INTERPERSONAL TRUST AND COOPERATIVE BEHAVIOR IN A STRATEGIC ALLIANCE

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INTERPERSONAL TRUST AND COOPERATIVE BEHAVIOR
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Dedication

The author wishes to dedicate this doctoral research to the greatest support system one could ever have, my family: Roberta, Robert, Harold, Wayne, Noonie, Cherri, Shanice and Heavyn. I would also like to dedicate this study to all that aspire to be life-long learners.

*I learned this, that if you advance confidently in the direction of your dreams,

and endeavor to live the life which you have imagined,

you will meet with a success unexpected in common hours.

You will put some things behind, you will pass an invisible boundary,

new, universal and more liberal laws will begin to establish themselves around and

within you; or the old laws will be expanded,

and interpreted in your favor in a more liberal sense,

and you will live with the license of a higher order of beings."

~Henry David Thoreau
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To the dyad peers, project managers and engagement partners of Alliance X, I owe you a debt of gratitude, for your trust, cooperation and participation in this study -- you have all helped me reach an impressive milestone.
Abstract of the Dissertation

Interpersonal Trust and Cooperative Behavior in a Strategic Alliance

This study explored the relationship between interpersonal trust and cooperation between dyads in a strategic alliance consisting of three professional consulting firms. By focusing on the dyad as the unit of analysis, this study employed a non-experimental, one-shot design to explore correlations among the relationships between interpersonal trust, affect- and cognition-based trust, cooperation, time (length of time working together and frequency of interaction). A web-based survey was administered that incorporated McAllister’s (1995) Behavioral Response and Interpersonal Trust Measures (BRITM). The researcher modified the BRITM by adding additional items to the instrument to measure the effect of time on the interpersonal and cooperation relationship between the dyads. The alliance in this study was formed four years ago and the length of the dyadic relationships varied, as well as the frequency of their number of interactions. A census sample represented the sample population, and responses from eighty-nine subjects were used for the data analysis. Pearson coefficient correlation analysis was used to analyze the relationships between interpersonal trust and cooperation, cognition-based trust and cooperation, and affect-based trust and cooperation. A stepwise linear regression analysis was used to determine if the dyad’s length of time working together and monthly interactions affected their interpersonal trust and cooperation relationship. An additional analysis using an independent sample t-test and an ANOVA with Tukey and Games-Howell post hoc tests was used to measure the time variables. The most significant finding for this study revealed no difference between the interpersonal trust
and cooperation relationship for dyads that worked together for 2 to 4 years when compared to dyads that worked together less than 2 years. However, there was a difference between the interpersonal trust and cooperation relationship for the dyads based on the frequency of their monthly interactions. The relationship between interpersonal trust, affect- and cognition-based trust and cooperation among the dyads was found to be significant. This study provides empirical and theoretical support for interpersonal trust and cooperation in dyadic relationships and strategic alliances.
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CHAPTER 1:
INTRODUCTION

Overview

The purpose of this study is to explore the relationship between interpersonal trust and cooperation between dyads in a strategic alliance (alliance). Yoshino and Rangan (1995) defined a strategic alliance as follows:

two or more firms that unite to pursue a set of agreed upon goals, yet, remain independent subsequent to the formation of the alliance; the partner firms share the benefits of the alliance and control over the performance of assigned tasks, and the partner firms contribute on a continuous basis in one or more key strategic areas, e.g., technology, products, marketing, finance, and so forth. (p. 45)

An alliance is a distinctive strategy that many organizations employ to stay competitive. These interfirm relationships offer means to new and broader knowledge, competence development, scale economies, and market access. In addition to the contractual agreements that govern alliances, the business relationship must be conceptualized by understanding the interpersonal aspects of the arrangement. Much of the research on trust focuses on beliefs, culture, emotions, and individual experiences (Rotter, 1967; Tschannen-Mora & Hoy, 2000; Branzei, Vertinsky, & Camp, 2007; Salamon & Robinson; 2008) and views trust as connected to interpersonal relationships and as playing a role in business relationships (Van de Ven, 1975; Lewicki, Tomlinson, & Gillespie, 2006; Evans & Revelle, 2008).

Trust has been defined as the “willingness of a party to be vulnerable to the actions of another party, based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other
party” (Mayer, Davis, & Schoorman, 1995, p. 712). According to Golembiewski and McConkie (1988), there is no single component that influences group behavior as much as trust.

Trust is commonly cited as the foundation of effective and long-standing relationships (Deutsch, 1958; Webb & Worchel, 1986; Luhmann, 1988). We talk of the trust that we have with others, how much we believe what we see or are told, or how confident we are that something works properly. Most importantly, trust connects individuals and groups both personally and professionally (Deutsch, 1960; Van de Ven & Walker, 1984; Das & Teng, 1994; Yamagishi, Kanazawa, Mashima, & Terai, 2005; Vlaar, Van den Bosch, & Volberda, 2007).

Trust is described as the extent to which individuals are willing to ascribe good intentions to and have confidence in the words and actions of others (Deutsch, 1960; Dyer, 1967; Rotter, 1971). This process supports the interaction of a social system and is indispensable to the longevity and success of organizational functions (Robbins, 1996; Smith & Barclay, 1997). Zand (1972) described trust as the single most important element of a good working relationship. He defined trust as “the willingness to risk increasing one’s vulnerability to another whose behavior is not under one’s control” (p. 230).

Ring and Van de Ven (1994) stated that trust between organizations begins as individual-level trust. They suggested that firms are capable of the act of trusting, but that the firms’ agents have the ability to trust. Individual and team trust can be made into firm-level trust (Smith & Barclay, 1997). Ring and Van de Ven (1982) also stated that firms will trust one another only after they have experienced successful business
interactions in the past and perceive the other partner as fulfilling the standards of equity. Similarly, Gulati (1995) established that interfirm trust emerges when the same business partners have had prior alliances, while McAllister (1995) established that trust is positively linked with the frequency of interaction between managers and their employees. Zaheer, McEvily, and Perrone (1998) described interpersonal and interorganizational trust as two different variables; however, both are highly correlated. It is the belief of these researchers that in order to develop and sustain trust between partnering firms, individual and team trust must initially exist.

Trust exists at multiple levels: individual, organizational, and interorganizational (Tschannen-Mora & Hoy, 2000; Bohnet & Baytelman, 2007). There is a consensus among the disciplines that trust is important in organizations in a number of ways because it supports cooperation between individuals (Van de Ven & Walker, 1984; McAllister, 1995; Das & Teng; 2004; Yamagishi et al., 2005); promotes network relations (Van de Ven & Walker, 1984; Das & Teng, 2001; Williams, 2007); reduces conflict (Conviser, 1973; Ferrin, Dirks, & Shah, 2006); facilitates and sustains work groups (Meyerson, Weick, & Kramer, 1996; Ferrin, Bligh, & Kohles, 2007); and encourages efficient responses to crisis (Gambetta, 1998). Trust is often referenced in the organizational behavioral literature because of its indirect influence on individual and group performance (Jones & George, 1998; Serva, Fuller, & Mayer, 2005; Salamon & Robinson, 2008).

Interpersonal trust has been linked to a number of favorable results for groups and organizations because of its cognition- and affect-based dimensions (Deutsch, 1960; Rotter, 1971; McAllister, 1995; Paul & McDaniel, 2004; Lewicki et al., 2006; Chua,
Ingram, & Morris, 2008). The affect or emotional dimension of interpersonal trust is grounded in the extent to which care and concern exist in a relationship, while the cognition dimension of trust deals with the extent to which an individual is reliable and dependable (Webber & Klimoski, 2004; Smith & Lohrke, 2008; Webber, 2008).

Interpersonal trust between alliance members is critical. These interfirm structures must recognize the infrastructures and routines that form a stable framework in which interpersonal trust can evolve (Inkpen, 2005; Suseno & Ratten, 2007; Langfield-Smith, 2008). Traditionally, researchers have emphasized the formal control mechanisms, governance structures, and contractual safeguards as remedies for alliance instability and failures; however, according to many trust theorists, trust development within an alliance is critical to the success of the partnership (Currall & Inkpen, 2002; Judge & Dooley, 2006; Costa & Bijlsma-Frankema, 2007). Trust is fundamental to effective interpersonal and interorganizational relationships (Mouzas, Henneberg & Nude, 2007).

Trust is extremely important in alliances because organizations rely on their partners’ actions and performance (Ireland, Hitt & Vaidyanath, 2002; Langfield-Smith, 2008). Frequently cited outcomes of trust that affect group performance include cooperation, decision-making, and effort (McAllister, 1995; Salamon & Robinson, 2008; De Jong & Woolthuis, 2008). These functions are specifically important to alliances because future interactions between partnering organizations are usually based on past and present performance.

A trusting relationship between the alliance organizations is essential to successfully executing the alliance agreement. The trust that develops between the individuals in the member organization is critical for the relationship because partners
who trust each other can adjust to unanticipated contingencies in ways that are jointly optimal without the time and effort associated with renegotiating a contract with opportunistic partners (Lorenz, 1988).

An evolving body of research on dyadic trust in organizations is pertinent to the research of alliances and inter- and intra-firm relationships. Studies on interpersonal trust in hierarchical dyads in organizational settings were conducted by Butler (1991), Gabarro (1978), Zand (1972), McAllister (1995) Becerra and Gupta (2003), Brandes, Dharwadkar, and Wheatley (2004), Thies (2005), and Lau and Liden (2008). In addition, the measuring of trust in dyadic relationships in organizational settings includes the works of Lewicki and Butler (1996), Mayer et al. (1995), Costa (2003), Kiffin-Peterson and Cordery (2003), Van Swol and Sniezek (2005), Serva et al. (2005), and Lau and Liden (2008).

The literature suggests that in dyads trust is produced through frequent meetings, and the trust will increase in the relationship if it is perceived to be consistent. As dyad members become clearer about how each can contribute to the business venture, a more personal relationship develops and the social and business relationship overlaps. As the dyadic members spend more time together personally and professionally, they participate in a series of risk-taking activities, and it is during this stage that deeper levels of trust develop (Larson, 1992).

The perception of the alliance as either cooperative or competitive will impact outcomes of trust that affect group performance in terms of decision-making, effort, and success rates. While a cooperative alliance results in increased trust and cooperative behavior, a competitive alliance can result in lack of systematic models and processes, no
shared vision from conception to implementation, inadequate metrics and diagnostics, and lack of input from dyadic members (Bamford & Gomes-Casseres, 2003).

**Statement of the Research Problem**

A large number of alliances under perform because they lack the personal factors such as trust and cooperation that are necessary for fostering workplace relationships (Suseno & Ratten, 2007; Langfield-Smith, 2008; Patzelt & Shepherd, 2008). Trust is extremely important in alliances because organizations rely on their partners’ actions and performance (Ireland et al., 2002; Langfield-Smith, 2008).

Trust is viewed in business relationships as the underpinning of cooperation (Hakansson, Harrison, & Waluszewski, 2004; Bohnet & Baytelman, 2007). Interpersonal trust is viewed as a significant social condition that can strengthen cooperation and facilitate social exchanges (Paul & McDaniel, 2004; Ferrin, Dirks, & Shah, 2006). If any interest exists between multiple parties, cooperation and collaboration can serve as the foundation for a relationship (Ford, Gadde, Hakansson, & Snehota, 2003; Das & Teng, 2004).

More than 10 years ago, studies estimated the extinction rate of alliances as 65% to 70% (Bleeke & Ernst, 1993; Parkhe, 1993), and nearly two decades ago, most alliance performances were described as mediocre (Harrigan, 1988). In a study published in the *Galt Global Review* (2005), 723 senior executives reported that 61% of alliances delivered disappointing results. Industry researchers looking into alliance performance have found an average success rate of 30% to 40%, which means that 60% to 70% fail to meet their objectives (Borker, de Man, & Weeda, 2004). The main cause of most alliance failure is relationship issues such as trust (McAllister, 1997; Gulati, 1995; Das & Teng,
2001; Laaksonen, Pajunen & Kulmala, 2008), coercion (Beamish, 1988), and opportunism (Lorenz, 1998; Ireland et al., 2002; Patzelt & Shepherd, 2008).

Researchers have invested considerable effort in understanding trust in intra- and interfirm relationships, but there is very little documented research on the trust and cooperative relationships between alliance members despite literature supporting the importance of these relationships (Deutsch, 1958; Kramer, 1999; Ferrin & Dirks, 2003; Marsh & Dibben, 2005; Mouzas et al., 2007). Additionally, there is very little documented research on the interpersonal trust relationship among dyadic peers within strategic alliances. In spite of the contractual arrangements that govern the alliance, it is the working relationships and performance of the alliance members that are essential to the successful completion of the alliance’s obligations to the customer. Trust and cooperation are particularly critical when individuals from two or more firms must work together to implement an interorganizational agreement (Wayne & Ferris, 1990; Saxton, 1997; Iacobucci & Hopkins, 2008). As Ring and Van de Ven (1994) stated, trust between organizations starts as individual-level trust because individuals have the ability to trust. Aldrich and Herker (1977) described the working relationship between individuals from different organizations as necessary ingredients for a successful interfirm arrangement, and this relationship is the basis for this study.

**Purpose and Research Question**

The purpose of this study is to examine the relationship between interpersonal trust and cooperation among dyads in a strategic alliance consisting of three professional consulting firms. In an alliance structure, a level of trust exists between the firms, and this
study focuses on the dyadic relationships between individuals from collaborating organizations.

The following research questions frame the study:

1. To what extent is interpersonal trust related to cooperation?
   
   1a. To what extent is there a positive relationship between cognition-based trust and cooperation?
   
   1b. To what extent is there a positive relationship between affect-based trust and cooperation?

2. To what extent does length of time affect the relationship between interpersonal trust and cooperation?

3. To what extent does frequency of interaction affect the relationship between interpersonal trust and cooperation?

The unit of analysis is the dyadic relationships between peers from three firms that are members of a strategic alliance. An alliance provides a particularly appropriate setting for this study because it is an environment where individuals must be able to trust and rely upon each other to accomplish agreed-upon goals.

Statement of Potential Significance

Researchers and business leaders tend to assume that trust is important to the functioning of organizational relationships and workgroups, as much of the work involves interpersonal actions and cooperation (Das & Teng, 2004; Vlaar, Van den Bosch, & Volberda, 2007). This assumption is reflected in discussions around group performance (Robbins, 1996; Dirks & Sharlicki, 2009) and in the use of team-building exercises (Tannenbaum, Beard, & Salas, 1992). Interpersonal trust is essential to efficient
and equitable relationships, and the ability to develop and sustain solid interfirm relationships can contribute to business efficiency, render a more desirable partner for the alliance, and, in the long run, be the underpinning for a sustainable competitive edge (Dyer & Singh, 1998). Interpersonal trust may lead parties to be more proactive in exploring opportunities for increased collaboration (Das & Teng, 2001; Milton & Westphal, 2005; Suseno & Ratten, 2007).

The essential underpinning for organizational partnerships is the type and quality of the relationship between the alliance members. The behavior of alliance members is equally important and significant, in that they provide insight on how people interact in executing the alliance goals and may also be important in determining other outcomes for the partnership.

This study explores new ideas and builds upon the empirical and theoretical work on trust and cooperation in strategic alliances. This study also provides insight into dyadic relationships and whether variables such as time and familiarity can predict the type of relationship that will evolve between dyadic peers, and what, if any, impact these relationships will have on the stability of their alliance. The findings from the research inspire deeper dialogue into the relationship between trust and cooperation and, most importantly, expand the body of literature related to dyadic trust and cooperative behaviors in alliances.

**Conceptual Framework**

The conceptual framework for this study was developed using the theories that describe the relationship between trust and cooperation. The relationship between these two constructs is the basis of the study, which builds upon the research on affect- and
cognition-based trust and cooperation conducted by McAllister’s study (1995) titled “Affect- and Cognition-Based Trust as Foundations for Interpersonal Cooperation in Organizations.” The relationship between trust and cooperation is a key component in organizational settings and a prerequisite for interfirm relationships, which are dependent on individuals’ engaging socially and professionally, and in some case, with competitors. The success of these interactions is dependent on attitudes, behavior, and performance, which are shaped by trusting and cooperative behavior.

Dyadic relationships embody the concept of exchange between two individuals. According to Blau (1964), in organizational settings a social exchange takes place between two employees. He added that these relationships develop, deteriorate, and dissolve as a consequence of an unfolding social exchange and coordination process, which may be conceived as a bartering of rewards and costs between the partners.

The literature on social exchange suggests that employees evaluate their social interactions, and if these interactions are successful, they will reciprocate in the future (Konovsky & Pugh, 1994; Wayne & Ferris, 1990). Within this stream of research, two major social exchange relationships emerged: the employee’s relationship with his or her supervisor (leader-member exchange [LMX]) and the employee’s relationship with the organization (perceived organizational support [POS]). LMX describes the direct, local interpersonal exchange between a supervisor (the leader) and his or her subordinate (the member) (Dansereau, Greauen, & Haga, 1975; Graen & Uhl-Bien, 1995; Wayne, Shore, & Liden, 1997).
Researchers across the disciplines agree that trust has a myriad of significant benefits for organizations. This concept resonates in most theoretical literature on trust and its effect on attitudes, behaviors, and performance in the workplace (Dirks & Ferrin, 2001; McEvily, Perrone, & Zaheer, 2003; De Jong & Woolthuis, 2008). Trust leads to cooperation among organizations, work teams, and individuals (Axelrod, 1984; McAllister, 1995; Langfred, 2004; Webster & Wong, 2008; Ayoko & Pekerti, 2008).

The importance of trust has been cited in such organizational areas as communication (Becerra & Gupta, 2003; Branzei et al., 2007; Song, 2009), leadership (McAllister, 1995; Colquitt, Scott, & LePine, 2007; Lau & Liden, 2008), management (Sashkin, 1996; Kantsperger & Kuntz, 2005), negotiation (Atwater, 1988; Howorth, Westhead & Wright, 2004), performance appraisal (Taylor, 1989; Brown & Benson, 2005), labor-management relations (Bazerman, 1994; Ospina & Yaroni, 2003), and workgroups and teams (Langfred, 2004; Webster & Wong, 2008; Ayoko & Pekerti, 2008).

Gibb (1978) studied trust in organizations using the systems approach. He proposed that in order for organizations to grow and survive, the development and maintenance of trust among individuals was a necessary component to organizational success. Gibb also argued that an increase in trust leads to more timely feedback, more effective communication, and more cooperative and constructive action. Trust in business relationships has even been described as the critical determinant of organizational survival (Mishra, 1996).

Dirks and Ferrin (2001) studied trust through two different models in order to examine how trust offers the setting under which positive attitude, behavior, perception,
and performance outcomes are likely to occur. Their findings proved that higher levels of trust increase the probability that determinants of cooperation will result in favorable outcomes, and lower levels of trust decrease the probability. Similarly, Lundin (2007) studied the effect of trust on cooperative behavior and found that mutual trust and goal congruence among individuals must be present simultaneously for cooperation to exist.

