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Examining Task Conflict and Team Atmosphere in Virtual Teams Engaged in Outsourced Project Work

By

Harold Carr Osborn

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Information Systems

College of Engineering and Computing Nova Southeastern University

August 2019

We hereby certify that this dissertation, submitted by Harold Osborn, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

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College of Computing and Engineering Nova Southeastern University

An Abstract of a Dissertation Submitted to Nova Southeastern University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Examining Task Conflict and Team Atmosphere in Virtual Teams Engaged in Outsourced Project Work

Harold Carr Osborn

2019

Global teams have become commonplace. As teams have become more dispersed, leveraging outsourced resources has gained popularity. Outsourcing can be a prudent move financially; however, when it is inappropriately applied, the damage it produces can easily overshadow any financial gains. Such ill effects can include impaired employee performance and morale caused by decreased job security. Moreover, it can lead to a less favorable team atmosphere and increased task conflict.

This study examined the effects of team virtuality along with the strategic alignment of outsourcing on team performance. The research utilized the intervening processes theory (IPT). The IPT posits that the relationship between certain constructs cannot be measured directly; however, the impact can be measured through other constructs. In the case of this study, it was the impacts of the constructs of virtuality, job security, outsourcing, and team temporariness on team performance. The intervening constructs were team atmosphere and task conflict.

The research instrument was an online survey. The results of this survey supported the hypotheses that task conflict was impacted by team virtualization, job security, and team atmosphere. Weak support was provided for the influence of team temporariness on task conflict. The impacts of team virtualization and job security on team atmosphere were not supported. Finally, team performance was influenced by team atmosphere but not task conflict.

Acknowledgments

First, I thank Dr. Souren Paul. He has been instrumental in guiding me through this process. When the options and tasks seemed overwhelming, Dr Paul's patience, experience, and expertise helped me sort out the alternatives and kept my on the correct path. I am not sure that I would have completed this dissertation without his steady hand. Additionally, I would like to thank the other members of my dissertation committee, Dr, Sanjoy Ghose and Dr. Amon Seagull. Their guidance and feedback greatly enhanced this research. I am deeply indebted to all my committee members for their part in helping me realize this dream.

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Finally, I thank Richard Craig Andrews. After a very long hiatus, I returned to school to complete my education. On the first day back, the class divided into teams. Craig and I ended up on the same team. Our friendship quickly grew. We not only completed our bachelor's degree together, we continued on to complete our master's degree together. I can honestly say that I owe pursuing both my graduate degrees to Craig's enthusiasm and encouragement. As an added bonus I have a life-long friend from this adventure.

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Chapter 1

Introduction

Background

Teams have become commonplace in most companies today. Teams, when correctly comprised, can leverage the diversity of talents and knowledge that their members bring to the group. Teams are effective at addressing complex or vaguely formed tasks. Additionally, teams can be created either as ongoing units or assembled for a specific purpose before being disbanded once the work is completed. This offers a method for companies to utilize resources more efficiently (Alnuaimi, Robert Jr., & Maruping, 2010; De Dreu & Weingart, 2003; Janz, Colquitt, & Noe, 1997; Jones & Harrison, 1996; Mesmer-Magnus & DeChurch, 2009; Rutti, Ramsey, & Li, 2012; Salas, Cooke, & Rosen, 2008). Just as teams can be created for various purposes and durations, they can also have differing physical characteristics.

With increasing globalization, it is more common for teams not to be bound by geography. Such teams are referred to as virtual teams. They do not operate in the face-to-face manner of traditional teams. Indeed, they may never meet physically as a team. As Jarvenpaa and Leidner (1999) stated, virtual teams have "permeable interfaces and boundaries." Virtual teams rely on technology to bridge the gap that distance creates (Baruch & Lin, 2012; Kankanhalli, Tan, & Wei, 2007). Despite the technological advances in real-time communications of recent years, members of virtual teams can still feel disconnected or isolated. This can create challenges for virtual teams in meeting their goals (Chi, Chang, & Tsou, 2012). The experience can be exacerbated when the team is

comprised of multiple nationalities or cultures. Common in global virtual teams, Garrison, Wakefield, Harvey, and Kim (2010) referred to these as heterogeneous groups.

Global teams have the additional disadvantage of disparate time zones. Asynchronous work schedules can be used to an advantage if managed correctly. Communication challenges also exist that are unique to their makeup (Mukherjee, Hanlon, Kedia, & Srivastava, 2012). These obstacles can be intensified when some of the members of the virtual team are outsourced resources.

Outsourcing is the transferring of assets, resources, tasks, and/or decisions to an external organization (Loh & Venkatraman, 1992). It is increasingly employed to provide businesses with a competitive advantage (Lindner & Wald, 2011). Outsourcing affords flexibility in managing team resources. Furthermore, it can offer a financial edge when offshore resources are utilized (Elmuti, Grunewald, & Abebe, 2010; Gupta, Seshasai, Mukherji, & Ganguly, 2007). Although outsourcing can facilitate resource flexibility and help alleviate costs, it is not without risks and complications. Among these is creating a positive team atmosphere.

Team atmosphere refers to the attitudes of members toward specific elements of the team environment (Jehn & Mannix, 2001; Jehn, Rispens, & Thatcher, 2010). Elements of team atmosphere include trust, commitment, openness, and respect. The effects of these elements on team performance have been researched both individually and in various combinations (Crossman & Lee-Kelley, 2004; Holton, 2001; Jarvenpaa & Leidner, 1999; Jehn & Mannix, 2001). In addition to team performance, team atmosphere can also influence and be affected by conflict.

Several types of conflict exist, and relationship and task conflict are the two most common types studied. Relationship conflict arises from interpersonal friction. Task conflict is a difference of opinion as how best to accomplish the job at hand (Tekleab, Quigley, & Tesluk, 2009). Except for at low levels, relationship conflict is generally considered detrimental to team performance (Shaw et al., 2011). By contrast, the results of studies on task conflict are less clear. Research on task conflict has indicated that it is all negative (Gallenkamp et al., 2012), it has minimal to no impact on performance (De Dreu & Weingart, 2003), and in moderation it has a positive impact on performance (Paul & Ray, 2009).

The goal of this study was to better understand the effects that team virtuality and outsourcing can have on team performance. Specifically, this research examined the impact of these dimensions on team atmosphere and task conflict. Through these last two dimensions, this study examined the connection between team virtuality and outsourcing on team performance.

The remainder of this paper is organized as follows. The following section states the problem, and sufficient documentation is included to support the problem statement. This is followed by this study's main research questions. Subsequently, a discussion of the relevance and significance of the work is provided. That is followed by an in-depth review of the literature, which provides a platform on which the study will be based. Next, the barriers and issues facing this research are detailed. After that, the approach to the study is outlined. The last two sections present a high-level overview of the research milestones and their target dates, as well as the resources required to complete the work.

Problem Statement

The importance of team performance is well documented (Choi, Lee, & Yoo, 2010; Mesmer-Magnus & DeChurch, 2009), as is the trend toward virtual teams (Mukherjee et al., 2012). Also understood is that team virtuality negatively impacts team performance (Ganesh & Gupta, 2010; Siebdrat, Hoegl, & Ernst, 2009). Less clear is what influences virtual team performance has and how they differ from those of traditional face-to-face teams (Algesheimer, Dholakia, & Gurău, 2011; Cogliser, Gardner, Gavin, & Broberg, 2012). As the virtual team structure becomes more prevalent, the need to understand what drives performance will increase. Studies have isolated specific elements, such as trust (Crisp & Jarvenpaa, 2013) and conflict management (Pazos, 2012). Because access to virtual teams is not as readily available, integrated studies are more difficult (Lin, Standing, & Liu, 2008).

Trust is one element that constitutes team atmosphere. In addition to trust, Jehn et al. (2010) measured the dimensions of respect and commitment. Their work, however, focused on co-located teams. Individually, these dimensions have been examined in virtual teams; of the three, trust is the most studied in virtual teams (Crisp & Jarvenpaa, 2013; Rusman, Van Bruggen, Sloep, & Koper, 2010; Staples & Webster, 2008). Crossman and Lee-Kelley (2004) examined trust and commitment among virtual team members. Holton (2001) considered respect as it pertained to diversity in virtual teams. Combining these three dimensions would provide a deeper understanding of how team atmosphere affects team performance.

Additionally, the effect of task conflict on team performance has been extensively covered (De Dreu & Weingart, 2003; de Wit, Greer, & Jehn, 2012; Wood, Michaelides, &

Thomson, 2011). However, these studies have focused mostly on co-located teams. Much of the research on virtual teams has been quasi-experimental or utilized laboratory experiments (Paul & Ray, 2009; Paul, Seetharaman, Samarah, & Mykytyn, 2004; Pazos, 2012). Thus, an opportunity exists to apply these findings to real-world virtual teams.

Additional dimensions and factors have an impact on team atmosphere and task conflict. Among them are virtuality, temporariness, outsourcing, and job security. Virtuality, as it implies, is the understanding that not all virtual teams are the same. Varying degrees of virtual exist. Martins, Gilson, and Maynard (2004) referred to geography, time zones, and organization as commonly used elements for defining virtuality. Chudoba, Wynn, Lu, and Watson-Manheim (2005) proposed a virtuality index. In addition to the aforementioned three dimensions, they included culture, work practices, and technology.

Literature uses virtualness and virtuality as nearly interchangeable terms. Any subtle differences are beyond the scope of this research. For purposes of this study, the term virtuality is used.

Not all temporary teams are created equal. For example, a team assembled to address a single well-defined problem is not the same as one that works for several months solving a variety of vaguely define tasks. Three dimensions that help define temporariness are duration, commitment, and familiarity. Teams that are assembled for a short duration behave differently to teams with a longer lifespan (Bakker, Boroş, Kenis, & Oerlemans, 2013). In addition to duration, commitment affects behavior. This includes team members' level of intensity and immersion in their tasks, which is what Mainemelis (2005) referred to as timelessness. Finally, temporary teams tend to be a group of people unfamiliar with

each other's abilities and skill sets (Marchi & Sarcina, 2011). The level to which they are unfamiliar can impact behavior and performance.

Moreover, outsourcing can impact team atmosphere and task conflict. Many organizations engage in outsourcing to gain competitive advantage through cost savings and added expertise (Han, Lee, & Seo, 2008; Park, Im, & Kim, 2011). These advantages can be offset if the outsourcing has a destabilizing effect on the organization (Geishecker, Riedl, & Frijters, 2012; Khosrowpour, Subramanian, Gunderman, & Aber, 2011).

Furthermore, job security can impact team performance in an outsourced environment. Employees who feel their job is at risk are less willing to surrender control over functional duties to an outside entity (Khosrowpour et al., 2011). This feeling can be exacerbated in a virtual team environment. Job security is particularly sensitive among mid- to low-wage-earning employees (Chang, 2010; Garrison et al., 2010).

The preceding paragraphs highlight the impact of individual dimensions on team performance. They also show that multidimensional studies on virtual team performance are lacking. Virtual teams are quickly becoming commonplace. The same rigor that has been applied to co-located teams needs to also be applied to virtual teams.

Dissertation Goal

The goal of this research was to gain an enhanced understanding of team performance in a virtual team environment. Using the constructs of team atmosphere and task conflict, this work measured the effects of virtuality, team type, outsourcing, and job

security on team performance. The result was a quantified relationship among the constructs.

Research Questions

The following questions guided this study:

- 1. What are the effects of team atmosphere and task conflict on team performance?
- 2. What are the effects of team virtuality on team atmosphere and task conflict?
- 3. What is the effect of the team temporariness on task conflict?
- 4. What is the effect of outsourcing on task conflict?
- 5. What are the effects of job security on team atmosphere and task conflict?

Relevance and Significance

Relevance

The virtual team has become a fixture in the business landscape. Today, nearly half of organizations routinely employ virtual teams (Mesmer-Magnus, DeChurch, Jimenez-Rodriguez, Wildman, & Shuffler, 2011). As technology advances, the ability to communicate and collaborate in a virtual environment improves. However, communication and collaboration are not the only two requirements for a successful virtual team. A better understanding of the nature of the virtual team is essential to maintain a competitive advantage.

Not all virtual teams are the same. Some of the dimensions explored have been spatial, temporal, cultural, and organizational (Chudoba et al., 2005; Gibson & Gibbs, 2006). These dimensions are more of a continuum than an absolute. Understanding how these differences affect team performance will help in creating a more efficient team structure.

Recent studies on virtual teams have examined elements of team atmosphere on team effectiveness (Carlson, Carlson, Hunter, Vaughn, & George, 2013), conflict management on team effectiveness (Pazos, 2012), and leadership behaviors on team performance (Pinar, Zehir, Kitapçi, & Tanriverdi, 2014). However, the current body of work does not fully explore the multifaceted nature of virtual teams. The present study offers insight into the interplay among several aspects of the virtual team.

Significance

A 2004 study revealed that the success rate of IT projects in Fortune 500 companies was 24% (cited in Johnston & Rosin, 2011). In 2006, the outsourcing software development industry in India alone topped US\$37 billion (Ganesh & Gupta, 2010), and that number ballooned to US\$100 billion in 2011 (Søderberg, Krishna, & Bjørn, 2013). The most common type of virtual team is the project team. Any improvement to the understanding of the virtual team structure and how it relates to team performance could have tremendous financial benefit.

Barriers and Issues

As stated earlier, multidimensional studies of virtual teams are difficult because they are not easily accessible (Lin et al., 2008). Access to virtual teams usually requires consent from two or more entities. Gaining approval from companies who may not see this work as beneficial to their self-interest may prove challenging.

Cultural and language differences may also prove to be obstacles. When studying global virtual teams, a survey must be sensitive to the cultural norms and local customs of each area (Tayeb, 2001)

Assumptions, Limitations, and Delimitations

This study assumed that fluctuations in regional or global economic markets would not overtly influence survey responses. Economic and political trends were not factored into this research. Each of these topics is complex, nuanced, and beyond the scope of this work.

Participants were volunteers solicited primarily from a single organization. This may not have been a truly accurate representation of the entire population. Although the organization through which the data were gathered has global membership, global participation could not be assured.

Summary

Now more than ever, understanding the dynamics of virtual teams is critical for maintaining a competitive advantage; so too is the need to create and disband teams as

required. The ability to engage in the outsourcing of personnel to compliment teams can offer expertise not found within an organization. Constructed and managed correctly, this can provide an edge. Poorly designed teams can undermine any benefit created by the team.

The following chapter begins with a discussion on the theoretical foundation upon which the research is based. Each construct is then thoroughly examined through the lens of existing literature. This forms the foundation upon which the research model is subsequently constructed. The final section presents the proposed research methodology.

Chapter 2

Literature Review

Introduction

Team performance and the factors that affect it have been a widely studied topic. Investigations on the effects of team spirit, continuity, cohesion, satisfaction, information sharing, and entrainment on team performance are a small sampling of the factors that have been examined (Brannick, Roach, & Salas, 1993; Harrison, Mohammed, McGrath, Florey, & Vanderstoep, 2003; Jones & Harrison, 1996; Mesmer-Magnus & DeChurch, 2009). Most of the early work focused on traditional face-to-face teams. In recent years, an increasing number of studies have measured team performance in a virtual team environment. Some have examined the effects of conflict management on virtual team performance (Paul, Seetharaman, Samarah, & Mykytyn, 2005; Pazos, 2012), whereas others have studied the social aspects of the team on virtual team performance (Baruch & Lin, 2012). Additionally, investigations have been conducted into the effects of team atmosphere characteristics, such as trust and cohesion, on virtual team performance (Algesheimer et al., 2011; Chi et al., 2012; Crisp & Jarvenpaa, 2013).

Team characteristics have been studied individually and in combination. Trust and commitment, in particular, have been given much attention (Crossman & Lee-Kelley, 2004; Holton, 2001; Jarvenpaa & Leidner, 1999; Oza, Hall, Rainer, & Grey, 2006). Team characteristics have been grouped, regrouped, and refined to define team atmosphere (Jehn & Mannix, 2001; Shaw et al., 2011; Zarraga & Bonache, 2005). Jehn et al. (2010) distilled

team atmosphere down to three dimensions: trust, respect, and commitment. Their work, however, focused on traditional face-to-face teams, not virtual teams.

Just as team atmosphere has been widely researched, so too has task conflict. Task conflict has been studied in depth in both traditional teams (De Dreu & Weingart, 2003; de Wit, Jehn, & Scheepers, 2013; Jehn, Rispens, & Thatcher, 2012; Shaw et al., 2011) and virtual teams (Paul, Samarah, Seetharaman, & Mykytyn Jr, 2004; Paul et al., 2005; Paul, Seetharaman, et al., 2004). Additionally, research has been conducted on the effects of conflict on team performance (Gallenkamp et al., 2012; Pazos, 2012; Shaw et al., 2011; Wood et al., 2011), whereas Paul and Ray (2009) examined the effects of team atmosphere on task conflict in a virtual team.

The relationships among team atmosphere, task conflict, and team performance have been studied in traditional face-to-face teams. Furthermore, combinations of these constructs have been examined in virtual teams. What the current body of research lacked was an investigation into the effects of team atmosphere and task conflict on team performance in virtual teams.

To methodically examine these constructs, a framework had to be selected and defined. This would ensure the consistency and repeatability of the research. The next section details the theoretical foundation upon which this investigation was conducted.

Theoretical Foundation

The intervening process theory (IPT) posits that constructs or variables work in series to affect the outcome. For example, construct A may not have a direct influence on output B; however, A has a direct impact on construct C, which in turn has a direct

influence on output B (Lawrence, 1997). This theory stemmed from work based on Pfeffer's (1983) work on organizational demography.

