4.08	Development a mission statement with input from everyone.
4.09	Emphasize goal-oriented behavior with a very specific timeline/deadline.
4.10	Spend time up front developing the team.
5.0 Trust	
5.01	Don't cancel any of the regularly scheduled meetings.
5.02	Be sure your boss is aware of the schedule and the importance of these meetings.
5.03	Listen.
5.04	Follow up when you say you are going to.
5.05	Be truthful at all times.
5.06	If you cannot share something then say that. Let the team know you will share when you can.
5.07	Deliver on all commitments.
5.08	Have open, honest and complete communications.
5.09	Work with established team members with a track record for meeting deadlines/expectations.
5.10	Trust develops over time as team members get to know and respect each other, share a common purpose and are fully committed to objectives
5.11	As Stephen Covey states "Trust is the glue of life. It's the most essential ingredient in effective communication. It's the foundational principle that holds all relationships".
5.12	Have each other's back.
5.13	Avoid secrets.
5.14	Stop gossip.
5.15	Do what you say and follow up.

	6.0 Supportive leaders
6.01	Be attentive to staff needs (listen, listen, listen).
6.02	Schedule virtual one on ones periodically throughout the year or when needed.
6.03	Tell staff to feel free to reach out if they need assistance.
6.04	Periodically, in a staff meetings, take time to socialize.
6.05	Leaders are pretty hands off providing expectations.
6.06	Read inspirational and developmental resources like Steven Covey's books.
6.07	Support the team (being an advocate) to upper management is crucial.
6.08	Always giving credit to the person that came up with and idea or thought.
6.09	Allow mistakes and then instruct.
6.10	Keep the team informed.
6.11	Help where needed.
	7.0 Group efficacy (ability) and success
7.01	Clearly define objectives.
7.02	Work together to achieve same goals.
7.03	Ensure staff has an understanding of interdependencies through project plans and clearly defining responsibilities.
7.04	Provide an environment in virtual meetings for staff to always feel their input is valuable
7.05	Call on each team member individually in the regularly scheduled virtual meetings and encourage feedback.
7.06	Play to individual strengths.
7.07	Have a clear plan for each function/task.
7.08	Clearly articulate specific attainable goals/objectives along with some that are very challenging.
7.09	Develop metrics to constantly measure efficacy and success.
7.10	Ensure that the team's successes are visible to upper management and to the team itself.
7.11	Celebrate successes often.
7.12	Train as required.
7.13	Encourage peer reviews.
7.14	Reward the great.
7.15	Fire the incompetent.
What specifically does your virtual team do to build social cohesion?	
	8.0 Camaraderie
8.01	Encourage team to help each other and work together to achieve common goals.
8.02	Team-building with smaller groups who are closer in proximity and can meet in person.
8.03	Allow time for pleasantries/socializing in meetings.
8.04	Have at least one face-to-face to get to know each other.
8.05	Annual team meetings, which typically includes an outing (golf, boating, etc.)
8.06	Hold team-building events when the entire team is present.
8.07	Encourage discussion of all perspectives of an issue.
8.08	Seek first to understand then to be understood.
8.09	Bi-weekly meetings on what everyone is working on.
8.10	Start the meeting with a common joke.
	9.0 Altruism (kindness) towards members
9.01	Encourage team to reach out to other team members to wish them happy birthday or a congratulations.
9.02	Team members help others.

9.03	Establish rules/code of conduct early.
9.04	Team leader must not denigrate or discount input.
9.05	Team leader must listen and lead by example.
9.06	When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.
9.07	Allow each member to have their own thoughts and ideas and if needed, nicely disagree
9.08	Encourage common courtesy.
9.09	Set example of saying "Good Morning, etc.

10.0 Workplace friendliness	
10.01	Conduct one on one session.
10.02	Call team members for non-work events to offer congratulations or condolences.
10.03	Use humor to lighten up in sessions.
10.04	When the team is respectful, is committed to objectives, supports each other, is successful and shares a common purpose, those behaviors spill out to the workplace.
10.05	Lead by example.
10.06	Be friendly and people will be friendly in return.
10.07	Allow for personal work area articles (pictures, placards, plants)

11.0 Bonding	
11.01	Have members introduce themselves.
11.02	If there are trips involved, make sure to plan gatherings or outing to get to know each other.
11.03	Make periodic trips to home office.
11.04	The team will know each of its members and be able to understand where each of them comes from and their particular perspective.
11.05	There will be stressful times of deadlines along with times of celebration of milestones.
11.06	The team leader is there to guide and listen.
11.07	Talk with everyone and encourage communication.
11.08	Avoid emails when a phone call will work.

12.0 Sense of belonging	
12.01	New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they want to share.
12.02	Talk about how team supports the objectives of the corporation during calls.
12.03	Form smaller teams that are closer in proximity and can get together face to face.
12.04	Have smaller teams report progress during meetings/calls.
12.05	Leaders stress working as a team.
12.06	Successes are recognized as a team effort during report-outs and celebrations.
12.07	Conduct routine staff meetings.
12.08	Remind folks that the goal is important and when completed, employees will use the outcome worldwide.

13.0 Identification with group members	
13.01	Share lessons learned/past learnings.
13.02	Have open dialogue and welcome different perspectives.
13.03	Allow members to share their individual stories that support the need to accomplish goals and discuss what improvements will mean to them individually.
13.04	Teaming people together for projects.
13.05	Establish a team specific name, item or logo that sets each a part of the team

14.0 Group pride	
14.01	Take time during virtual calls to point out a job well done.

14.02	Thank staff for their hard work often.
14.03	Find something to share for each team member.
14.04	After meeting, call the team members who were called out for a job well done.
14.05	"Talk up" your team to stakeholders and celebrate successes.
14.06	Celebrate successes when project is completed.
14.07	Communicate what went right (on budget/on time/winning a deal, etc.)
14.08	Recognition by leadership and client.
14.09	Publish team success stories.
15.0 What other things do you do as a leader to build the cohesiveness of your virtual team?	
15.01	Share status of company results.
15.02	Have senior management attend some meetings.
15.03	Designate a lead who can assist with some of the day-to-day questions especially if there are different time zones.
15.04	Offer to pick up lunch or teambuilding event for team members in close proximity.
15.05	Drive to locations that are closer in proximity
15.06	See if you can arrange for an extra day on a vacation to visit team members in the area.
15.07	No team member should ever hear anything about what is happening from someone outside the team that they aren't aware of.
15.08	For report outs, have team members present rather than the leader.
15.09	Leaders help their team members grow individually and get exposure.
15.10	Respect time-zone issues.
15.11	Being respectful of cultural differences
15.12	Encourage peer reviews.
15.13	Announce all new hires and promotions with some information about each.
15.14	Provide regular (monthly) award meetings