One conceptual difficulty with studying trust is that it has often been confused with cooperation (Siegrist, Gutscher & Earle, 2005; Mulder, van Dijk, De Cremer & Wilke, 2006). Cooperation, like trust, is widely researched and has numerous definitions and conceptual foundations. Trust fosters cooperation between individuals, teams, and organizations (Axelrod, 1984; Malhotra & Murnighan, 2002; Milton & Westphal, 2005), and there is widespread agreement that cooperation can facilitate trust development in interorganizational relationships (Powell, 1990; Das & Teng, 1998; Ring & Van de Ven, 1994; Siegrist et al., 2005).

Trust between dyads is produced through frequent contact and repeated exchanges and may likely persist as individuals realize how each can contribute to the goals of the alliance. Williams (2001) stated that a series of interaction between two people provides an opportunity for the development and overlap of a social and business relationship, and this relationship has the potential to shape the structure of the interfirm collaboration. Researchers have frequently argued that trust engenders higher levels of cooperation (Golembiewski & McConkie, 1988; Smith, Carroll, & Ashford, 1995), even claiming that trust is a necessary condition for the occurrence of cooperation (Hwang & Burgers, 1977). The core of the argument is that interpersonal trust allows an individual to be confident that his partners will not behave opportunistically, but can be relied upon to
work with that individual towards a common goal. The conceptual framework for this study is illustrated in Figure 1-1.

**Figure 1-1.** Conceptual Framework.
Summary of the Methodology

This study examined the relationship between interpersonal trust and cooperation among dyads in a strategic alliance, which consisted of three professional consulting firms (Alliance X). The specific unit of analysis was the dyadic relationship between peers from the three firms. This study employed a quantitative, explanatory research design utilizing survey methodology. The research sample consisted of 92 employees from the partnering firms, and they represented a census sample for this study. The professional experiences of the consultants included finance, accounting, business management, and information systems.

Alliance X was formed 4 years ago, and the partnering firms have been in business from 8 to 16 years. Each firm was a small business enterprise that provided financial management, accounting, auditing, and related professional services to federal, state, and local governments and private-sector entities. Two of the three alliance firms are also classified as woman and minority owned businesses.

The configuration of Alliance X allowed the individuals from each firm to interact on a daily basis. For the purpose of this study, the respondents were instructed to identify an alliance member that they worked with on a regular basis and to answer each question based on that relationship. The data was collected using an Internet survey instrument that incorporated McAllister’s (1995) Behavioral Response and Interpersonal Trust Measures. Pearson r correlation coefficient was used to measure the degree of association between interpersonal trust and cooperation, and stepwise multiple regression examined the duration of the working relationship and the frequency of interaction between dyad peers.
Limitations

Creswell (2003) posited that all statistical procedures have limitations. He added that a discussion of such limitations is useful to other researchers who may conduct similar studies. This study had the following limitations:

1. This study is not generalizable because it was limited to a specific industry and a specific demographic within the respective industry.
2. The study was limited to the characteristics of Alliance X (age, teaming agreements, and contractual tasks).
3. The frequency of interaction among the alliance members varied among the alliance tasks, which may have affected how respondents answered time-based (frequency) questions on the survey.
4. This study used an Internet-based survey, which may have affected respondents’ concerns about trust and confidentiality.

Definition of Key Terms

The following key terms and definitions are relevant to this study.

*Affect-based trust.* An emotional connection to something or someone that develops from a sense of feelings and motives (Lewis & Wiegert, 1985; McAllister, 1995).

*Alliance members.* Individuals that belong to an alliance.

*Cognition-based trust.* One’s belief or perception about something or someone based on knowledge, history, and experience (Lewis & Wiegart, 1985; McAllister, 1995).

*Cooperation.* The act of working together to one end (Mead, 1976).

Interpersonal trust. The process in which a person is willing to act based on the actions, words, and choices of another (McAllister, 1995).

Organizational citizenship behavior. The act of providing help and assisting another beyond one’s work role and with no direct reward (Organ, 1988).

Strategic alliance. A temporary, voluntary partnership created for a competitive advantage for the partners (Das & Teng, 2001); the firms remain independent entities throughout the alliance relationship (Yoshino & Rangan, 1995).

Trust. The extent that two or more interdependent individuals in a vulnerable situation have self-assured expectations of the other(s) with regard to their competence, honesty and openness, and reliability (Deutsch, 1973; Luhmann, 1979; Barber, 1983; Mayer et al., 1995; Mishra, 1993, 1996; McEvily et al., 2003).
CHAPTER 2:
LITERATURE REVIEW

The literature review is divided into three primary sections. The first section examines the theories of trust and focuses on interpersonal trust. The second section explores literature on cooperation, and the third section examines dyads and strategic alliances.

The review of the literature was conducted using the following ALADIN library databases: ABI/Inform Complete Plus, Dissertations and Theses Online, Emerald Library, ERIC, JSTOR, Proquest Research Library Plus, Psyc INFO, and Web Science. The following keywords were used to conduct research in the aforementioned databases: affect-based trust, boundary spanners, cognition-based trust, cooperation, consulting, dyads, interpersonal trust, interorganizational relationships, intraorganizational relationship, joint ventures, networks, organizational citizenship behavior, social exchange, and strategic alliances. The following sections present the findings of the literature review.

Trust

The literature contained multiple definitions of trust with varying and similar conceptions. These definitions were embedded in the various disciplines. Deutsch (1960) and Rotter (1967) studied the relationship between trust and personality tendencies, and Wrightsman (1964) added to their findings by showing a high correlation between trust and one’s perception of human characteristics. Deutsch (1962) studied the effect of motivational consequences on trusting behavior using a two-person prisoner’s dilemma.
game. His results found that expectation and intent increased the chance of participating in trusting behavior.

Trust is defined as the extent that two or more interdependent individuals in a vulnerable situation have self-assured expectations of the other(s) with regard to their competence, honesty and openness, and reliability (Deutsch, 1973; Luhmann, 1979; Barber, 1984; Mayer et al., 1995; Mishra, 1993, 1996). This definition is consistent with Boon and Holmes’ (1991) definition of trust as “a state involving confident positive expectation about another’s motives with respect to one’s self in situations entailing risk” (p. 195). Similarly, Bies and Tripp (1996) defined trust as “a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behavior of another” (p. 29).

Trust has cognitive, emotional, and behavioral dimensions (Loomis, 1959; Deutsch, 1960; Evans, 1964; Rotter, 1971; Conviser, 1973; McAllister, 1995; Webber & Klimoski, 2004; Smith & Lohrke, 2008; Webber, 2008; Song, 2009). These authors described trust as a cognitive process where judgment is made about a person’s trustworthiness. They agreed that individuals cognitively choose whom they will trust and under which circumstances and that individuals base their decision on sound reasoning. Loomis and Rotter both added that familiarity is a precondition for trust.

Rotter (1967, 1971) stated that the behavioral process of trust is to perform as if the uncertain acts of others are predictable in circumstances wherein the violations of these expectations result in negative consequences for those involved. He described trust as taking a risk on the expectation that individuals would act proficiently and loyalty. Conviser (1973) pointed out that behavioral displays of trust-based actions help to create
the cognition platform of trust and the emotion or sentiment of trust. Dirks and Ferrin (2001) researched the theoretical frameworks of trust and found that trust both facilitates and hinders behavior and performance.

Lewis and Weigert (1985) provided a sociological perspective of trust in a collection of units such as dyads and groups. As a collective attribute, trust is applicable to the relations among people rather than to their psychological states. Lewis and Weigert, along with Luhmann (1979, 1988), described trust as a process that happens between individuals or a collective group of people, rather than a psychological state within an individual person. This distinction recognizes that organizations comprising people can trust other organizations and their employees.

There is a fairly established field of research suggesting that trust in business settings may be dependent on shared similarities between partners. Specifically, the presence of shared social norms is a basis for trust building. Norms can be described as the expectation of behavior that the group agreed to and has come to depend on (Gibb, 1978; Thiagarajan, 1997; Gill, Boies, Finegan & McNally, 2005; Ashraf, Bohnet, & Piankov, 2006). This type of trust has been referred to as collaborative trust (Paul & McDaniel, 2004), which is necessary for trustworthiness or interpersonal trust (Laaksonen et al., 2008).

**Interpersonal Trust**

Interpersonal trust is frequently conceptualized as a belief about a set of particular characteristics of another specific individual. The characteristics have typically included the dependability or reliability of the partner (Deutsch, 1958; Rotter, 1967; Brandes et al., 2004; Ferrin et al., 2006). The ability to rely on interpersonal trust constitutes a critical
ingredient in permitting the partners to place themselves in harm’s way, facilitating daily interaction, and resolving any conflicts that may come their way (Costa, 2003; Lado, Dant, & Tekleab, 2008, Hernandez, 2008).

Early theorists defined interpersonal trust more as a personality trait. Rotter (1967) defined interpersonal trust as “an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon” (p. 653). Rotter developed an Interpersonal Trust Scale to measure trust towards humanity, but not at specific people. In his research, Rotter focused on a universal trust of people and the personality traits they display in everyday occurrences.

Interpersonal trust is viewed as a social element that not only breeds cooperation and enables coordinated social interactions (Brandes et al., 2004; Langfield-Smith, 2008), but also diminishes the need to monitor others’ behavior, practices, and contractual agreements (Carson, Madhok, Varman & John, 2003; Faems, Janssens, Madhok & Van Looy, 2008; Simpson & Eriksson, 2009). Additionally, Ring and Van de Ven (1994) stated that the ability to rely on trust reduces the transaction cost (time and effort) required to negotiate, reach agreements, and execute a cooperative interorganizational relationship.

McAllister (1995) defined interpersonal trust as “the extent to which a person is confident in, and willing to act on the basis of, the words, actions, and decisions of another” (p. 25). His definition built upon the conceptual theories of Deutsch (1958, 1960), Rotter (1967), Luhmann (1979, 1988), Cook and Wall (1980), and Barber (1983), who described interpersonal trust as the knowledge one possesses about how others are likely to act, based on past experiences and situations. In his study of trust between
Managers and their employees, McAllister found that the existence of affect-based trust facilitated cooperative behavior and increased coordinated action. He also found that trust promoted ad hoc group formation without prior cognition or affect with regards to others.

**Affect- and Cognition-Based Trust**

The affect or emotional dimension of interpersonal trust is grounded in the extent to which care and concern exist in a relationship, while the cognitive dimension of trust focuses on the extent that the other individual is reliable and dependable. Deutsch (1960) and Evans (1964) stated that the affect component of trust is an emotive affiliation between the members of the relationship. They described this type of bond as similar to the bonds of friendship and love, where emotional investments are made, and the betrayal of the trust arouses a defeated state of emotions. This emotional component is present in all types of trust, but it is usually more intense in close interpersonal trust (Lewis & Weigert, 1985; Smith et al., 1995; Williams, 2007; Smith & Lohrke, 2008).

Cognition-based trust involves deliberately deciding whom to trust and under what circumstances based on knowledge and judgment. Shapiro (1987) stated that “the amount of knowledge necessary for trust is somewhere between total knowledge and total ignorance,” and he added that “given total knowledge, there is no need to trust, and given total ignorance, there is no basis upon which to rationally trust” (p. 629). Luhmann (1979) commented that the relationship between the trustor and trustee involves leaps of faith, in addition to knowledge and reasoning.
Trustor Characteristics

Trustor characteristics can be defined as the process of individuals or organizations displaying acts of trusting behavior. Elements of the trustor characteristics include expectations or belief and vulnerability—specifically, the belief about another person’s intentions or behavior (Brockner & Siegel, 1996; Lewicki & Bunker, 1996; Lewicki, McAllister, & Bies, 1998) and the feeling of defenselessness if the trust is violated (Webb & Worcel, 1986; Boon & Holmes, 1991).

Expectations or Belief

Good (1988) stated that trust is fostered through expectations of behavior. Deakin and Wilkinson (1998) added reliability and capability of the trustee to the expectations of the trustor (p. 155). Cummings and Bromiley (1996) stated that additional expectations include commitment and confidence, and the belief that both parties concur with the exchange. Zucker (1986) added that the parties should agree and share expectations because of shared understandings. Reciprocity was introduced by Ashraf et al. (2006) as the key element in trust between trustor and trustee.

Vulnerability

A degree of ambiguity and risk must be present for the need to trust to exist. The risk involves the consequences the trustor may experience if the trust is violated (Lane, 1988). Lorenz (1998) stated that vulnerability exists when (a) an individual is defenseless since the behavior is not under his or her control and (b) the event allows for abuse and regrettable action.
Mishra (1996) tied characteristics, belief, and vulnerability into his definition of trust as “one party’s willingness to be vulnerable to another party, based on the belief that the latter party is competent, open, concerned and reliable” (p. 280).

**Trustee Characteristics**

Competence, reliability, predictability, and goodwill are just a few of the characteristics of the trustee. For individuals to be labeled as trustworthy, they must be able to contribute to the organization’s or team’s goal, possess the necessary skills and experience to do the work, and be able to produce consistently (Guth, Levati & Ploner, 2008).

*Competence*

Barber (1983) explained that competence involves one’s ability to perform in a knowledgeable and proficient manner. Deakin and Wilkinson (1998) stated that the “trustee should be able to complete his duties willingly: trust is the belief or understanding on the part of one individual in the reliability or capability of another” (p. 154).

*Predictability and Reliability*

Predictability and reliability have similar qualities, but in spite of the distinct difference between the two, they are often seen as counterparts (Webb, 1996). Reliability describes the trustee as fulfilling an obligation. Predictability, on the other hand, describes the actions of the trustee as consistent (Brenkert, 1998). For example, trustees may complete their tasks, but the manner in which they perform the task, positively or negatively, can be done consistently (Zaheer et al., 1998). Zaheer et al. (1998) defined
reliability and predictability as trustee characteristics and also spoke of being opportunistic as decreasing trust.

**Goodwill**

Deakin and Wilkinson (1998) described trust as being rooted in goodwill. They stated that by placing the organization’s or team’s goals ahead of individual goals, the trustee becomes motivated by his or her actions, especially when faced with opportunism. This act of selflessness on the part of the trustee relates to goodwill in that he or she will not take advantage of the trustor or the circumstances.

Hovland, Janis, and Kelley (1953) showed that credibility was affected by two factors: expertise and trustworthiness. Trustworthiness was assessed as the motivation, or lack thereof, to lie. Good (1988) followed up on these findings by suggesting that individuals respond to one another based on expectations of a person’s trustworthiness and how that person is expected to behave. Similarly, Lieberman (1981) stated the belief that an individual’s competence and integrity are based on the level of trustworthiness between the individuals.

**Determinants of Trust**

Across disciplines, there is agreement on the predisposing factors that must exist for trust to occur. Risk is considered a key element in the conceptualizations of trust (Williamson, 1993; Das & Teng, 2004; Tan & Lim, 2009). Risk is the chance we take that makes us vulnerable (Chiles & McMackin, 1996; MacCrimmon & Wehrung, 1986). Trust and risk-taking provide a balance to a reciprocal relationship, and risk provides the prospect of the development of trust, which fosters risk-taking. Additionally, risk-taking
supports the trusting behavior as the expected behavior unfolds (Coleman, 1990; Das & Teng, 1998). Trust would not be needed if there were certainty in the outcome of such behavior (Lewis & Weigert, 1985).

Interdependence is the association between two or more things and the reliance upon another (Gambetta, 1998). Axelrod (1984) shared that the level of interdependence affected an organization’s level of perceived trust and was quite distinct when comparing veteran employees and temporary employees. Sheppard and Sherman (1998) added that “although both risk and interdependence are required for trust to emerge, the nature of risk and trust changes as interdependence increases” (p. 427).

McKnight, Cummings, and Chervany (1998) proposed that trust develops over a period of time and that, accordingly, trust is low at the onset of a new relationship but increases as the relationship ages. The authors theorized that there is sufficient evidence to support the idea that in a new work environment or interpersonal situation, at the time of the initial meeting, high trust elements can occur. The authors attributed this process to the organization’s structural belief systems and the likelihood of initial trust formation in individuals and group.

In high-level trust, the individual believes his partner fulfills explicit and implicit commitments (Zand, 1972; Becerra & Gupta, 2003; Inkpen & Currall, 2004) and that his partner cares for him and will be likely to behave accordingly—and not behave opportunistically (Lindskold, 1978; Paul & McDaniel, 2004).

**Trust in Organizational Partnerships**

Trust between partnering organizations is one of the central elements of alliance management. This level of trust is the reliance of firms or their agents to maintain the
interests of all parties in the alliance, joint venture, or economic exchange (Hosmer, 1995). Many researchers agree that alliances are formed on the basis of mutual trust between firms (Beamish, 1988; Casson, 1988; Harrigan, 1988; Das & Teng 2002; Inkpen, 2000; Langfield-Smith, 2008).

Members of alliances are key players in the execution of interorganizational agreements (Yoshino & Rangan, 1995). The trust that develops between these individuals is critical for interfirm relationships because the counterparts trust each other and can adjust to unanticipated contingencies in ways that are jointly optimal without the time and effort associated with renegotiating a contract with opportunistic partners (Lorenz, 1988). Trust between these individuals also facilitates reliance on informal cooperation and informal agreements that supplement and improve the efficiency of formal contracts (Das & Teng, 1998, 2001; Barrera; 2007). Because trust reflects the belief that one’s partner will act in ways that are helpful or at least not harmful (Gambetta, 1988), it facilitates cooperation by mitigating the perceived risk of opportunism (Williams, 2001; Shah & Swaminathan, 2008). Moreover, the informal arrangements facilitated by trust should provide firms with benefits of cooperation such as more access to tacit knowledge, increased risk-sharing, and richer and freer information (Inkpen, 2000, 2005; Muthusamy & White, 2005).

Trust refers to the willingness to rely on the actions of another in a situation, which involves the risk of opportunism (Zand, 1972; Mayer et al., 1995; Williamson, 2001). The trust between members of an alliance is particularly important because individuals from the partnering firms work closely and rely on each other for information and resource sharing. Trust and trustworthiness are inherently linked to people, yet the
trust and distrust between people within an organization or between organizations can influence organizational operations and performance as a whole (Van de Ven, 1975; Lewicki et al., 1998). Trust willingly allows people to expose themselves to risk based on the anticipated behaviors of others (Dietz & Den Hartog, 2006; Huang, 2007).

Granovetter (1985) described trust as an important social exchange mechanism that increases the cooperation and reduces the development of opportunistic intentions and thus may eliminate the need for formal control mechanisms. Trust involves a belief that the partner and its promises are reliable and that the partner will fulfill its obligations in an exchange relationship (Blau, 1964). Trust is also the willingness of the partners to rely on each other and place their fate partly in each other’s hands (Deutsch, 1962). Thus, trust involves both belief and behavioral intention (Mulder et al., 2006; Song, 2009).