Pfeffer proposed that organizational diversity positively affected performance. Subsequent studies that employed organizational diversity theory yielded mixed results. Some studies have supported the model (Amason, 1996; Bantel & Jackson, 1989; Eisenhardt, Kahwajy, & Bourgeois, 1997), whereas others have found that heterogeneity had a negative impact on performance (e.g., Murnighan & Conlon, 1991). Still, other studies have found evidence of both positive and negative influences on performance (Hambrick, Cho, & Chen, 1996; Smith, Smith, Olian, Sims, & et al., 1994). When examined more closely, differences in the dimensions of the performance construct, sample data, and control variable accounted for some of the varying results. In early studies, these differences were accounted for because of the assumption that demographics were the superior variables to measure. Subject variables were not always readily visible or measurable, whereas demographics were considered reliable and directly observable. The assumption was also made that the differences in demographic variables were accounted for in the subjective concepts. Pfeffer (1983) referred to this as a *congruence assumption*.

Pelled (1996) was the first to suggest that the effect of diversity on performance was indirect. The influence was though intervening processes. To fully grasp the influence of diversity on performance, there needed to be a clearer understanding of the subjective processes and variables in between. Lawrence (1997) continued exploring the significance of subjective concepts, referring to it as the black box in the organizational demography model. Without determining what was contained in that box, the relationship between diversity and performance could not be fully understood.

Subsequent studies affirmed the need to understand the intervening processes between diversity and performance. Indeed, intervening processes were studied as a method of determining whether diversity would have a positive or negative impact on performance (Williams & O'Reilly, 1998). Other studies have examined the relationships of conflict and diversity training on the intervening process (Bayazit & Mannix, 2003; Bezrukova, Jehn, & Spell, 2012; Jehn & Bezrukova, 2004).

More recently, understanding diversity as an antecedent to the IPT has become a focus (Gotsis & Kortezi, 2015a, 2015b; Qin, Smyrnios, & Deng, 2012; Tianfang et al., 2014). Not all types of diversity have the same impact on group processes. Cultural, gender, religious, educational, and generational differences are among the various types of diversity. Each has its own impact. In their extended intervening process model, Qin et al. (2012) divided these into the two groups of social diversity and information diversity. The present research employed this multidimensional model of diversity as the lens through which to examine team performance.

Figure 1 is a diagram of the research model. In the following sections, each construct is systematically inspected; furthermore, the constructs and relationships among them are examined through a thorough review of the literature. Subsequently, the hypotheses required to test this model is drawn.

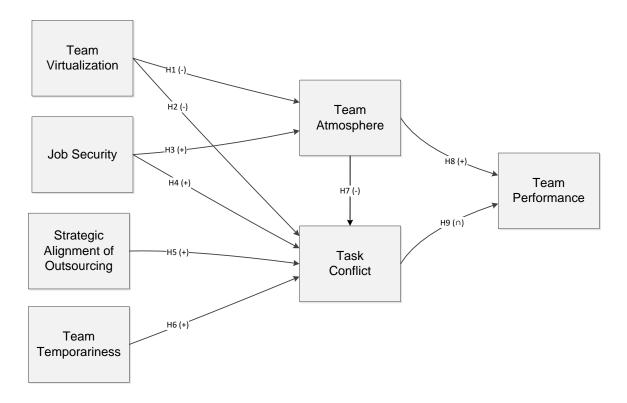


Figure 1. Research model.

Team Performance

Teams are created to execute a set of tasks. The ability to successfully complete these tasks is called team performance. Salas et al. (2008) noted that team performance is not a product but a process. Kirkman, Rosen, Tesluk, and Gibson (2004) posited that performance could be divided into two groups, namely team empowerment and satisfaction with the outcome. Team empowerment referred to a team's ability to function autonomously, be proactive, and engage in process improvement; in other words, this is team learning. Outcomes can be defined in several ways, including innovativeness (Tjosvold, Tang, & West, 2004), compared with archived measures (Perretti & Negro, 2007), or, as Kirkman et al. (2004) did, customer satisfaction. They stated that customer

satisfaction was the ability to meet a customer's needs fully and in a timely manner. Furthermore, Kirkman et al. (2004) hypothesized that successful team empowerment would lead to customer satisfaction.

Measures of team performance cover a wide range of dimensions. Table 1 highlights some of the directions that studies on team performance have taken over the past 10 years. Efficiency, output quality, timeliness, innovation, and the ability to deliver have been recurring attributes ascribed to team performance (Baruch & Lin, 2012; Choi et al., 2010; Zhang, Hempel, Han, & Tjosvold, 2007). De Jong and Elfring (2010) simplified this into the quantity and quality of the output. Algesheimer et al. (2011) further divided performance into the categories of subjective and objective; subjective referred to what was expected, whereas objective was the actual performance.

Among the subjective dimensions are the perception of performance and satisfaction. Both dimensions can be measured from within the team and from the perspective of the customer. The customer's perceptions of performance and satisfaction are generally tied to the more tangible dimensions of the timeliness and quality of the team's output. However, the team's perception of performance and satisfaction can be influenced by internal factors, such as conflict, conflict management, and effective leadership (Chi et al., 2012; Kirkman et al., 2004; Pazos, 2012).

Of the objective dimensions, output is a common measure, and can be measured in terms of quality and/or quantity. However output is defined, understanding the metrics is crucial for a team. Hackman (1987) indicated that performance standards are established by the organization charged with creating the team (cited in Rousseau & Aubé, 2010). For example, if a team creates several products of marginal quality but the objective was to

produce only the highest quality items, the team's performance would be considered lacking because they failed to perform to the set standards.

Table 1. Team performance.

Team performance in the literature

Authors	Team Performance Measures	Other Constructs or Measures	Method Used / Key Findings
Ancona and Caldwell (1992)	Perceived performance and satisfaction	Tenure, diversity, group process, and communication	Survey / Demography directly impacted performance.
Kirkman et al. (2004)	Process improvement and customer satisfaction	Team empowerment and number of face-to-face meetings	Field study / Team empowerment positively impacted both process improvements, whereas face-to-face meetings significantly affected only process improvement.
Wakefield, Leidner, and Garrison (2008)	Efficiency, quality, innovation, schedule, and budget	Technology-mediated communication (TMC) use, team conflict, and leader effectiveness	Survey / TMC use is associated with reduced conflict. The greater the perception of effective leadership, the better the team performance.
Algesheimer et al. (2011)	Expected performance and actual performance	Past performance, shared desire to perform, shared goals, team cohesion, and team communication	Focus groups and surveys / Communicating shared desire to perform and goals positively impacted expected performance. Team cohesion positively influenced the desire to perform. Past performance influenced expected and actual performance.

Authors	Team Performance Measures	Other Constructs or Measures	Method Used / Key Findings
Baruch and Lin (2012)	Output quantity and quality, and resource planning	Knowledge-sharing, team politics, social capital, competition, cooperation, team emotional intelligence (EQ), and team competence (IQ)	Survey / Social capital elements positively influenced cooperation, team IQ and EQ. Team politics positively impacted competition but negatively impacted cooperation. Cooperation, team IQ, and EQ all positively impacted team performance.
Chi et al. (2012)	Efficiency, quality, satisfaction	Team characteristics and communication environment	Survey / The team characteristics of trust leadership had a significant effect on team performance. Media richness had no significant impact on team performance.
Cogliser et al. (2012)	Output quality	Leadership, team trustworthiness, member performance contributions, and attitude toward computers	Longitudinal / Task- oriented leadership had a positive impact on member performance, whereas social-oriented leadership did not. Social-oriented leadership had a positive impact on team trustworthiness, but task- oriented leadership did not. Team trustworthiness did not significantly affect team performance.
Pazos (2012)	Perceived performance and satisfaction	Commitment to goals and conflict management	Quasi-experimental / commitment to goals had a positive impact on perceived performance and satisfaction. Conflict management had a positive influence on commitment to goals and performance.

Authors		Team Performance Measures	Other Constructs or Measures	Method Used / Key Findings
Crisp Jarvenpaa (2013)	and	Quality and timeliness	Normative actions, early trusting beliefs, and late trusting beliefs	Quasi-experimental / Early trusting beliefs had no significant direct impact on team performance. Normative actions had an impact on team performance and late trusting beliefs had a mediating impact on that relationship.

Efficiency has received several nuanced examinations. It has been viewed as completing a task with optimal resource usage (Staats, Milkman, & Fox, 2012), having the ability to learn and adapt to the optimal method of task execution or team learning (Edmondson, Bohmer, & Pisano, 2001; Sessa, London, Pingor, Gullu, & Patel, 2011), and managing budgets and schedules (Rousseau & Aubé, 2010; Wakefield et al., 2008). Staats et al. (2012) paired efficiency with team scaling. Their findings indicated that when output forecasts are adjusted for larger teams, efficiency losses are underestimated, whereas gains are overestimated. That is, efficiency gains and losses do not exactly correlate to team scaling.

Team learning not only influences efficiency but can also influence output quality and timeliness (Choo, Linderman, & Schroeder, 2007). Empowerment, even the perception of it, can foster a learning environment (Maynard, Gilson, & Mathieu, 2012; Seibert, Wang, & Courtright, 2011). Learning is the key to innovation. Kirkman et al. (2004) demonstrated that in virtual teams, the influence of empowerment on the innovative process is greater than face-to-face time. Additionally, Choo et al. (2007) positively associated psychological

safety as an antecedent to team learning. Psychological safety is a key element in team atmosphere.

Team Atmosphere

Team atmosphere, or elements of it, has long been connected to team performance. Edmondson (1999) investigated the positive relationship between psychological safety, trust, and respect with team performance. Jehn and Mannix (2001) cited trust and respect along with cohesiveness, conflict discussions, and liking other team members as the factors that comprised team atmosphere. Jehn et al. (2010) dropped conflict discussions and liking as well as replaced cohesiveness with commitment.

In addition, trust and respect have been referred to as a psychologically safe state or space (Crossman & Lee-Kelley, 2004; Edmondson, 1999; Rousseau, Sitkin, Burt, & Camerer, 1998). Trust is essential in creating a healthy environment (Samarah, Paul, & Tadisina, 2007). This is the foundation upon which openness and respect can be built. Moreover, several types of trust exist. A common thread among them is the "willingness to take risks" (Mayer, Davis, & Schoorman, 1995). Two types of trust are trust in competence and trust in benevolence (Abrams, Cross, Lesser, & Levin, 2003). Trust in competence is the belief in one's ability to perform the work, whereas trust in benevolence is a faith that a mutual interest exists between wellbeing and goal achievement. These forms of trust can create a safe space to be forthcoming. In this environment, trust allows a free exchange of ideas without the fear of losing one's position or esteem.

Trust in its early stages can be fragile. Because temporary teams usually do not have the luxury of time to establish trust, an initial level of trust is created based on the

trustee's trustworthy characteristics and the trustor's inclination to trust. This early form of trust is referred to as swift trust (Crisp & Jarvenpaa, 2013; Robert Jr, Dennis, & Hung, 2009). The characteristics of trustworthiness include perceived ability, integrity, and, to a lesser extent, benevolence. After ability and integrity have been demonstrated, the perception of benevolence takes on greater significance (Jarvenpaa, Knoll, & Leidner, 1998). Early trust alone does not necessarily promote late trust. Early trust along with normative actions, however, can have a positive influence on late trust (Crisp & Jarvenpaa, 2013).

Just as normative actions can influence trust, so too can social norms. Social norms can be difficult to express and understand. In global virtual teams, multiple social norms can exist. Furthermore, they are more difficult to exchange. Establishing communication processes is necessary for sharing social norms and, in turn, building trust (Hinds & Weisband, 2003; Morgan, Paucar-Caceres, & Wright, 2014). Hoter (2011) demonstrated that something as simple as using salutations in emails can positively influence team trust and performance. Teams that shared personal and social comments, or showed empathy and wit in their communications, exhibited even better performance. Indeed, Walther (1995) indicated that computer-mediated communication (CMC) did not, in itself, hinder building social relationships. It simply slowed the process. As CMC technologies progress, the communications come closer to simulating face-to-face interactions. This can speed up the relationship-building process (Ou, Pavlou, & Davison, 2014). Furthermore, good communication can be a predictor of commitment (Guzley, 1992).

Commitment is considered a key part of trust in groups (Oza et al., 2006; Søderberg et al., 2013) and it can manifest itself in various ways. For example, vendors may

demonstrate commitment through the number of resources they dedicate to the team. Commitment can also be the measure of buy-in to the team either on a individual level (Oza et al., 2006) or an organizational level (Nakatsu & Iacovou, 2009). In an outsourced environment, partnership relationships generally engender stronger commitments than do simple contractual arrangements (Herath & Kishore, 2009). Commitment at the individual level can be particularly challenging to establish and maintain in virtual teams. Face-to-face time, both planned and spontaneous, is considered a facilitator for building trust and commitment in teams (DeSanctis & Monge, 1999). In virtual teams, team leaders must consciously work to compensate for the lack of spontaneity that is often present in dispersed teams (Crossman & Lee-Kelley, 2004). In addition to commitment, there is the expectation of reciprocal commitment (Crossman & Lee-Kelley, 2004). This is the idea that an individual's commitment to the group will be met with commitment from the other participants. Mutual commitment can also pave the way for respect.

A supportive environment and openness to hear others' ideas are considered a form of respect (Proenca, 2007; Søderberg et al., 2013). Zarraga and Bonache (2005) referred to this as leniency in judgement. The idea is that team members would allow differing opinions without dismissing them before careful consideration. High levels of respect can be found in mature relationships (Cogliser et al., 2013). Respect is also a contributor to confidence within the team. This confidence allows team members to speak up without fear of rejection or embarrassment (Edmondson, 1999).

Similar to respect, team cohesion is an essential element that aids team performance (Harrison, Price, Gavin, & Florey, 2002; Johnston & Rosin, 2011). Task cohesion and team cohesion are two common types used when examining team environments. Task cohesion

is a performance measure that refers to the team's alignment around its work. Team cohesion is a social dimension used to measure interpersonal interactions (Mullen & Copper, 1994). Hoegl and Proserpio (2004) added that cohesion is also a requisite for collaboration. Johnson, Bettenhausen, and Gibbons (2009) referred to cohesion as one of the emotional elements that must be managed.

Diversity does not necessarily affect cohesion (Horwitz & Horwitz, 2007). Team size, however, can influence team cohesion. Evidence also exists that the number of team members, odd or even, can affect cohesion. Menon and Phillips (2011) noted that teams with an odd number of members tended to have greater team cohesion than their even numbered counterparts.

High cohesion increases the tendency for groupthink (Rosh, Offermann, & Van Diest, 2012). Cohesion has a positive effect on individual performance (Stewart, Courtright, & Barrick, 2012) and team satisfaction (Picazo, Gamero, Zornoza, & Peiró, 2015). In a highly competitive environment, cohesion can offer the required advantage (Salas, Grossman, Hughes, & Coultas, 2015)

Table 2. Team atmosphere.

Team atmosphere in the literature

Authors	Team Atmosphere	Other Constructs or	Methods Used / Key
	Measures	Measures	Findings
Guzley (1992)	Organizational commitment	Organizational climate, communication climate, and tenure	Field study / Positive organizational and communication climates positively influenced organizational commitment. Tenure had a moderating effect on organizational commitment.

Authors	Team Atmosphere	Other Constructs or	Methods Used / Key
	Measures	Measures	Findings
Mullen and Copper (1994)	Cohesiveness	Performance	Literature review / Cohesiveness had a direct effect on performance.
Walther (1995)	Relational communications	CMC and face-to-face communications	Quasi-experimental / CMC did not, in itself, hinder relational communications. It did, however slow the process of establishing it.
Jarvenpaa et al. (1998)	Trust	Ability, benevolence, integrity, and propensity to trust	Quasi-experimental / Trust building exercises did not have a direct impact on trust, nor did they affect the propensity to trust.
Edmondson (1999)	Psychological safety	Learning behavior and team efficacy	Field Study / Psychological safety influenced learning behavior but not team efficacy.
Jehn and Mannix (2001)	Trust, respect, cohesiveness, conflict discussion norms, and liking team members	Group value consensus, intragroup conflict, and outcomes	Longitudinal study / Groups with a high team atmosphere most closely followed the ideal conflict profile.
Harrison et al. (2002)	Social integration (included cohesion)	Collaboration, surface- level diversity, and deep-level diversity	Quasi-experimental / frequent collaboration reduced the impact of surface- and deep-level diversity.
Abrams et al. (2003)	Trust	Behaviors, organizational factors, relational factors, and individual factors	Field study / Each of these behaviors and factors contributed to building or promoting interpersonal trust.
Crossman and Lee-Kelley (2004)	Trust and commitment	Team effectiveness and organizational efficacy	Case study / Low levels of trust and commitment negatively impacted team effectiveness and organizational efficacy.