APPENDIX P

Survey Test: Round 2 Results Strongly Agree/Agree % Combined (171 practices)

	Round 2 List of Practices	**Combined**
1	Schedule regular group calls/meetings. (1.01)	100.0%
2	Each team member is provided an opportunity to share at each meeting. (1.02)	100.0%
3	Share what you are working on. (1.03)	100.0%
4	Share issues. (1.04)	100.0%
5	Encourage open communication between all members. (1.13)	100.0%
6	Provide contact information of all the team to everyone. (1.14)	100.0%
7	Communicate corporate and department objectives in team meetings. (2.01) (4.01)	100.0%
8	Engage staff in corrective action discussions if any objectives have fallen behind.	100.0%
9	Establish roles and responsibilities early in project. (2.08)	100.0%
10	Track progress during periodic status calls/meetings. (2.09)	100.0%
11	Publish objective documents; discuss and resolve any that are unclear. (2.1) (2.02)	100.0%
12	Ground rules for meetings are well understood. (2.11)	100.0%
13	Review and agree on objectives. (2.13)	100.0%
14	Ensure each member has a stake in the final goal. (2.14)	100.0%
15	Be on time. (3.03)	100.0%
16	Encourage staff to help each other. (3.07)	100.0%
17	Be aware of staff strengths. (3.08)	100.0%
18	Help match staff skill set to help others on the team. (3.1)	100.0%
19	Ask questions if something is not understood. (3.16)	100.0%
20	Team leader must be able to listen. (3.17)	100.0%
21	Follow through on commitments. (3.18)	100.0%
22	Allow for constructive criticism. (3.19)	100.0%
23	Focus on the issue not the person. (3.21)	100.0%
24	Engage staff in corrective action discussions if any objectives have fallen behind.	100.0%
25	Emphasize goal-oriented behavior with a very specific timeline/deadline. (4.09)	100.0%
26	Listen. (5.03)	100.0%
27	Follow up when you say you are going to. (5.04)	100.0%
28	Be truthful at all times. (5.05)	100.0%
29	Deliver on all commitments. (5.07)	100.0%
30	Have open, honest and complete communications. (5.08)	100.0%
31	Trust develops over time as team members get to know and respect each other, share	100.0%
32	Do what you say and follow up. (5.15)	100.0%
33	Be attentive to staff needs (listen, listen, listen). (6.01)	100.0%
34	Schedule virtual one on ones periodically throughout the year or when needed.	100.0%
35	Tell staff to feel free to reach out if they need assistance. (6.03)	100.0%
36	Support the team (being an advocate) to upper management is crucial. (6.07)	100.0%
37	Allow mistakes and then instruct. (6.09)	100.0%
38	Keep the team informed. (6.1)	100.0%
39	Help where needed. (6.11)	100.0%

40	Clearly define objectives. (7.01)	100.0%
41	Work together to achieve same goals. (7.02)	100.0%
42	Ensure staff has an understanding of interdependencies through project plans and	100.0%
43	Provide an environment in virtual meetings for staff to always feel their input is	100.0%
44	Have a clear plan for each function/task. (7.07)	100.0%
45	Ensure that the team's successes are visible to upper management and to the team	100.0%
46	Train as required. (7.12)	100.0%
47	Encourage team to help each other and work together to achieve common goals.	100.0%
48	Hold team-building events when the entire team is present. (8.06)	100.0%
49	Encourage discussion of all perspectives of an issue. (8.07)	100.0%
50	Team members help others. (9.02)	100.0%
51	Establish rules/code of conduct early. (9.03)	100.0%
52	Team leader must not denigrate or discount input. (9.04)	100.0%
53	Team leader must listen and lead by example. (9.05) (10.05)(11.06)	100.0%
54	Encourage common courtesy. (9.08)	100.0%
55	When the team is respectful, is committed to objectives, supports each other, is	100.0%
56	Lead by example. (10.05)	100.0%
57	Be friendly and people will be friendly in return. (10.06)	100.0%
58	If there are trips involved, make sure to plan gatherings or outing to get to know each	100.0%
59	The team leader is there to guide and listen. (11.06)	100.0%
60	Talk with everyone and encourage communication. (11.07)	100.0%
61	New members are welcomed at virtual meetings and given opportunity to share their	100.0%
62	Conduct routine staff meetings. (12.07)	100.0%
63	Share lessons learned/past learnings. (13.01)	100.0%
64	Have open dialogue and welcome different perspectives. (13.02)	100.0%
65	Thank staff for their hard work often. (14.02)	100.0%
66	"Talk up" your team to stakeholders and celebrate successes. (14.05)	100.0%
67	Celebrate successes when project is completed. (14.06) (7.11)	100.0%
68	Communicate what went right (on budget/on time/winning a deal, etc.) (14.07)	100.0%
69	Designate a lead who can assist with some of the day-to-day questions especially if	100.0%
70	Drive to locations that are closer in proximity (15.05)	100.0%
71	Utilize productivity/communication tools such as instant messaging, video	87.5%
72	Have some face-to-face (F2F) meetings. (1.1) (15.05)	87.5%
73	Use document-sharing sites for all member access and confidentiality. (1.11)	87.5%
74	Engage staff in discussions about objectives. (2.02)	87.5%
75	Point out successes. (2.04) (4.04)	87.5%
76	Use first meeting to introduce each other, discuss the objectives and clarify any	87.5%
77	Assure that input is solicited from all members. (3.12)	87.5%
78	Encourage positive feedback on progress. (3.2)	87.5%
79	Communicate corporate and department objectives in team virtual meetings. (4.01)	87.5%
80	Engage staff in discussions about objectives. (4.02)	87.5%
81	Point out successes. (4.04)	87.5%
82	Include objectives for the year in prior year performance review. (4.06)	87.5%
83	Spend time up front developing the team. (4.1)	87.5%