Previous explanations of trust in alliance relationships have revolved around two major concepts: reliance and risk. Nooteboom (1996) defined trust within an alliance “as reliance on another party under conditions of risk” (p. 341). The concept of reliance includes two dimensions of trust: confidence or expectation about another’s behavior and confidence in another’s fairness or goodwill (Ashraf et al., 2006; Nugent & Abolafia, 2006). The inclusion of risk suggests that a party in an alliance would experience negative outcomes from untrustworthy behaviors of the other party (Nooteboom, 1996). This condition further means that the greater the risk, the greater the belief needed for trust to occur (Mishra, 1996; Becerra & Gupta, 2003).

Trust between the partnering firms comes with a high cost, although optimistic. As mutual trust develops, fear of opportunism fades, which results in a reduction of coordination and monitoring costs. It was Dyer’s (1997) position that trust be used as a
governance mechanism in alliance relationships. He also argued that interorganizational trust increases the level of learning, scope of relationship, and long-term commitment in the partnership. Initially, organizations may be uncertain about their partner’s competence and reputation (Bleeke & Ernst, 1993). As the trust increases, partners become more open and receptive to sharing resources, intelligence, and expertise. Trust facilitates ongoing interorganizational communication, which allows information to flow freely between partnering organizations (Welch, Rivera, Conway, Yonkoski, Lupton, & Giancola, 2005; Ferrin et al., 2006).

Because of the unique arrangement of alliances, trust is particularly important for technology collaborations, client-professional service firm relationships, co-marketing alliances, and other partnerships with goals related to producing and/or sharing knowledge (Smith & Barclay, 1997; Hutt, Stafford, Walker, & Reingen, 2000; Adobor, 2005). More broadly, trust enables coordination when the individuals cannot rely on authority relationships but instead must gain the cooperation of people over whom they have no hierarchical control (Levin, Whitener, & Cross, 2006; Lau & Liden, 2008). Trust facilitates coordination across organizational boundaries and in nonhierarchical relationships by fostering informal cooperation, reducing negotiation costs, and supporting more flexible responses to crisis (Powell, 1990; Ring & Van de Ven, 1994; Zaheer et al., 1998).

**Building Trust**

Building trust can be viewed through various lenses: the emergence of trust in new organizational settings (Dirks & Ferrin, 2001; Berggren & Jordahl, 2006) and through new organizational relationships (Ferrin et al., 2006), or in the context of an
existing relationship between workers and managers where trust may be created or enhanced (Sitkin & Weingart, 1995). Gambetta (1988) stated that reliance on trust by organizations can be expected to emerge between parties only when they have successfully completed transactions in the past and they perceive one another as complying with norms of equity (p. 57). Gambetta added that the more frequently the parties have successfully transacted, the more likely they will bring higher levels of trust to the subsequent transactions.

Ring and Van de Ven (1994) proposed a definition of trust that relies on the individual’s confidence in the goodwill of the others in a given group and belief that the others will make efforts consistent with the group’s goals (p. 498). Luhmann (1979), Axelrod (1984), Tschannen-Moran and Hoy (2000), and Branzei et al. (2007) agreed that trust is earned by the partners’ willful performance, in addition to not acting opportunistically. These theorists agreed that partners may opt to trust, or enter into a risky transaction, where there is no history of prior direct interaction. Their concept is based on generalized trust, or a firm’s ability or willingness to trust prospective partners in a general sense, based on the firm’s overall history of alliance experience, rather than direct trust between two specific partners (Ireland et al., 2002; Laaksonen et al., 2008). This concept parallels trustworthiness, which is described as the degree to which, given no prior direct interaction between partners, the prospective partner can be considered trustworthy based upon information available in the industry network about the prospective partner’s overall alliance history and reputation (Lewicki et al., 2006; Suseno & Ratten, 2007).
Tung (1984) stated that the culture that firms bring to the alliance may directly influence the development and level of trust between alliance partners. The development of trust is an uncertainty, and this can further intensify the differences between partners (Horng, 1993). Buckley (1992), Inkpen (2005), and Zaheer and Zaheer (2006) added that the alliance depends on stability and longevity; therefore, if there are major cultural differences among the alliance partners, they are less likely to share a mutual understanding. Although cultural differences exist, the development of trust between partners is reasonable if the partners recognize that trusting behavior will be beneficial to the alliance (Casson, 1990).

**Cooperation**

Cooperation, like trust, has varied conceptual meanings and has evolved from a variety of theoretical foundations. This dimension of human coordination is viewed as critical for creating a collective balance among management and workers within organizational structures (Barnard, 1938; Mayo, 1945; Fayol, 1949; McNeil, 1963). Deutsch (1958, 1962) argued that trust is the central prerequisite of cooperation. He suggested that whenever individuals choose to cooperate, they essentially place their fate in the hands of others, which is a willingness to trust. When a person experiences trusting and trustworthy behavior, his or her concerns about controlling others become relatively minor or may even disappear (Gibb, 1964).

In Loomis’ (1959) study on the relationship between cooperation and trust, he found that members of the same group needed the following: (1) the desire to reach a goal, (2) a confidence that all members shared the same desire and a realization that one could not win if any members failed to cooperate, and (3) confidence that all members...
had similar motivation and knowledge to attain the goals. Similarly, Mead (1976) placed cooperation in the psychological frame by defining it as “the act of working together to one end” (p. 8). She emphasized individuals working towards a common goal.

Organizations have implemented strategies to increase cooperation between individuals and groups by employing workplace relationships such as cross-functional teams, interorganizational and international collaborations, and alliances (Inkpen, 2005; Patzelt & Shepherd, 2008). Workgroups and teams contribute to the empowerment of lower-level employees, and this empowerment leads to an increase in workplace cooperation among individuals (Jones & George, 1998). This concept is the foundation for organizational citizenship behavior, which is described as actions intended to provide help and assistance that are outside of an individual’s work role, and with no direct reward.

Organizational citizenship behavior is similar to behavior influenced by affect-based trust, because the actions are an expression of genuine care and concern, and research shows that affect states promote social interaction and creativity, which are important factors in team relationships (McAllister, 1995; Ospina & Yaroni, 2003). It is this affect-based feeling that creates a sense of indebtedness and a corresponding obligation to reciprocate (Organ, 1988; Jones & George, 1998), raise the level of cooperation (Organ & Ryan, 1995), and have a direct effect on team performance (Chua, Ingram, & Morris, 2008).

As stated earlier, trust can lead to cooperative behavior in organizations. Jones and George (1998) linked cooperative behavior to conditional and unconditional trust. Both types of trust include values, attitudes, emotions, and moods (Jones & George, 1998).
Tjosvold found that when employees from different groups believed that the goals of their respective groups were cooperative, they expected individuals from other groups to behave in helpful, collaborative, and trustworthy ways. Similarly, Meyerson et al. (1996) described how people from dissimilar professions were able to quickly develop the trust needed to complete complex tasks because they believed that everyone involved in the project held shared goals and that everyone involved thought they would personally benefit from the project’s success.

Tjosvold (1988) wrote further that cooperative behavior may lead to positive perceptions of a group member’s trustworthiness based on two specific areas: symbolic cooperation or congruent core values. He argued that these two areas motivated individuals to believe that group members were more likely to behave in accordance with shared values, whereas real cooperation or goal facilitation may be associated with the belief that shared goals would lead members of other groups to act in ways that were in the best interest of the group.

Organ and Ryan (1995) stated that different levels of cooperation develop based on the level of cooperation needed and the type of trust that exists between individuals. For example, when an organization needs employees to participate in demanding and time-consuming tasks, conditional trust is not enough. In these instances, unconditional trust is essential in order to manifest interpersonal cooperation and the desires of the organization or team members to contribute to the common good. They also argued that cooperative acts motivate others to act in a similar fashion.
Mayer et al. (1995) referred to cooperation “as frequently associated with trust, particularly when cooperation puts one at risk of being taken advantage of by a partner, and the ability to harmoniously combine actions is likely to be contingent upon the extent to which individuals can depend upon their partners and can predict their partner’s behaviors” (p. 714). Ring and Van de Ven (1994) added to this concept by including a willingness of individuals to want to continue in the cooperative relationship. They went on to describe this type of relationship as socially structured for collective engagement, which continually reshapes itself based on the actions of the individuals involved.

Smith et al. (1995) described two types of cooperative behaviors: the formal and informal. They defined informal cooperation as action determined by the behavioral norms and culture within a system. They went on to describe formal cooperation as a contractual obligation and formal structure of control, such as job design and organizational structures. Formal types of cooperation can evolve over time into informal types, in which rules and regulations are not needed (Ring & Van de Ven, 1994; Mayer et al., 1995; Jones & George, 1998).

Cooperation is often critical for interorganizational relationships and other knowledge-sharing projects because individuals often depend on one another to share information and insights and to perform tasks critical to the project. Informal, voluntary cooperation is particularly important for knowledge-based projects because people must voluntarily share their thoughts and insights, and it is impossible to force counterparts to share these insights (Kim & Maubourgne, 1997). Further, when project-related tasks are interdependent, as with the various stages of an alliance, each partnering firm must depend on its counterparts to carry out specific tasks that are critical to the alliance’s
overall success. Therefore, the degree to which a partner cooperates can influence one’s ability to meet the negotiated obligations of the alliance.

Although cooperation can have many numerous outcomes, one of the most essential in organizational settings is effective coordination, which is assumed to result in higher performance (Smith et al., 1995; Salamon & Robinson, 2008; Dirks & Sharlicki, 2009). Cooperation is particularly essential when individuals from two or more firms must work together to execute an interorganizational agreement. Cooperative relationships between individuals that span organizational boundaries can influence both the efficiency (Zaheer et al., 1998; Perrone, Zaheer, & McEvily, 2003) and the longevity of interorganizational relationships (Leventhal & Fichman, 1988; Seabright, Leventhal, & Fichman, 1992). Siegrist et al. (2002) examined the effects of contracts on cooperation and trust. Their results showed that in the absence of binding contracts trust diminished, and nonbinding contracts yielded high levels of cooperation.

Trust can facilitate informal cooperation and reduce economic governance and monitoring costs, which is invaluable to organizations that collaborate with others for their research and development needs, contract professional services, and partner to enhance their globalization strategy (Creed & Miles, 1996; Malhotra & Murnighan, 2002; Simpson & Eriksson, 2009). Creed and Miles (1996) contended that when organizations rely on interorganizational partnerships, “there is little choice but to consider trust building and maintenance to be as important as control system building and maintenance” (p. 30).
Dyadic Relationships in Organizations

A dyadic relationship consists of a single relationship between two parties (Iacobucci & Hopkins, 1995). An increasing body of work on dyadic trust in organizational environments is applicable to the study of alliances and interorganizational relationships. The research conducted by Butler (1991), Gabarro (1978), and Zand (1972) examined hierarchical dyads and interpersonal trust in organizations. More recent conceptualizations of dyadic trust relationships in organizational settings include the works of Lewicki and Butler (1996), Mayer, Davis, and Schoorman (1995), McAllister (1995), and Van Swol and Sniezek (2005).

A substantial amount of theoretical work has suggested that trust is critical to interorganizational collaboration (Alter & Hage, 1993; Bromiley & Cummings, 1995; Fichman & Levinthal, 1991; Jarillo, 1988; Lorenz, 1998). Dyadic relationships within organizations may emerge out of a wide variety of starting conditions, such as friendship ties, institutional mandate, or resource dependence. These organizational units can be part of a larger team or an organizational arrangement that forms for a particular project or goal.

Dyadic relationships embody the concept of exchange between two individuals. According to Blau (1964), in organizational settings a social exchange takes place between two employees. He added that these relationships develop, deteriorate, and dissolve as a consequence of an unfolding social exchange and coordination process, which may be conceived as a bartering of rewards and costs between the partners.

The literature on social exchange suggests that employees evaluate their social interactions, and if these interactions are successful, they will reciprocate in the future.
Within this stream of research, two major social exchange relationships emerged: the employee’s relationship with his or her supervisor (leader-member exchange [LMX]) and the employee’s relationship with the organization (perceived organizational support [POS]). LMX describes the direct, local interpersonal exchange between a supervisor (the leader) and his or her subordinate (the member) (Dansereau, Graen, & Haga, 1975; Graen & Uhl-Bien, 1995; Wayne, Shore, & Liden, 1997). POS describes the social exchange between the employee and the organization of which he or she is a member (Eisenberger, 1986; Lynch, 1999; Settoon, 1996; Wayne et al., 1997).

Researchers have also found that dyadic exchanges formed outside the employee’s specific department have a positive effect on organizational functioning (Cook, 1982; Krackhardt, 1992; Krackhardt & Brass, 1994; Krackhardt & Hanson, 1993). Recent research has highlighted the importance of social exchanges that occur between employees in different work areas and how these relationships contribute to trust building in work settings (Smith, 2001; Ford, Hakansson, & Snehota, 2003; Das & Teng, 2001; Biggart & Delbridge, 2004).

**Trust and Cooperation in Dyadic Relationships**

In an organizational context, trust in individuals is affected by interpersonal encounters, individual characteristics, and institutional environments (Blau, 1964; Zucker, 1986; Fukuyama, 1995). One’s likelihood of trusting another person is generally considered to be based on expectations concerning that person’s intentions or behavior (Rousseau, Sitkin, Burt, & Camerer, 1998; Ferrin & Dirks, 2003).
The literature suggests that in a dyad, trust is produced through frequent contact and may be present when trust is perceived to be present in a competent and consistent performer. As dyad members become clearer about how each can contribute to the business venture, a more personal relationship develops and the social and business relationship overlaps (Williams, 2001). As the members of the dyad spend more time together, they experience a series of exchanges during which various risk-taking events take place. It is during this stage that deeper levels of trust develop.

Whitener, Brodt, Korsgaard, and Werner (1998) advanced the idea that trustors use dyadic behavior as a core factor for diagnosing trust. Kramer (1999), Lewicki and Bunker (1996), and Colquitt et al. (2007) described trustors as decision-makers who use information from their history of interactions with a partner to draw inferences about the partner’s trustworthiness.

**Boundary Spanners in Dyadic Relationships**

Trust has been found in organizational relationships as a fundamental cornerstone of cooperation. If there is an interest between two parties, the basis for cooperation exists and can lead to collaboration as an antecedent to a relationship (Becerra & Gupta, 2003; Kantsperger & Kunz, 2005). Trust and cooperation are particularly critical when individuals from two or more firms must work together to implement an interorganizational agreement. This type of trust and cooperative behavior is important to individuals that interact, especially individuals from partnering organizations. These individuals are known as boundary spanners. Aldrich and Herker (1977) stated that “boundary spanners process the information coming from the partner organization,
represent the interests of their own firm in the relationship, and link organizational structure to environmental elements” (p. 218).

The trust that develops between boundary-spanning individuals is critical for interorganizational relationships. Trust between boundary-spanning individuals facilitates reliance on informal cooperation and informal agreements that supplement and improve the efficiency of formal contracts (Noooteboom, 1999; Vlaar & Van den Bosch, 2007). Moreover, the informal arrangements facilitated by trust provide firms with benefits of cooperation such as more access to tacit knowledge, increased risk-sharing, and richer information (Das & Teng, 2002; De Jong & Woolthuis, 2008).

Trust develops by demonstrating trustworthiness over time (Dietz & Den Hartog, 2006; Bohnet & Baytelman, 2007), and the strength of the bond between boundary spanners tends to increase with the longevity of the relationship. The motivation for preserving trust generally grows as a function of the longevity of the relationship (Currall & Judge, 1995). Moreover, anticipated future longevity of the relationship increases the strength of the relationship because it involves future interdependence. Interdependence creates a long-term incentive to build and maintain trust. Heide and Miner (1992) suggested that anticipated future interaction engenders trust because both individuals know that the other party will have the opportunity to reward trustworthiness and punish untrustworthiness.

Blau (1964) stated that regular exchanges between boundary spanners allow them to become increasingly confident of the other person’s willingness to deliver on promises. The development of trust is tied to frequent communication and repeated exchanges, which allow individuals to learn about another’s trustworthiness (Levin et al.,
When boundary spanners have repeated exchanges, they develop a better understanding of each other, and this in turn reduces the expectations and misunderstandings involved (Katz & Kahn, 1978). Trust is likely to be higher when expectations are understandable and reasonable. Frequent communication is an indication of future exchanges and could possibly influence the formation of trust by deterring opportunistic behavior.

There is a personal relationship between the boundary-spanning individuals that can shape and modify the evolving structure of interorganizational collaboration (Jarillo, 1988; Ring & Van de Ven, 1994). Such collaborative arrangements require boundary spanners to negotiate and execute agreements (Ring & Van de Ven, 1994).

**Strategic Alliances**

Since the term *strategic alliance* is subject to numerous interpretations, it is important to define its scope. For instance, mergers, takeovers, and acquisitions are referred to as an alliance in business literature. Yoshino and Rangan (1995) described strategic alliances as

> two or more firms that unite to pursue a set of agreed upon goals, yet, remain independent subsequent to the formation of the alliance; the partner firms share the benefits of the alliance and control over the performance of assigned tasks, and the partner firms contribute on a continuous basis in one or more key strategic areas, e.g., technology, products, marketing, finance, and so forth. (p. 45)

It is apparent from the definition above that mergers, acquisitions, and takeovers, where one organization assumes full control, do not qualify as an alliance. Similarly, subsidiary relationships do not constitute alliances because they do not consist of independent organizations with separate goals. Parkhe (1993) defined alliances “as
relatively enduring interfirm cooperative arrangements, involving flows and linkages that utilize resources and/or governance structures from autonomous organizations, for the joint accomplishment of individual goals linked to the corporate mission of each sponsoring organization” (p. 805).

The business and economic literature has defined alliances in a number of ways. These definitions identify the following significant features of a strategic alliance: bilateral or multilateral cooperative agreements promoting the implementation of common goals (Barkema, Shenkar, & Vermeulen, 1997; Teng & Das, 2008); long-term agreements defining common objectives, common risk, and the need for cooperation (Dunning, 1995; Currall & Inkpen, 2002; Shah & Swaminathan, 2008); agreement among firms established for the development, production, and marketing of products (Das, 1997); and special transfers that create continuous interdependence among the partners (Crossan & Inkpen, 1995; Judge & Dooley, 2006).

Alliances often characterize collaborative activities between competing firms that are more than a venture capital investment or a customer-supplier relationship (Inkpen, 2000, 2005; Murray & Kotabe, 2005). Rondinelli and Black (2000) described alliances as “co-operative arrangements between businesses (each of which continues to retain its own individual identity), enabling them to obtain access to technologies, know-how, capital and markets to augment their own resources and capabilities” (p. 90). They also believed that sharing resources and competence allows strategic partners to achieve collaborative effects otherwise unobtainable individually. This process affords each partner the opportunity to focus and concentrate on its central business strengths.
Strategic Motivation for Alliance Formation

In the literature on strategic alliances, researchers have varying theories on the motives of these partnerships. Of the varying motivations behind these partnerships, five stand out: mandated formation, cost minimization, access to resources, learning, and strategic positioning (Beamish, 1988).

- **Access to resources.** Firms enter into partnerships to gain access to resources they lack but need in order to compete for opportunities (Wong, Tjosvold, & Zhang, 2005; Robson & Katsikeas, 2008). This dependence creates interdependence between firms and can allow firms to become less dependent as their access to external resources increases.