Authors	Team Atmosphere Measures	Other Constructs or Measures	Methods Used / Key Findings
Hoegl and Proserpio (2004)	Cohesion	Proximity, work quality, communication, balance of work, and coordination	Case study / Proximity did not necessarily impact the balance of work. Active communication and coordination could offset the impact of proximity on cohesion.
Zarraga and Bonache (2005)	Trust, empathy, courage, and lenience in judgement	Knowledge transfer	Field study / Strong team atmosphere promoted both knowledge transfer and knowledge creation.
Proenca (2007)	Trust, empathy, and consideration	Team empowerment, job satisfaction, and organizational commitment	Field study / Team empowerment mediated team atmosphere, job satisfaction, and organizational commitment.
Samarah et al. (2007)	Trust, respect, cohesion, and, openness	Task type, willingness to share knowledge, shared understanding, and performance	Theoretical framework for assessing knowledge-sharing in GSS-aided virtual teams.
Johnson et al. (2009)	Commitment	CMC	Quasi-experimental / CMC could positively affect commitment to a point (90%). Beyond that point CMC had a detrimental effect on commitment.
Robert Jr et al. (2009)	Trust	Ability, integrity, benevolence, perceived risk, and disposition to trust	Quasi-experimental / Team members formed swift trust based on their disposition to trust. Once they gained more knowledge of the team members, swift trust was replaced with trust based on the other constructs.

Authors	Team Atmosphere Measures	Other Constructs or Measures	Methods Used / Key Findings
Jehn et al. (2010)	Respect, trust, and commitment	Conflict asymmetry, social processes, objective group performance, group creativity, satisfaction, and individual performance	Quasi-experimental / Conflict asymmetry negatively impacted performance and creativity. Social processes and positive group atmosphere mediated the effect.
Menon and Phillips (2011)	Cohesion	Group size	Quasi-experimental / In small groups, teams with an odd number of members had greater cohesion than teams with an even number of members.
Rosh et al. (2012)	Cohesion	Team intimacy	Literature review / Cohesion and intimacy were distinct measures. One chief difference was commitment. Cohesion is commitment to a task, whereas intimacy is a commitment to the relationship.
Stewart et al. (2012)	Group cohesion	Peer-based control and team compensation	Field study / Perceptions of peer-based control improved team reward, performance, and group cohesion.
Cogliser et al. (2013)	Group exchange structure	Team performance and team member satisfaction	Field Study / Generalized group exchange structures (which included respect) could prevent the detrimental effect of isolation on team performance and satisfaction.
Crisp and Jarvenpaa (2013)	Swift trust	Normative actions and team performance	Longitudinal quasi- experimental / Swift trust and normative actions promoted late trust and

Authors	Team Atmosphere Measures	Other Constructs or Measures	Methods Used / Key Findings
			ultimately team performance.
Ou et al. (2014)	Trust and guanxi	Effective use of CMC tools	Longitudinal study / Effective use of CMC tools increased trust and guanxi, which in turn increased the likelihood of repeat business.
Salas et al. (2015)	Cohesion	Team effectiveness and performance	Literature review / Cohesion positively impacted both effectiveness and performance. However, most definitions of cohesion do not consider its complex nature.

Task Conflict

In addition to the effect of team atmosphere on team performance, conflict and performance in traditional face-to-face teams have a long history of examination. Early pioneers were Yerkes and Dodson (1908), whose work focused on stress and habit formation. In an early acknowledgement of the impact of relationships as a team dynamic, Husband (1940) noted that, on logic problems, friends worked together better than strangers. Jehn's study (1995) is considered the seminal work on task conflict, and more recent submissions include Kostopoulos and Bozionelos (2011) and Bradley, Postlethwaite, Klotz, Hamdani, and Brown (2012).

Conflict falls into the three broad categories of process, relationship, and task. Process conflict is based on discrepant views on how resources should be allocated and who should perform team activities, whereas relationship conflict stems from personal incompatibilities (Jehn, 1995). Relationship conflict can be either the cause of or the result

of poor team performance (De Dreu & Weingart, 2003). Task conflict is differences in perceptions on approach, execution, and expected outcomes of tasks. Traditionally, researchers considered all conflict to have a negative impact on team performance (De Wit et al., 2012). In the 1990s, however, evidence began to surface that indicated some conflict was beneficial (Jehn, 1995). Task conflict has been positively associated with both team performance and atmosphere. Paul and Ray (2009) demonstrated that a positive relationship exists between task conflict and team atmosphere. Pazos (2012) demonstrated the relationship between task conflict and team performance. However, both studies were limited to temporary virtual teams that were created solely for the research.

Not all research supports the beneficial effect of task conflict on team performance. Gallenkamp et al. (2012) observed no impacts concerning task conflict and team output. De Dreu and Weingart (2003) suggested that conflict, no matter the type, had a negative impact on team performance. They did however indicate that task conflict had less of a negative impact when relationship conflict was also low. Shaw et al. (2011) further refined that idea, indicating that if relationship conflict was low, the effect of task conflict on team performance was an inverted U; that is, some task conflict was beneficial, whereas too much task conflict had a detrimental effect on team performance. This supported the results of earlier studies by De Dreu (2006) and Paul and Ray (2009). Task conflict in moderation could be beneficial to team output.

When the team atmosphere dimension is extended to encompass cultural heterogeneity and value diversity, the effects on conflict are mixed. Some studies found no effect (e.g., Gallenkamp et al., 2012), whereas others revealed that heterogeneous groups had less conflict than did homogeneous groups (e.g., Paul, Seetharaman, et al., 2004). Their

study focused on collaborative conflict management style. The reason considered behind the results was the expectation of differences in culture and values in a heterogeneous group having a moderating effect on conflict.

Table 3. Task conflict.

Task conflict in the literature

Authors	Task Conflict Measures	Other Constructs or Measures	Methods Used / Key Findings
Jehn (1995)	Intragroup conflict	Task type, individual and group performance, individual satisfaction, and team performance	Case Study / Relationship conflict negatively impacted satisfaction. Task conflict negatively impacted satisfaction but positively impacted individual and team performance.
De Dreu and Weingart (2003)	Various	Relationship team conflict, member satisfaction, performance	Literature review / Task conflict had a stronger negative impact on complex tasks. Task conflict had a less negative impact on performance when relationship conflict was low.
Paul et al. (2004)	Conflict management style	Group heterogeneity, decision quality, satisfaction, participation, and group agreement	Laboratory experiment / Collaborative conflict management positively impacted decision quality, satisfaction, and participation. The evidence linking conflict management with group heterogeneity was weak.
Hinds and Mortensen (2005)	Extent of differences and frequency	Interpersonal conflict, shared context, and team performance	Field study / Spontaneous communication could reduce or diminish the impact of task conflict.
De Dreu (2006)	Extent of differences and frequency	Innovation, relationship conflict, and collaboration	Task conflict, but not relationship conflict, had a curvilinear effect (inverted U) on innovation. Effects of task conflict were mediated by collaboration.

Authors	Task Conflict Measures	Other Constructs or Measures	Methods Used / Key Findings
Paul and Ray (2009)	Frequency of episodes	Work atmosphere and participation	Experiment / Moderate levels of task conflict improved decision quality. A positive atmosphere encouraged participation and engagement in task conflict.
Kostopoulos and Bozionelos (2011)	Conflict of ideas and frequency of conflict	Psychological safety, team performance, exploratory learning, and exploitative learning	Field study / Task conflict positively moderated the relationship between psychological safety and exploitative learning.
Shaw et al. (2011)	Extent of conflicts regarding ideas	Relationship team conflict, member satisfaction, performance	Relationship conflict had a curvilinear (inverted U) effect on the task conflict and performance relationship. Relationship conflict had a negative influence on the task conflict and team member satisfaction relationship.
De Wit et al. (2012)	Various	Proximal and distal outcomes, and relationship and process conflict	Literature review / Task conflict positively influenced performance when relationship conflict was weak. Relationship and process conflict had negative impacts on outcomes.
Gallenkamp et al. (2012)	Frequency of conflict	Diversity, process conflict, and performance	Case study / Task conflict affected process conflict but not performance. Diversity did not affect the relationship between task conflict and performance.
Pazos (2012)	Conflict management	Team commitment, satisfaction, and performance	Conflict management was an effective mediator between commitment, satisfaction, and performance.

Team Virtuality

Determining whether a team is virtual is not a black and white proposition. Virtuality is more of a continuum (Gibson & Gibbs, 2006) and is multidimensional. Several factors contribute to the determination of how virtual a team is.

Early definitions of virtual teams centered on geographical dispersion and reliance on technology (Qureshi & Zigurs, 2001; Samarah, Paul, & Mykytyn, 2002). Griffith, Sawyer, and Neale (2003) added a third dimension, time apart, and suggested that these dimensions should be measured in degrees. Shin (2004) proposed including temporal, spatial, organizational, and cultural dispersion as elements of virtuality. Both Martins et al. (2004) and Paul et al. (2004) included synchronicity in their discussion of the makeup of a virtual team. As virtual teams evolve, these dimensions will no doubt change. The effect of some will diminish, others will most likely be discovered and added to the list. Reliance on technology is an excellent example.

Johnson et al. (2009) suggested that reliance on technology for communications can negatively impact team members' connection to the team. Furthermore, Gibson and Gibbs (2006) stated that reliance on technology reduces informal communication and access to social cues. If that is the case, then advances in technology could reduce the impact of this as a factor for determining virtuality. For example, texting and instant messaging could facilitate informal communication. The growing prevalence of video conferencing could also provide visibility to social queues.

Advances in communication technology may not be the panacea for greater performance in virtual teams. Short, Williams, and Christie (1976) discussed the concepts that mediated communication, such as nonvisual computer communication, focusing their

attention on the content not the personality. This increased the chance of the recipient not understanding the context of the information. Moreover, it could reduce the ability to pick up on social cues. More prevalent and richer communication options can lead to an enhanced sense of presence (Lombard & Ditton, 1997) as well as increase the chances of relationship conflict.

Virtual teams are increasingly less defined by geographical dispersion. Indeed, it is not uncommon for a team located in the same building to behave as a virtual team (Orhan, 2014). Perry, Lorinkova, Hunter, Hubbard, and McMahon (2013) measured virtuality by the degree of the team's reliance on electronic communication, such as email and instant messaging. Hosseini, Zuo, Chileshe, and Baroudi (2015) suggested that virtuality is also defined by the quality of the communication.

Table 4. Team virtuality.

Team virtuality in the literature

Authors	Virtuality Measures	Other Constructs or Measures	Methods Used / Key Findings
Qureshi and Zigurs (2001)	Geographical dispersion, adaptive technologies, and cultural differences	Management motivation and virtual collaboration	Case study / Cultural diversity could enhance virtual collaboration. Management motivation had a positive influence on virtual collaboration, and technology was a tool, not a motivator for virtual collaboration.
Samarah et al. (2002)	Geographic dispersion and cultural diversity	Conflict management, collaboration, and performance	Experiment / Conflict management was critical to performance in virtual teams. Early results indicated a link between cultural diversity and performance.
Griffith et al. (2003)	Physical distance, time apart on tasks,	Knowledge ownership and transfer	Theoretical framework / Increased virtuality increased the transfer of implicit

Authors	Virtuality Measures	Other Constructs or Measures	Methods Used / Key Findings
	and level of tech support		knowledge into explicit knowledge. The more virtual the team, the more difficult it was to acquire tacit knowledge.
Martins et al. (2004)	Geography, time, organizational dispersion, and asynchronous communication	Performance, satisfaction, and task type	Literature review / Virtual teams required more time to complete tasks. Virtual team members tended to have lower satisfaction. Brainstorming-type tasks were better suited to virtual teams.
Paul, Seetharaman, et al. (2004)	Asynchronous communication and heterogeneity	Conflict management, decision quality, satisfaction, participation, and group agreement	Laboratory experiment / Collaborative conflict management positively impacted decision quality, satisfaction, and participation. The evidence linking conflict management with group heterogeneity was weak.
Shin (2004)	Temporal, spatial, cultural, and organizational dispersion	Person–environment (P–E) fit and person–organization (P–O) fit	Theoretical model / Individuals possessing the traits of autonomy, flexibility, and valuing diversity will have a better P–O fit in virtual organizations. Individuals with a high willingness to trust, lateral skills, and communication skills will have a better P–E fit.
Kirkman and Mathieu (2005)	Reliance on tools, information value, and synchronicity	Contextual features, task-media-member compatibility, and temporal dynamics	Theoretical model / Virtuality was not a binary condition but a multidimensional construct.
Gibson and Gibbs (2006)	Geographical dispersion, electronic dependence, dynamic structure, and	Psychologically safe communication and innovation	Case Study / The measures for virtuality each had distinct impacts on innovation and psychologically safe communication. However, no

Authors	Virtuality Measures	Other Constructs or Measures	Methods Used / Key Findings
	national diversity		significant intercorrelation existed among the measures.
Johnson et al. (2009)	Reliance on CMC	Positive affect, affective commitment, and team outcomes	Field Study / High CMC users had lower positive affect. Positive affect had a mediated influence on CMC and affective commitment. Over reliance on CMC negatively impacted team outcomes.
Perry et al. (2013)	Reliance on virtual communication tools	Social loafing, family responsibility, and dissimilarity in family responsibility	• •
Orhan (2014)	Task virtuality and team virtuality	Organizational design	Case Study / There was insufficient evidence to decide on the impact of team and task virtuality on organization outcomes.
Hosseini et al. (2015)	Dichotomy approach and virtuality approach	Various	Qualitative meta-analysis / There was a lack of consensus in the body of knowledge regarding virtuality. The increasing use of virtual teams increases the need for better understanding.

Team Temporariness

Traditionally, team types fall into two broad categories, namely temporary and ongoing. Temporary teams are assembled for a specific purpose and then disbanded once the goal is accomplished or the purpose is no longer valid. Common temporary teams are project teams. De Jong and Elfring (2010) referred to the temporary team as a short-term team. Bakker (2010) stated that the temporary team is flexible with the ability to adapt to changing requirements; ongoing teams, on the other hand, have no final goal. They are meant to continue indefinitely. Management teams are a good example of an ongoing team.

Just as virtuality is not binary, the same is true for team types. Temporary and ongoing refer to the duration or life span of the team. Tasks and time offer only a limited definition of temporary teams. To fully understand the makeup of a team, other elements, such as a sense of termination, a focus on the present, and entrainment to external activities must be considered. These elements define the temporariness of the team (Bakker & Janowicz-Panjaitan, 2009), which affects how a team behaves and performs.

A sense of termination or limited duration is the awareness that a finite number of tasks exist to accomplish or conditions to create. Once these have been completed, the team output and experiences will be institutionalized and the team will disband (Grabher, 2002). This is unlike permanent or ongoing teams, which have set routines or tasks, or an understanding exists that at the end of the current set of tasks another set will be defined. A sense of termination also promotes a focus on the tasks at hand.

Temporary team members generally have no or limited history with other members. This reduces the opportunity to live in the past. Because temporary teams eventually terminate or disband, there is also less focus on the future. As a consequence, members tend to focus on the present (Ebert & Prelec, 2007).

Entrainment is the synchronization of one activity to another activity or event (Ancona & Chong, 1996). These activities do not need to be directly related; they can be internal instead, with an example being an accounting department synchronizing activities around the end of the fiscal year. Entrainment activities can also be external, an example of which is a snow day. Although it has nothing to do with normal business operations, weather can force activities to be planned around it. Temporary teams may have an internal

entrainment; however, they are less susceptible to external entrainment (Harrison et al.,

2003; Janowicz-Panjaitan, Bakker, & Kenis, 2009)

Table 5. Team temporariness.

Authors	Temporariness Measures	Other Constructs or Measures	Methods Used / Key Findings
Harrison et al. (2003)	Entrainment	Time limits, speed, and performance quality	Experiment / Teams that repeated the tasks performed better and faster than one-shot teams. However, both entrained to the time limits equally.
Ebert and Prelec (2007)	Temporal dimensions of time sensitivity and time pressure	Normative and discounting functions	Experiment / Temporal dimensions were fragile and easily manipulated.
Bakker and Janowicz- Panjaitan (2009)	Focus on the present, timelessness, and entrainment		Literature review / A framework was proposed for defining temporariness.
Janowicz- Panjaitan et al. (2009)	Duration and awareness of impending termination		Literature review / A framework was proposed for examining temporariness on team performance.
Bakker (2010)	Time, team, and task context	Various	Literature review / Current research has been fragmented with few integrative efforts on the topic.
De Jong and Elfring (2010)	Duration	Team monitoring, team effort, trust, and performance	Case study / Team monitoring and effort have positive mediating effects on the relationship between trust and performance in ongoing teams. This is different and distinct from how it affects short-term teams.

Authors		Temporariness Measures	Other Constructs or Measures	Methods Used / Key Findings
Crisp Jarvenpaa (2013)	and	Duration	*	Longitudinal quasi- experimental / In short-term ad- hoc teams, swift trust and normative actions promoted late trust and ultimately team performance.

Time and duration are consistent themes in the literature on temporariness. Also present are entrainment, focusing on the present, and an awareness of the end of the team. Just as temporariness influences teams, so too does outsourcing and the manner in which it is implemented.

Strategic Alignment of Outsourcing

Although virtual teams can be the result of the geographical constraints of an organization, often they are also the byproduct of outsourcing (Martins et al., 2004). Increasingly, offshore outsourcing solutions are being applied in organizations. IT outsourcing can not only make good economic sense but can also be a strong strategic move. In some cases, it is required for competitive advantage (Park et al., 2011). Although outsourcing is becoming more widespread, it is not an automatic formula for success (Han et al., 2008). When structured correctly, outsourcing can provide flexibility and fluidity in both managing the size of the workforce and expertise required (Harris, Giunipero, & Hult, 1998). This can be critical in a volatile or rapidly changing market.