84	Be sure your boss is aware of the schedule and the importance of these meetings.	87.5%
85	If you cannot share something then say that. Let the team know you will share when	87.5%
86	As Stephen Covey states "Trust is the glue of life. It's the most essential ingredient in	87.5%
87	Avoid secrets. (5.13)	87.5%
88	Stop gossip. (5.14)	87.5%
89	Periodically, in staff meetings, take time to socialize. (6.04)	87.5%
90	Play to individual strengths. (7.06)	87.5%
91	Clearly articulate specific attainable goals/objectives along with some that are very	87.5%
92	Celebrate successes often. (7.11)	87.5%
93	Have at least one face-to-face to get to know each other. (8.04)	87.5%
94	Seek first to understand then to be understood. (8.08)	87.5%
95	When the members of the team see altruistic behavior modeled by the team leader	87.5%
96	Allow each member to have their own thoughts and ideas and if needed, nicely	87.5%
97	Conduct one-on-one sessions. (10.01)	87.5%
98	Allow for personal work area articles (pictures, placards, plants) (10.07)	87.5%
99	Make periodic trips to home office. (11.03)	87.5%
100	There will be stressful times of deadlines along with times of celebration of	87.5%
101	Avoid emails when a phone call will work. (11.08)	87.5%
102	Leaders stress working as a team. (12.05)	87.5%
103	Successes are recognized as a team effort during report-outs and celebrations.	87.5%
104	Allow members to share their individual stories that support the need to accomplish	87.5%
105	Teaming people together for projects. (13.04)	87.5%
106	Share status of company results. (15.01)	87.5%
107	Offer to pick up lunch or team-building event for team members in close proximity.	87.5%
108	Leaders help their team members grow individually and get exposure. (15.09)	87.5%
109	Respect time-zone issues. (15.1)	87.5%
110	Announce all new hires and promotions with some information about each. (15.13)	87.5%
111	Ask for help. (1.05)	85.8%
112	If an offline meeting is needed, entire team is aware of it. (1.06)	75.0%
113	Share all communications with the team. (1.08)	75.0%
114	Do not use social media. (1.12)	75.0%
115	Different team members are assigned responsibility to provide status updates. (2.03)	75.0%
116	Include objectives for the year in prior year performance review. (2.06)	75.0%
117	Provide one on one virtual performance feedback (2.07)	75.0%
118	Set rules about respecting others. (3.01)	75.0%
119	Be on mute unless you are talking. (3.02)	75.0%
120	Zero tolerance for disrespectful behavior and interrupting when someone is talking.	75.0%
121	Provide opportunities during virtual meetings for sharing strengths. (3.09)	75.0%
122	Make sure leader manages well to avoid overpowering members. (3.13)	75.0%
123	Do one on one performance feedback. (4.07)	75.0%
124	Development a mission statement with input from everyone. (4.08)	75.0%
125	Develop metrics to constantly measure efficacy and success. (7.09)	75.0%
126	Fire the incompetent. (7.15)	75.0%
127	Allow time for pleasantries/socializing in meetings. (8.03)	75.0%

128	Annual team meetings, which typically include an outing (golf, boating, etc.) (8.05)	75.0%
129	Set example of saying "Good Morning, etc. (9.09)	75.0%
130	Have members introduce themselves. (11.01)	75.0%
131	The team will know each of its members and be able to understand where each of	75.0%
132	Talk about how team supports the objectives of the corporation during calls. (12.02)	75.0%
133	Remind folks that the goal is important and when completed, the outcome will be	75.0%
134	Take time during virtual calls to point out a job well done. (14.01)	75.0%
135	Publish team success stories. (14.09)	75.0%
136	Have senior management attend some meetings. (15.02)	75.0%
137	Be respectful of cultural differences (15.11)	75.0%
138	Avoid "backroom" meetings. (1.07)	62.5%
139	Follow established corporate beliefs. (3.14)	62.5%
140	Assign team members different responsibilities to provide status updates. (4.03)	62.5%
141	Work with established team members with a track record for meeting	62.5%
142	Have each other's back. (5.12)	62.5%
143	Always giving credit to the person that came up with and idea or thought. (6.08)	62.5%
144	Call on each team member individually in the regularly scheduled virtual meetings	62.5%
145	Encourage peer reviews. (7.13) (15.12)	62.5%
146	Team-building with smaller groups who are closer in proximity and can meet in	62.5%
147	Bi-weekly meetings on what everyone is working on. (8.09)	62.5%
148	Encourage team to reach out to other team members to wish them happy birthday or a	62.5%
149	Call team members for non-work events to offer congratulations or condolences.	62.5%
150	Use humor to lighten up in sessions. (10.03)	62.5%
151	Form smaller teams that are closer in proximity and can get together face to face.	62.5%
152	Have smaller teams report progress during meetings/calls. (12.04)	62.5%
153	Recognition by leadership and client. (14.08)	62.5%
154	For report outs, have team members present rather than the leader. (15.08)	62.5%
155	Be responsive to instant message requests. (3.04)	50.0%
156	Always set your availability status so others know when you are busy. (3.05)	50.0%
157	Take time to point out when an individual has taken time to help another member.	50.0%
158	As the team meets and gets to know each other, each team member is responsible to	50.0%
159	Reward the great. (7.14)	50.0%
160	Establish a team specific name, item or logo that sets each a part of the team (13.05)	50.0%
161	Encourage peer reviews. (15.12)	50.0%
162	A weekly reminder of the objective is read to the team to keep the focus. (2.15)	37.5%
163	Don't cancel any of the regularly scheduled meetings. (5.01)	37.5%
164	Find something to share for each team member. (14.03)	37.5%
165	After meeting, call the team members who were called out for a job well done.	37.5%
166	See if you can arrange for an extra day on a vacation to visit team members in the	37.5%
167	No team member should ever hear anything about what is happening from someone	37.5%
168	Start the meeting with a common joke. (8.1)	25.0%
169	Provide regular (monthly) award meetings (15.14)	25.0%
170	Leaders are pretty hands off providing expectations. (6.05)	12.5%
171	Read inspirational and developmental resources like Steven Covey's books. (6.06)	12.5%

Survey Test Round 3 Results (166 practices)