- **Cost minimization.** The basic reason for firms to partner with other firms is to decrease the cost of resources while staying competitive (Jarillo, 1988). Kogut (1988) stated that interfirm relationships are generally associated with shared acquisitions, and in the face of opportunism, the firm’s assets become a negotiating advantage (Williamson, 1975).

- **Learning.** Researchers agreed that firms enter into partnerships to acquire intelligence, skills, or technologies from the other partners (Hamel, Doz, & Prahalad, 1989; Harrigan, 1985; Inkpen, 1999, 2000). Interfirm arrangements foster the transference of tacit knowledge, which is generally not common among interdependent firms (Hutt et al., 2000; Suseno & Ratten, 2007; Das & Teng, 2008). Kogut and Zander (1992) believed that the motivation for alliances is asymmetrical, which allows one partner to enter the relationship with the goal to avoid risky transactions while the other partner learns new skills.
• *Mandated formation.* Whetten (1981) stated that some firms enter into partnerships on the basis of legal requirements. As an example, international joint ventures are created to comply with global country restrictions in regards to foreign ownership. In some cases, developing countries are forced to enter into partnerships in order to access local markets and resources or to remain competitive in a global market (Beamish, 1988).

• *Strategic positioning.* Positioning strategies play a major role for alliances. Firms use alliances to reduce competitive uncertainty and competitive pressure (Burgers, Hill, & Kim, 1993; Ireland et al., 2002). Alliances also allow for market access and an opportunity to test the dynamics of an expanding business (Mitchell & Singh, 1992).

In addition to strategic motivation, social ingredients are needed to sustain the collaborative success between partners. Many alliances under perform because they lack the personal factors such as trust and cooperation that are necessary for fostering workplace relationships (Suseno & Ratten, 2007; Langfield-Smith, 2008; Patzelt & Shepherd, 2008). A trusting relationship between alliance members is essential to successfully execute the alliance agreement and goals. The trust that develops between the members is critical for the relationship because counterparts who trust each other can adjust to unanticipated contingencies in ways that are jointly optimal without the time and effort associated with renegotiating a contract with opportunistic partners (Lorenz, 1988). In addition, frequent exchanges of information and resources across organizations can serve to develop and sustain trust and provide new opportunities for the alliance.
The review of the literature provides an overview of trust within dyadic relationships in strategic alliances. Interpersonal trust was introduced as the underpinning of exchange between alliance dyads. Interpersonal trust evolves from affect and cognition-based trust characteristics, which can facilitate cooperative behavior between dyadic peers. Additionally, the review of the literature demonstrates that additional research is needed in the areas of trust and cooperative relationships within alliances, especially among interfirm dyads.
CHAPTER 3: METHODOLOGY

This chapter describes the methodology and research design used to study the relationship between interpersonal trust and cooperation between dyads in a strategic alliance.

Research Question and Variables

The purpose of this study was to examine the relationship between interpersonal trust and cooperation among dyads in a strategic alliance consisting of three professional consulting firms (Alliance X). The following research questions framed the study:

1. To what extent is interpersonal trust related to cooperation?
   1a. To what extent is there a positive relationship between cognition-based trust and cooperation?
   1b. To what extent is there a positive relationship between affect-based trust and cooperation?

2. To what extent does length of time affect the relationship between interpersonal trust and cooperation?

3. To what extent does frequency of interaction affect the relationship between interpersonal trust and cooperation?

Researchers have invested considerable effort in understanding trust in intra- and interorganizational relationships, but there is very little documented research on the interpersonal trust relationships among dyadic peers within strategic alliances. The literature shows that trust is built by demonstrating trustworthiness over time (Levinthal
& Fichman, 1988; Das & Teng, 2004; Huang, 2007), and the strength of the bond between individuals generally increases with the longevity of the relationship. The desire to maintain trust evolves as a result of the longevity of the relationship (Currall & Judge, 1995). To further these relationships in interorganizational activities, cooperation is critical because individuals often depend on one another to share information and insights and to perform tasks necessary to the success of the project.

The variables included in this study were as follows. Interpersonal trust was the independent variable and was defined by McAllister (1995) “as the extent to which a person is confident in, and willing to act on the basis of, the words, actions, and decisions of another” (p. 25). McAllister’s definition built upon the conceptual theories of Deutsch (1958, 1960), Rotter (1967), Luhmann (1979, 1988), Cook and Wall (1980), and Barber (1983), who described interpersonal trust “as beyond one’s beliefs about others, but also their willingness to use that knowledge as the basis for action” (p. 42). Interpersonal trust is a combination of cognition and affect characteristics (Lewis & Weigert, 1985). The affect or emotional dimension of interpersonal trust is grounded in the extent to which care and concern exist in a relationship, while the cognition dimension of trust deals with the extent to which an individual is reliable and dependable.

The moderating variable for this study was time. This variable was measured by the duration of a working relationship between the dyad peers and the frequency of their monthly interactions. The moderating variable affected the relationship between the independent and dependent variables (Creswell, 2003). The alliance was formed 4 years ago, so the length of employment among the alliance members varied, as well as the frequency of interaction among the dyads. Cooperation was the dependent variable,
which can be influenced by the independent variables (Creswell, 2003, p. 94). For this study, cooperative behavior was viewed as affiliative citizenship behavior and assistance-oriented citizenship behavior, which are described as behaviors addressed to a specific individual (McAllister, 1995, p. 36).

**Theoretical Framework and Hypotheses**

Interpersonal trust impacts cooperative behavior because trust is an expectancy that a word, promise, verbal statement, or written statement of another individual or group is valid (Rotter, 1967) and because it is basically a calculation of the likelihood of future cooperation. Thus, as trust declines, individuals are less likely to take risks and cooperate with one another; they will demand greater protections against risk, and they may require sanctioning mechanisms to defend their interests.

In addition to Rotter’s (1967) concept of interpersonal trust, other researchers, such as Erikson (1953), have addressed trust as a basic trait in a healthy personality or as a trust concept developed in game theory (Deutsch, 1960). A number of experiments have investigated trust in the context of dyadic competitive-cooperative behavior (Deutsch, 1960).

A typical experiment is the “prisoner dilemma,” in which each individual is offered alternatives affecting the degree of punishment for the other individual. Deutsch’s (1960) prisoner dilemma instrument does not correlate to Rotter’s scale (1967) because each instrument investigates different constructs of interpersonal trust and cooperation. Whereas Deutsch differentiated between dyads that attribute malevolence or benevolence to others, Rotter was more concerned with interactions that involve commitment creation and the expectation of cooperation.
Key questions about the impact of interpersonal trust on cooperation could ask whether or not cooperation can occur independent of trust and whether or not cooperation may be a strategic self-interested calculation. A key lesson from game theory is that cooperation may be hard to establish even when it would benefit most of those involved (Axelrod, 1984). However, under certain conditions, even enemies, such as soldiers in rival armies, may cooperate during a truce or pause in war.

When there is a high probability of future association between individuals or groups, or when parties realize that they have common interests, they are more likely to cooperate with others. Various forms of interorganizational collaboration with a trust-based governance have generalized expectations of cooperation. In this way, strategic alliances emerge from mutual dependencies. It is here that the concept of time affects how interpersonal trust impacts cooperative behavior. Thus, once a strategic alliance is successfully implemented, the process becomes iterative since the level of cooperation based on trust increases with each agreement between the same parties or groups, and both individuals and their groups become more skilled at sharing information and implementing activities through alliances.

The hypotheses tested for this study focused on the relationship between interpersonal trust and cooperation. Researchers have frequently argued that trust engenders higher levels of cooperation (Lindsvold, 1978; Smith et al., 1995; Malhotra & Murnighan, 2002; Milton & Westphal, 2005). Trust fosters cooperation between individuals, teams, and organizations (Axelrod, 1984; McAllister, 1995; Das & Teng, 2004) and may even be necessary for the occurrence of cooperation (Siegrist et al., 2005; Obadia, 2008; Song, 2009). The core of the argument is that interpersonal trust allows an
individual to be confident that his or her partner will not behave opportunistically, but instead can be relied upon to work with him or her towards a common goal. Thus,

**H1.** There is a positive relationship between interpersonal trust and cooperation.

Williams (2007) suggested, “*Trust between boundary spanning individuals facilitates reliance on informal agreements and informal cooperation supplementing and improving the efficiency of formal contracts*” (p. 608). Moreover, the informal arrangements facilitated by trust should provide firms with benefits of cooperation such as more access to tacit knowledge, increased risk-sharing, and richer information (Powell & Smith-Doerr, 1994, 1996; Inkpen, 2000; Das & Teng, 2002; De Jong & Woolthuis, 2008). Thus,

**H2.** There is a positive relationship between cognition-based trust and cooperation.

As dyad members become clearer about how each can contribute to the business venture, a more personal relationship develops and the social/business relationship overlaps. As the members of the dyad spend more time with each other personally and professionally, they experience a series of exchanges during which various risk-taking events take place. It is during this stage that deeper levels of trust develop. Thus,

**H3.** There is a positive relationship between affect-based trust and cooperation.

Blau (1964) stated that repeated interactions allow boundary-spanning individuals to develop a level of confidence about the other person’s willingness and ability to fulfill a promise. There is widespread agreement that cooperation can facilitate trust development in interorganizational relationships (Powell, 1990; Paul & McDaniel, 2004; Ferrin et al., 2006). Trust is built by demonstrating trustworthiness over time (Levinthal & Fichman, 1988), and the strength of the bond between boundary-spanning individuals
tends to increase with the longevity of the relationship. The motivation for preserving trust generally grows as a function of the longevity of the relationship (Currall & Judge, 1995). Thus,

**H4.** The relationship between interpersonal trust and cooperation will be stronger for dyads that have worked together for 2 to 4 years when compared to dyads that have worked together less than 2 years.

**H5.** The relationship between interpersonal trust and cooperation will be stronger for dyads that interact more than 12 times per month when compared to dyads that interact 12 or less times per month.

**Research Procedures**

**Research Setting**

A strategic alliance consisting of three professional consulting firms provided the setting for this study. Yoshino and Rangan (1995) described strategic alliances as “two or more firms that unite to pursue a set of agreed upon goals, yet, remain independent subsequent to the formation of the alliance” (p. 45).

An alliance provided a unique site for studying the effects of interpersonal trust and cooperation because it was an environment where individuals worked and interacted daily with employees from other organizations in order to complete specific tasks orders for short- and long-term engagements. Trust and cooperation were critical for this type of interorganizational relationship because counterparts who trust each other can adjust to unanticipated contingencies in ways that are optimal without the time and effort associated with renegotiating a contract with opportunistic partners (Lorenz, 1988).
Alliance X was formed 4 years ago and consists of three firms that ranged in age from 8 to 16 years. Each firm provided financial management, accounting, auditing, and related professional services to federal, state, and local governments and private-sector entities. The firms are classified as small business concerns, i.e., “independently owned and operated and not dominant in its field of operation” (U.S. Small Business Administration, n.d.). The annual maximum size standard for small accounting, financial management, and other consulting services is annual revenue of $7.5 million. Two of the three alliance firms are also classified as woman and minority owned businesses.

Although each firm acted as an independent entity in the performance of the alliance, they were bound by contractual obligations (teaming agreements) established during the pre-alliance phase. During this phase, the firms identified the roles of the prime contractor and the subcontractors. The descriptions for Alliance X firms are shown below in Table 3.1.

Table 3-1

Alliance X Firms

<table>
<thead>
<tr>
<th>Description of Alliance X Firms</th>
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<tbody>
<tr>
<td>Characteristics</td>
</tr>
<tr>
<td>Age of Firm</td>
</tr>
<tr>
<td>Woman and/or Minority Owed Business</td>
</tr>
<tr>
<td>Alliance Firm’s Role</td>
</tr>
<tr>
<td>Number of Employees in the Firm</td>
</tr>
<tr>
<td># of Employees in Alliance X</td>
</tr>
</tbody>
</table>
Research Sample

The specific unit of analysis was the dyadic relationships between peers from three different firms, all of whom were members of the same alliance. For purposes of the present study, a dyadic relationship is a single relationship between two consultants in a strategic alliance based on interpersonal trust and/or cooperation. Alliance X employed 92 consultants, and they represented a census sample for this study. The professional experiences of the consultants included finance, accounting, business management, and information systems. The career for these consultants followed an up-or-out progression of promotions typical of large professional service firms: analyst/consultant, senior consultant, manager/team leader, project manager or director, principals and partners. The consultants worked on engagements that lasted from a few months to a few years, and most worked on concurrent engagements.

Data Collection Procedures

This study used Zoomerang, a widely accepted web-based survey tool. This online survey tool provided many features to increase traffic to a web survey and ultimately increase the response rate. In addition to intuitive navigation, other features included the following:

- Customizable e-mail notifications to the sample population and reminders to non-respondents
- Access from any computer with Internet access that met basic platform and Web browser requirements
- A suspend feature, which allowed respondents to return at a later time to complete the survey with previous responses saved
Web-based surveys can be designed to provide a more dynamic interaction between respondent and questionnaire than can be achieved in e-mail or paper surveys (Dillman, 2007). In Zoomerang, results were viewable in real time as soon as they were collected. This site periodically updated its security measures to ensure data collected remained secure and private. The data were secured in databases that were password protected. A third-party contractor conducted daily audits of the system security. The data collected resided behind a firewall, and an intrusion detection system was deployed to detect unauthorized access attempts.

To maximize the response rate, the following sequential steps were employed:

1. An electronic pre-survey letter was e-mailed to the sample population (see Appendix A)
2. An introductory letter with a URL for the questionnaire was e-mailed to the sample population
3. An electronic follow-up/thank-you letter was sent to the sample population

Research Instrument

McAllister’s (1995) Behavioral Response and Interpersonal Trust Measures (BRITM) was used for this study. The BRITM was designed to predict how affect- and cognition-based trust influences interpersonal cooperation in organizational settings. The basis for this instrument was adapted from studies that measured interpersonal trust (Cook & Wall, 1980; Johnson-George & Swap, 1982; Rempel, Holmes, & Zanna, 1985). This instrument contains 29 items designed to measure behavioral responses associated with trusting or distrusting peers, affect-based trust, cognition-based trust, need-based monitoring, affiliative citizenship behavior, assistance-oriented citizenship behavior, and
monitoring and defensive behavior. The affiliative citizenship behavior and assistance-oriented citizenship behavior items were used to measure cooperative behavior between dyad peers.

Appendix B displays for final survey used, and Table 3-1 presents the scales used for measuring the independent, dependent, and moderating variables.

Table 3-2
Measurement Scales for Variables

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Moderating Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have a sharing relationship. We can both freely share our ideas, feelings, and hopes.</td>
<td>I take time to listen to this person’s problems and worries.</td>
<td>How long have you been working with the individual you have identified for survey? (Please only consider the time spent working together on Alliance X.)</td>
</tr>
<tr>
<td>I can talk freely to this individual about difficulties I am having at work and know that he or she will want to listen.</td>
<td>I have taken a personal interest in this individual.</td>
<td>How often do you interact with this individual?</td>
</tr>
<tr>
<td>We would both feel a sense of loss if one of us was transferred and we could no longer work together.</td>
<td>I frequently do extra things I know that I will not be rewarded for, but which make my cooperative efforts with this person more productive.</td>
<td></td>
</tr>
<tr>
<td>If I shared my problems with this person, I know that he or she would respond constructively and caringly.</td>
<td>I pass on new information that might be useful to this person.</td>
<td></td>
</tr>
<tr>
<td>I would have to say that we have both made considerable emotional investments in our working relationship.</td>
<td>I willingly help this individual, even at some cost to personal productivity.</td>
<td></td>
</tr>
<tr>
<td>This person approaches his/her job with professionalism and dedication.</td>
<td>When making decisions at work that affect this individual, I try to take his/her needs and feelings into account.</td>
<td></td>
</tr>
<tr>
<td>Given this person’s track record, I see no reason to doubt his/her competence and preparation for this job.</td>
<td>I try not to make things more difficult for this person by my careless actions.</td>
<td></td>
</tr>
<tr>
<td>I can rely on this person not to make my job more difficult by careless work.</td>
<td>I help this person with difficult assignments, even when assistance is not directly requested.</td>
<td></td>
</tr>
<tr>
<td>Independent Variable</td>
<td>Dependent Variable</td>
<td>Moderating Variable</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Most people, even those who are not close friends of this individual, trust and respect him/her as a coworker.</td>
<td>I assist this person with heavy workloads, even though it is not part of my job.</td>
<td></td>
</tr>
<tr>
<td>Other work associates of mine who must interact with this individual consider him/her to be trustworthy.</td>
<td>I help this person when he or she has been absent.</td>
<td></td>
</tr>
<tr>
<td>If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In developing the instrument, McAllister drew on a review of the literature and on the available measures of interpersonal trust. Thus, the primary reason for choosing McAllister’s instrument was the strong theoretical framework that he used for the development of his scales and the strong reliability estimates based on Cronbach’s alphas that supported the measures. The Cronbach alpha reliability coefficients for the scales were .91 for cognition-based scales and .89 for affect-based scales (McAllister, 1995).

The instrument was tested against “mature (average age of 38 years), well-educated (57 percent with some graduate training, 28 percent with undergraduate degrees) individuals with considerable organizational experience (an average professional tenure of 11.7 years)” (McAllister, 1995, p. 34).

A close-ended questionnaire was used because it enhanced consistency of responses across respondents (Fraenkel & Wallen, 2000). The questionnaire included instructions for the respondents to identify an alliance member that he or she worked with on a regular basis and to answer each question based on that relationship. Respondents rated each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).
Data Analysis

This study employed a quantitative, exploratory research design utilizing survey methodology. An exploratory research design is a correlation design that aims to identify relationships between the variables (Creswell, 2002). Williams and Monge (2001) suggested that quantitative research methods are appropriate when researchers opt to create a description about a specific topic of study, describe general characteristics about specific measures, and calculate the probability that a specific outcome is more than chance. Williams and Monge also noted that the information gathered in quantitative research provides data that can be used to test hypotheses about relationships between two or more variables.

Pearson coefficient correlation analyses were used to test the first three hypotheses of positive relationships between trust and cooperation, cognition-based trust and cooperation, and affect-based trust and cooperation, respectively. This analysis measures the one-to-one relationship between the independent and dependent variables and summarizes the strength of the linear relationship between the variables. Correlation coefficients between –1 and 1 designate a positive correlation relationship (Creswell, 2003).

Stepwise multiple regression analysis with cross-validation was used to measure the relationships between the independent, dependent, and moderating variables. This statistical procedure is used for examining the combined relationship of multiple variables (Creswell, 2002). Stepwise regression is deemed appropriate for exploratory research, as opposed to theory testing. The stepwise multiple regression was treated as:

\[
\text{cooperation} = \text{affect-based trust} + \text{cognition-based trust} + \text{time (<2 years/2–4 years)} + 
\]
frequency of interaction. The regression equation was determined in a sequence of multiple linear regression equations in a stepwise manner. At each step of the sequence, one variable was added to the regression equation. The variable added was the one that created the greatest reduction in the error sum of squares of the sample data, and the variable that, when added, provided the greatest increase in the F value. Variables not having a significant correlation with the dependent variable were those whose addition did not increase the F value and were not featured in the regression equation.