Not all outsourcing is the same. Sanders, Locke, Moore, and Autry (2007) divided outsourcing arrangements along two dimensions, namely scope and criticality. Scope identified the level of decision-making that was given to the outsourcing entity, whereas criticality referred to the importance a task being a business' core function. Other studies

have divided the dimensions into three categories: the degree of outsourcing, contract terms, and relational governance. The degree of outsourcing included the strategic nature of the relationship and top-down support; contract terms involved items such as duration, size, and details; and relational governance measured trust, cooperation, and sharing information (Lacity, Khan, & Willcocks, 2009; Sanders et al., 2007).

Kishore, Rao, Nam, Rajagopalan, and Chaudhury (2003) divided outsourcing relationships into the four categories of support, reliance, alignment, and alliance. They referred to this as the FORT (four outsourcing relationship types) Model. These categories are determined by the strategic impact and the level to which the relationship substitutes or displaces resources. Each of these types of outsourcing arrangement has a distinct relationship with the contracting company. Support relationships are the traditional vendor services type of support; they do not have a strategic impact nor is there a significant amount of resource substitution from the outsourcing vendor. Reliance relationships are like support but they involve a deeper commitment from both parties and are generally for longer periods of time. A reliance relationship has a greater number of resources outsourced to the vendor, but the strategic impact is still minimal to moderate. Alignment relationships tend to be project-based. The resource displacement is not significant but the strategic impact on the organization is. Alliance relationships are more a joint venture than a partnership. Alliances displace employees and have a strategic impact on the organization. Additionally, outsourcing relationships tend to evolve or progress over time from one type to another (Moon, Swar, Chan Choe, Chung, & Hyun Jung, 2010)

The more complex the outsourcing relationship, the greater the chance of competing needs between the client and vendor, as well as among subteams within the

contract. This can lead to conflicting priorities, and subsequently task conflicts (Van den Berg, Curseu, & Meeus, 2014). Indeed, Moe and Šmite (2008) indicated that in global development teams, conflict is inevitable. When no method is in place to manage this conflict, trust can suffer as a consequence (Jarvenpaa & Leidner, 1999; Kanawattanachai & Yoo, 2002)

When outsourcing is combined with downsizing, this can have a detrimental effect on morale. In turn, this can have a negative impact on productivity and performance (Elmuti, 2003; Yang, Kim, Nam, & Min, 2007). In more extreme cases of outsourcing, remaining employees can exhibit signs of "survivor's syndrome" (Kulkarni, 2008). This is a form of post-traumatic stress disorder, which if not managed correctly can undermine any benefits gained through the outsourcing.

Table 6. Strategic alignment of outsourcing.

Strategic alignment of outsourcing in the literature

Authors	Outsourcing Measures	Other Constructs or Measures	Methods Used / Key Findings
Harris et al. (1998)	Price flexibility, renegotiation flexibility, contract duration, early termination flexibility, and incentives	Organization stability and management satisfaction	Case study / Except for price flexibility, all other measures positively impacted management satisfaction.
Rajkumar and Mani (2001)	Key elements include: management factors, project factors, customer factors, and staff factors		Conceptual / Missing these key elements can cause companies to fail to achieve the desired cost and efficiency benefits.

Authors	Outsourcing Measures	Other Constructs or Measures	Methods Used / Key Findings
Elmuti (2003)	Familiarity with outsourcing strategies and reason for outsourcing	Performance against stated objectives and associated success factors	Field study / Many companies consider outsourcing a success even when failing to demonstrate improved organizational performance.
Kishore et al. (2003)	FORT framework	Cost and risk	Longitudinal case study / Companies should carefully consider all objectives, not just cost, moving between FORT quadrants can be costly and risky once the relationship is set.
Sanders et al. (2007)	Out-tasking, managed services, business process outsourcing, and transformational outsourcing	Risk/benefits, appropriateness, role of supplier, unexpected issues/outcomes, and satisfaction	Qualitative structured interview / Successful outsourcing must be highly tailored to fit the situation. Key elements to success are flexibility and dynamic.
Yang et al. (2007)	Business process outsourcing (BPO)	Risk, expectations, and environment	Conceptual / Using these characteristics, companies should build their own quantitative model for determining whether BPO is a good fit.
Han et al. (2008)	Organization's relationship capability, vendor's management capability,	Firm's IT capability, trust, information sharing, communication quality, collaborative participation, and commitment	Case study / Except for the firm's IT capability, all the constructs had a positive influence on the success of the outsourcing.
Moe and Šmite (2008)	All were global software development teams	Trust, communication, language skills, and socio-cultural norms	Multiple-case study / Trust in the outsourced team was negatively impacted by poor communication, lack of language skills, and socio- cultural differences.
Lacity et al. (2009)	Outsourcing decision, contractual	Various	Conceptual / Business alignment and a clear outsourcing strategy were the

Authors	Outsourcing Measures	Other Constructs or Measures	Methods Used / Key Findings
	governance, and relational governance		keys to a successful outsourcing arrangement. Also required was executive involvement in defining objectives and managing relationships.
Moon et al. (2010)	FORT Framework		Field study / In the public sector, alliance relationships were most successful.
Park et al. (2011)	Vendor's human character	Client's human character, client's human capability, trust, cooperative learning, and knowledge transfer	Field study / Vendor's human character positively influenced trust, which influenced cooperative learning and knowledge transfer.

Striking the right balance between onshore and offshore resources is critical to both the success of the relationship and profitability of the venture (Rajkumar & Mani, 2001). As the relationship matures, the mix ratio of offshore to onshore resources can increase. Often with complex projects, there are significantly more onshore then offshore resources. Onshore personnel can also assist in bridging any language and cultural barriers.

Job Security

Job security and stability have different meanings in different situations. For example, it can mean the consistency in the day-to-day operations of the organization (Feldman & Pentland, 2003; Tsoukas & Chia, 2002; Vaaland & Håkansson, 2003). The lack of disruptions in the normal functions and the sameness of routines and relationships provide a stable environment. This type of job security is interrupted by conflict and confrontation.

Cultural change is another factor that can have an effect on job security (Langan-Fox & Tan, 1997). Organizational culture is a collective set of understandings on the norms of the group. Furthermore, organizational culture is considered to be stable and immutable. When circumstances dictate change, adaptation or the inability to adapt can be a disruptive force to a stable environment. These changes are not always caused by internal forces. Stability can also be adversely affected by external factors such as market volatility regulatory changes. This is what Boyne and Meier (2009) referred to as environmental turbulence, and it can also be created by economic downturns. During difficult times, companies are often required to reduce their labor force to survive (Lucky, Minai, & Hamzah, 2013). The effect on job security can linger long after the workforce reduction has taken place.

Scheve and Slaughter (2004) proposed that there is less job security in foreign-owned plants. The thinking was that foreign companies could move jobs from country to country more easily than domestic companies. However, in a study by Andrews, Bellmann, Schank, and Upward (2012), the opposite was shown to be true. In the instances they reviewed, foreign-owned plants were less likely to close. When it comes to job security though, perception generally trumps reality.

Loyalty and job security play a large part in employee morale (Chang, 2010). Often with a loss of security and sense of loyalty goes productivity. This can affect not only individual productivity but also organizational performance (Lucky, Minai, & Rahman, 2013), which are key dimensions of team atmosphere and performance, respectively.

Table 7. Job security.

Job security in the literature

Authors	Job Security Measures	Other Constructs or Measures	Methods Used / Key Findings
Feldman and Pentland (2003)	Organizational routines	Agency and power	Conceptual / Security can be disrupted when organizational routines change. This can be exacerbated when change directly affects the employee, who has no choice in the change.
Yang et al. (2007)	Morale (as a part of risk)	Risk, expectations, environment, and BPO	Conceptual / Miscalculating risk could negatively impact employee morale.
Bartol, Liu, Zeng, and Wu (2009)	The perception of the commitment to employment	Knowledge-sharing	Field study / Perceived organizational support promoted knowledge-sharing when it was accompanied by job security.
Chang (2010)	Job security as a dimension of career anchors	Turnover behavior and career anchors	Case study / There was a direct connection between career anchors and turnover behavior. Career anchors changed throughout the employees' career.
(Andrews et al., 2012)	Perception of job security	Plant ownership	Field study / In general, foreign-owned plants did not have a higher closure rate. However, small, privately-owned, foreign-owned plants did had a higher risk of closure.
Geishecker et al. (2012)	Skill and wage levels	Outsourcing	Case study / Highly skilled employees were more sensitive to job loss through outsourcing. However, low wage earners were more susceptible to job loss through outsourcing.
Lucky, Minai, and Hamzah (2013)	Confidence in retaining job	Economic downturn and employee skills	Conceptual / Economic downturn could negatively impact an employee's confidence in job security. Skill level has a minimal impact.

Authors	Job Security Measures	Other Constructs or Measures	Methods Used / Key Findings
• .	Ethnic preference and economic pressures	Organizational performance	Conceptual / Economic pressure can increase job insecurity, as can a perceived preference for another ethnicity. This job insecurity can negatively impact organizational performance.

Hypotheses Development

Before discussing the hypotheses, a clear understanding of the constructs is necessary. The research model had seven constructs: team performance, team atmosphere, task conflict, virtuality, job security, temporariness, and outsourcing. Based on the literature review, the following were the construct definitions used to build the hypotheses.

Adapting the construct developed by Ancona and Caldwell (1992), team performance measured output, efficiency, and timeliness. Output was the volume and quality of the product of the team; efficiency referred to the elegance of the process; and timeliness measured the team's ability to meet deadlines.

Trust, respect, and commitment were the key dimensions that comprised the construct of team atmosphere (Jehn et al., 2010). Trust created a safe space for taking risks; respect was the openness to others' opinions and ideas; and commitment was the level of engagement or buy-in with the team.

Distilled from Hinds and Mortensen (2005), the construct for task conflict included the amount of conflict, frequency of its occurrence, and the level of tension created by task conflict. The amount was the overall number of incidents, whereas the frequency referred to the timing of the conflicts; for example, whether they mostly occurred at the outset or

whether task conflicts occurred throughout the life of the team. Tension was a measure of the openness to conflict and the ability to manage it.

Virtuality was based on the construct by Perry et al. (2013). This construct was adapted from Hamilton and Mohammed (2008), which was based on the conceptual construct by Kirkman and Mathieu (2005). The dimensions selected were reliance on virtual tools, information value, and synchronicity. Reliance on virtual tools referred to the level that technology was used to communicate as opposed to face-to-face meetings. Information value measured the richness of the content and the media; for example, unlike video conferencing, texting was less effective at conveying subtexts or nuances. Synchronicity was the ability to communicate in real or near real time with other team members.

Job security was based on the work by Bartol et al. (2009). Their construct was adapted from the *Psychological Contract Inventory* (Rousseau, 2000), particularly the dimensions of the employer's commitment to employment. It included both the perception of long- and short-term commitment. An employee's perception of their employer's commitment to providing long-term employment can have a strong influence on his or her sense of job security.

This study examined temporariness as proposed by Janowicz-Panjaitan et al. (2009). They suggested the dimensions of temporariness as being a sense of termination and focus on the present. A sense of termination was the awareness that the team would disband at some time in the future. When there was no history or past relationships with the team members and no plan for future shared activities, team members tend to be more focused on the present.

Outsourcing measured the substitution of vendor resources for internal resources and the strategic impact of the relationship (Lee, Park, & Moon, 2013). Utilizing these dimensions, the outsourcing relationship could be assigned to one of four categories: support, reliance, alignment, or alliance.

The aforementioned definitions were the basis for developing the hypotheses. The following sections review the relationships among the constructs, and according to this examination, the hypotheses were formulated.

Team Virtuality and job security

Using Kirkman and Mathieu's (2005) construct for virtuality, this study examined reliance on virtual tools, information value, and synchronicity. The use of virtual tools is also referred to as CMC. For this study's purposes, CMC encompassed (but was not limited to) email, video, and audio conferencing; social media; texting; instant messaging; and collaboration tools such as Google docs.

Diversity can create a sense of alienation with teams. Evidence indicates that the use of CMC can mitigate this sense of alienation. For example, early use of CMCs promoted a feeling of inclusion for women in a male-dominated team (del Carmen Triana, Kirkman, & Wagstaff, 2012). Prior experience with CMC technology can also expedite team cohesion in a virtual team environment (Carlson et al., 2013).

Another critical factor in team virtuality is information value. Media richness generally refers to a communication tool's ability to provide rich content. For example, because video conferencing allows team members to see and react to social cues more readily than audio conferencing, it is considered a richer media. Information value, on the

other hand, not only encompasses the tool's ability to communicate rich content but also considers the actual information transmitted with the tool. Any communication tool is only as good as the team's ability to utilize it (Kirkman & Mathieu, 2005).

Additionally, trust can be a challenge in virtual team. This is particularly true for team members with a low propensity to trust. The lack of timely responses in an asynchronous environment and the reliance on technology can exacerbate trust building (Germain, 2011). However, the proper selection and use of technology can help foster trust in virtual teams (Kanawattanachai & Yoo, 2002).

Just as trust is integral to team atmosphere, so too is commitment (Oza et al., 2006; Søderberg et al., 2013). Moreover, like trust, commitment can be challenging to establish and maintain in virtual teams. Face-to-face time is considered a facilitator for creating commitment in teams (DeSanctis & Monge, 1999). Virtual teams must make a conscious effort to compensate for the lack of spontaneity that is often present in dispersed teams (Crossman & Lee-Kelley, 2004).

As with commitment, team cohesion is an essential element that aids team performance (Harrison et al., 2002; Johnston & Rosin, 2011). Team cohesion is a social dimension used to measure interpersonal interactions (Mullen & Copper, 1994). Technology selection and information value can influence cohesion. Tools that are overly focused on task or have media that is less rich can lead to a *cold team* (Figl & Saunders, 2011). Cold teams do not consider team members' wellbeing, and usually have weaker cohesion. Regarding task conflict, the impact of information value is less important at the outset of a virtual team. However, a lack of media richness limits team members' ability to transmit nuances and subtleties. This can lead to relationship conflict later on (Martínez-

Moreno, Zornoza, González-Navarro, & Thompson, 2012). Notably, the opposite tends to be true for synchronicity.

Synchronicity is the timing of communications between team members. Synchronous communications are in real time or near real time. Common examples of synchronous communications are video conference and instant messaging. By contrast, asynchronous communication does not require all participants to be present and engaged simultaneously. Email is a classic example of asynchronous communication. Synchronous communication is better suited to establishing a positive social environment. The structured nature of asynchronous communication lends itself to resolving task conflict (Figl & Saunders, 2011)

Virtuality increases along with reliance on virtual tools. Factors that also contribute to virtuality are lowered information value and the use of asynchronous communication. Hence, this study proposed the following hypothesis:

H1: The greater the virtuality of the team, the more negative the impact on team atmosphere.

Lowered information value can also impact how messages and requests are interpreted. For example, in a virtual team, a request for clarification could more easily be viewed as a challenge to the current approach. Hence, this study proposed the following hypothesis:

H2: The greater the virtuality of the team, the more reduced the task conflict.

Job security also influences team atmosphere and task conflict, which is based on Rousseau's (2000) psychological contract inventory. The psychological contract is subjective and unique to each employee (Braekkan & Tunheim, 2013; Wade-Benzoni,

Rousseau, & Li, 2006). This study focused on the employee's perspective. Furthermore, it was limited to the relational and transitional dimensions.

Relational elements involve obligations between the employer and employee. One element of these obligations is the employee's perception of the employer's commitment to long-term job security and the employee's expected tenure. For example, a contract employee is generally not promised long-term employment, nor do they expect it. However, permanent employees are more likely to perceive an employer as having an obligation to provide long-term employment and job security. When these two elements, or the perception of them, are in alignment, employees are more likely to commit to the organization or team (McInnis, Meyer, & Feldman, 2009).

Just as job security can impact commitment, the lack of job security can impact task conflict. Hon and Chan (2013) referred to job security as hindrance-related stress. Their study demonstrated hindrance-related stress was negatively associated with task conflict.

Elements of the transitional dimension of job security include mistrust, uncertainty, and erosion. These can have a negative impact on the employee–employer relationship. For example, a breach (or perceived breach) in the employer's obligation to provide long-term job security can lead to a lack of trust and commitment to the organization (Bal, De Lange, Jansen, & Van Der Velde, 2008).

Job security, both promised and implied, can have a positive impact on both the team atmosphere dimensions of trust and commitment. Furthermore, it can provide a safe work environment. When a promise is offered but then breached or otherwise compromised, employees can lose trust and commitment to the organization. Moreover,

this breach can negatively impact task conflict. Hence, this study proposed the following hypotheses:

H3: The greater the sense of job security, the greater the team atmosphere.

H4: An increased sense of job security will increase task conflict.

Strategic alignment of outsourcing and team temporariness

The outsourcing construct created by Lee et al. (2013) measured the substitution of vendor resources with internal resources and the strategic impact of the relationship. These results were then plotted on a 16-grid FORT chart. This outsourcing construct was adapted from Moon, Swar, Choe, Chung, and Jung (2010) who, in turn, based their work on the original FORT model by Kishore et al. (2003). In the FORT model, the greater the substitution of resources and the greater the strategic impact of the relationship, the more strategically aligned the outsourcing arrangement.

One source of conflict in teams containing outsourced members is competing underlying goals. For example, aside from the stated goals of the team, the financial arrangement of the outsourcing can contribute to conflict. Outsourcing expenses for the client are revenue streams for the vendor. This can cause each side to approach tasks differently. These disparate approaches can lead to task conflict (Mathieu, Marks, & Zaccaro, 2001).