	Round 3 List of Practices	Task or Social Oriented	Strongly Agree/Agree %	Slightly Agree/ Slightly Disagree %	Disagree/ Strongly Disagree %
1	Schedule regular group calls/meetings.	Both	100%	0%	0%
2	Encourage open communication between all members.	Task	100%	0%	0%
3	Share what you are working on.	Task	100%	0%	0%
4	Share issues.	Task	100%	0%	0%
5	Provide contact information of all the team to everyone.	Task	100%	0%	0%
6	Establish roles and responsibilities early in project.	Task	100%	0%	0%
7	Ensure each member has a stake in the final goal.	Task	100%	0%	0%
8	Be on time.	Task	100%	0%	0%
9	Ask questions if something is not understood.	Task	100%	0%	0%
10	Team leader must be able to listen.	Both	100%	0%	0%
11	Follow through on commitments.	Task	100%	0%	0%
12	Focus on the issue not the person.	Task	100%	0%	0%
13	Review and agree on objectives.	Task	100%	0%	0%
14	Follow up when you say you are going to.	Task	100%	0%	0%
15	Be truthful at all times.	Task	100%	0%	0%
16	Have open, honest and complete communications.	Task	100%	0%	0%
17	Do what you say and follow up.	Task	100%	0%	0%
18	Support the team (being an advocate) to upper management is crucial.	Task	100%	0%	0%
19	Keep the team informed.	Task	100%	0%	0%
20	Work together to achieve same goals.	Task	100%	0%	0%
21	Train as required.	Task	100%	0%	0%
22	Encourage team to help each other and work together to achieve common goals.	Social	100%	0%	0%
23	Encourage discussion of all perspectives of an issue.	Social	100%	0%	0%
24	Listen.	Task	100%	0%	0%
25	Encourage common courtesy.	Social	100%	0%	0%
26	Talk with everyone and encourage communication.	Social	100%	0%	0%
27	Deliver on all commitments.	Task	100%	0%	0%
28	Share lessons learned/past learnings.	Social	100%	0%	0%
29	Trust develops over time as team members get to know and respect each other, share a common purpose and are fully committed to objectives.	Task	100%	0%	0%
30	Thank staff for their hard work often.	Social	100%	0%	0%
31	Be attentive to staff needs (listen, listen, listen).	Social	100%	0%	0%
32	Celebrate successes when project is completed.	Both	100%	0%	0%

33	Tell staff to feel free to reach out if they need assistance.	Task	100%	0%	0%
34	Communicate what went right (on budget/on time/winning a deal, etc.)	Social	100%	0%	0%
35	Designate a lead who can assist with some of the day-to-day questions especially if there are different time zones.	Social	100%	0%	0%
36	Engage staff in discussions about objectives.	Task	100%	0%	0%
37	Clearly define objectives.	Task	100%	0%	0%
38	Encourage positive feedback on progress.	Task	100%	0%	0%
39	Avoid secrets.	Task	100%	0%	0%
40	Stop gossip.	Task	100%	0%	0%
41	Play to individual strengths.	Task	100%	0%	0%
42	Clearly articulate specific attainable goals/objectives along with some that are very challenging.	Task	100%	0%	0%
43	Allow each member to have their own thoughts and ideas and if needed, nicely disagree.	Social	100%	0%	0%
44	Make periodic trips to home office.	Social	100%	0%	0%
45	Fire the incompetent.	Task	100%	0%	0%
46	Have members introduce themselves.	Both	100%	0%	0%
47	Be respectful of cultural differences.	Social	100%	0%	0%
48	Avoid "backroom" meetings.	Task	100%	0%	0%
49	Team leader must listen and lead by example.	Social	100%	0%	0%
50	Follow established corporate beliefs.	Task	100%	0%	0%
51	Conduct routine staff meetings.	Social	100%	0%	0%
52	Point out successes.	Task	100%	0%	0%
53	Use first meeting to introduce each other, discuss the objectives and clarify any misunderstandings.	Task	100%	0%	0%
54	Engage staff in corrective action discussions if any objectives have fallen behind.	Task	83%	17%	0%
55	Help where needed.	Task	83%	17%	0%
56	When the team is respectful, is committed to objectives, supports each other, is successful and shares a common purpose, those behaviors spill out to the workplace.	Social	83%	17%	0%
57	Engage staff in corrective action discussions if any objectives have fallen behind.	Task	83%	17%	0%
58	Be aware of staff strengths.	Task	83%	17%	0%
59	Emphasize goal-oriented behavior with a very specific timeline/deadline.	Task	83%	17%	0%
60	Ensure staff has an understanding of interdependencies through project plans and clearly defining responsibilities.	Task	83%	17%	0%
61	Provide an environment in virtual meetings for staff to always feel their input is valuable.	Task	83%	0%	17%
62	Hold team-building events when the entire team is present.	Social	83%	17%	0%
63	Establish rules/code of conduct early.	Social	83%	17%	0%
64	New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they want to share.	Social	83%	17%	0%
65	Have open dialogue and welcome different perspectives.	Social	83%	17%	0%

66	Use document-sharing sites for all member access and confidentiality.	Task	83%	17%	0%
67	Include objectives for the year in prior year performance review.	Task	83%	17%	0%
68	Be sure your boss is aware of the schedule and the importance of these meetings.	Task	83%	17%	0%
69	When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.	Social	83%	17%	0%
70	Teaming people together for projects.	Social	83%	17%	0%
71	Offer to pick up lunch or team-building event for team members in close proximity.	Social	83%	17%	0%
72	Track progress during periodic status calls/meetings.	Task	83%	17%	0%
73	Ground rules for meetings are well understood.	Task	83%	17%	0%
74	Encourage staff to help each other.	Task	83%	17%	0%
75	Have a clear plan for each function/task.	Task	83%	17%	0%
76	Ensure that the team's successes are visible to upper management and to the team itself.	Task	83%	17%	0%
77	"Talk up" your team to stakeholders and celebrate successes.	Social	83%	17%	0%
78	Assure that input is solicited from all members.	Task	83%	17%	0%
79	Spend time up front developing the team.	Task	83%	17%	0%
80	If you cannot share something then say that. Let the team know you will share when you can.	Task	83%	17%	0%
81	Leaders stress working as a team.	Social	83%	0%	17%
82	Share status of company results.	Social	83%	17%	0%
83	Leaders help their team members grow individually and get exposure.	Social	83%	17%	0%
84	Respect time-zone issues.	Social	83%	17%	0%
85	Announce all new hires and promotions with some information about each.	Social	83%	17%	0%
86	Make sure leader manages well to avoid overpowering members.	Task	83%	17%	0%
87	Develop metrics to constantly measure efficacy and success.	Task	83%	17%	0%
88	Annual team meetings, which typically include an outing (golf, boating, etc.)	Social	83%	17%	0%
89	Remind folks that the goal is important and when completed, the outcome will be used by employees worldwide.	Social	83%	17%	0%
90	Take time during virtual calls to point out a job well done.	Social	83%	17%	0%
91	Always set your availability status so others know when you are busy.	Task	83%	17%	0%
92	Reward the great.	Task	83%	0%	17%
93	Include objectives for the year in prior year performance review.	Task	83%	17%	0%
94	Have each other's back.	Task	83%	17%	0%
95	Be friendly and people will be friendly in return.	Social	67%	33%	0%
96	Have at least one face-to-face to get to know each other.	Social	67%	33%	0%
97	Each team member is provided an opportunity to share at each meeting.	Task	67%	17%	17%
98	Publish objective documents; discuss and resolve any that are unclear.	Task	67%	33%	0%
99	Allow for constructive criticism.	Task	67%	33%	0%
100	Schedule virtual one on ones periodically throughout the year or when needed.	Both	67%	33%	0%