Descriptive statistics were used to present the findings from the study. This is the most basic method of providing analysis and includes the generation of frequencies and measures of central tendencies (mean, median, and mode) (Creswell, 2005). It also allowed basic segmentation, whereas survey results were divided into subgrouping on the basis of characteristics and demographic variables in the survey.

**Threats to Validity**

Threats to internal validity included measuring all variables on one instrument, vulnerability as a one-shot study (Campbell & Stanley, 1963), and inflating the nominal .05 significance level used at each step in stepwise regression. In terms of McAllister’s (1995) BRITM, the convergent validity of the instrument as a measure of affect-based trust and cognition-based trust as foundations for interpersonal cooperation in organizations was based on the reliability of the scales and the overall instrument.

Cronbach’s alpha for the cognition-based trust measures was .91 and for the affect-based measures, .89. In addition, reliability estimates for affiliative citizenship behavior, assistance-oriented citizenship behavior, need-based monitoring, and monitoring and defensive behavior measures were .79, .85, .69, and .87, respectively.
Because McAllister obtained the trust and behavioral measures from a single source, he demonstrated substantive differences between the measures by assessing discriminant validity in part by constraining a single phi coefficient to 1.0, refitting the model, and testing the resulting change in the chi-square measure of model fit. McAllister conducted this analysis for each of the four correlations that exceeded .60.

A one-shot study creates vulnerability due to single group testing. Campbell and Stanley (1963) suggested there are threats to both internal validity and external validity. Internal threats in a single group study where there is no comparison group includes history, maturation, testing, instrumentation, regression, subject mortality, and selection. External threats in a single group study occur when treatment effects may not be generalized beyond the particular people, setting, treatment, and outcome of the experiment. To address these problems, the most commonly used coefficient in which internal consistency is expressed is Cronbach’s alpha. Cronbach’s alpha considers the average intercorrelation between every item of a given measure. Thus, the magnitude of alpha depends on the average correlation and the number of items in the scale. In addition, one of the best ways to assess the external validity of the findings is to replicate the study.

Assumptions of multiple regressions may include normality, linearity, reliability of measurement, and errors of predictors, which could result in Type I and II errors (Creswell, 2003). For this study this researcher employed a stepwise regression analysis, which can result in inflating the nominal .05 significance level so that the real significance level by the last step may increase the chances of Type I errors (Draper, Guttman, & Lapczak, 1979). For this reason, Fox (2000) strongly recommended that any
stepwise model be subjected to cross-validation. Cross-validation was used as a strategy to avoid overfitting. Under cross-validation, a sample (typically 60% to 80%) is taken for purposes of training the model, then the hold-out sample (the other 20% to 40%) is used to test the stability of R-squared. This may be done iteratively for each alternative model until stable results are achieved.

Data Handling

The data handling procedures were important to ensure the integrity of the data collected. All data were maintained in a secure database protected by a password and a network firewall. The data were accessible to the researcher only and for the purpose of analysis and reporting for this study. To ensure consistency in data, the SPSS data validation module was used to perform data check for accuracy in the data collected. This procedure allows the researcher to specify data validation rules for individual variables.

Summary

In summary, this study examined the relationship between interpersonal trust and cooperation among dyadic peers in a strategic alliance. The population for this study represented a census sample, and a quantitative, explanatory survey research design was used. The study can be generalized to professional consultants in the fields of finance, accounting, business management, and information systems. The data were collected using an Internet survey instrument that incorporated McAllister’s (1995) Behavioral Response and Interpersonal Trust Measures. Stepwise multiple regression and multivariate analysis were used to measure the degree of association between interpersonal trust and cooperation, and descriptive statistics were used to report the
results of the study. The data collected were stored in a secure location and used by the researcher for the purpose of reporting the findings for this study.
CHAPTER 4:
RESULTS

This chapter provides the statistical analyses and the results of the study. The first section will provide a summary about the research design, sample population, research instrument and the variables measured. The second section will present the statistical procedures used to test the hypotheses and the assumptions for each analysis, and the third section will present the findings.

Research Overview

Research Sample

The participants for this study represented a census sample of 92 consultants employed by Alliance X, which consisted of three consulting firms. To ensure the anonymity of the research subjects, demographic information such as gender, race, age, education level, and job title was not collected. The professional experience of the consultants included finance, accounting, business management, and information systems. Each consultant worked at a client site to carry out the scope of work identified in Alliance X’s teaming agreements. These engagements consisted of accounting and financial management services, auditing services, asset management support, program/project management support, and information technology consulting and systems support. A consultant’s engagements could last from a few months to multiple years. Typically, the consultant worked on concurrent engagements, which means they have multiple projects they are responsible for. Each consultant works with an individual
from a firm that is different from their own and these two individuals are considered dyad peers.

For the purposes of this study, the consultants were asked to respond to the survey based on their relationship with their dyad peer. Eighty-nine participants responded to the survey, yielding a 96% response rate; however, survey responses from three of the subjects were found to be incomplete, and those responses were excluded. Therefore, responses from 86 subjects were used for data analysis.

*Research Instrument*

The research instrument used for this study was a 32-item, web-based survey that incorporated McAllister’s (1995) Behavioral Response and Interpersonal Trust Measures (BRITM). The BRITM was designed to measure behavioral responses associated with trusting or distrusting peers, affect-based trust, cognition-based trust, need-based monitoring, affiliative citizenship behavior, assistance-oriented citizenship behavior, and monitoring and defensive behavior. In the context of this study, the affect- and cognition-based trust scales were used to measure interpersonal trust. Cooperation was measured by the affiliative citizenship behavior and the assistance-oriented citizenship behavior scales.

Since the purpose of the study was to examine the relationship between interpersonal trust and cooperation, the data collected on the need-based monitoring and monitoring and defensive behavior scales were excluded from the data analyses. However, the researcher kept these scales in the survey in order to maintain the integrity of the instrument. All of the original BRITM items were measured using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree).
This study incorporated three additional items. The first measured the length of time the dyads worked together in intervals of 6 months, ranging from (0–6) to (43–48) months. The second item measured the frequency of interaction per month between the dyads in intervals of 6 times per month, ranging from (0–6) to (25–30) interactions per month. The third item, which was the last item on the survey, measured the respondents’ perception of the alliance. This item was measured using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree).

Internal Consistency of the Scales

Cronbach’s alphas were run on each of the measures using Predictive Analytics SoftWare 17 (PASW 17), as shown below in Table 4-1. For social science research, a reliability measure of .70 is considered acceptable (Allen & Yen, 2002). The reliabilities for the measures ranged from .72 to .82. A Cronbach’s alpha could not be obtained for the length of time working together, frequency of monthly interactions, and the perception of the alliance because there was only one question for each of these items.

Table 4-1
Internal Consistency of the Scales

<table>
<thead>
<tr>
<th>Scales</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affect-based Trust</td>
<td>.82</td>
</tr>
<tr>
<td>Cognition-based Trust</td>
<td>.80</td>
</tr>
<tr>
<td>Affiliative Citizenship Behavior</td>
<td>.72</td>
</tr>
<tr>
<td>Assistance-oriented Citizenship Behavior</td>
<td>.77</td>
</tr>
</tbody>
</table>
Descriptive Statistics for the Variables

The research variables are presented in Table 4-2. The mean scores ranged from 4.39 ($SD = .55$) to .72 ($SD = .76$). The cognition-based trust scale had the highest mean score of 4.39 (SD=.55). In contrast, the lowest mean score was .72 (SD=.76) for frequency of interactions (less than 12 interactions per month).

Table 4-2
Descriptive Statistics for Survey Scales

<table>
<thead>
<tr>
<th>Scales</th>
<th>Items (N)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Trust</td>
<td>11</td>
<td>4.19</td>
<td>.507</td>
</tr>
<tr>
<td>Affect-based Trust</td>
<td>5</td>
<td>3.94</td>
<td>.682</td>
</tr>
<tr>
<td>Cognition-based Trust</td>
<td>6</td>
<td>4.39</td>
<td>.558</td>
</tr>
<tr>
<td>Cooperation</td>
<td>10</td>
<td>3.87</td>
<td>.516</td>
</tr>
<tr>
<td>Length of Time Working Together (2 to 4 years)</td>
<td>1</td>
<td>3.66</td>
<td>3.75</td>
</tr>
<tr>
<td>Length of Time Working Together (less than 2 years)</td>
<td>1</td>
<td>1.29</td>
<td>1.51</td>
</tr>
<tr>
<td>Frequency of Interactions (12 or more times per month)</td>
<td>1</td>
<td>1.80</td>
<td>2.07</td>
</tr>
<tr>
<td>Frequency of Interactions (less than 12 times per month)</td>
<td>1</td>
<td>0.72</td>
<td>.761</td>
</tr>
</tbody>
</table>

$N=86$

The tables on the following pages provide descriptive statistics for each item by scale/item: cognition- and affect-based trusts (interpersonal trust); affiliative citizenship behavior and assistance-oriented citizenship behavior (cooperation); and, length of time working together and frequency of interactions (time).
Cognition-Based Trust Scale

The cognition-based trust scale consisted of six items (Table 4-3). The mean scores ranged from 2.01 (SD = 1.09) to 4.73 (SD = 0.54). This scale had the highest mean scores of all the survey scales. The highest mean score was for Question 8, “This person approaches his/her job with professionalism and dedication.” In contrast, the lowest mean score was for Question 13, “If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.” The low mean for this question can be attributed to the negative wording of the question; a negative response to this question equates to a positive response about the dyad peer.

Table 4-3
Descriptive Statistics for Cognition-Based Trust

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>This person approaches his/her job with professionalism and dedication. (Q8)</td>
<td>4.73</td>
<td>0.54</td>
</tr>
<tr>
<td>Given this person’s track record, I see no reason to doubt his/her competence and preparation for this job. (Q9)</td>
<td>4.62</td>
<td>0.61</td>
</tr>
<tr>
<td>I can rely on this person not to make my job more difficult by careless work. (Q10)</td>
<td>4.41</td>
<td>0.80</td>
</tr>
<tr>
<td>Most people, even those who are not close friends of this individual, trust and respect him/her as a coworker. (Q11)</td>
<td>4.36</td>
<td>0.76</td>
</tr>
<tr>
<td>Other work associates of mine who must interact with this individual consider him/her to be trustworthy. (Q12)</td>
<td>4.26</td>
<td>0.75</td>
</tr>
<tr>
<td>*If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely. (Q13)</td>
<td>2.01</td>
<td>1.09</td>
</tr>
<tr>
<td>Scale total</td>
<td>4.06</td>
<td>0.75</td>
</tr>
</tbody>
</table>

*A negative response to this question equates to a positive response about the dyad peer*
Affect-Based Trust Scale

The affect-based trust scale consisted of five questions (Table 4-4). The mean scores ranged from 3.56 ($SD = 1.01$) to 4.27 ($SD = 0.75$). The highest mean score was found for Question 6, “If I shared my problems with this person, I know that he/she would respond constructively and caringly.” In contrast, the lowest mean score was found for Question 5, “We would both feel a sense of loss if one of us was transferred and we could no longer work together.”

Table 4-4
Descriptive Statistics for Affect-Based Trust

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have a sharing relationship. We can both freely share our ideas, feelings, and hopes. (Q3)</td>
<td>4.24</td>
<td>0.73</td>
</tr>
<tr>
<td>I can talk freely to this individual about difficulties I am having at work and know that (s) he will want to listen. (Q4)</td>
<td>4.07</td>
<td>0.93</td>
</tr>
<tr>
<td>We would both feel a sense of loss if one of us was transferred and we could no longer work together. (Q5)</td>
<td>3.56</td>
<td>1.01</td>
</tr>
<tr>
<td>If I shared my problems with this person, I know that he/she would respond constructively and caringly. (Q6)</td>
<td>4.27</td>
<td>0.75</td>
</tr>
<tr>
<td>I would have to say that we have both made considerable emotional investments in our working relationship. (Q7)</td>
<td>3.58</td>
<td>0.96</td>
</tr>
<tr>
<td>Scale total</td>
<td>3.94</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Affiliative Citizenship Behavior Scale

The affiliative citizenship behavior scale consisted of seven questions (Table 4-5). The mean scores for this scale ranged from 3.52 ($SD = 1.03$) to 4.24 ($SD = 0.63$). The highest mean score was for Question 19, “I pass on new information that might be useful to this person.” The lowest mean score was for Question 20, “I willingly help this individual, even at some cost to personal productivity.”
### Table 4-5
**Descriptive Statistics for Affiliative Citizenship Behavior**

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I take time to listen to this person’s problems and worries. (Q16)</td>
<td>3.99</td>
<td>0.72</td>
</tr>
<tr>
<td>I have taken a personal interest in this individual. (Q17)</td>
<td>3.85</td>
<td>0.83</td>
</tr>
<tr>
<td>I frequently do extra things I know that I will not be rewarded for, but which make my cooperative efforts with this person more productive. (Q18)</td>
<td>3.95</td>
<td>0.78</td>
</tr>
<tr>
<td>I pass on new information that might be useful to this person. (Q19)</td>
<td>4.24</td>
<td>0.63</td>
</tr>
<tr>
<td>I willingly help this individual, even at some cost to personal productivity. (Q20)</td>
<td>3.52</td>
<td>1.03</td>
</tr>
<tr>
<td>When making decisions at work that affect this individual, I try to take his/her needs and feelings into account. (Q21)</td>
<td>3.92</td>
<td>0.79</td>
</tr>
<tr>
<td>I try not to make things more difficult for this person by my careless actions. (Q22)</td>
<td>4.22</td>
<td>0.72</td>
</tr>
<tr>
<td>Scale total</td>
<td>3.95</td>
<td>0.78</td>
</tr>
</tbody>
</table>

### Assistance-Oriented Citizenship Behavior Scale

The assistance-oriented citizenship behavior scale consists of three items (Table 4-6). The mean scores ranged from 3.56 ($SD = 1.02$) to 3.84 ($SD = 0.76$). Question 23, “I help this person with difficult assignments, even when assistance is not directly requested,” had the highest mean score. In contrast, Question 24, “I assist this person with heavy workloads, even though it is not part of my job,” had the lowest mean score.

### Table 4-6
**Descriptive Statistics for Assistance-Oriented Citizenship Behavior**

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I help this person with difficult assignments, even when assistance is not directly requested. (Q23)</td>
<td>3.84</td>
<td>0.76</td>
</tr>
<tr>
<td>I assist this person with heavy workloads, even though it is not part of my job. (Q24)</td>
<td>3.56</td>
<td>1.02</td>
</tr>
<tr>
<td>I help this person when he/she has been absent. (Q25)</td>
<td>3.66</td>
<td>0.87</td>
</tr>
<tr>
<td>Scale total</td>
<td>3.68</td>
<td>0.88</td>
</tr>
</tbody>
</table>
**Length of Time Working Together and Frequency of Interaction Scales**

Since demographic information was not collected on the sample population, the researcher examined the frequencies of the responses to the items that measured time to provide general characteristics of the respondents in terms of the length of time the subjects had worked with their dyad peer, and the frequency of their monthly interaction. The alliance was formed four years ago, so the length of length that the dyads have worked together varies, as well as their frequency of interactions. The length of time working together and frequency of interaction scale consisted of two items (Table 4-7). Question 1, "How long have you been working with the individual you have identified for this survey?" had the higher mean score at 4.95 (SD = 2.61). The mean score for the second item was 2.58 (SD = 1.49).

Table 4-7
Descriptive Statistics for Tenure and Frequency

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>How long have you been working with the individual you have identified for this survey? (Q1)</td>
<td>4.95</td>
<td>2.61</td>
</tr>
<tr>
<td>In a typical month, how often do you interact with this individual? (Q2)</td>
<td>2.58</td>
<td>1.49</td>
</tr>
<tr>
<td>Scale total</td>
<td>3.76</td>
<td>2.05</td>
</tr>
</tbody>
</table>

The hypotheses divided the time scale into four groups based on length of time with the dyad peer (<2 years or 2–4 years) and number of interactions (<12 or >12). Since demographic information was not collected on the sample population, the frequencies of the responses to these items also provide general characteristics of the respondents.
As shown in Table 4-8, 33% of the survey participants reported they had worked with their dyad peers 43 to 48 months—which meant this group worked within Alliance X since its inception, since the alliance was formed 4 years ago. The smallest group of participants, 4% of the sample population, had worked with their dyad peers for 25 to 30 months. The group that had the least amount of time working with their dyad peers, 0 to 6 months, represented 11% of the sample population.

Table 4-8
*Length of Time Working with Dyad Peer*

<table>
<thead>
<tr>
<th>How long have you been working with the individual you identified for this survey? (Q1)</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–6 months</td>
<td>9</td>
<td>10.5</td>
</tr>
<tr>
<td>7–12 months</td>
<td>12</td>
<td>14.0</td>
</tr>
<tr>
<td>13–18 months</td>
<td>10</td>
<td>11.6</td>
</tr>
<tr>
<td>19–24 months</td>
<td>12</td>
<td>14.0</td>
</tr>
<tr>
<td>25–30 months</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>31-36 months</td>
<td>8</td>
<td>9.3</td>
</tr>
<tr>
<td>37–42 months</td>
<td>4</td>
<td>4.7</td>
</tr>
<tr>
<td>43–48 months</td>
<td>28</td>
<td>32.6</td>
</tr>
<tr>
<td>Total</td>
<td>86</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As shown in Table 4-9, the largest group, represented by 35% of the sample population, reported that they interacted with their dyad peer 0 to 6 times per month. The smallest group was represented by 12% of the sample population, with 19 to 24 monthly interactions with their dyad peers.
Thus, the groups nearly evenly divided the study population. Fifty percent had worked with their dyad peer less than 2 years, and 50% had worked with the peer 2 to 4 years. Similarly, 53% had 12 or less interactions per month with their dyad peer, and 47% had more than 12 interactions per month with their dyad peer.

Collaboration in the Alliance

Table 4-10 shows the frequencies for the sample population for Question 32, “Overall, I feel that Alliance X is collaborative.” This item was measured using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Results showed that 95.5% of the sample population reported that Alliance X was collaborative, and nearly half (44%) strongly agreed that the alliance was collaborative. Only one subject reported that the alliance was not collaborative.
Table 4-10
Perception of Alliance Collaboration

<table>
<thead>
<tr>
<th>Overall, I feel that Alliance X is collaborative</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>38</td>
<td>44.3</td>
</tr>
<tr>
<td>Agree</td>
<td>44</td>
<td>51.2</td>
</tr>
<tr>
<td>Neither agree or disagree</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>86</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Summary

The eight variables tested in the hypotheses are listed in Table 4-11. The mean scores ranged from 0.72 ($SD = .76$) for 12 or less interactions per month to 4.39 ($SD = .558$) for cognition-based trust.