Strategically aligned outsourcing arrangements tend to support complex projects that may also have a higher degree of uncertainty (Rai, Maruping, & Venkatesh, 2009). The relationship tends to be more mutually beneficial; that is, the benefit extends beyond the financial arrangement. This can promote joint problem solving. With an increased

investment in the outcome of the team, a greater propensity exists for offering alternate opinions on tasks and their execution. Hence, this study proposed the following hypothesis:

H5: The more strategically aligned the outsourcing, the greater the occurrence of task conflict.

Just as the strategic alignment of the outsourcing arrangement can influence task conflict, so too can team temporariness. Janowicz-Panjaitan et al. (2009) proposed the dimensions of temporariness as being a sense of termination, a focus on the present, and entrainment to external activities. Each of these has an impact on task conflict.

The shorter the term, or greater the sense of termination of the team, the more likely task conflict can evolve into relationship conflict (Curseu, Boros, & Oerlemans, 2012; Druskat & Kayes, 2000). The task-focused nature of temporary teams can lead to views that task conflict is a distraction from the job at hand. When the team has little or no history of working together, team members can more easily misinterpret task conflict as obstructionist.

Nearly all team members today are affected by multiple and often competing activities. Some are personal, such as coordinating family activities with work, whereas others can be work-related, such as membership of multiple teams with competing priorities and deadlines (O'leary, Mortensen, & Woolley, 2011). Each of these memberships can cause an entrainment unique to the individual team member. Excessive entrainments can diffuse attention to tasks (Cummings & Haas, 2012), and can also lead to what Perlow (1999) referred to as "time famine," which is the sense that there is too much to do and not enough time in which to do it. Debate and discussions regarding task conflicts can be viewed a waste of time. This, along with the sense of termination and focus on the

present, can lead to reduced or suppressed task conflict within the team. Hence, this study proposed the following hypothesis:

H6: The greater the temporariness in the team, the more increased the task conflict is.

Team atmosphere and task conflict

Both trust and commitment can play a role in managing task conflict. This is especially true in outsourced arrangements. A lack of either of these dimensions can cause behavior to appear opportunistic. This can lead to increased conflict (Søderberg et al., 2013). Likewise, trust and respect can positively influence task conflict (Bradley et al., 2012). Team atmosphere can also have an indirect impact on task conflict. Paul and Ray (2009) demonstrated the intervening construct of participation; team atmosphere had a positive influence on participation, and in turn participation had a positive influence on task conflict.

Trust, respect, and commitment are key dimensions of team atmosphere (Jehn et al., 2010). Trust can play a powerful role in task conflict. It can even increase task conflict (Olson, Parayitam, & Bao, 2007). Trust creates a safe space that allows opposing or alternate options to be presented. Low trust, in turn, can decrease task conflict (Dirks & Ferrin, 2001; Simons & Peterson, 2000). A lack of trust can suppress the contribution of thoughts and ideas. Hence, this study proposed the following hypothesis:

H7: A positive team atmosphere is related to increased task conflict.

Team atmosphere and task conflict on team performance

Jehn et al. (2010) modeled their construct of team atmosphere with the dimensions of trust, respect, and commitment. The relationship between trust and team performance has been well documented (Jarvenpaa & Leidner, 1999; Jehn, Greer, Levine, & Szulanski, 2008; Peters & Karren, 2009). However, all trust is not the same. In short-term or ad-hoc teams, swift trust is required. This fragile form of trust is required to ensure team performance (Crisp & Jarvenpaa, 2013). Over time, the presence of this initial trust can positively influence a deeper ongoing trust (Lee & Choi, 2011). Similar to trust, commitment is a necessary element of team atmosphere for team performance.

In virtual teams, commitment often takes time to develop. In the absence of swift trust, both trust and commitment develop over time and extended involvement in the team (Crossman & Lee-Kelley, 2004). Maznevski and Chudoba (2000) associated commitment with decision quality, a vital element of team performance.

Respect is the third dimension of team atmosphere examined in this study. Perceptions of disrespect can have a detrimental effect on commitment and trust, one source of which is poorly managed conflict. When a team member's opinion or suggestion is not given due consideration, this can cause a feeling that his or her ideas are less valid than those of others, which can lead to a sense of disrespect. Respect, or the perceived lack of it, can affect a team member's effort (Sleebos, Ellemers, & de Gilder, 2007). This combined with the documented effects of trust and commitment on team performance indicate that a direct correlation exists between team atmosphere and team performance. Hence, this study proposed the following hypothesis:

H8: In virtual teams, a positive team atmosphere will have a positive influence on team performance.

Moderate amounts of task conflict can positively influence performance when the conflict is seen as a challenge rather than a threat (Jehn et al., 2012). In addition to the amount of task conflict, its timing can also impact its effect on team performance. Jehn and Mannix (2001) demonstrated that a moderate level of task conflict occurring half way through a task actually improved performance. Thus, moderation is the key.

A "Goldilocks" effect exists with task conflict. Too little conflict and the team risks not fully analyzing the task at hand. This would adversely affect the performance of the team. Conversely, too much task conflict can be viewed as obstructionist, which can lead to relationship conflict and negatively impact the team's performance. Task conflict in moderation, or "just the right amount," can be stimulating to the team and ensure a consensus on task execution. This can have a positive influence on team performance (De Dreu, 2006; Paul & Ray, 2013; Shaw et al., 2011). Hence, this study proposed the following hypothesis:

H9: Task conflict will have an inverted U-shaped curvilinear influence on team performance.

Theoretical Model

Following the IPT (Pelled, Eisenhardt, & Xin, 1999), this model posited that the constructs of team virtuality, job security, strategic alignment of outsourcing, and team temporariness do not directly affect team performance. Indeed, what Lawrence (1997)

referred to as a "black box" exists in the model. In this case, the "black box" contained the constructs of team atmosphere and task conflict.

As enumerated in the previous sections, considerable research has supported the relationship between team atmosphere and task conflict with team performance. Furthermore, the effects of team virtuality, job security, strategic alignment of outsourcing, and team temporariness on team atmosphere and task conflict have been studied. The present study's model examined whether the effect these constructs had on team atmosphere and task conflict translated into team performance.

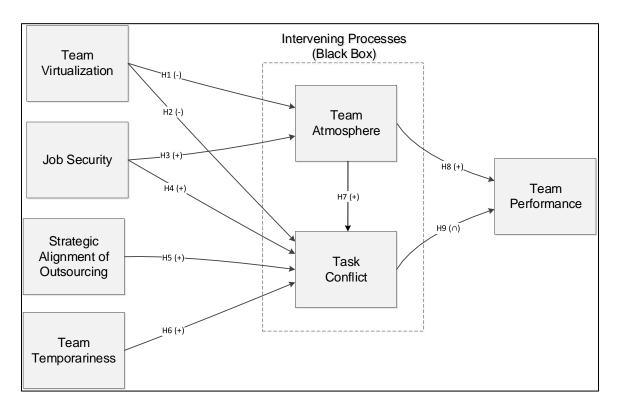


Figure 2. Intervening processes model.

Summary

The relationships between and among many of the constructs have been studied. Ample evidence has demonstrated the importance of team atmosphere and task conflict on team performance. Evidence also exists that the constructs of virtuality, temporariness, outsourcing, and job security, both individually and in certain combinations, have influenced team atmosphere and task conflict. However, gaps exist in the literature. During this investigation of the literature, this study uncovered no work that examines these constructs as a complete set. The present study fills that gap.

Chapter 3

Methodology

This chapter presents the methodology for the study. The first section provides an overview of the methodology. Next, the research setting is outlined, which includes a description of the sample characteristics and discussion of the sample size. Subsequently, the research design and proposed administration of the survey are presented. Finally, a discussion provided on how the data were gathered and presented. The chapter ends with identifying the required resources and summarizing the chapter.

Overview of the Research Methodology

This study utilized a survey instrument to gather the data necessary to test the hypotheses. These data were used to examine the effect of team virtuality and temporariness, outsourcing, and job security on team atmosphere, task conflict, and team performance. The participants were members of existing virtual teams from a cross-section of industries. Information was gathered through an online survey, which was designed for this study. The results were tabulated and analyzed to determine the validity of the relationships.

The research presented here was built on the foundation of the IPT. This theory, developed and initially tested by Pelled et al. (1999), posits that expected outcomes will not occur unless a set of sequential events or conditions are met. Their original study examined the effects of diversity, conflict, and team longevity on performance. Subsequent studies have included job security (Pelled, Ledford Jr, & Mohrman, 1999), virtual teams (Kanawattanachai & Yoo, 2007), and outsourcing (Han et al., 2008). This research was a

confirmatory survey, attempting to validate the hypotheses set forth in the previous chapter (Forza, 2002).

Research Setting

Participants were recruited through the Project Management Institute (PMI) website. The PMI is an organization of project professionals with membership in excess of 454,000 across 195 countries. Projects teams were ideal for this study. They are temporary in nature and have specific goals upon which to measure performance (Turner & Müller, 2003). Outsourcing expertise for projects has become more prevalent. This is particularly true for IT projects. Much of this outsourcing is offshore, and this requires an increased level of virtuality in a team's composition (Qi & Chau, 2012).

Sample characteristics

The sample consisted of individuals who were currently, or recently, members of one or more team. These members were a cross-section of leaders, full-time, and part-time participants, and included employees, contractors, and vendors. The sampling of roles was crucial for understanding the impact that the various team characteristics had on the constructs. Members of temporary teams should have varying degrees of temporariness and virtuality.

The unit of analysis was individual team members. The goal was not necessarily to engage entire teams or even both sides of the same outsourcing contract. The individual responses were used to understand the relationships between the constructs. From the results, conclusions were drawn to provide an overall understanding of the model.

Data collection

This investigation utilized an online survey. Online surveys offer many benefits for this type of research. They provide global reach for participation (Evans & Mathur, 2005). Furthermore, online surveys are convenient for respondents, and for the researcher, they offer greater control over limited response options and ensure completeness.

Early research indicated that, aside from a lower response rate, one weakness of online surveys was that they were not necessarily representative of the general population. Specifically, they tended to skew toward upscale males (Wilson & Laskey, 2003). Because the target audience for this research was virtual team members, technical savvy should not be a limiting factor. Access to technology and a rudimentary ability to use it should be a requirement for nearly all virtual teams.

Sample size

Establishing and satisfying an appropriate sample size is a critical element of quality research. If a sample size is too small, this can negatively affect the reliability of the research (Shah & Goldstein, 2006). Additionally, research utilizing a smaller sample size is more prone to bias and less likely to be replicated (Jackson, 2003). The minimum sample size can be determined by the effect size (ES), which is the size or magnitude of the difference between two groups. Cohen (1992b) referred to it as "the discrepancy between the null hypothesis and the alternate hypothesis of interest." To facilitate determining the ES, Cohen divided it into three groups: small, medium, and large. The values for these sizes were 0.20, 0.50, and 0.80, respectively.

A common method for calculating ES, also known as Cohen's d (Cohen, 1962; Fritz, Morris, & Richler, 2012), is to compare the results of two conditions (Fritz et al., 2012). Elements required to determine the ES are the number of subjects in each study (n), mean of the responses (m), and standard deviation (s).

Table 8: Effect size data sources and results.

Construct	Source	n	m	S	d
Team Performance	(Ancona & Caldwell, 1992) $_t$ (Pazos, 2012) $_c$	409 141	3.50 3.69	0.41 0.69	0.540
Team Atmosphere	(Jehn et al., 2008) $_t$ (Jehn et al., 2010) $_c$	223 167	5.73 5.61	0.57 0.95	0.231
Task Conflict	(Hinds & Mortensen, 2005) <i>t</i> (De Dreu, 2006) <i>c</i>	26 109	2.51 2.64	0.51 0.32	0.476

Table 8 lists the sources and requisite data used to calculate the ES for the constructs of team performance, team atmosphere, and task conflict. Utilizing these values, the *d* results were 0.540, 0.231, and 0.476, respectively. Team atmosphere, at 0.231, was very close to the small ES; however, team performance and task conflict both closely straddled the 0.50 of a medium ES. For the purposes of this research, the sample size was based on the medium ES.

The significance criterion (α) indicates the probability of a Type I error. This is when the null hypothesis (H₀) is mistakenly rejected. Conventionally, the significance criterion is either .01 or .05 (Cohen, 1992b). Conversely, the risk also exists of incorrectly acknowledging that H₀ as plausible, which is referred to as a Type II error. The statistical

power (P) is the long-term prospect of rejecting the H_0 . The formula for calculating P is P = $1 - \beta$. Cohen (1992b) suggested that in the absence of any other basis for determining β , the default value should be .20. This gives .80 as the value of P.

The most complex regression test in the model consisted of six constructs: team virtuality, job security, the strategic alignment of outsourcing, temporariness, team atmosphere, and task conflict. Based on Cohen's (1992a) table for determining sample size, with ES = .50 and α = .10, the minimum number of subjects (n) required for this study was 97.

The response rate for online surveys averages 25% (Sauermann & Roach, 2013). The number of incomplete surveys returned for online surveys is approximately 30% (Bosnjak & Tuten, 2003). Therefore, to receive the required number of responses of 97, a minimum of 323 prospective participants had to be contacted.

Instrumentation and the Operationalization of Variables

Each construct in the instrument was based on previously developed and validated constructs. This research utilized formative constructs. To the extent possible, this study measured indicators rather than perceptions (Diamantopoulos, 2011). Each construct was adapted as needed to fit this format. Unless otherwise noted, the variable for each construct utilized a seven-point Likert scale.

Team performance

Team performance was measured using output, efficiency, and timeliness. These variables were adapted from the construct of Ancona and Caldwell (1992). Variables

included the volume and quality of the team's output, efficient use of time and resources, and the team's ability to meet deadlines.

Team atmosphere

Team atmosphere was from the vantage point of the individual. Based on the construct by Jehn et al. (2010), team atmosphere measured the perception of trust, respect, and commitment. Statements include "I like the other team members," "The team can count on me," and "I respect the other team members." The responses were captured with a seven-point Likert scale (7 = strongly agree).

Task conflict

Task conflict was based on research by Hinds and Mortensen (2005). This construct measured the amount of conflict regarding ideas, work, and opinions. A sample statement for this construct would be "There is disagreement on how to perform tasks." A seven-point Likert scale was used to capture these responses, ranging from 1 = never to 7 = very frequently.

Virtuality

The construct of virtuality was adapted from the work of Perry et al. (2013), which was based on a framework proposed by Kirkman and Mathieu (2005). Specifically, it was based on the dimensions of reliance on virtual tools, information value, and synchronicity. These dimensions were captured using questions such as "My team relies heavily on technology to communicate (i.e., email, phone, instant messaging...)" and "My team works and collaborates in real-time. There are no delays due to differences in time zones or work

hours." Again, the responses were captured using a seven-point Likert scale (7 = strongly agree).

Job security

Bartol et al. (2009) adapted their construct for job security from Rousseau (2000), and that adaptation was utilized here. The three items measured were: a commitment to only short-term employment, a favorable impression of long-term employment, and the understanding that employment can be terminated at any time.

Temporariness

Janowicz-Panjaitan et al. (2009) suggested that a sense of termination and a focus on the present were dimensions of temporariness. These were later operationalized by Bakker et al. (2013). This study adapted this construct, and sample questions statements included "I thought a lot about what I would do after the team was disbanded" and "All my attention was focused on the activity at hand."

Outsourcing

Outsourcing measures the substitution of vendor resources for internal resources and the strategic impact of the relationship (Nam, Rajagopalan, Raghav Rao, & Chaudhury, 1996). Utilizing these dimensions, the outsourcing relationship can be assigned to one of four categories: support, reliance, alignment, and alliance (Kishore et al., 2003). For the purposes of this study, the construct developed by Goo, Kishore, Nam, Rao, and Song (2007) was adapted. Questions included "Outsourced personnel on my team are integral in providing my company/organization with a strategic advantage over the competition," "Physical facilities/equipment have been procured and/or dedicated specifically to support

the outsourced members of the team," and "When working with the outsourced team, sometimes I alter the facts slightly to get what I need." The responses were recorded with a seven-point Likert scale (7 = strongly agree) (Kishore et al., 2003).

Validity and Reliability

The veracity of the results for any study is the key to their acceptance (Sekaran, 2003). To ensure this research was reporting on the intended target, a series of tests were conducted, which assisted in determining the validity and reliability of the measures used to conduct the study.

Online surveys tend to contain a higher than normal amount of inconsistent or "dirty" responses. As such, extra care was required to clean the data and ensure validity. To help better understand the constructs, a small pretest consisting of approximately 20 responses was conducted.

Validity

Content validity tests how well a construct, or other test, measures the area or subject it was meant to measure. Straub, Boudreau, and Gefen (2004) referred to content validity as one of the more important forms of validity. Content validity should be addressed before collecting data (Petter, Straub, & Rai, 2007). One method of increasing content validity is to utilize constructs from previous research, which was the approach employed in the present study.

Construct validity addresses congruity. Bernstein and Nunnally (1994) defined it as "determining the extent to which observables tend to measure the same thing." Straub et al. (2004) stated that construct validation was not optional. It helps ensure that no gaps

or overlaps exist in the construct definitions (MacKenzie, Podsakoff, & Podsakoff, 2011). A clear understanding of the domain of the construct is critical to construct validity. One method, and the method employed in this study, for effectively articulating the construct is through a thorough review of the literature (MacKenzie et al., 2011).