101	Team leader must not denigrate or discount input.	Social	67%	33%	0%
102	Have some face-to-face (F2F) meetings.	Both	67%	33%	0%
103	Periodically, in a staff meetings, take time to socialize.	Both	67%	33%	0%
104	Seek first to understand then to be understood.	Social	67%	33%	0%
105	Allow for personal work area articles (pictures, placards, plants).	Social	67%	33%	0%
106	If an offline meeting is needed, entire team is aware of it.	Task	67%	17%	17%
107	Different team members are assigned responsibility to provide status updates.	Task	67%	0%	33%
108	Set rules about respecting others.	Task	67%	33%	0%
109	Provide one on one virtual performance feedback.	Task	67%	33%	0%
110	Be on mute unless you are talking.	Task	67%	33%	0%
111	Zero tolerance for disrespectful behavior and interrupting when someone is talking.	Task	67%	33%	0%
112	Set example of saying "Good Morning, etc.	Social	67%	33%	0%
113	The team will know each of its members and be able to understand where each of them comes from and their particular perspective.	Social	67%	33%	0%
114	Publish team success stories.	Social	67%	33%	0%
115	Do one-on-one performance feedback.	Task	67%	33%	0%
116	Work with established team members with a track record for meeting deadlines/expectations.	Task	67%	33%	0%
117	Recognition by leadership and client.	Social	67%	17%	17%
118	Kindness must be part of the rules of engagement.	Social	67%	33%	0%
119	Allow time for pleasantries/socializing in meetings.	Social	67%	33%	0%
120	Utilize productivity/communication tools such as instant messaging, video conferencing, and online presentations.	Task	67%	33%	0%
121	Avoid emails when a phone call will work.	Social	67%	33%	0%
122	Ask for help.	Task	67%	33%	0%
123	No team member should ever hear anything about what is happening from someone outside the team that they aren't aware of.	Social	67%	33%	0%
124	Conduct one on one sessions.	Social	50%	50%	0%
125	Communicate corporate and department objectives in team meetings.	Task	50%	33%	17%
126	Allow mistakes and then instruct.	Task	50%	33%	17%
127	If there are trips involved, make sure to plan gatherings or outing to get to know each other.	Social	50%	50%	0%
128	The goals and objectives may contain a measurement for trust among the team members.	Task	50%	50%	0%
129	The leadership must have weekly checkpoints with the full group.	Task	50%	50%	0%
130	Share all communications with the team.	Task	50%	50%	0%
131	Provide opportunities during virtual meetings for sharing strengths.	Task	50%	50%	0%
132	Have senior management attend some meetings.	Social	50%	50%	0%
133	Assign team members different responsibilities to provide status updates.	Task	50%	33%	17%
134	Always giving credit to the person that came up with an idea or thought.	Task	50%	50%	0%

135	Encourage peer reviews.	Both	50%	33%	17%
136	Team-building with smaller groups who are closer in proximity and can meet in person.	Social	50%	50%	0%
137	Form smaller teams that are closer in proximity and can get together face to face.	Social	50%	33%	17%
138	For report outs, have team members present rather than the leader.	Social	50%	33%	17%
139	Don't cancel any of the regularly scheduled meetings.	Task	50%	50%	0%
140	Encourage team to reach out to other team members to wish them happy birthday or a congratulation.	Social	50%	33%	17%
141	Help match staff skill set to help others on the team.	Task	33%	67%	0%
142	Allow members to share their individual stories that support the need to accomplish goals and discuss what improvements will mean to them individually.	Social	33%	67%	0%
143	Use humor to lighten up in sessions.	Social	33%	67%	0%
144	Development a mission statement with input from everyone.	Task	33%	50%	17%
145	Call on each team member individually in the regularly scheduled virtual meetings and encourage feedback.	Task	33%	50%	17%
146	Bi-weekly meetings on what everyone is working on.	Social	33%	67%	0%
147	Call team members for non-work events to offer congratulations or condolences.	Social	33%	50%	17%
148	Have smaller teams report progress during meetings/calls.	Social	33%	50%	17%
149	Be responsive to instant message requests.	Task	33%	67%	0%
150	Take time to point out when an individual has taken time to help another member.	Task	33%	50%	17%
151	As the team meets and gets to know each other, each team member is responsible to hold each other accountable.	Task	33%	50%	17%
152	Establish a team specific name, item or logo that sets each a part of the team.	Social	33%	67%	0%
153	See if you can arrange for an extra day on a vacation to visit team members in the area.	Social	33%	50%	17%
154	Start the meeting with a common joke.	Social	33%	33%	33%
155	The purpose of the meeting is to build group self-esteem by reviewing progress, to encourage camaraderie while at the group meeting, and to enjoy a social event instead of it being all work.	Both	33%	67%	0%
156	Sharing the definition of the type of team ensures each team member has a clear understanding of the purpose of the team.	Task	17%	83%	0%
157	Leadership should also observe performance thru video and or on-line cameras	Task	17%	50%	33%
158	Do not use social media.	Task	17%	83%	0%
159	Talk about how team supports the objectives of the corporation during calls.	Social	17%	83%	0%
160	Find something to share for each team member.	Social	17%	67%	17%
161	After meeting, call the team members who were called out for a job well done.	Social	17%	67%	17%
162	Provide regular (monthly) award meetings.	Social	17%	50%	33%
163	The definition of the team is key to being able to identify with group members.	Social	17%	83%	0%
164	A weekly reminder of the objective is read to the team to keep the focus.	Task	0%	83%	17%
165	Leaders are pretty hands off providing expectations.	Task	0%	33%	67%
166	Read inspirational and developmental resources like Steven Covey's books.	Task	0%	83%	17%

APPENDIX R

Delphi Study: Round 1 Online Survey

Survey Link: https://www.surveymonkey.com/r/vt_delphi_r1

Introduction: My name is Barbara Thiss. I am a doctoral student with Brandman University in Irvine, CA. I am working on my dissertation on identifying practices used to build cohesive teams in a virtual setting.

Definition of cohesive team or group: "a dynamic process, which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives"

Purpose of this survey: This survey is the first round of the Delphi study where a larger sample population is used to identify practices used to build cohesive teams in a virtual setting. The Delphi technique allows for consensus building by using a series of surveys to collect data.