Table 4-11
Descriptive Statistics for Research Variables

<table>
<thead>
<tr>
<th>Research variables</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation</td>
<td>3.87</td>
<td>.516</td>
</tr>
<tr>
<td>Interpersonal trust</td>
<td>4.19</td>
<td>.507</td>
</tr>
<tr>
<td>Cognition-based trust</td>
<td>4.39</td>
<td>.558</td>
</tr>
<tr>
<td>Affect-based trust</td>
<td>3.94</td>
<td>.682</td>
</tr>
<tr>
<td>Length of time working together (2 to 4 years)</td>
<td>3.66</td>
<td>3.75</td>
</tr>
<tr>
<td>Length of time working together (less than 2 years)</td>
<td>1.29</td>
<td>1.51</td>
</tr>
<tr>
<td>Frequency (more than 12 times per month)</td>
<td>1.80</td>
<td>2.07</td>
</tr>
<tr>
<td>Frequency (12 or less times per month)</td>
<td>0.72</td>
<td>.761</td>
</tr>
</tbody>
</table>
Testing of Hypotheses

The purpose of this study was to examine the relationship between interpersonal trust and cooperation among dyads in a strategic alliance. Figure 4-1 illustrates the conceptual framework for the following research questions and hypotheses:

**Research Question 1:** To what extent is interpersonal trust related to cooperation?

*H1. There is a positive relationship between interpersonal trust and cooperation.*

**Research Question 1a:** To what extent is there a positive relationship between cognition-based trust and cooperation?

*H2. There is a positive relationship between cognition-based trust and cooperation.*

**Research Question 1b:** To what extent is there a positive relationship between affect-based trust and cooperation?

*H3. There is a positive relationship between affect-based trust and cooperation.*

**Research Question 2:** To what extent does length of time affect the relationship between interpersonal trust and cooperation?

*H4. The relationship between interpersonal trust and cooperation will be stronger for dyads that have worked together for 2 to 4 years when compared to dyads that have worked together less than 2 years.*

**Research Question 3:** To what extent does frequency of interaction affect the relationship between interpersonal trust and cooperation?

*H5. The relationship between interpersonal trust and cooperation will be stronger for dyads that interact more than 12 times per month when compared to dyads that interact 12 or less times per month.*
**Hypotheses 1 to 3**

**Method: Correlation Analysis**

Pearson coefficient correlation analyses were used to test the first three hypotheses of positive relationships between trust and cooperation, cognition-based trust and cooperation, and affect-based trust and cooperation, respectively. This analysis measures the one-to-one relationship between the independent and dependent variables and summarizes the strength of the linear relationship between the variables. Correlation coefficients between –1 and 1 designate a positive correlation relationship (Creswell, 2003). Four assumptions are attributed to this type of analysis, which the researcher addressed using PASW 17 (Appendix):

- **Assumption 1: Linearity.** Scatter plot and curve estimation tests were conducted on the variables (cooperation, interpersonal trust, affect- and cognition-based...
trust) to test for linearity between the variables. The results of these tests proved that the variables were linear.

- **Assumption 2: Variables are continuous and random.** A runs test was conducted to test for continuous and random variables. The results of these tests proved that the variables were continuous and random.

- **Assumption 3: Variables are normally distributed.** Histogram and probability plot tests were conducted on the variables to test for normal distribution. The results of these tests proved that the variables were normally distributed.

- **Assumption 4: Variables are independent of each other.** A Durbin-Watson coefficient test was run on the variables to test for independence. This statistic was 1.969. The acceptable range for this test is 1.5 to 2.5.

**Results**

Table 4-12 presents the findings from the correlation analyses between the relationships for Hypotheses 1 to 3. All three hypotheses were supported, confirming positive relationships between interpersonal trust and cooperation ($R = .404, p = .000$); cognition-based trust and cooperation ($R = .212, p = .050$); and affect–based trust and cooperation ($R = .444, p = .000$).

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cooperation</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Interpersonal trust</td>
<td>.404**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cognition-based trust</td>
<td>.212*</td>
<td>.836**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>4. Affect-based trust</td>
<td>.444**</td>
<td>.836**</td>
<td>.393**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

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

**Correlation is significant at the 0.01 level (two-tailed).
Method: Stepwise Linear Regression

The next phase of the analysis consisted of a stepwise linear regression model to test the time-moderating variables presented in Hypotheses 4 and 5, i.e., that the relationship between interpersonal trust and cooperation would be stronger for dyads that worked together longer (2 to 4 years vs. less than 2 years) and for dyads that interacted more frequently (>12 vs. ≤12 times per month).

Stepwise linear regression was used to examine the combined relationship of multiple variables (Creswell, 2002). Unlike correlation, regression takes into account the interplay of all the variables with each other and how each may impact the model (Tabachnick & Fiedl, 2007).

The stepwise linear regression was treated as: cooperation = interpersonal trust + length of time working (<2 years/2–4 years) + frequency of interaction (>12 times/≤12 times a month). At each step of the sequence, one variable was added to the regression equation. Variables not having a significant correlation with the dependent variable were those whose addition did not increase the $F$ value and were not featured in the regression equation.

Four assumptions are associated with this analysis, and all were tested using PASW 17:

- Assumption 1: Linearity. Scatter plot and curve estimation tests were conducted on the variables to test for linearity between the variables. The results of these tests proved that the variables were linear.
• **Assumption 2: Normality and equal variance.** A factorial design was run to test for normality and variance of the variables. The results of this test proved that the population distribution was normal and had the same variances.

• **Assumption 3: Multicollinearity.** A collinearity test was run to check the variance inflation factor for the predictors. This value was less than 10 for the predictors, which is acceptable.

• **Assumption 4: Homoscedasticity.** Scatter plot and histogram tests were run on the study variables to test for homoscedasticity to examine the distribution of the dependence.

**Results**

As shown in Table 4-13, length of time working together did not moderate the relationship between interpersonal trust and cooperation because it was excluded from the model ($p = .000, R^2 = .164$). Therefore, Hypothesis 4 was rejected: The relationship between interpersonal trust and cooperation was not stronger for dyads that worked together for 2 to 4 years when compared to dyads that worked together less than 2 years.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R square</th>
<th>Change statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R square change</td>
<td>F change</td>
<td>Sig. F change</td>
</tr>
<tr>
<td>1</td>
<td>.404 a</td>
<td>.164</td>
<td>R square change = .164</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Interpersonal Trust

As shown in Table 4-14, interaction more than 12 times a month moderated the interpersonal and cooperation relationship ($p = .000, R^2 = .270$). Therefore, Hypothesis 5 was supported: The relationship between interpersonal trust and cooperation was stronger...
for dyads that interacted more than 12 times per month when compared to dyads that interacted 12 or less times per month.

Table 4-14

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R square</th>
<th>Change statistics</th>
<th>R square change</th>
<th>F change</th>
<th>Sig. F change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.404a</td>
<td>.164</td>
<td></td>
<td>.164</td>
<td>16.422</td>
<td>.000</td>
</tr>
<tr>
<td>2</td>
<td>.520b</td>
<td>.270</td>
<td></td>
<td>.107</td>
<td>12.138</td>
<td>.001</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Interpersonal Trust
b. Predictors: (Constant), Interpersonal Trust, more than 12 interactions a month

To test the robustness of the findings for H4 & H5, the researcher conducted additional analyses using an independent sample t test and an analysis of variance with Tukey and Games-Howell post hoc tests to determine if there was a significant difference among the time groups by category. The findings for these analyses did not differ from the findings in the initial analyses (see Appendices C and D).

Summary

This chapter has presented the statistical analysis and results of the study. There was a 96% response rate for the survey. On average, the dyad peers in Alliance X worked together for 27.2 months and interacted on average 12.8 times per month. The research questions, hypotheses, and results were as follows.

Research Question 1 asked, “To what extent is interpersonal trust related to cooperation?” Hypothesis 1 predicted a positive relationship between interpersonal trust and cooperation. A Pearson coefficient correlation was conducted to test this hypothesis. The findings from the analysis revealed a positive relationship between interpersonal trust and cooperation.
Research Question 1a asked, “To what extent is there a positive relationship between cognition-based trust and cooperation?” Hypothesis 2 predicted a positive relationship between cognition-based trust and cooperation. A Pearson coefficient correlation was conducted to test this hypothesis. The findings from the analysis revealed a positive relationship between cognition-based trust and cooperation.

Research Question 1b asked, “To what extent is there a positive relationship between affect-based trust and cooperation?” Hypothesis 3 predicted a positive relationship between affect-based trust and cooperation. A Pearson coefficient correlation was conducted to test this hypothesis. The findings from the analysis revealed a positive relationship between affect-based trust and cooperation.

Research Question 2 asked, “To what extent does length of time affect the relationship between interpersonal trust and cooperation?” Hypothesis 4 predicted, “The relationship between interpersonal trust and cooperation will be stronger for dyads that have worked together for 2 to 4 years when compared to dyads that have worked together for less than 2 years.” A stepwise linear regression was conducted to test this hypothesis. The findings from the analysis revealed that the relationship between interpersonal trust and cooperation was not stronger for dyads that worked together for 2 to 4 years when compared to dyads that worked together less than 2 years.

Research Question 3 asked, “To what extent does frequency of interaction affect the relationship between interpersonal trust and cooperation?” Hypothesis 5 predicted, “The relationship between interpersonal trust and cooperation will be stronger for dyads that interact more than 12 times per month when compared to dyads that interact 12 or less times per month.” A stepwise linear regression was conducted to test this hypothesis.
The findings from the analysis revealed that the relationship between interpersonal trust and cooperation was stronger for dyads that interacted more than 12 times per month when compared to dyads that interacted 12 or less times per month.

Additional analyses using an independent sample \( t \) test and an analysis of variance with Tukey and Games-Howell post hoc tests were conducted to determine if there was a significant difference among the time groups by category. The findings for these analyses did not differ from the findings in the initial analyses. The next chapter discusses the implications of these findings.
CHAPTER 5:
CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to examine the relationship between interpersonal trust and cooperation among dyads in a strategic alliance consisting of three professional consulting firms. This chapter is organized into four main sections. Section one will present a summary of the research study. Section two presents the research findings and their connection to the literature on interpersonal trust and cooperation. Section three will present the implications of the findings for theory, research and practice. Section four presents the limitations of the research and conclusions.

Research Summary

This study employed a non-experimental, one-shot study design to explore correlations among the relationships between interpersonal trust, affect- and cognition-based trust, cooperation, time (length of time working together and frequency of interaction) among dyads in a strategic alliance. The unit of analysis focused on the dyadic relationship between peers from three firms that are members of Alliance X. A dyadic relationship consists of a single relationship between two parties (Iacobucci & Hopkins, 1995). The dyad peers are also known as “boundary spanners” (Aldrich & Herker, 1977) because they “process information coming from the partner organization, represent the interests of their own firm in the relationship, and link organizational structure to environmental elements” (p. 218).

The researcher chose an alliance setting for this study because of the lack of empirical research on trust and cooperative relationships between alliance members,
despite the literature supporting the growing trend of inter-organizational relationships. Additionally, Alliance X was selected because of the uniqueness of its inter-firm structure, which allows its members to interact regularly with employees from other firms and clients that are external to their respective organizations.

The data collection for this study consisted of a 32-item web-based survey that incorporated McAllister’s (1995) Behavioral Response and Interpersonal Trust Measures (BRITM). The BRITM was designed to measure behavioral responses associated with trusting or distrusting peers, affect-based trust, cognition-based trust, need-based monitoring, affiliative citizenship behavior, assistance-oriented citizenship behavior and monitoring and defensive behavior.

For this study, the affect- and cognition-based trust scales from the BRITM were used to measure interpersonal trust. Cooperation was measured by the affiliative citizenship behavior and the assistance-oriented citizenship behavior scales. Although the current study did not use the data collected on the need-based monitoring and monitoring and defensive behavior scales, the researcher kept these scales in the survey to maintain the integrity of the instrument. All of the scales were measured using a 5-point Likert scale and items ranged from 1 (strongly agree) to 5 (strongly disagree), except for the scales described below.

In order to measure the effect of time on the interpersonal and cooperation relationship, the researcher modified the BRITM by adding two additional items to the instrument. The first item measured the length of time the dyads worked together, the second item measured the frequency of interaction per month between the dyads. To ensure anonymity of the research subjects, demographic information such as gender, race,
age, education level, job title and employer information was not collected. A total of 89 participants responded to the survey.

A Pearson coefficient correlation analysis was used to analyze the relationships between interpersonal trust and cooperation, cognition-based trust and cooperation, and affect-based trust and cooperation. A stepwise linear regression analysis was used to determine if the dyad’s length of time working together and monthly interactions affected their interpersonal trust and cooperation relationship. After an analysis of the findings for H4 & H5, the researcher conducted additional analyses using an independent sample t-test and an ANOVA with Tukey and Games-Howell post hoc tests to determine if there was a significant difference among the time groups by category. The findings for these analyses did not show any difference from the initial analyses. A summary of these findings and the data are presented in the Appendix. A summary of the five tested hypotheses are summarized below (Table 5-1).

Table 5-1
*Summary of Hypotheses Analysis*

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: There is a positive relationship between interpersonal trust and cooperation.</td>
<td>Supported</td>
</tr>
<tr>
<td>H2: There is a positive relationship between cognition-based trust and cooperation.</td>
<td>Supported</td>
</tr>
<tr>
<td>H3: There is a positive relationship between affect-based trust and cooperation.</td>
<td>Supported</td>
</tr>
<tr>
<td>H4: The relationship between interpersonal trust and cooperation will be stronger for dyads that have worked together for two to four years when compared to dyads that have worked together for less than two years.</td>
<td>Rejected</td>
</tr>
<tr>
<td>H5: The relationship between interpersonal trust and cooperation will be stronger for dyads that interacted twelve or more times per month when compared to dyads that interacted twelve or fewer times per month.</td>
<td>Supported</td>
</tr>
</tbody>
</table>
Discussion of Findings

Relationship between Interpersonal Trust and Cooperation

Research Question #1 stated, “To what extent is interpersonal trust related to cooperation?” The hypothesis for this question predicted, “There is a positive relationship between interpersonal trust and cooperation.” The data supported this hypothesis by showing that there is a positive relationship between interpersonal trust and cooperation. A Pearson $r$ correlation revealed a strong, positive relationship between interpersonal trust and cooperation that was statically significant ($r = .404$). The means for interpersonal trust and cooperation were ($M = 4.19$ and $3.87$, respectively), and both were higher than the average study mean, which indicates a favorable response on the survey for items that addressed the relationship between these two variables.

The findings from this analysis supported the literature that describes the strong relationship between interpersonal trust and cooperation. This finding is not surprising given the vast literature on interpersonal trust and cooperative relationships. Interpersonal trust and cooperation are particularly critical when individuals from two or more firms must work together to implement an interorganizational agreement (Wayne & Ferris, 1990; Saxton, 1997; Iacobucci & Hopkins, 2008). Trust is viewed in business relationships as the underpinning of cooperation (Hakansson, Harrison, & Waluszewski, 2004; Bohnet & Baytelman, 2007), and is a significant social condition that can strengthen cooperation and facilitate social exchanges (Paul & McDaniel, 2004; Ferrin, Dirks, & Shah, 2006). This type of cooperative behavior was reflected in the current study based on the subjects’ responses to the affiliative citizenship behavior and the
assistance-oriented citizenship behavior scales. Seventy-nine percent of the subjects reported they “take into account the feelings of their dyad peer when making work-related decisions”, and 78% reported making an extra effort to be more cooperative with their peer, and doing extra things for them without any incentives.

In support of the finding for the current study, there is consensus among trust and cooperation theorists who believe that both constructs support each other (Van de Ven & Walker, 1984; McAllister, 1995; Das & Teng; 2004; Yamagishi et al., 2005). Interpersonal trust impacts cooperative behavior because trust provides the expectancy that a word, promise, verbal statement, or written statement of another individual or group is valid (Rotter, 1967) and it is an indicator of the likelihood of future cooperation. Trust is viewed in business relationships as the underpinning of cooperation (Hakansson, Harrison, & Waluszewski, 2004; Bohnet & Baytelman, 2007), which is an essential characteristic of organizational partnerships. The interpersonal trust and cooperation relationship is indispensable for the dyadic peers as they carry out the goals of the strategic alliance and their respective firms.

Interpersonal trust is viewed as a significant social element that strengthens cooperation and facilitates social exchanges (Paul & McDaniel, 2004; Ferrin, Dirks, & Shah, 2006). Furthermore, the literature points to the relevance of this relationship for the development and success of alliance and intra-organizational structures to include dyads, workteams and networks (Axelrod, 1984; McAllister, 1995; Das & Teng, 2004). The degree to which these individuals interact is based on a mutual respect, which facilitates a stronger union and may foster future partnering opportunities. If any interest exists
between multiple parties, cooperation and collaboration can serve as the foundation for the relationship (Ford, Gadde, Hakansson, & Snehota, 2003; Das & Teng, 2004).

In a study on dyadic business relationships and performance, Singh (2008) discussed the impact of trust on performance. He noted in his study that the quality of interpersonal relationships is critical to the success of the alliance and its members to meet their goals and plan for future partnerships. Interpersonal trust and cooperation between organizations and their employees are consistently referenced in the organizational behavioral literature because of its indirect influence on individual and group performance (Jones & George, 1998; Serva, Fuller, & Mayer, 2005; Salamon & Robinson, 2008). The literature suggests that dyadic trust is produced through frequent meetings, and the trust will increase in the relationship if it is perceived to be consistent. As the dyadic members spend more time together personally and professionally, they participate in a series of risk-taking activities, and it is during this stage that deeper levels of trust develop (Larson, 1992).

The findings for this hypothesis are important to the theories and literature on strategic alliances and the development of interpersonal relationships between alliance members. Interpersonal trust and cooperation is extremely important in strategic alliances because organizations rely on their partners’ actions and performance (Ireland, Hitt, & Vaidyanath, 2002; Langfield-Smith, 2008), and these behaviors are used as predictors for future partnering opportunities. This study contributes to the gap in literature on dyads in the professional service industry and highlights the interpersonal relationship that unfolds between the alliance members and their indirect role in strengthening the alliance arrangement.
The results from this study showed that 95.5% of the sample population reported that Alliance X was collaborative, and nearly half of that group felt strongly about the partnership. The quality of the dyad relationships contributes to the success of the alliance and can be an asset in the development of the reputation for the alliance, its members, and each partnering firm, which results in “spreading the word” among other clients for future business opportunities.

Relationship between Cognition-Based Trust and Cooperation

Research Question #1a, stated, “To what extent is there a positive relationship between cognition-based trust and cooperation?” The hypothesis for this question predicted “There is a positive relationship between cognition-based trust and cooperation.” The data supported this hypothesis by showing that there is a weak, positive relationship between cognition-based trust and cooperation. The Pearson $r$ correlation revealed a linear relationship between cognition-based trust and cooperation that was statically significant ($r = .212$). The means for cognition-based trust and cooperation were ($M = 4.39$ and $3.87$, respectively), and both were higher than the average study mean, which indicates a favorable response on the survey for items that addressed the relationship between these two variables. The cognition-based trust scale had the highest mean scores of all the survey scales.