Statistical conclusion validity evaluates the mathematical relationship among constructs (Straub et al., 2004). This is crucial because statistical validation ensures that the formulas used accurately reflect the relationships. Statistical conclusion validation also reduces the risk of Type I and Type II errors (Straub et al., 2004). One method for improving it is through increased statistical power. An appropriate sample size can increase statistical power (Wolf, Harrington, Clark, & Miller, 2013). As previously described in this paper, the method for calculating the correct sample size was addressed.

Reliability

Whereas validity concerns relationships between constructs, reliability addresses consistency within a construct (Straub et al., 2004). Reliability testing is utilized to ensure that the items used to operationalize the construct are correct and compatible. Cronbach's alpha is commonly used to measure reliability (MacKenzie et al., 2011), which is the average of the intercorrelations of the items measuring a construct (Sekaran, 2003). The closer to 1, the more reliable the construct is considered to be. Any value over 0.7 is considered acceptable.

Data Analyses

The purpose of data analysis is to understand the goodness of fit of the data and use it to test the developed hypotheses (Sekaran, 2003). Additional functions of data analysis

include checking for its completeness and quality (Gall, Borg, & Gall, 2002). Pre-analysis is necessary to ensure accuracy, identify missing data, and address extreme cases and outliers (Levy, 2006). Once the data had been collected and pre-analyzed, they were run through a series of regression tests.

Regressions testing is appropriate when examining the relationships among constructs (Gefen, Straub, & Boudreau, 2000). For this study, four multiple regression tests and one curvilinear regression test were conducted; one for each unique set of construct relationships. The relationship between task conflict and team performance was assumed to be curvilinear, and thus curvilinear regression analysis was used to test it (De Dreu, 2006; Jehn, 1995). The regression assumption was that all other construct relationships were linear.

Regression tests were conducted on each unique combination of constructs. The first test measured the relationships of virtuality and job security with team atmosphere. Second, the relationships of virtuality, temporariness, outsourcing, and job security with task conflict were tested. The third test was on the relationship between team atmosphere and task conflict. Next, the relationship of team atmosphere with team performance was subjected to regression testing. Finally, a curvilinear regression test was performed between task conflict and team performance.

Scores from these regression tests were used to understand how well the model fit together. The goodness of fit was determined using Cohen's (1992b) coefficient of determination (R²). Goodness of fit is a comparison of the observed measures against the expected measures.

Resource Requirements

To complete the research, a survey had to be constructed. The survey, whenever possible, recorded responses using a seven-point Likert scale. Participants were solicited through PMI. The survey was conducted from a link on the PMI website, and the data were collected and analyzed using the SAS analytic software from SAS Institute Inc., Cary, NC.

Summary

This chapter reviewed the research methodology, starting with a discussion of the IPT and how it was appropriate for this type of causal comparative study. The IPT is an ideal theory to apply when concepts indicate that indirect relationships exist among certain constructs in the research. Subsequently, this chapter discussed the research setting and data collection. As previously described, for studies attempting to reach a global pool of respondents, online surveys are the most efficient method of data collection.

Next, the calculation for determining the sample size was presented. By utilizing constructs that had been previously used and validated multiple times, it was possible to ascertain the effect size. That, combined with an examination of the research model, led to a target sample size. Although the instrument is new, all the constructs were borrowed or adapted from previously conducted research. In each relevant study, the constructs were tested and validated. The chapter concluded with a discussion about the type of testing that would be conducted and how the analysis would be presented. Finally, the resources required to complete the research were detailed.

Chapter 4

Results

This chapter presents the results of the statistical analyses. These include the processes for collecting, scrubbing, and statistically analyzing the data. Finally, the hypotheses findings are presented.

Data Collection

Survey responses were collected during February and March 2018. The survey was administered through Survey Monkey®. Solicitation generated 478 responses predominantly from four countries, the United States, Canada, the United Kingdom, and India. Next, 123 of the responses were discarded because, exclusive of demographic data, they were incomplete, and 11 responses were discarded because they were completed in under 2 minutes (the estimated time to complete the survey was 12 minutes). Two minutes is an insufficient time to adequately consider and respond to a survey of this size (Van Selm & Jankowski, 2006). Analysis was conducted on the remaining 344 responses.

Participants

Of the 255 respondents considered, 132 identified as male, 118 as female, and five declined to identify; no respondent identified as both genders. The largest age group at 44% was 30 to 49. Table 9 provides details of the respondents' age by gender. Over half (53%) of the respondents held a bachelor's degree or higher, and 2% of respondents declined to disclose their age, gender, or educational level. Table 10 is a breakdown of the respondents' education level by gender.

Table 9: Respondents' age by gender.

	Т	otal	M	I ale	Fe	male	No r	esponse
Age	#	%	#	%	#	%	#	%
< 30	82	23.8%	44	53.7%	37	45.1%	1	1.2%
30-49	156	45.3%	71	45.5%	84	53.8%	1	0.6%
50+	99	28.8%	42	42.4%	53	53.5%	4	4.0%
No resp.	7	2.0%	0	0.0%	0	0.0%	7	100.0%
Total	344	100.0%	157	45.6%	174	50.6%	13	3.8%

Table 10: Respondents' education level by gender.

	r	Γotal		Male	F	emale	No	response
Education level	#	%	#	%	#	%	#	%
< Bachelor's degree	148	43.0%	67	45.3%	79	53.4%	3	2.0%
Bachelor's degree	108	31.4%	50	46.3%	57	52.8%	1	0.9%
Graduate degree +	81	23.5%	41	50.6%	38	46.9%	2	2.5%
No response	7	2.0%	0	0.0%	0	0.0%	7	100.0%
Total	344	100.0%	157	45.6%	174	50.6%	13	3.8%

Reliability and Validity

Construct reliability concerns the ability of an instrument to consistently measure what it is intended to measure. The method employed here, Cronbach's alpha, was developed by Cronbach in 1951, and is a common formula for calculating reliability. According to Nunnally (1978), acceptable construct reliability should be no less than 0.70. After a few modifications (detailed below in Table 12), five of the constructs were comfortably above that threshold. Table 11 details the results. Two constructs scored below 0.7, which were job security and temporariness, scoring 0.6 and 0.615, respectively.

George and Mallory (2003) stated that an α between .6 and 0.7 is questionable but should not automatically be discarded (cited in Gliem & Gliem, 2003). One cause of a low

 α could be a small number of items in the construct. An increase in items would enhance the α to a more universally accepted level (Taber, 2018; van Griethuijsen et al., 2015). Each of these constructs had only two items. Clark and Watson (1995) indicated that with broader, less defined constructs, a lower α would be acceptable. Indeed, Hair, Ringle, and Sarstedt (2011) considered an α between 0.6 to 0.7 acceptable for exploratory research. They continued by stating that 0.7 should be the threshold for advanced or mature research. In this context, the constructs for job security and temporariness are the least explored of the seven constructs. Only one published study exists for each of these operationalized constructs. Neither of the studies involved team virtuality or task conflict. For these reasons, both job security and temporariness were not discarded from the analysis.

Table 11. Reliability and validity values.

Construct	Cronbach's α	Load pattern range
Team virtuality (TV)	0.722	0.45-0.77
Job security (JS)	0.600	
Strategic alignment of outsourcing (OS)	0.869	0.78–0.86
Team temporariness (TM)	0.615	
Team atmosphere (TA)	0.950	0.94-0.95
Task conflict (TC)	0.863	0.82-0.84
Team performance (TP)	0.897	0.86-0.89

Three indicators, one each from team virtuality, job security, and team temporariness, were dropped to meet the reliability (Cronbach's α) test. In Table 12, the specific items that were dropped are indicated by a strikeout font.

Streiner (2003) suggested that an α greater than 0.9 may be an indicator of redundancy. One construct's α met this criterion: team atmosphere ($\alpha = 0.949$). This construct was reexamined using various combinations of the construct's dimensions. The

lowest score was 0.910. According to this exercise, this study concluded that the likelihood of redundancy was low.

Table 12: Dimensions by construct.

Team pe	erformance
TP1	My team uses time efficiently.
TP2	My team uses resources efficiently.
TP3	My team adheres to the schedule.
TP4	My team is innovative.
TP5	Overall, my team performs well.
Team at	mosphere
TA1	Even when we disagree, I respect my team members.
TA2	I have a high regard for the other individuals in my team.
TA3	In general, I respect my team members.
TA4	I feel committed to this team.
TA5	I like the members of this team.
TA6	I talk up this team to my friends as being a great group to work in.
TA7	I trust my team members.
TA8	I can count on my team members to help me.
TA9	My team members are truthful and honest.
Task cor	1
TC1	In my team, there are conflicts about ideas frequently.
TC2	In my team, there is much conflict about the work we do.
TC3	My team often disagrees about opinions regarding the work being done.
TC4	The differences of opinion in my team are significant.
Team vi	rtuality
TV1(R)	My team collaborates face-to-face.
TV2	My team works via internet-based conferencing (video, audio, and/or text).
TV3	My team collaborates from different time zones.
TV4	I collaborate with team members who speak different native languages.
Job secu	rity
JS1(R)	My employer has made a commitment to me for only short-term employment.
JS2	My employer has given me the impression that I am welcome to remain as part
152	of the organization on a long-term basis if I want.
JS3(R)	My employer can terminate my employment at any time.
Team tea	mporariness

TM1(R)	My team, or members of my team, has been working together for a long time, so we know what we can expect.
TM2(R)	I strive for a long-term relationship with my team.
TM3	Because time is limited, I have to set priorities.
Strategic	alignment of outsourcing
OS1	Outsourced personnel on my team are integral to providing my company/organization with a strategic advantage over the competition.
OS2	Physical facilities have been procured and/or dedicated specifically to support the outsourced members of the team.
OS3	Equipment has been procured and/or dedicated specifically to support the outsourced members of the team.
` ′	ates the dimension was scored in reverse order. indicates the dimension was not used in the final analysis.

Validity

Validity is the extent to which a construct measures what it is meant to measure. It is possible to have reliability without validity; however, it is not possible to have validity without reliability (Tavakol & Dennick, 2011). The load ranges for the constructs are presented in Table 11. The load patterns ranged from an acceptable low of 0.70 for team virtuality to a high of 0.91 for the strategic alignment of outsourcing.

Discriminant Validity

It is important that the constructs do not measure the same concept. Discriminant validity measures the independence of the constructs (Campbell & Fiske, 1959). This study utilized factor analysis to test for discriminant validity. In factor analysis, clusters of variables with high values can indicate that these variables are measuring the same factor. The results are presented in Table 13. No cross-loading was indicated in the analysis. Cross-loading occurs when variables have substantial loading in multiple factors.

However, there was substantial loading across two constructs in Factor 1. The constructs were team atmosphere and team performance (TAx and TPx, respectively). This indicates there was a possibility these constructs might be measuring the same concept.

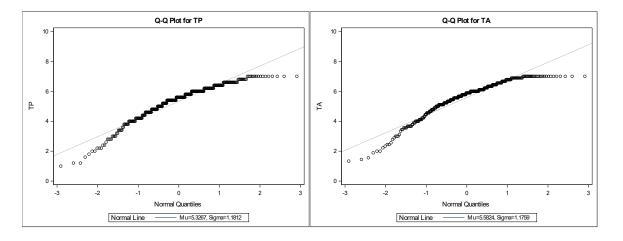
Table 13. Factor pattern test values.

	Rotated Factor Pattern					
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
TP1	0.87043	0.01414	-0.06757	-0.11331	0.02154	
TP2	0.86953	-0.03840	-0.06533	-0.08091	-0.03091	
TP3	0.85227	0.00435	-0.05267	-0.08051	-0.01191	
TP4	0.82632	-0.05790	-0.05849	0.01884	0.06685	
TP5	0.81940	-0.05478	-0.05766	-0.09332	0.06588	
TV2	0.80070	-0.03893	-0.06484	-0.15059	-0.05745	
TV3	0.79985	0.00083	-0.01091	-0.14708	0.01640	
TV4	0.79592	-0.00319	0.01675	-0.04659	0.07393	
TA1	0.78811	-0.08861	-0.02681	-0.03026	-0.09557	
TA2	0.76500	-0.05360	-0.07439	-0.04096	-0.02937	
TA3	0.74185	-0.05647	-0.04783	-0.00272	0.12396	
TA4	0.72348	-0.12171	-0.07823	0.05325	0.07008	
TA5	0.70936	-0.18784	-0.19140	0.07427	0.01806	
TA6	0.70740	-0.13254	-0.10242	-0.00986	0.00906	
TA7	-0.60957	0.16711	0.00805	-0.16376	0.29271	
TA8	-0.70264	0.18676	0.06792	0.05571	0.20273	
TA9	0.25235	0.70156	-0.03438	0.25007	0.28381	
TC1R	0.40569	0.69066	0.00245	0.23324	0.17658	
TC2R	0.26487	0.65474	0.08197	0.25567	0.24915	
TC3R	0.33764	0.61184	-0.04115	0.36438	0.26456	
TC4R	0.10215	-0.51912	0.06867	0.40867	0.19873	
JS1R	0.24183	-0.01193	0.86143	-0.02932	-0.09115	
JS2	0.32780	0.06723	0.84850	0.01032	-0.01543	
OS1	0.31069	0.00592	0.84586	0.03700	-0.11512	

		Rotated Fa	actor Pattern	1	
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
OS2	0.05587	-0.51459	-0.01239	0.65780	-0.06883
OS3	0.01475	-0.59062	0.01599	0.63578	0.08247
TM1R	0.08216	0.50493	-0.10312	0.20844	-0.65389
TM2R	0.08755	0.39765	-0.14968	0.28361	-0.68271

Normality

Normality testing determines whether the underlying dataset is well-modeled or normally distributed. Here, Quantile—Quantile (Q—Q) plotting was used test normality, and Figure 3 presents the results **Error! Reference source not found.** Q—Q plots of normally d istributed data are represented by the solid line. The points on the plots are the results of these surveys. Normally distributed responses would match the line. The responses from the surveys do not closely follow the line, which is particularly true of the tails, or the beginnings and ends, of the plots. The results here indicate that the data were not normally distributed. This prevents the rejection of the null hypotheses.



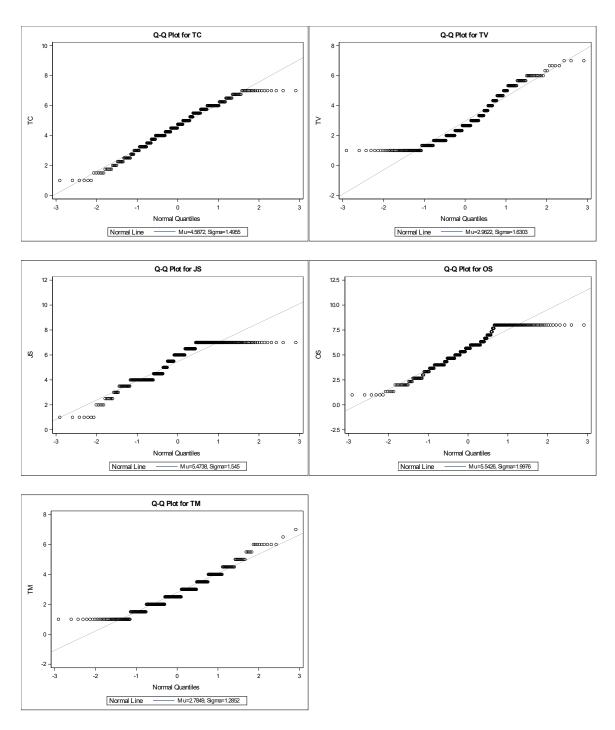


Figure 3. Q–Q plots.

Hypotheses Results

This section reports the results of each hypothesis, which were tested using regression analyses; the level of significance was 0.05. Results in the range of 0.05–0.10 were considered to suggest the nature of the relationship between the constructs. SAS was used for the analyses. Figure 4 illustrates the theoretical model along with the results.

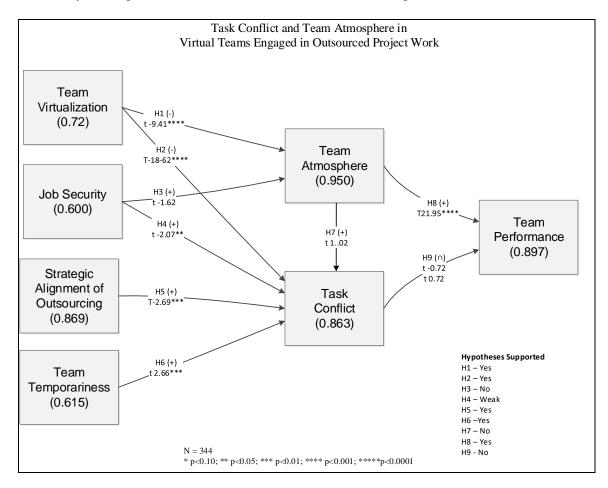


Figure 4. Theoretical model with results.

First, team atmosphere was examined, which was regressed on team virtuality, job security, and task conflict. The results are presented in Table 14. H1 stated that the greater the virtuality of the team, the more negative the impact on team atmosphere, which was

supported. H3 proposed that the greater the sense of job security, the greater the team atmosphere, which was not supported.

Table 14. Results of the regression analysis for team atmosphere.