Instructions: This survey lists practices used to build cohesiveness in a virtual setting as previously identified in a Survey test. You are asked to review each practice and select how important you feel the practice is to building cohesiveness in your virtual teams, using the 6-point Likert-scale: strongly agree, agree, slightly agree, slightly disagree, disagree, and strongly disagree. There are 76 practices for you to rate.
 Please complete the survey by Saturday, March 4, 2017.

See Appendix S - Delphi study Round 1 Results for the list of practices used in the survey.

Appendix S

Delphi Study Round 1 Results (76 practices)

	Round 1 List of Practices	**Strongly Agree/Agree** **%**	**Slightly Agree/ Slightly Disagree** **%**	**Disagree/ Strongly Disagree** **%**
1	Follow through on commitments.	100%	0%	0%
2	Follow up when you say you are going to.	100%	0%	0%
3	Keep the team informed.	100%	0%	0%
4	Work together to achieve same goals.	100%	0%	0%
5	Train as required.	100%	0%	0%
6	Share lessons learned/past learnings.	100%	0%	0%
7	Thank staff for their hard work often.	100%	0%	0%
8	Celebrate successes when project is completed.	100%	0%	0%
9	Encourage common courtesy.	100%	0%	0%
10	Communicate what went right (on budget/on time/winning a deal, etc.)	100%	0%	0%
11	Encourage positive feedback on progress.	100%	0%	0%
12	Be respectful of cultural differences.	100%	0%	0%
13	Encourage discussion of all perspectives of an issue.	100%	0%	0%
14	Be aware of staff strengths.	100%	0%	0%
15	Emphasize goal-oriented behavior with a very specific timeline/deadline.	100%	0%	0%
16	Have members introduce themselves.	100%	0%	0%
17	Be sure your boss is aware of the schedule and the importance of these	100%	0%	0%
18	Ask questions if something is not understood.	100%	0%	0%
19	Track progress during periodic status calls/meetings.	100%	0%	0%
20	Ground rules for meetings are well understood.	100%	0%	0%
21	If you cannot share something then say that. Let the team know you will	100%	0%	0%
22	Have open, honest and complete communications.	100%	0%	0%
23	Team leader must be able to listen.	100%	0%	0%
24	Establish roles and responsibilities early in project.	100%	0%	0%
25	Be on time.	100%	0%	0%
26	Focus on the issue not the person	100%	0%	0%
27	Encourage open communication between all members.	100%	0%	0%
28	Be truthful at all times.	100%	0%	0%
29	Do what you say and follow up.	100%	0%	0%
30	Schedule regular group calls/meetings.	100%	0%	0%
31	Encourage team to help each other and work together to achieve common	100%	0%	0%
32	Designate a lead who can assist with some of the day to day questions especially if there are different time zones.	100%	0%	0%
33	Clearly articulate specific attainable goals/objectives along with some	100%	0%	0%
34	Make periodic trips to home office.	100%	0%	0%
35	Ensure staff has an understanding of interdependencies through project plans and clearly defining responsibilities.	100%	0%	0%
36	Establish rules/code of conduct early.	100%	0%	0%
37	Have open dialogue and welcome different perspectives.	100%	0%	0%
38	Include objectives for the year in prior year performance review.	100%	0%	0%
39	Encourage staff to help each other.	100%	0%	0%
40	Allow each member to have their own thoughts and ideas and if needed,	100%	0%	0%
41	Leaders help their team members grow individually and get exposure.	100%	0%	0%
42	Support the team (being an advocate) to upper management is crucial.	94%	6%	0%
43	Engage staff in discussions about objectives.	94%	6%	0%
44	Play to individual strengths.	94%	6%	0%
45	Follow established corporate beliefs.	94%	6%	0%
46	Engage staff in corrective action discussions if any objectives have fallen behind.	94%	6%	0%

47	Provide an environment in virtual meetings for staff to always feel their	94%	6%	0%
48	Use document-sharing sites for all member access and confidentiality.	94%	6%	0%
49	Teaming people together for projects.	94%	6%	0%
50	Have a clear plan for each function/task.	94%	6%	0%
51	Ensure that the team's successes are visible to upper management and to	94%	6%	0%
52	Spend time up front developing the team.	94%	6%	0%
53	Leaders stress working as a team.	94%	6%	0%
54	Respect time-zone issues.	94%	6%	0%
55	Make sure leader manages well to avoid overpowering members.	94%	6%	0%
56	Develop metrics to constantly measure efficacy and success.	88%	13%	0%
57	Remind folks that the goal is important and when completed, employees will use the outcome worldwide.	88%	13%	0%
58	Talk with everyone and encourage communication.	88%	13%	0%
59	Stop gossip.	88%	13%	0%
60	Assure that input is solicited from all members.	88%	13%	0%
61	Hold team-building events when the entire team is present.	88%	13%	0%
62	Announce all new hires and promotions with some information about	88%	6%	6%
63	Avoid "backroom" meetings.	88%	13%	0%
64	New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they	88%	13%	0%
65	Offer to pick up lunch or team-building event for team members in close	88%	13%	0%
66	"Talk up" your team to stakeholders and celebrate successes.	88%	13%	0%
67	Share status of company results.	88%	13%	0%
68	Take time during virtual calls to point out a job well done.	88%	13%	0%
69	Provide contact information of all the team to everyone.	81%	19%	0%
70	Reward the great.	81%	13%	6%
71	Avoid secrets.	81%	19%	0%
72	Fire the incompetent.	81%	19%	0%
73	When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.	81%	13%	6%
74	Annual team meetings, which typically include an outing (golf, boating,	81%	19%	0%
75	Always set your availability status so others know when you are busy.	81%	19%	0%
76	Ensure each member has a stake in the final goal.	75%	25%	0%