The findings from this analysis supported the literature that describes the positive relationship between cognition-based trust and cooperation. The cognition-based trust literature states that individuals deliberately decide who they will trust and to what degree. The cognitive dimension of trust deals with reasoning (Lewicki & Bunker, 1996) and the extent to which an individual is reliable and dependable (Webber & Klimoski,
2004; Smith & Lohrke, 2008; Webber, 2008). This was evident in a 91% favorable response to the question, “I can rely on this person not to make my job more difficult by careless work.” Ninety-seven percent of the subjects felt that their dyad peer “approaches his/her job with professionalism and dedication”, which stems from the individual’s ability to predict their partner’s behavior and the propensity for the partner to behave reliably (Boon & Holmes, 1991).

Cognition-level trust is also based on one’s knowledge and perception of the individual they are extending trust to (McAllister, 1995). This is reflected in the high percentage of favorable responses for the cognition-based trust items on the survey that asked the respondent to rate how they felt about their peer’s professional character, competence, and how they perceived and felt that others thought about their peer. These questions yielded more than a 90% favorable response rate.

The positive relationship between cognition-based trust and cooperation stems from the knowing and observation of the performance and experience level of an individual (McAllister, 1995). This information is transferred to tacit knowledge and can influence the level of cooperation and interaction between the parties. Cooperation is the goal of the relationship, and at the very least, the trustor must feel that he or she can gain from that interaction (Lewicki & Tomlison, 2006).

The contributions of the dyadic relationships for strategic alliances are two-fold, the alliance managers rely on this unique relationship for information and resource sharing (Chua, Ingram & Morris, 2008), and the partnering firms depend on these relationships to execute the goals of the alliance while establishing a successful performance-based reputation for each firm. In the current study, 91% of the dyads
reported that they would willingly pass on new and useful information to their dyad peer, while 95% of the subjects felt that their dyad peer’s track record left no reason to doubt their competence and preparation for their job. This is an important trait, especially when the individual may need to step out of their role to deal with unexpected competing expectations for the alliance, and/or their respective firm. It is during these times when the perception of trustworthiness can be directly observed by the peers.

Researchers agree that firms enter into strategic partnerships to acquire intelligence, skills, or technologies from the other partners (Hamel, Doz, & Prahalad, 1989; Harrigan, 1985; Inkpen, 1999, 2000). The alliance members foster the transference of tacit knowledge, which is generally not common among interdependent firms (Hutt et al., 2000; Suseno & Ratten, 2007; Das & Teng, 2008). The knowledge shared among the members promotes network relations which influences individual and group performance and more cooperative and constructive actions between the members. The alliance and individual firms gain from these experiences which can translate into future partnering opportunities between the firms.

The findings for this hypothesis confirmed the positive relationship between cognition-based trust and cooperation as stated in the literature. The findings also emphasized the importance of this relationship for strategic alliances because the partnering firms depend on their employees to collect and share information, and to perform tasks critical to the engagement. Additionally, when project-related tasks are interdependent, as with the various stages of an alliance, each firm must depend on its counterparts to carry out specific tasks that are critical to the alliance’s overall success.
Therefore, the degree to which a dyad peer cooperates can influence one’s ability to meet the negotiated obligations of the alliance.

**Relationship between Affect-Based Trust and Cooperation**

Research Question #1b, stated, “To what extent is there a positive relationship between affect-based trust and cooperation? The hypothesis for this question predicted “There is a positive relationship between affect-based-based trust and cooperation.” The data supported this hypothesis, by showing that there is a strong, positive relationship between affect-based trust and cooperation. A Pearson $r$ correlation revealed a strong, positive relationship between affect-based trust and cooperation ($r = .444$). This relationship was shown to be the strongest statistically over the relationship between interpersonal trust and cooperation, and cognition-based trust and cooperation. The means for affect-based trust and cooperation were ($M = 3.94$ and $3.87$, respectively), and both were higher than the average study mean, which indicates a favorable response on the survey for items that addressed the relationship between these two variables.

The findings for this analysis support the literature on the positive relationship between affect-based-based trust and cooperation. Affect-based trust is the emotional connection that develops for both individuals, which is based on feelings of genuine care and concern for the other person (McAllister, 1995). Eighty-nine percent of the subjects responded that they have a “sharing relationship with their dyad peer that allows them to share ideas, feelings and hopes”. Some theorists agree that this trust stems from intuitive feelings that individuals possess (Hansen & Morrow, 2003). The literature also states that these feelings continue to develop over time unless an event or exchange between the individuals negatively affects the relationship.
For affect-based trust to exist there will be an overlap from the business relationship to a more personal relationship that deepens from an attachment between the individuals. Friendships develop out of this attachment, which provides a sense of belonging and acceptance among individuals (Lawrence & Nohria, 2002). Chua, Ingram and Morris (2008) found in their study on dyads that as the friendship develops, a level of cooperation exists that fosters stronger communication and the sharing of resources. The dyads in the current study reported favorably to having a sharing relationship with their peer and feeling confident that they could talk with their peer about any type of problems they were having. The highest mean score for the affect-trust scale was \( M = 4.27 \) for Question #4, "If I shared my problems with this person, I know that he/she would respond constructively and caringly."

When affect-based trust is strong in professional relationships, individuals are more likely to be accessible and proactive with their dyad partner (Cross & Sproull, 2004). Webber and Klimoski (2004) describe affect-based trust as the key component of interpersonal trust. In their study, they examined the dyadic relationship between project managers and their clients in technology service alliances. They looked at the transformation of the business relationship into a personal, friendly relationship and how it affected the levels of affect- and cognition-based trust, OCB, performance and loyalty. Similarly to the current study, the researcher used McAllister’s scales for measuring affect- and cognition-based trust and cooperation. The researchers found that affect-based trust was reported as the most significant quality in the dyadic relationships compared to cognition-based trust, OCB and loyalty. The emotional connection between the dyads was reported as irreplaceable in their relationships. They also found that if
affect-based trust was absent from cognition-based trust, all that remained was calculated risk.

A similar study was conducted by Chua, Ingram & Morris (2004). This study examined cognition- and affect-based trust among dyads within a professional network of managers enrolled in MBA courses. Using scales from McAllister’s study, their findings revealed that affect-based trust was more prominent among dyads that had established a relationship tied to friendship, mentoring and social support. Similarly to the findings in the current study, there is an emotional investment that transcends the working relationship when affect-based trust is present which stems from a friendship or resource dependence between the dyads. As the literature on social exchange suggests, employees evaluate their social interactions, and if these interactions are successful, they will reciprocate in the future (Konovsky & Pugh, 1994; Wayne & Ferris, 1990).

The findings for this hypothesis confirmed the positive relationship between affect-based trust and cooperation as stated in the literature. The findings also align with the literature that states when there is a strong presence of affect-based trust among dyad peers, the result is a more cooperative and dependable partner. This dynamic minimizes the opportunistic intentions and eliminates the need for formal control mechanisms within the alliance.

The Effect of Time (Length of Time Working Together)
on the Relationship between Interpersonal Trust and Cooperation

Research Question 2, stated, “To what extent does the length of time affect the relationship between interpersonal trust and cooperation?” The hypothesis for this question predicted, “The relationship between interpersonal trust and cooperation will
be stronger for dyads that have worked together for 2-4 years when compared to dyads that have worked together for less than 2 years.” The current study’s finding did not support this hypothesis. The stepwise linear regression rejected the length of time (2-4 years vs. less than 2 years) as a moderating variable for the relationship between interpersonal trust and cooperation ($p = .493$).

Additional analysis was conducted on H4 using an independent samples t-test and an ANOVA with Tukey and Games-Howell post hoc. The tests were run on the length of time categories (Table 5-2), without collapsing the groups as done in the regression analysis. The results from the analysis showed a slight difference for the dyad partners that had worked together for 31-36 months based on their responses to the interpersonal trust questions, but no significant difference for responses to cooperation questions. The results for the other five time categories revealed that the length of the working relationship between the dyads did not have a significant affect on their interpersonal trust and cooperative relationship. A summary of these findings and the data are presented in Appendix A.

<table>
<thead>
<tr>
<th>Table 5-2</th>
<th>Length of Time Working with Dyad Peer</th>
</tr>
</thead>
<tbody>
<tr>
<td>How long have you been working with the individual you identified for this survey. (Q1)</td>
<td></td>
</tr>
<tr>
<td>0–6 months</td>
<td></td>
</tr>
<tr>
<td>7–12 months</td>
<td></td>
</tr>
<tr>
<td>13–18 months</td>
<td></td>
</tr>
<tr>
<td>19–24 months</td>
<td></td>
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<tr>
<td>25–30 months</td>
<td></td>
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<tr>
<td>31–36 months</td>
<td></td>
</tr>
<tr>
<td>37–42 months</td>
<td></td>
</tr>
<tr>
<td>43–48 months</td>
<td></td>
</tr>
</tbody>
</table>
This was the most significant finding of the current study. The relationship between interpersonal trust and cooperation was not stronger for dyads that worked together for 2 to 4 years when compared to dyads that worked together less than 2 years. This finding contradicts the theories on the effect of longevity in relationships and the development of trust and cooperation in professional relationships; however, there is a growing body of work that represents the contrary. Doney and Cannon (1997) explored long-term relationships between buyers and sellers in the industrial manufacturing business. Similarities between this study and the current study included measuring trust, cooperative behaviors, and time. Using the social exchange theory framework, the researchers measured trust across multiple relationships and between two types of dyadic relationships, which included the relationship between suppliers (the selling firm) and the buyer, and the seller and the buyer. The length of the relationships were measured based on the length of time the buyers had conducted business with the suppliers, and the length of time that the buyers had worked with a specific seller. They also measured the type of interactive activities between the buyer and seller and the length of that interaction. Cooperative behaviors were measured by the firms’ willingness to customize products and procedures for the buyers, as well as their willingness to share proprietary information. They found that the length of the relationship had no effect on the level of trust between the dyads.

Currall & Judge (1995) conducted a similar study on dyadic relationships between public school superintendents and teacher union presidents. Their study incorporated social learning theories to examine behavioral estimation items which are defined as “the
likelihood with which an individual will engage in trusting behavior toward their counterpart” (p. 152). The trust behaviors were examined in four dimensions to include communication, informal agreements, surveillance and task coordination. The lengths of the relationships were determined by the tenures of the positions of the dyads as well as their prediction for a continued relationship. The interactive activities were based within the context of their respective roles and responsibilities to one another as a president and a superintendent. Their findings showed that the various types of interactions between the dyads impacted the trust levels, and not the length of the working relationship.

Jap and Anderson (2007) contend that relationships need time to go through life-cycles in order for trust and cooperation to develop, which consists of a series of phases to include exploration, build-up, maturity and decline. They also contend that it is the interpersonal relationship of employees that lead to successful alliances. Pruitt (1981) stated that older relationships that have endured critical phases of relationship development have a deeper trust and sense of commitment to the partnership. He goes on to say that even if the relationships does not encounter any crises, the long time together allows the partners to learn more about each other, which develops a deeper understanding between them.

Although the current study proved that trust and cooperative relationships can develop within a short period of time, there was a sharp contrast between the two groups of dyads in their responses to the following questions:

- **Q5. We would both feel a sense of loss if one of us was transferred and we could no longer work together**
Q7. I would have to say that we have both made considerable emotional investments in our working relationship

The interpersonal relationships between dyads provide a unique dynamic for strategic alliances. As this study showed, dyadic exchanges formed outside the employee’s organization can have a positive affect on the alliance and its members if a strong interpersonal trust and cooperative relationships exists. The dyad relationships in Alliance X ranged in age from 0-6 months to 43-48 months, and an overwhelming majority of these dyad peers felt that they shared both a personal and professional relationship. This type of relationship contributes to trust building in the work setting and trust between the employees of partnering organizations, which is one of the central elements of alliance management.

The Effect of Time (Frequency of Monthly Interactions) on the Relationship between Interpersonal Trust and Cooperation

Research Question #3, stated, “To what extent does the frequency of interaction affect the relationship between interpersonal trust and cooperation? The hypothesis for this question predicted, “The relationship between interpersonal trust and cooperation will be stronger for dyads that interact 12 or more times per month when compared to dyads that interact less than 12 times per month. The study’s finding did support this hypothesis. The stepwise linear regression supported the frequency of interaction between the dyads (12 or more times a month vs. less than 12 times a month) as a moderating variable for the relationship between interpersonal trust and cooperation, \( p = .320 \).
Additional analysis was conducted on this hypothesis using an independent samples t-test and an ANOVA with Tukey and Games-Howell post hoc. The tests were run on the frequencies categories (Table 5-3) without collapsing the groups as in the regression analysis. The results from both tests suggest that the frequency of interactions between the dyads did not have a significant affect on their interpersonal trust and cooperative relationship between the dyads. A summary of these findings and the data are presented in Appendix B.

Table 5-3

<table>
<thead>
<tr>
<th>Frequency of Interactions with Dyad Peer</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a typical month, how often do you interact with this individual?</td>
</tr>
<tr>
<td>0–6 timer per month</td>
</tr>
<tr>
<td>7– 2 timer per month</td>
</tr>
<tr>
<td>13–18 times per month</td>
</tr>
<tr>
<td>19–24 times per month</td>
</tr>
<tr>
<td>25–30 times per month</td>
</tr>
</tbody>
</table>

The literature states that the more frequent interactions individuals have, a greater appreciation develops for that person (Moreland and Zajonc, 1982). The literature states that trust is produced through frequent meetings and increases if the relationship is perceived to be consistent (Curral & Judge, 1995). Similarly, McAllister (1995) established that trust is positively linked with frequent interactions in his study on dyads and triads within organizations.

The findings in the current study are similar to a study conducted by Nicholson, Compeau and Sethi (2001), where they examined trust between buyers and sellers working in agricultural machinery franchises. The age of the dyads ranged from 1.2 years to 9.25 years. The results of their study showed that “likeability and similarity” evolved
out of frequent interactions (face-to-face meetings and telephone conversations) and
allowed the dyads to regularly observe the behavior and skills of their partners, which
helped them to decide whether or not to work together on future engagements. They also
found that younger or newer relationships required more interaction, in comparison to the
older relationships that relied more on a combination of affect and cognitive antecedents.

Heerwagen, Kampshroer, Powell and Loftness (2004), describe interactions as
intentional or unintentional collaborations that can take place anywhere in an office
setting. They state that interactions between individuals at work can be long or short in
duration, and during these interactions information is exchanged that fosters
relationships and ongoing interactions. As shown in Alliance X, frequent interactions
have a positive affect on the interpersonal relationships between dyad peers, which
confirms the literature that shows trust in individuals is affected by interpersonal
encounters (Blau, 1964; Zucker, 1986; Fukuyama, 1995). The literature suggests that in
a dyadic relationship, trust is produced through frequent contact and may be present when
trust is perceived to be present in a competent and consistent performer. This type of
trust and cooperative behavior is important to individuals that have to interact, especially
individuals from partnering organizations. These individuals process the information
coming from the partnering organization, and represent the interests of their own firm in
the relationship.
Strengths and Limitations

Strengths

The strength of the study is credited to the data collection design, which the researcher attributes to the study’s high response rate. The researcher chose a web-based survey after taking into account the busy schedule of the subjects and the various locations of the partnering firms. The use of a web-based survey was an appropriate and convenient instrument for this population because it allowed the subjects to participate in the research electronically using a secure website from any location, and at any time of the day. The completion time for the survey was approximately fifteen. The survey did not collect demographic information on the subjects, which provided a high-level of anonymity and reassurance for the participants.

Limitations

The current study takes into the account the internal and external validity for a non-experimental, one-shot study as described by Campbell and Stanley (1963) and Creswell (2003). Internal validity addresses any treatment or condition which may effect an outcome of the study. External validity refers to the generalizable conditions of the research. The conclusions from this study are not generalizable because the research sample was limited to a strategic alliance consisting of three consulting firms in the financial management, accounting, auditing, and related professional services industry. The distinctiveness of this alliance may not represent alliances within the same industry and firms with similar small business characteristics. A replication of this study within a different type of inter-organizational structure such as a joint venture or merger could
provide a venue for future research, as well as a different type of professional service industry, or governmental entities.

Another limitation for this study is the need for contractual information about the partnering firms in the alliance. This type of information may have provided insight into the structural arrangements and relational obligations of the alliances and the dyads in terms of performance measures and commitment, which could have influenced the responses from the subjects, especially for the following questions:

- **Q20.** *I willingly help this individual, even at some cost to personal productivity.*
- **Q24.** *I assist this person with heavy workloads, even though it is not part of my job.*
- **Q32.** *Overall, I feel that Alliance X is collaborative.*

An additional limitation of the study is the lack of causality between the relationships between interpersonal trust and cooperation, cognition-based trust and cooperation, and affect-based trust and cooperation. Since all of the data was collected at a single point in time, it is impossible to conclude causality, although the data points to a strong relationship between the variables. Key questions about the impact of interpersonal trust, affect- and cognition-based trust on cooperation could ask whether or not cooperation can occur independent of these types of trust and whether or not cooperation may be a strategic self-interested calculation.

**Study Implications**

*TMedia*

By focusing on the dyad as the unit of analysis, this study provided empirical and theoretical support for organizational and management theories. The study’s findings
extend the theoretical foundations on interpersonal trust and cooperative relationships between dyads. This study's findings also build upon the social exchange theories by showing that individuals can develop trusting relationships, socially and professionally, and in some case, with competitors. The perception of the alliance as either cooperative or competitive could impact outcomes of trust that affect group performance in terms of decision-making, effort, and success rates (Kalaignanam, Shankar & Varadarajan, 2007). While a cooperative alliance results in increased trust and cooperative behavior, a competitive alliance can result in a lack of systematic models and processes, no shared vision from conception to implementation, inadequate metrics and diagnostics, and lack of input from dyadic members (Bamford & Gomes-Casseres, 2004). The findings showed that the quality of the dyadic relationships contributed to the overall perception of the alliance, which is an important element in trust at the individual and organizational level.

This study further highlighted the current theories on the relationship between affect-based trust, cognition-based trust and cooperation. The findings on H1, H2 & H3 were consistent with the theories on interpersonal trust and the affective and cognitive dimensions, which are necessary for cooperative behaviors to exist. As Lewis & Weigert (1985) state, interpersonal trust is a combination of cognition and affect characteristics. The affect or emotional dimension of interpersonal trust is grounded in the extent to which care and concern exist in a relationship, while the cognition dimension of trust deals with the extent to which an individual is reliable and dependable.

Another contribution of this study relates to the literature on the time and collaboration. The finding from this study confirmed that dyads shared a collaborative
relationship with their peers. For alliances, a collaborative workteam environment is critical for the development of trust among employees and the partnering organizations. As this study showed, frequent interactions allowed the dyads to feel a sense of belonging as they developed professional and personal relationships with their peers.