Independent variable	Team atmosphere			
Intercept	40.35****			
Team virtuality	-9.41****			
Job security	-1.62			
R-Square	0.2252			
F	48.97			
Prob. (F)	< .0001			
N	344			
Hypothesis supported?	H1 = Yes, H3 = No			
* p < 0.10; ** p < 0.05; *** p < 0.01; **** p < 0.001				

Next, task conflict was regressed on team virtuality, job security, the strategic alignment of outsourcing, team temporariness, and team atmosphere. The results are presented in Table 15. H2 posited that the greater the virtuality of the team, the more reduced the task conflict, which was supported. H4 stated that an increased sense of job security will increase task conflict, which was weakly supported. H5 proposed that the more strategically aligned the outsourcing, the greater the occurrence of task conflict, which was supported. H6 stated that the greater the temporariness in the team, the greater the task conflict, which was supported. Lastly, H7 stated that a positive team atmosphere is related to increased task conflict, which was not supported by the study results.

Table 15. Results of the regression analysis for task conflict.

Independent variable	Task conflict
Intercept	14.94***
Team virtuality	-18.62****
Job security	-2.07**
Alignment of outsourcing	-2.69***
Team temporariness	2.66***
Task atmosphere	1.02
R-Square	0.6644
F	131.67
Prob. (F)	< .0001
N	344
Hymothesis summented?	H2 = Yes, $H4 = Weak$, $H5 = Yes$, $H6 = Yes$,
Hypothesis supported?	H7=No
* p < 0.10; ** p < 0.05; *** p < 0.01; *	**** p < 0.001

Finally, team performance was regressed on team atmosphere and task conflict. To test the curvilinear influence of task conflict on and between team performance, team performance was also regressed on the square of task conflict. The results of these regressions are presented in Table 16. H8 posited that in virtual teams, a positive team atmosphere will have a positive influence on team performance, which was strongly supported. H9 stated that task conflict will have an inverted U-shaped curvilinear influence on team performance, which was not supported.

Table 16. Results of the regression analysis for team performance.

Independent variable	Team performance
Intercept	3.09***
Team atmosphere	21.95****
Task conflict	-0.72
Task conflict ²	0.72
R-Square	0.6353
F	192.62
Prob. (F)	< .0001
N	344
Hypothesis supported?	H8 = Yes, H9 = No
* p < 0.10; ** p < 0.05; *** p < 0.01;	**** p < 0.001

Additional Findings

Because, contrary to previous research, four of the hypotheses were not supported, additional analysis was conducted. The survey results were grouped by age, gender, and education, and additional regression analysis was conducted across these subsets. Whereas much of the results followed those found when analyzing the complete set, there were some anomalies. The additional findings presented here focus on those differences.

Findings by Age Group

The first division analyzed was by age group. Responses were divided into three groups; aged under 30 years, aged 30–49 years, and those aged 50 years and older. The 13 respondents who did not supply an age were omitted. Tables 18 and 19 present the results of the regression analysis by age group.

The under-30 age group was the only group to not support a relationship between team virtuality and team atmosphere. The 50+ group supported the relationship between team atmosphere and task conflict. Finally, in another departure, this group was the only one to support the influence of the alignment of outsourcing on task conflict.

Table 17. Regression analysis of team atmosphere by age group.

Team atmosphere	Under 30	30–49	50 +
Intercept	14.98****	29.44***	27.57****
Team virtuality	0.25	-8.81****	-7.47***
Job security	-2.26**	-0.19	-1.96*
R-Square	0.0384	0.3302	0.3824
F	2.62	39.20	31.35
Prob. (F)	0.0794	0.0001	< 0.0001
N	82	156	99

Table 18. Regression analysis of task conflict by age group.

Independent variable			
Task conflict	Under 30	30-49	50 and older
Intercept	37.59****	9.24****	7.37****
Team atmosphere	0.05	-0.11	2.78***
Team virtuality	-9.91****	-12.67****	-7.41****
Temporariness	2.11**	2.88***	-1.25
Alignment of outsourcing	-0.89	-1.02	-2.82**
R-Square	0.6931	0.6661	0.6332
F	37.59	62.85	34.84
Prob. (F)	< 0.0001	< .0001	< .0001
N	82	156	99
* p < 0.10; ** p	< 0.05; *** p < 0.0	01; **** p < 0.001	

Findings by Gender

Next, the responses were sorted and examined by gender. The 13 respondents who declined to provide their gender were omitted from this analysis. Key results of these

regressions are presented in Table 19 and Table 20. Females were the only subset to demonstrate support for H7 regarding the impact of team atmosphere on task conflict. Additionally, support for H5 and H6 was limited to females.

Table 19. Regression analysis of team atmosphere by gender.

Independent variable Team atmosphere	Males	Females			
Intercept	25.86****	31.42****			
Team virtuality	-4.63****	-8.69****			
Job security	-0.54	-1.97*			
R-Square	0.1206	0.3214			
F	11.89	41.96			
Prob. (F)	< 0.0001	< 0.0001			
N	157	174			
* p < 0.10; ** p < 0.05; *** p < 0.01; **** p < 0.001					

Table 20. Regression analysis of task conflict by gender.

Independent variable	36.1	.
Task conflict	Males	Females
Intercept	11.95****	9.01****
Team Atmosphere	-0.70	2.04**
Team virtuality	-14.23****	-11.37****
Job security	-1.85*	-0.92
Alignment of outsourcing	1.53	-2.38**
Temporariness	1.16	2.79***
R-Square	0.6606	0.6608
F	61.74	68.42
Prob. (F)	< .0001	< .0001
N	157	174

Findings by Education

Finally, the survey responses were divided along educational levels. The three levels were: respondents with less than a bachelor's degree, with a bachelor's degree, and with a graduate or professional degree. Thirteen respondents did not answer this question, and thus were omitted. The findings from the regression analysis on team atmosphere were unremarkable. The key findings for the regression analysis on task conflict are presented in Table 21. Those with a less than a bachelor's degree failed to support the impact of the alignment of outsourcing on task conflict. By contrast, respondents with less than a 4-year degree were the only group to support, albeit weakly, H6's assertion that team temporariness has a positive influence on task conflict.

Table 21. Regression analysis of task conflict by education.

Independent variable Task conflict	Less than a bachelor's degree	Bachelor's degree	Graduate degree
Intercept	9.87****	7.83****	7.61****
Job security	-0.81	-1.14	-0.94
Temporariness	1.71*	1.59	0.89
Team atmosphere	0.46	0.70	0.85
Team virtuality	-12.76****	-9.61****	-9.69****
Alignment of outsourcing	-0.55	-2.02**	-2.00**
R-Square	0.6615	0.6325	0.7013
F	57.29	37.48	37.62
Prob. (F)	< .0001	0.001	0.0001
N	145	107	79
* p < 0.10; ** p < 0.05; **	*** p < 0.01; **** p <	< 0.001	

Summary

This research utilized a survey instrument to gather data for analyzing the nine hypotheses of the model presented in this thesis. Linear regression testing was conducted on eight of the hypotheses, and curvilinear testing was performed on the ninth hypothesis. H1, H2, H4, H5, H6, and H8 were supported, whereas no support was found for H3, H7, or H9.

The additional findings demonstrated that respondents aged under 30 years ran contrary to the other groups on two tests. First, this was the only group not to demonstrate a relationship between team virtuality and team atmosphere. The 50+ group supported the relationship between team atmosphere and task conflict. In another departure, this group was the only one to support the influence of the alignment of outsourcing on task conflict. When the results were examined across genders, females were the only subset to demonstrate support for the impact of team atmosphere on task conflict. Additionally, support for the influence of temporariness and the alignment of outsourcing was limited to females. Finally, respondents with less than a bachelor's degree failed to support the impact of the alignment of outsourcing on task conflict. However, they were the only group to support the impact of team temporariness on task conflict.

In the next chapter, these results are discussed in detail and reviewed against the literature presented in Chapter 2. Furthermore, the limitations of this study are discussed, and finally, recommendations for future research are presented.

Chapter 5

Discussion, Implications, Limitations,

Recommendations for Future Research, and Conclusion

This chapter discusses the results of this research. The discussion section compares the results of this research with the findings in the literature review. Moreover, this chapter addresses the implications, both in theory and practice, of this research. Following these implications, the limitations of this research are reviewed along with recommendations for future research. Finally, the conclusions that were drawn from this research are presented.

Discussion

H1 stated that the greater the virtuality of the team, the more negative the impact on team atmosphere, which was supported. The only group that did not support H1 was the under 30s. In an era with a variety of options for electronic interaction, such as social media, texting, and video chatting, teams may be as comfortable engaging virtually as they are face-to-face. This could be especially true for team members aged under 30 years. Furthermore, common traits among Generation Y members, who fall squarely into the under 30 group, are tech-savviness and liking to multi-task (Baldonado, 2013). It is easier to multi-task when physically alone and in virtual meetings. Indeed, someone multi-tasking in a traditional face-to-face meeting could be perceived as disengaged or uninterested. This could lead to the perception of a lack of commitment, which is a key element to team atmosphere. Furthermore, Millennials tend to be less committed to an employer. A 2016 Deloitte survey (cited in Jassawalla & Sashittal, 2017) revealed that nearly two-thirds of

Millennials planned on leaving their current employer within 4 years. This temporary mindset could also impact their approach to team atmosphere.

H2 posited that the greater the virtuality of the team, the more reduced the task conflict, which was supported. One interesting wrinkle in the results was, again, the under 30s group, who demonstrated no impact on task conflict from team virtuality. One explanation could be that Millennials, another group that fall into the under 30 set, tend to approach most conflict from an emotional position (Jassawalla & Sashittal, 2017). Emotion-based conflict is more difficult to express through apps than face-to-face interactions.

H3 stated that the greater the sense of job security, the greater the team atmosphere. In general, H3 was not supported, and females weakly supported H3. Interestingly, the reverse was true for the other job security-related hypothesis, H4. This suggested that men and women react differently to the pressures of needing to be employed. For women, concerns over job security are great enough to negatively impact how they feel about their team. By contrast, men react more negatively to task conflict.

The premise of H4 was that an increased sense of job security will increase task conflict. This was supported but, as previously mentioned, the support was limited to females. This adds to the premise proposed by Hon and Chan (2013) and others that job security, or the lack of it, has a negative impact on task conflict. The difference between their study and this research was that they included the intervening construct of hindrance-related stress. Contrary to much prior research, as described previously in the literature review, job security's impact on team atmosphere was not supported. Support for the influence of team atmosphere on task conflict is well documented. Here, a disconnect

appears to exist. Job security had a negative influence on task conflict, and furthermore, team atmosphere had a negative influence on task conflict. However, there was no impact of job security on team atmosphere. Thus, an unaccounted-for construct seemed to be influencing the team atmosphere, task conflict, and job security triangle—this is an area for further study.

H5 stated that the more strategically aligned the outsourcing, the greater the occurrence of task conflict, which was supported. This is interesting because of the numerous responses indicating the respondent did not know how much their company outsourced, at roughly 68% (234) of respondents. This lack of understanding could be because the companies in question have seamlessly integrated outsourced resources into the fabric of their organization, or they outsourced so little that it was imperceptible. Another reason for H5 being supported could be that the impact of the strategic alignment of outsourcing on task conflict is not as negligible as reported in the literature. The support for H5 was limited to respondents age 50 years and older. An explanation could be that older employees were more concerned about being displaced by outsourced resources.

H6 posited that the greater the temporariness in the team, the greater the task conflict, which was supported. This support was limited to females and those with less than a bachelor's degree. These results are in line with the findings of Lind (1999), who demonstrated that men found task conflict more difficult to manage in temporary teams. This was particularly true when the teams were virtual. The eroding employment model of the male breadwinner (Crompton, 1999), coupled with the continual selection/hiring aspect of temporary teams, could negatively impact males' ability to navigate task conflict. The "You're only as good as your last job" mentality could impact male attitudes in temporary

teams. Males are much less likely to take time off from work than females (Pasamar & Alegre, 2015). This is true even for legally protected time off such as paternity leave. A lack of academic credentials could exacerbate the situation (Lucky, Minai, & Hamzah, 2013).

H7 was not supported. The posit here was that a positive team atmosphere relates to increased task conflict. Using the dimensions of trust, respect, and commitment to measure team atmosphere, this research ran counter to previous studies that have posited that a safe space leads to a freer flow of ideas and discussions. Interestingly, the two groups that supported the hypothesis were females and respondents aged 50 years and over. Their support, however, was countered by the other groups. As mentioned earlier in the chapter, one explanation could be the under 30 group's approach to conflict counterbalances any positive effects of team atmosphere. Another reason for the counter direction could be them having a different definition of team atmosphere, with trust, respect, and commitment only being part of it. Furthermore, a positive team atmosphere alone may not be enough to engage task conflict. The one item that stood out in these results was that the respondents aged under 30 were not like their older counterparts. However, exploring the difference was beyond the scope of this research, and it could be considered in future work.

H8 stated that in virtual teams, a positive team atmosphere will have a positive influence on team performance. H8 was the only hypothesis that was supported across all genders, ages, and educational levels, which was not too surprising. The positive influence of team atmosphere on team performance is perhaps the most documented and tested relationship in this research. However, it is noteworthy that the rotated factor pattern

analysis indicated a likelihood of an overlap between the constructs of team atmosphere and team performance.

H9 posited that task conflict will have an inverted U-shaped curvilinear influence on team performance, which was not supported. This reinforces the findings of Gallenkamp et al. (2012) in that task conflict had no influence on team performance. However, when reviewing the literature, this was a minority finding, with much of the research indicating a connection between task conflict and team performance. Some saw the relationship as positive (de Wit et al., 2012; Jehn, 1995), whereas others reported a negative relationship (De Dreu & Weingart, 2003). A third supported hypothesis posited that the relationship was an inverted U (De Dreu, 2006). Two possible explanations for this are that task conflict has no impact on team performance or there was a flaw in the design of the study. The latter is discussed in the limitations section of this chapter.

Implications for Research

This research provided additional insight into certain antecedents of team atmosphere and task conflict. Such insight was gained in both what was discovered and the posits that were not confirmed. Furthermore, it reaffirmed what was demonstrated in previous research regarding the impact of team atmosphere on team performance. However, the gender differences regarding the influence of team atmosphere on task conflict warrants additional investigation.

This research attempted to expand the view of virtual teams. The common thread in most relevant research on team virtuality has been the lack of face-to-face interaction. This dimension was eliminated in the present study. The focus instead was on technology,

synchronous communication, and culture. Therefore, continued investigation into how team virtuality is evolving is required.

Additionally, the definition of temporariness in teams was expanded. Past relationships among team members, as well as the baggage that accompanies them, must be considered when evaluating temporariness in teams. Moreover, the desire for future work among team members influences behavior. These aspects of team temporariness should be included in future studies.

This study revealed new elements of task conflict. Although not what was originally investigated, a generational disconnect in task conflict was discovered. Younger generations viewed task conflict differently from their older counterparts. What was less clear was whether the difference is generation specific or endemic for that age group. As the millennial generation ages, additional studies will help to clarify this.

Finally, the strategic alignment of outsourcing in the FORT model requires continued review. The striking aspect of this study was not the level to which teams were outsourced but the fact that approximately 68% of the respondents did not know how much of their team was outsourced. Perhaps how members come to the team is becoming less relevant to fellow teammates. Another explanation could be that companies are becoming adept at seamlessly incorporating outsourced resources.

Implications for Practice

Job security evidenced no impact team atmosphere. This exception was contrary to expectations. Respondents aged under 30 years indicated a positive impact of team virtualization on team atmosphere. The implications for future research are twofold. First,

based on the findings, it appears that communication tools and information value have improved to the point where team virtualization has a minimal impact on team atmosphere. Second, not all team members approached virtualization the same. Age plays a significant role in how virtual teams are viewed. Those who grew up in the age of social media and texting demonstrated a preference for virtuality. Soon, understanding this demographic may be key to successful teams.

Another implication for future study is the effect of job security on teams. Job security demonstrated no influence on team atmosphere yet showed strong support for a positive impact on task conflict. This could be caused by the relatively low unemployment rate at the time of the study. When the economy is good, the fear of losing a job is tempered by the understanding or perception that opportunities are abundant. A lack of job security may not equate to being unemployed or financially vulnerable. This could lessen the impact of job security on the team atmosphere dimensions of trust and commitment.

Limitations

This study faced had some limitations. First, the construct for measuring the strategic alignment of outsourcing did not consider that a well-integrated outsourcing arrangement could be all but invisible to most team members. This could be one explanation for why about 68% of respondents did not know how many of their team members were outsourced. Moreover, a question should have been included to ask whether the respondent considered themselves outsourced team members. This could also explain why such a percentage did not know the level of outsourcing.

This research attempted to view temporariness in nonbinary terms. By examining past relationships among team members and the likelihood of future collaborations, this study viewed team temporariness as a continuum. The marginal results of the Cronbach's alpha test indicated that the construct may not have been exactly what was intended. Additional research into the operationalization of temporariness is required to better understand the construct. This is also true for the job security construct.

The lack of support for H9 could have to do with the design of the research. Knowing at what point in the execution of the task the conflict occurs could help better understand its impact on performance. A longitudinal study would be better suited for exploring this. Respondents provided a snapshot of their experiences, but it was not possible to understand where in the process they were referring to. Unlike team atmosphere, all but one of the constructs examined were antecedents of task conflict. In addition, a study designed to include relationship conflict and task complexity should be factored into future research. Each of these have a documented influence on task conflict but were outside the scope of this study.

Future Research

The research presented in this dissertation provides a platform for launching additional research on team temporariness. Building on the concepts of Janowicz-Panjaitan et al. (2009), this study helped solidify the concept of team temporariness being a complex and evolving construct. Just as virtual teams have become ubiquitous, temporary teams are also becoming the new normal. However, temporary teams do not necessarily mean temporary relationships among team members. Team resources are often recycled and

regrouped, and this can have a significant impact on team dynamics. This *temporary team but not temporary relationships* status deserves further study.