APPENDIX T

Delphi Study Final - Round 2 Results

	Round 2 List of Practices	Task or Social Oriented	Strongly Agree/Agree %	Mean	Median	Mode	Standard Deviation
1	Have open, honest and complete communications.	Task	100%	5.8	6.0	6.0	0.4
2	Team leader must be able to listen.	Both	100%	5.8	6.0	6.0	0.4
3	Be on time.	Task	100%	5.6	6.0	6.0	0.5
4	Follow through on commitments.	Task	100%	5.8	6.0	6.0	0.4
5	Be truthful at all times.	Task	100%	5.8	6.0	6.0	0.4
6	Keep the team informed.	Task	100%	5.7	6.0	6.0	0.5
7	Encourage common courtesy.	Social	100%	5.7	6.0	6.0	0.5
8	Communicate what went right (on budget/on time/winning a deal, etc.)	Social	100%	5.4	5.0	5.0	0.5
9	Designate a lead who can assist with some of the day-to-day questions especially if there are different time zones.	Social	100%	5.4	5.0	5.0	0.5
10	Clearly articulate specific attainable goals/objectives along with some that are very challenging.	Task	100%	5.7	6.0	6.0	0.5
11	Be respectful of cultural differences.	Both	100%	5.6	6.0	6.0	0.5
12	Encourage discussion of all perspectives of an issue.	Social	100%	5.7	6.0	6.0	0.5
13	Establish rules/code of conduct early.	Social	100%	5.6	6.0	6.0	0.5
14	Be sure your boss is aware of the schedule and the importance of these meetings.	Task	100%	5.6	6.0	6.0	0.5
15	Encourage staff to help each other.	Task	100%	5.7	6.0	6.0	0.5
16	Ground rules for meetings are well understood.	Task	100%	5.7	6.0	6.0	0.5
17	Provide an environment in virtual meetings for staff to always feel their input is valuable.	Task	100%	5.6	6.0	6.0	0.5
18	Assure that input is solicited from all members.	Task	100%	5.4	5.0	5.0	0.5
19	Ensure each member has a stake in the final goal.	Task	100%	5.4	5.0	5.0	0.5
20	Establish roles and responsibilities early in project.	Task	100%	5.6	6.0	6.0	0.5
21	Focus on the issue not the person	Task	100%	5.5	5.5	5.0	0.5
22	Encourage open communication between all members.	Task	100%	5.6	6.0	6.0	0.5
23	Follow up when you say you are going to.	Task	100%	5.8	6.0	6.0	0.4
24	Do what you say and follow up.	Task	100%	5.8	6.0	6.0	0.4
25	Schedule regular group calls/meetings.	Both	100%	5.5	5.5	6.0	0.5
26	Work together to achieve same goals.	Task	100%	5.6	6.0	6.0	0.5
27	Train as required.	Task	100%	5.3	5.0	5.0	0.4
28	Encourage team to help each other and work together to achieve common goals.	Social	100%	5.8	6.0	6.0	0.4
29	Share lessons learned/past learnings.	Social	100%	5.5	5.5	6.0	0.5
30	Be aware of staff strengths.	Task	100%	5.6	6.0	6.0	0.5

31	Ensure staff has an understanding of interdependencies through project plans and clearly defining responsibilities.	Task	100%	5.6	6.0	6.0	0.5
32	Ask questions if something is not understood.	Task	100%	5.6	6.0	6.0	0.5
33	Leaders help their team members grow individually and get exposure.	Task	100%	5.5	5.5	5.0	0.5
34	If you cannot share something then say that. Let the team know you will share when you can.	Task	100%	5.6	6.0	6.0	0.5
35	Play to individual strengths.	Task	100%	5.5	5.5	5.0	0.5
36	Have a clear plan for each function/task.	Task	100%	5.5	5.5	6.0	0.5
37	Spend time up front developing the team.	Task	100%	5.6	6.0	6.0	0.5
38	Engage staff in discussions about objectives.	Task	100%	5.6	6.0	6.0	0.5
39	Use document-sharing sites for all member access and confidentiality.	Task	100%	5.4	5.0	5.0	0.5
40	Remind folks that the goal is important and when completed, the outcome will be used by employees worldwide.	Social	100%	5.6	6.0	6.0	0.5
41	Share status of company results.	Task	100%	5.5	5.5	6.0	0.5
42	Avoid secrets.	Task	100%	5.6	6.0	6.0	0.5
43	Thank staff for their hard work often.	Social	94%	5.6	6.0	6.0	0.6
44	Celebrate successes when project is completed.	Both	94%	5.7	6.0	6.0	0.6
45	Encourage positive feedback on progress.	Task	94%	5.5	6.0	6.0	0.6
46	Emphasize goal-oriented behavior with a very specific timeline/deadline.	Task	94%	5.6	6.0	6.0	0.6
47	Have open dialogue and welcome different perspectives.	Social	94%	5.4	5.5	6.0	0.6
48	Have members introduce themselves.	Both	94%	5.4	5.5	6.0	0.6
49	Include objectives for the year in prior year performance review.	Task	94%	5.4	5.0	5.0	0.6
50	Track progress during periodic status calls/meetings.	Task	94%	5.6	6.0	6.0	0.6
51	Allow each member to have their own thoughts and ideas and if needed, nicely disagree.	Social	94%	5.5	6.0	6.0	0.6
52	Follow established corporate beliefs.	Task	94%	5.6	6.0	6.0	0.6
53	Engage staff in corrective action discussions if any objectives have fallen behind.	Task	94%	5.6	6.0	6.0	0.6
54	Leaders stress working as a team.	Social	94%	5.6	6.0	6.0	0.8
55	Support the team (being an advocate) to upper management is crucial.	Task	94%	5.7	6.0	6.0	0.6
56	Ensure that the team's successes are visible to upper management and to the team itself.	Task	94%	5.4	6.0	6.0	1.0
57	Take time during virtual calls to point out a job well done.	Social	94%	5.3	5.5	6.0	1.0
58	Stop gossip.	Task	94%	5.6	6.0	6.0	0.6
59	Develop metrics to constantly measure efficacy and success.	Task	94%	5.5	6.0	6.0	0.6
60	"Talk up" your team to stakeholders and celebrate successes.	Social	94%	5.4	5.5	6.0	0.6
61	Hold team-building events when the entire team is present.	Social	94%	5.5	6.0	6.0	1.0
62	Provide contact information of all the team to everyone.	Task	94%	5.3	5.0	5.0	0.8
63	Reward the great.	Task	88%	5.1	5.0	6.0	1.3
64	Teaming people together for projects.	Social	88%	5.4	6.0	6.0	0.7
65	Respect time-zone issues.	Task	88%	5.4	6.0	6.0	0.7

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66	Make sure leader manages well to avoid overpowering members.	Task	88%	5.4	6.0	6.0	0.7
67	When the members of the team see altruistic behavior modeled by the team leader that gives them the ability to do the same.	Social	88%	5.4	6.0	6.0	0.7
68	Make periodic trips to home office.	Social	88%	5.3	5.0	5.0	0.7
69	New members are welcomed at virtual meetings and given opportunity to share their background, expertise and something non-work related they want to share.	Social	88%	5.1	5.0	5.0	0.6
70	Talk with everyone and encourage communication.	Social	88%	5.4	5.5	6.0	0.7
71	Annual team meetings, which typically include an outing (golf, boating, etc.)	Social	88%	5.1	5.0	5.0	0.6
72	Always set your availability status so others know when you are busy.	Task	88%	5.3	5.0	5.0	0.7
73	Avoid "backroom" meetings.	Task	81%	5.3	5.0	6.0	0.8
74	Fire the incompetent.	Task	81%	5.2	5.0	5.0	0.8
75	Offer to pick up lunch or team-building event for team members in close proximity.	Social	75%	5.1	5.0	5.0	0.8
76	Announce all new hires and promotions with some information about each.	Both	75%	5.1	5.0	5.0	0.8