Future studies should also examine all members of a team rather than individuals in various teams. This research presented an aggregation of individual views. Studying teams as a whole would provide better insights into what impacts team performance. Examining the team level would a provide an enhanced understanding of how similar or dissimilar team perceptions are and how that impacts atmosphere, conflict, and performance.

Temporary teams are commonplace; however, they are not monolithic. An improved understanding of how prior relationships impact current team dynamics and the desire for additional work could directly influence behavior and performance. Team members often work on multiple teams either in serial or in parallel. Team membership can overlap, leading to a diminished sense of temporariness; a deeper understanding of this trend could aid organizations in managing resources more effectively.

In two hypotheses, team members under the age of 30 ran counter to the other subgroups. First, this was the only group to indicate a relationship between team virtuality and team atmosphere. Rather than seeing team virtualization as having a negative impact on team atmosphere, as anticipated, they reported a positive influence. A deeper dive is recommended into how coming of age in the era of social media and texting affects face-to-face communication and collaboration. Second, they were the only subgroup not to indicate a relationship between team atmosphere and task conflict. Because both anomalies involved the team atmosphere construct, a future study into what constitutes and influences

team atmosphere for members aged under 30 years could provide valuable insights into how best to create and manage teams for this age group.

Finally, regarding task conflict, males were the most influenced group. Except for the strategic alignment of outsourcing, they supported all the task conflict-related hypotheses. Additionally, they were the only group to strongly support both the job security-related hypotheses. Continued research is recommended to better understand how gender plays a role in task conflict, how it is perceived, and what the impact is on team atmosphere and performance. Furthermore, as an antecedent, job security is more of an influencer on males than it is on females. Additional research is recommended to better understand this phenomenon.

Conclusion

This research study provided additional insights into certain antecedents of team atmosphere and task conflict. The insights were gained both through what was discovered and those hypotheses that were not confirmed. Moreover, they reaffirmed what was demonstrated in previous research regarding the impact of team atmosphere on task conflict and team performance.

Of the nine hypotheses, five were strongly supported and one demonstrated weak support; furthermore, three hypotheses were not supported by the research. After the initial review, the results were reexamined through the lenses of gender, age, and education, and found to vary significantly among the subgroups. Males supported, to some degree, all but two of the hypotheses. At the other end of the spectrum were those holding a bachelor's degree; this subgroup demonstrated support for only two hypotheses. The under 30

subgroup stood out in two areas. They were the only group to demonstrate a positive relationship between team virtualization and team atmosphere. Additionally, this subgroup was the only one not to support the impact of team atmosphere on task conflict.

There is still much to be learned in this area. Future research should include a deeper dive into team virtualization, outsourcing alignments, and temporariness. As technologies evolve, so do the meaning and impact of virtual collaboration. In today's market, outsourcing is often not an option, but a necessity. Temporary teams are binary: they are either temporary or ongoing. Relationships in temporary teams are not so clear cut. A better understating of the evolution of these constructs is essential to remain relevant and competitive.

Finally, more investigation is required into how age influenced this research model. Younger generations know only a world where electronic communication is the norm. Although older generations have widely adopted the new means of communicating, they do so with a reference back to an analog world. A deeper understanding of this dynamic will better position researchers to consider the impact of the next generation as they enter the workforce.

Appendices

Survey Instrument

Informed Consent

Thank you for volunteering to participate in this study. I am H. Carr Osborn, a doctoral student at Nova Southeastern University. This survey is a part of my dissertation. Your responses are a critical ingredient that will provide insight into the perceptions and understandings of teams.

Purpose

This survey is part of a study on the effects of outsourcing and team virtuality on team performance. This survey is being conducted as part of the fulfillment of a doctoral dissertation.

Risk/Benefit

There is no identifiable or foreseeable risk or benefit to participating in this survey.

Confidentiality

No personal or identifying information will be collect during the course of this survey. Your responses will be aggregated with the other respondents of the survey.

Participation

Participation in this study is voluntary. Completing and submitting the survey will be considered an affirmation of your willingness of participate in the study.

When completing this survey, consider a team that you are currently a member of or one that recently disbanded.

In this first section, consider the overall all functioning of your team. Indicate to what level you agree or disagree with the following statements.

1. IVI V team	uses time effic	iently.						
□ Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree	C	Disagree	Agree or	Somewhat	C	Agree		
			Disagree	Agree				
2. My team uses resources efficiently.								
□ Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree		Disagree	Agree or	Somewhat		Agree		
			Disagree	Agree				
3. My team	adheres to the	schedule.						
□ Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree		Disagree	Agree or	Somewhat		Agree		
			Disagree	Agree				
	is innovative.							
\Box Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree		Disagree	Agree or	Somewhat		Agree		
			Disagree	Agree				
5. Overall, 1	my team perfo	rms well.						
□ Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree		Disagree	Agree or	Somewhat		Agree		
			Disagree	Agree				
For the following statements, consider how you felt about your team. Indicate to what level you agree or disagree with the following statements. 6. Even when we disagree, I respected my team members.								
				abers.				
6. Even wh	en we disagr	ee, I respected		nbers.	□ Agree	□ Strongly		
6. Even wh □ Strongly		ee, I respected	my team men □ Neither		□ Agree	□ Strongly Agree		
6. Even wh	en we disagr	ee, I respected	my team men □ Neither Agree or		□ Agree	□ Strongly Agree		
6. Even wh □ Strongly Disagree	nen we disagr □ Disagree	ee, I respected to Somewhat Disagree	my team men □ Neither Agree or Disagree	□ Somewhat Agree	□ Agree			
6. Even wh Strongly Disagree 7. I have a	nen we disagr □ Disagree high regard	ee, I respected in Somewhat Disagree	my team men Reither Agree or Disagree dividuals in n	□ Somewhat Agree		Agree		
6. Even wh ☐ Strongly ☐ Disagree 7. I have a ☐ Strongly	nen we disagr □ Disagree	ee, I respected in Somewhat Disagree for the other income Somewhat	my team men Neither Agree or Disagree dividuals in n Neither	Somewhat Agree ny team.	□ Agree	Agree □ Strongly		
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6. Even wh □ Strongly □ Disagree 7. I have a □ Strongly □ Disagree	nen we disagr □ Disagree high regard f □ Disagree	ee, I respected in Somewhat Disagree for the other in Somewhat Disagree	my team men Neither Agree or Disagree dividuals in n Neither Agree or Disagree	Somewhat Agree ny team.		Agree □ Strongly		
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6. Even wh Strongly Disagree 7. I have a Strongly Disagree 8. In gener Strongly Disagree	high regard f Disagree high regard f Disagree al, I respect t Disagree	ee, I respected in Somewhat Disagree for the other in Disagree my team member Disagree is team.	my team men Neither Agree or Disagree dividuals in n Neither Agree or Disagree ers. Neither Agree or Disagree	Somewhat Agree ny team. Somewhat Agree Somewhat Agree	□ Agree	Agree Strongly Agree Strongly Agree		
6. Even wh □ Strongly Disagree 7. I have a □ Strongly Disagree 8. In gener □ Strongly Disagree 9. I feel con □ Strongly	high regard for Disagree high regard for Disagree al, I respect to Disagree	ee, I respected of Somewhat Disagree for the other incomplete Disagree my team member of Somewhat Disagree is team. Somewhat Somewhat Disagree	my team men Neither Agree or Disagree dividuals in n Neither Agree or Disagree ers. Neither Agree or Disagree	Somewhat Agree ny team. Somewhat Agree Somewhat Agree	□ Agree	Agree Strongly Agree Strongly Agree		
6. Even wh Strongly Disagree 7. I have a Strongly Disagree 8. In gener Strongly Disagree	high regard f Disagree high regard f Disagree al, I respect t Disagree	ee, I respected in Somewhat Disagree for the other in Disagree my team member Disagree is team.	my team men Neither Agree or Disagree dividuals in n Neither Agree or Disagree ers. Neither Agree or Disagree Neither Agree or Disagree	Somewhat Agree ny team. Somewhat Agree Somewhat Agree	□ Agree	Agree Strongly Agree Strongly Agree		
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6. Even wh Strongly Disagree 7. I have a Strongly Disagree 8. In gener Strongly Disagree 9. I feel con Strongly Disagree 10. I like the	high regard for Disagree high respect roll Disagree al, I respect roll Disagree mmitted to the Disagree members on	ee, I respected of Somewhat Disagree for the other income Somewhat Disagree my team member Somewhat Disagree is team. Somewhat Disagree of this team.	my team men Agree or Disagree dividuals in n Neither Agree or Disagree ers. Neither Agree or Disagree O Neither Agree or Disagree I Neither Agree or Disagree	Somewhat Agree ny team. Somewhat Agree Somewhat Agree Somewhat Agree	□ Agree □ Agree	Agree Strongly Agree Strongly Agree Strongly Agree		
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11. I talk up this team to my friends as a great group to work in.

□ Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly
Disagree		Disagree	Agree or	Somewhat		Agree
12 T 4 e4 -	400	. L . a.u.a	Disagree	Agree		
	ny team men		- Naithan		= A ama a	- Ctuamalri
□ Strongly	□ Disagree	□ Somewhat	□ Neither	Companibat	□ Agree	□ Strongly
Disagree		Disagree	Agree or Disagree	Somewhat Agree		Agree
12 Loop oo	unt on my to	am members to		Agree		
□ Strongly		Somewhat □	□ Neither		□ Agree	□ Strongly
Disagree	□ Disagice	Disagree	Agree or	Somewhat	□ Agicc	Agree
Disagree		Disagree	Disagree	Agree		Agree
14 My tean	n memhers ai	re truthful and		rigice		
□ Strongly		□ Somewhat	□ Neither		□ Agree	□ Strongly
Disagree	□ Disagree	Disagree	Agree or	Somewhat	- rigice	Agree
21348100		21348100	Disagree	Agree		118100
				8		
In this nev	t section cor	nsider how you	r team handl	ed specific s	ituations amon	a vou team
		it level you agre				
members. I	ildicate to wha	ii ievei you agie	e of disagree	with the folio	wing statement	.5.
15 In my to	oom fraguen	tly there are co	nflicts about	idose		
□ Strongly		□ Somewhat			□ Agree	□ Strongly
Disagree	□ Disagree	Disagree	Agree or	Somewhat	□ Agicc	Agree
Disagree		Disagree	Disagree	Agree		rigice
16. In my to	eam, there is	much conflict a				
□ Strongly		□ Somewhat			□ Agree	□ Strongly
Disagree	□ Disagree	Disagree	Agree or	Somewhat	- rigice	Agree
Disagree		Disagree	Disagree	Agree		115100
17. My teau	n often disag	rees about opir			being done.	
	□ Disagree	□ Somewhat		_	□ Agree	□ Strongly
Disagree	S	Disagree	Agree or	Somewhat	Ç	Agree
C		C	Disagree	Agree		C
18. The diff	ferences of or	oinion in my tea	am are signifi	icant.		
	□ Disagree	□ Somewhat	_		□ Agree	□ Strongly
Disagree	Č	Disagree	Agree or	Somewhat	C	Agree
		-	Disagree	Agree		-
In this sect	ion, consider	how your team	n communicat	tes. Indicate t	o what level y	ou agree or
disagree wi	th the following	ng statements.			·	· ·
C		C				
19. My tear	n meets face-	to-face.				
□ Never	□ Rarely	□ Once in a	□ About half	□ Often	□ Most of the	□ Always
	·	while	the time		time	•
20. My tear	n meets thro	igh video confe	erencing.			
□ Never	□ Rarely	□ Once in a	_	□ Often	□ Most of the	□ Always
		while	the time		time	
21. My tear	n meets thro	igh audio conf	erencing (pho	one/conference	ce calls).	<u></u>
□ Never	□ Rarely		□ About half	□ Often	□ Most of the	□ Always
		while	the time		time	
22. My tear	n communica	ites through en	nail.			
□ Never	□ Rarely	□ Once in a	\Box About half	□ Often	\square Most of the	□ Always
		while	the time		time	

23. My team communicates through texting/instant messaging.

□ Never	□ Rarely	□ Once in a while	☐ About half the time	□ Often	☐ Most of the time	□ Always		
24. My team works and collaborates in real-time. (There are no delays due to differences								
•	es or work ho		`		·			
□ Never	□ Rarely	□ Once in a	\square About half	□ Often	\square Most of the	□ Always		
		while	the time		time			
In this section, consider your relationship with your employer. Indicate to what level you agree or disagree with the following statements.								
25. My orga	anization has	made a commi	itment to me	for only shor	t-term employ	ment.		
□ Strongly		□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree		Disagree	Agree or	Somewhat	8	Agree		
C		C	Disagree	Agree		C		
26. My orga	anization has	given me the	impression th	at I am weld	ome to remai	n as part of		
the organiz	ation on a lo	ng-term basis i	f I want.					
□ Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree		Disagree	Agree or	Somewhat		Agree		
			Disagree	Agree				
		terminate my	employment	any time.				
□ Strongly	□ Disagree	□ Somewhat	□ Neither		□ Agree	□ Strongly		
Disagree		Disagree	Agree or	Somewhat		Agree		
			Disagree	Agree				
Indicate to v	what level you	how your tean agree or disagremy team, I focus once in a	ree with the fo	llowing stater present.		·		
		while	the time		time			
29. I think a	about what I	will do after th	e team disba	nds.				
□ Never	□ Rarely	□ Once in a while	☐ About half the time	□ Often	□ Most of the time	□ Always		
30. Past tea	m members'	performances		influence my		k at hand.		
□ Never	□ Rarely	□ Once in a	\square About half	•	□ Most of the	□ Always		
		while	the time		time			
In this section, consider the relationship of non-employees with the employees on your team. Indicate to what level you agree or disagree with the following statements.								
31. Outson	urced perso	nnel on my	team are	integral in	providing r	ny		
company/o		strategic adva		e competitio	n.			
□ Strongly	□ Disagree □		Neither □		gree Strong	gly □ N/A		
Disagree		•	C	mewhat	Agree			
				gree				
-		e been procur	ed and/or ded	dicated specif	fically to suppo	ort		
	rced members							
☐ Strongly Disagree	□ Disagree □	Disagree		□ A omewhat gree	gree Strong Agree			
22 E :	, 1 1	-	1/ 1 10 4	1 '6' 11	4 4 4	1		

33. Equipment has been procured and/or dedicated specifically to support the outsourced members of the team.

	e or Somewhat ree Agree	t	Agree	□ N/A
34. When working with the outsourced tear	n, sometime I al	ter the facts sl	lightly to	
get what I need. Strongly Disagree Somewhat Nei Disagree Disagree Disagree Disagree		_	□ Strongly Agree	□ N/A
35. Approximately, how much of your out	sourced team n	nembers repla	aced/displa	aced in-
house personnel. □ 0% - □ 21% - □ 41% - □ 61% 20% 40% 60%	- 80% □ 81% 100%	% - □ Don't l	know □ N	N/A
Finally, tell me a little about yourself.				
Demographic information				
Age: Gender:	□ Fem	ale		
Education: Indicate the highest level of educa	ion you have co	mpleted		
☐ High School / GED ☐ Undergraduate	□ Graduate	□ Post-Grad	uate	
Nationality:	-			
Country of residence:	How long have	you lived in thi	is country _	yrs.
Ethnicity (check all that apply):				
 White Hispanic or Latino Black or African American Native American or American Indian Asian / Pacific Islander Other 				

Please indicate you level of proficiency with the following

Technology	Never use	Novice	Regular user	Somewhat Advanced	Very Advanced
Excel (or other spreadsheet)					
Email					
Texting					
Instant Messaging					

Video conferencing			
Specialized team collaboration software (such as SharePoint or Lotus Note)			

Institutional Review Board (IRB) Approval



MEMORANDUM

To: Harold Carr Osborn

From: Ling Wang, Ph.D.,

Center Representative, Institutional Review Board

Date: May 3, 2018

Re: IRB #: 2018-235; Title, "Examining Task Conflict and Team Atmosphere in Virtual Teams

Engaged in Outsourced Project Work"

I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review under **45 CFR 46.101(b)** (**Exempt Category 2**). You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

- 1) CONSENT: If recruitment procedures include consent forms, they must be obtained in such a manner that they are clearly understood by the subjects and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.
- 2) ADVERSE EVENTS/UNANTICIPATED PROBLEMS: The principal investigator is required to notify the IRB chair and me (954-262-5369 and Ling Wang, Ph.D., respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, lifethreatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.
- 3) AMENDMENTS: Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Souren Paul Ling Wang, Ph.D.

Participating Institution Approval

Mr. Osborn,

Congratulations on your doctoral advancement with Nova Southeastern University. Kindly forward your survey link to VPMembership@PMI-Metrolina.com and it will be posted in the Chapter announcements.

Continued success on your academic journey.

On Sat, Dec 2, 2017 at 11:03 AM Carr Osborn wrote:

Dear sirs:

I am a PhD. graduate candidate at Nova Southeastern University. My dissertation topic is "A Study on Examining Task Conflict and Team Atmosphere in Virtual Teams Engaged in Outsourced Project Work". My data collection method is an online survey. I would like to ask members of the Metrolina Chapter of the PMI to participate in this survey. What is the process for making such a request?

Regards,

Harold Carr Osborn

--

Cheers,

Nealand M. Lewis PMP®, MPM, M.S.Ed., MBA, CICA®, A.A.S.R.M.M. 32°

Address: 3020 Prosperity Church Rd, Suite 416, Charlotte, NC 28269

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