APPENDIX U

Protecting Human Research Participants Certificate of Completion

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Barbara Thiss** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 07/15/2015

Certification Number: 1799300
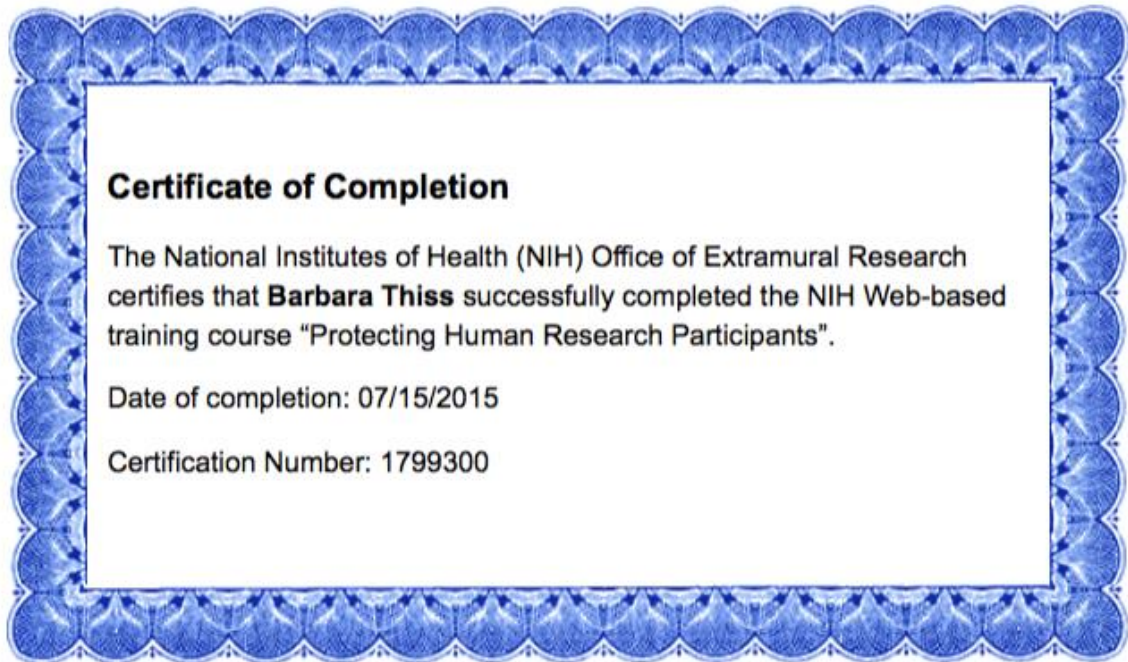
APPENDIX V

Brandman University IRB Application Action - Approval

BRANDMAN UNIVERSITY
University Chapman University System

BRANDMAN UNIVERSITY INSTITUTIONAL REVIEW BOARD
IRB Application Action – Approval

Date: December 15, 2016

Name of Investigator/Researcher: Barbara Thiss

Faculty or Student ID Number: B00422570

Title of Research Project:

A Delphi Study: Identifying Practices Used to Build Cohesive Teams in a Virtual Setting

Project Type: ☑ New ☐ Continuation ☐ Resubmission

Category that applies to your research:

☑ Doctoral Dissertation EdD
☐ DNP Clinical Project
☐ Masters' Thesis
☐ Course Project
☐ Faculty Professional/Academic Research
☐ Other:

Funded: ☑ No ☐ Yes _____
(Funding Agency; Type of Funding; Grant Number)

Project Duration (cannot exceed 1 year): 1 year

Principal Investigator's Address: 1137 Victor St, El Cajon, CA 92021

Email Address: this2801@mail.brandman.edu   Telephone Number: 619-990-0223

Faculty Advisor/Sponsor/Chair Name: Dr. Shelly Neal

Email Address: sneal@brandman.edu   Telephone Number: 949-542-0331

Category of Review:

☐ Exempt Review   ☑ Expedited Review   ☐ Standard Review

Brandman University IRB Rev, 11.14.14   Adopted   November 2014

☑ I have completed the NIH Certification and included a copy with this proposal

☐ NIH Certificate currently on file in the office of the IRB Chair or Department Office

Signature of Principal Investigator: **Barbara Thiss** Date: 12/15/16

Signature of Faculty Advisor/ **Michelle Neal** Date: 12/15/16
Sponsor/Dissertation Chair:

BRANDMAN UNIVERSITY INSTITUTIONAL REVIEW BOARD
IRB APPLICATION ACTION – APPROVAL
COMPLETED BY BUIRB

IRB ACTION/APPROVAL

Name of Investigator/Researcher:_____

☐ Returned without review. Insufficient detail to adequately assess risks, protections and benefits.

☐ Approved/Certified as Exempt form IRB Review.

☐ Approved as submitted.

☑ Approved, contingent on minor revisions (see attached)

☐ Requires significant modifications of the protocol before approval. Research must resubmit with modifications (see attached)

☐ Researcher must contact IRB member and discuss revisions to research proposal and protocol.

Level of Risk: ☐ No Risk   ☐ Minimal Risk   ☐ More than Minimal Risk

IRB Comments:

> 1. Change application from less than to minimal risk.

IRB Reviewer:____Alan Enomoto____ *Digitally signed by Alan Enomoto DN: cn=Alan Enomoto, o=Brandman University, ou, email=aenomoto@brandman.edu, c=US Date: 2016.12.22 14:43:46 -08:00*

Telephone:_____   Email:_____

BUIRB Chair: __Doug DeVore__ *Digitally signed by Doug DeVore DN: cn=Doug DeVore, o=Brandman University, ou, email=ddevore@brandman.edu, c=US Date: 2016.12.22 14:43:46 -08:00*   Date: __12/22/2016__

REVISED IRB Application   ☒ **X** Approved   ☐ Returned

Name: __Doug DeVore__ _____

Telephone:_____ Email:_____ Date: January 4, 2016

BUIRB Chair: __Douglas DeVore__ *Digitally signed by Douglas DeVore DN: cn=Douglas DeVore, o=Brandman University, ou, email=ddevore@brandman.edu, c=US Date: 2017.01.04 12:12:08 -07'00'*

Brandman University IRB Rev, 11.14.14   Adopted   November 2014