This study also adds to the theories on social exchange and the development of trust. As this study showed, when the dyad members have frequent interactions, they experience a series of exchanges during which various risk-taking events take place and it is during this stage that deeper levels of trust develop. Regular exchanges individuals allow them to become increasingly confident of the other person’s willingness to deliver on promises (Levin et al., 2006). When individuals have repeated exchanges, they develop a better understanding of each other, and this in turn reduces the expectations and misunderstandings involved (Katz & Kahn, 1978). Trust is likely to be higher when expectations are understandable and reasonable.

Research

The present study was designed to contribute to the research on strategic alliances, interpersonal trust and cooperation, and dyadic relationships. The study’s conceptual framework can be used to expand on the research for these variables and to identify the factors that shape trusting and cooperative behavior at different levels of analysis. In the current study there are several different relationships can lead to further exploration because of their managerial responsibility to alliance, to include project managers, engagement partners, as well as clients and other stakeholders that are served by the alliance.
As reflected in the theoretical implications, the results of the study did not show any difference between the length of time working on the interpersonal trust and cooperative relationship between the dyads, which challenges the literature and theories on group development and social interaction in trust and cooperative relationships. However, there are studies that show that trust and cooperative relationships can develop within a short amount of time and remain productive without frequent interaction. To explore this concept further, additional research is needed to, 1) identify the characteristics of short-term relationships, 2) identify the types of interactive activities that are most conducive for collaborative relationships, and 3) identify drivers for developing interpersonal relationships that are productive and efficient.

The data for this study was collected at a single point in time, which eliminated the ability to determine causality between interpersonal trust and cooperation. Future research using a longitudinal design between dyad peers could explore how interpersonal trust and cooperation co-evolves and changes over a period of time, as well as allowing the researcher to determine cause and effect between the variables. Additionally, a mixed method design would allow the researcher to use multiple approaches to collect data and gain more insight into the subjects’ responses. One-on-one interviews and focus groups using open-ended questions allow the researcher to engage the subjects in a dialogue about their responses, and to identify various meanings of individual experiences (Creswell, 2003). This additional analysis may have uncovered useful information not found in multiple choice answers from the survey, especially for the questions below, which had a lower percentage of favorable responses among the subjects:
• Q5. We would both feel a sense of loss if one of us was transferred and we could no longer work together.

• Q7. I would have to say that we have both made considerable emotional investments in our working relationships.

• Q20. I willingly help this individual, even at some cost to personal productivity.

• Q24. I assist this person with heavy workloads, even though it is not a part of my job.

Question 32 asked the respondents to rate their perception of the alliance, “Overall, I feel that Alliance X is collaborative” was the last question on the survey, and the subjects were asked to respond to this question using a 5-point Likert scale with 1 as (strongly agree) to 5 (strongly disagree). Follow-up interviews on this question would have allowed the researcher to delve deeper into the responses, especially for the 5% of respondents that had either a neutral or less than favorable response for this question.

To expand the study’s findings on the affect of the time variables on the interpersonal trust and cooperative relationships, additional research should incorporate an analysis of a combination of the time variables. For example, the comparison between long-term and short-term relationships combined with high-interaction and low-interaction relationships could provide insight into how time and interaction influences trust and cooperative relationships among individuals and work groups. The time variables can be examined in the following groupings:

• Long-term relationship/high interactions vs. long-term relationship/low interactions

• Short-term relationship/high interactions vs. short-term relationship/low interactions
Additional research using the combination of the time variables should incorporate stakeholders involved within the organization, along with demographics such as gender, age, education, and work experience to look for differences and trends among these groups. Research on the various time groupings can also be used to show differences between the individual time and frequency categories as presented in the analysis of H4 & H5 in Appendix C and D.

Implications for Practice

Strategic Alliances

A large number of alliances under perform because they lack factors such as trust and cooperation that are necessary for fostering workplace relationships. When these partnerships fail, resources are lost and relationships and reputations are at risk. The partnering firms must recognize the infrastructures and routines that form a stable framework in which interpersonal trust and cooperative behaviors can evolve (Inkpen, 2005; Suseno & Ratten, 2007; Langfield-Smith, 2008), and establish a culture within the alliance that develops and supports trusting and cooperative behaviors.

When firms create partnerships, the perception of the alliance can sometimes be viewed as either cooperative or competitive, which could have a lasting impact on the outcomes of trust that effect group performance in terms of decision-making, effort, and success rates. While a cooperative alliance results in increased trust and cooperative behavior, a competitive alliance can result in lack of systematic models and processes (Hill, Bartol, Tesluk & Langa, 2009). During the pre-alliance phase, the similarities and
differences of each firm should be identified and discussed to allow the alliance members an opportunity to transition into the alliance.

The alliance firms should conduct introductory meetings that include sharing of goals, strategies and expectations for the alliance and its members. This is also a time for norms to be shared, discussed and modified, if needed in order to build an inclusive team. This process can incorporate activities that allow the members to interact with each other to begin the process of collaboration and building trust. This also allows knowledge and information sharing between the members. A study conducted by Hill, Bartol, Tesluk and Langa (2009) showed that introductory face-to-face meetings can set the stage for trust development collaborative behaviors between dyads. This research was conducted on a group of computer-mediated dyads.

Another organizational strategy is for firms to designate a strategic alliance manager, whose primary responsibility would be to document the experiences of each alliance that the firm is involved with. Companies such as IBM, Microsoft, Dell and General Electric are currently using this strategy. This manager is responsible for collecting information from alliance members and their managers during designated phases of the alliance. The information collected is used to develop guidelines for best practices and for creating performance metrics for the alliances. This system allows the partnering firms to gather tacit knowledge, continually evaluate their alliance, and provide information about alliance performance to potential partners and clients.

The major finding for this analysis is that trust can develop between dyads in a young relationship as long at there is frequent interaction. The social exchange literature suggests that trust in business environments may be dependent on shared similarities
between stakeholders, and the presence of shared social norms. With inter-organizational relationships, each firm brings its norms into the partnership. Tung (1984) stated that the culture that firms bring to the alliance may directly influence the development and level of trust between alliance partners. Managers need to understand the intricacies of these norms and how they can impact and influence the relationship of the alliance members.

**Management**

Within alliances, managers take the lead in overseeing that deliverables are met, as well establishing and maintaining the alliance and client relationships. Organizations can empower their management structures by creating learning environments to assist managers with understanding the lessons learned through research on interpersonal trust and cooperation. This knowledge can guide managers in understanding the types of trust and cooperative behaviors that may exist among their employees and how these relationships may affect group and organizational performances.

As the findings from the current study confirmed, the relationship between interpersonal trust, cognition- and affect-based trust and cooperation is very strong; however, once these relationships begin, they need to be nurtured. It is important for managers to develop a culture of trust and cooperation and to assist employees with sustaining these working relationships. A work environment that incorporates collaborative activities and interactive workgroups leads to organizational effectiveness (Hagedoorn, 2006). Managers can provide professional development opportunities that incorporate team-based activities. Workgroups and teams contribute to the empowerment of lower-level employees, and this empowerment leads to an increase in workplace cooperation among individuals (Jones & George, 1998).
During the initial phase of the dyad relationship, managers should arrange for dyad members to meet before they begin an engagement. This type of meetings serves as a transition into the collaborative process, knowledge sharing and the beginning of the interpersonal relationship between the dyads (Hill, Bartol, Tesluk & Langa, 2009). Informal and social gatherings at work and off-site are useful tools that encourage social networking. Informal group sessions can be planned at work or off-site and through social networks that allow employees to interact socially, which lead to the development of relationships, based on common interests. If any interest exists between multiple parties, cooperation and collaboration can serve as the foundation for a relationship (Ford, Gadde, Hakansson & Snehota, 2003; Das & Teng, 2004).

Additionally, managers need to establish a collaborative atmosphere before the alliance members begin working on their engagement. Managers can help their employees understand how they contribute to the partnership and alliance goals and the opportunity for future engagements and partnerships. Trust and cooperation are particularly critical when individuals from two or more firms must work together to implement an interorganizational agreement (Wayne & Ferris, 1990; Saxton, 1997; Iacobucci & Hopkins, 2008), and managers can be the catalyst for this process.

Conclusions

The findings from this study contribute to several streams of theories to include trust, cooperation, dyadic relationships, and strategic alliances. This research provided an opportunity to measure the interpersonal relationship between dyads in a strategic alliance. In doing so, the findings revealed data that supports further research in the areas of interpersonal trust and cooperative relationships. The essential underpinning for
organizational partnerships depends on the quality of the relationship between the alliance members.

As described earlier, the most revealing finding in this study showed no difference in the interpersonal trust and cooperative relationship between dyads that worked together for more than two years when compared with dyads that worked together for less than two years. However, there was a difference between these two groups based on the frequency of their monthly interactions with their dyadic peer. Most empirical research supports longevity for trust to develop in relationships and frequent interaction; however, there is a growing body of knowledge that can show that the quality of the interactions are more essential to the relationship, especially for organizations that are involved in multiple alliances and rely on their alliance members to work on concurrent engagements.

This study suggests that organizations that participate in strategic alliances should foster trusting and collaborative environments, which can inspire similar behaviors in their employees. This study proved that strong interpersonal trust and cooperative behaviors lead to sharing of knowledge and resources among employees, which is transferred to the partnering organizations and their employees. Lastly, the findings from this research should inspire deeper dialogue about interpersonal trust and cooperative relationships, and the relationships between alliance organizations and alliance members.
REFERENCES


management cooperation: A theory-building exercise. *Public Administration
Review, 63*(4), 455-471.


examination of interfirm cooperation. *Academy of Management Journal, 36*(4),
794-829.

Patzelt, H., & Shepherd, D. A. (2008). The decision to persist with underperforming
alliances: The role of trust and control. *Journal of Management Studies, 45*(7),
1217-1243.


Harper & Row.


APPENDIX A:
E-MAIL CORRESPONDENCE

CONFIRMATION E-MAIL TO POINT OF CONTACT

Dear Mr./Ms.________________:

Thank you for agreeing to be the Point of Contact for recruiting subjects from your firm for my study. The purpose of this study is to Measure the Relationship Between Interpersonal Trust and Cooperation Between Dyads in a Strategic Alliance. The results of this study may help further the area of knowledge in professional relationships in strategic alliances.

Your alliance employees are being asked to take part in this study because your firm is a partner in a strategic alliance, and your employees’ job functions involve working within an alliance. As we discussed, the three attached e-mails will be sent by you to only those employees that work within the alliance. As agreed upon, to ensure anonymity of the alliance firms and employees, your alliance will be referred to as Alliance X. This survey will not collect any personal information.

The survey will be administered online through Zoomerang, a web-based survey tool. The survey will be available online beginning May 28, 2009 and will close on June 5, 2009. This survey should take no more than 15 minutes to complete.

If you have any questions at any point during this process, please communicate with me through e-mail at hsmith@tcurtiscpa.com or telephone at (301) 982-4000 ext. 222. Your assistance with this study is greatly appreciated.

Sincerely,

Harriet L. Smith
Doctoral Candidate
The George Washington University
Dear Mr/Ms__________________:

You have been selected to participate in an online survey conducted by a doctoral candidate at the George Washington University. Within the week, you will receive a second e-mail that will provide specific information about this study and your role as a participant. Your participation in this study is voluntary, and all information and data collected from this study will remain confidential. If you have any questions after receiving the second e-mail, please contact me at ______________________:

Thank you in advance for participating in this survey.

Sincerely,

(Signed by Point of Contact)
SURVEY INVITATION E-MAIL

Dear Survey Participant:

You have been selected to participate in an online survey conducted by a doctoral candidate at the George Washington University. The purpose of this study is to Measure the Relationship Between Interpersonal Trust and Cooperation Between Dyads in a Strategic Alliance. You are being asked to take part in this study because our firm is a partner in a strategic alliance and your job function involves working within an alliance. Your participation in this study may help further area of knowledge in professional relationships in strategic alliances.

The survey will be available online beginning May 28, 2009, and will close on June 5, 2009. This survey should take no more than 15 minutes to complete. Your participation in this study is voluntary, and all data collected from this survey will remain confidential. For the purposes of this study and to ensure anonymity of the alliance firms and employees, your alliance will be referred to as Alliance X. This survey will not collect any personal information.

To begin the survey, click on the following link: ____________________________. If you have any questions or experience any problems with the survey, please contact me at _______________________

Thank you in advance for participating in this survey.

Sincerely,

(Signed by Point of Contact)
SURVEY THANK-YOU/FOLLOW-UP E-MAIL

Dear Survey Participant:

This is a friendly reminder that the survey closing date for the survey is approaching (June 5, 2009). I would like to thank all of you who took the time to participate in the research study. Your participation in this study may help further the area of knowledge in professional relationships in strategic alliances.

I realize that some of you may not have had the time to complete the survey or you may have started the survey and need to go back to finish it. In either case, please remember that your participation in this survey is extremely important to this study. You can click on the following link to access the survey: ________________.

Thank you for your participation.

Sincerely,

(Signed by Point of Contact)
APPENDIX B:
SURVEY INSTRUMENT

Welcome:

You are invited to take part in a research study being conducted by a doctoral student at the George Washington University, Graduate School of Education and Human Development. The purpose of this study is to better understand the relationship among interpersonal trust and cooperation between dyads in a strategic alliance. You are being asked to take part in this study because your firm is a partner in a strategic alliance and your job function involves working within an alliance. For the purposes of this study and to ensure anonymity of the alliance firms and employees, your alliance will be referred to as Alliance X. Your participation in this study may help further the area of knowledge in professional relationships in strategic alliances.

Please read this form completely before agreeing to be in the study. If you have any questions, including questions about your rights, or have concerns about participating in this study, you can contact the principal investigator, Dr. Andrea Casey, at (703) 726-3763. If you want to talk to someone at the George Washington University Office of Human Research, you can call (202) 994-2715. Taking part in this study is up to you. You can refuse to take part or quit at any time during the survey.

The survey will be available online beginning May 28, 2009, and will close on June 5, 2009. This survey should take no more than 15 minutes to complete. It is advisable to complete the entire survey in one session; however, if you are interrupted, you can return to complete the remaining part of the survey. Your identity and individual survey responses will be held strictly confidential. The records of this study will be kept private in a secured location. Research records will be stored securely, and only the principal investigator and researcher will have access to the records. In any publications or presentations, we will not include any information that will make it possible to identify you as a subject. All analysis and reporting will be conducted at an aggregate level.

Section 1: Overview

Now, please think about someone who is part of the Alliance X that you work with on a regular basis. This person must also work in a different organization than you. For the next several questions, you will be rating this same individual.
1. **How long have you been working with the individual you have identified for this survey? (Please only consider the time spent working together on Alliance X.)**
   - 0–6 months
   - 7–12 months
   - 13–18 months
   - 19–24 months
   - 25–30 months
   - 31–36 months
   - 37–42 months
   - 43–48 months

2. **In a typical month, how often do you interact with this individual?**
   - 0–6 times per month
   - 7–12 times per month
   - 13–18 times per month
   - 19–24 times per month
   - 25–30 times per month

**Section 2**

Please indicate the extent to which you agree or disagree with the following statements as they relate to the person in Alliance X that you identified.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree Nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

3. **We have a sharing relationship. We can both freely share our ideas, feelings, and hopes.**

4. **I can talk freely to this individual about difficulties I am having at work and know that he/she will want to listen.**

5. **We would both feel a sense of loss if one of us was transferred and we could no longer work together.**

6. **If I shared my problems with this person, I know that he/she would respond constructively and caringly.**

7. **I would have to say that we have both made considerable emotional investments in our working relationship.**
### Section 3

Please indicate the extent to which you agree or disagree with the following statements as they relate to the person in Alliance X that you identified.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree Nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.</td>
<td>This person approaches his/her job with professionalism and dedication.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Given this person’s track record, I see no reason to doubt his/her competence and preparation for this job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10.</td>
<td>I can rely on this person not to make my job more difficult by careless work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Most people, even those who are not close friends of this individual, trust and respect him/her as a coworker.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Other work associates of mine who must interact with this individual consider him/her to be trustworthy.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13.</td>
<td>If people knew more about this individual and his/her background, they would be more concerned and monitor his/her performance more closely.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Section 4

Please indicate the extent to which you agree or disagree with the following statements as they relate to the person in Alliance X that you identified.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree Nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.</td>
<td>Even when others think everything is fine, I know when he/she is having difficulties.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>This person does not have to tell me in order for me to know how things are going for him/her at work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 5
Please indicate the extent to which you agree or disagree with the following statements as they relate to the person in Alliance X that you identified.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree 5</th>
<th>Agree 4</th>
<th>Neither Agree Nor Disagree 3</th>
<th>Disagree 2</th>
<th>Strongly Disagree 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>I take time to listen to this person’s problems and worries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>I have taken a personal interest in this individual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I frequently do extra things I know that I will not be rewarded for, but which make my cooperative efforts with this person more productive.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>I pass on new information that might be useful to this person.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>I willingly help this individual, even at some cost to personal productivity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>When making decisions at work that affect this individual, I try to take his/her needs and feelings into account.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I try not to make things more difficult for this person by my careless actions.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>23.</td>
<td>I help this person with difficult assignments, even when assistance is not directly requested.</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>24.</td>
<td>I assist this person with heavy workloads, even though it is not part of my job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>I help this person when he/she has been absent.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Section 6
Please indicate the extent to which you agree or disagree with the following statements as they relate to the person in Alliance X that you identified.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.</td>
<td>I find that this person is not the sort of coworker I need to monitor.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>27.</td>
<td>The quality of the work I receive from this individual is only maintained by my diligent monitoring.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>I have sometimes found it necessary to work around this individual in order to get things done the way I would like them to be done.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>I keep close track of my interactions with this individual, taking notes of instances where he/she does not keep up her/his end of the bargain.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>I have found it necessary to make inquiries before responding to this person’s requests for assistance. This ensures that my interests are protected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>Rather than just depending on this individual to come through when I need assistance, I try to have a backup plan ready.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

32. Please choose a response based on your perception of the alliance you are working with. Overall, I feel that Alliance X is collaborative.

- [ ] Strongly agree
- [ ] Agree
- [ ] Neither agree nor disagree
- [ ] Disagree
- [ ] Strongly disagree

Thank you for taking the time to complete the survey!
APPENDIX C:
ADDITIONAL ANALYSIS FOR HYPOTHESES 4

Hypothesis 4 proposed that the relationship between interpersonal trust and cooperation would be stronger for dyads that worked together for 2 to 4 years when compared to dyads that worked together less than 2 years. The results from the independent sample $t$ test showed no statistically significant difference between the groups (working together 2 to 4 years vs. working together less than 2 years):

Cooperation: $t (84) = 1.03, p = .303$

Interpersonal trust: $t (84) = 1.00, p = .320$

<table>
<thead>
<tr>
<th>Table A-1</th>
<th>T Test on Length of Time Working Together</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monthly interactions</td>
</tr>
<tr>
<td>Cooperation</td>
<td>Dimension 1</td>
</tr>
<tr>
<td></td>
<td>≥5.00</td>
</tr>
<tr>
<td></td>
<td>&lt;5.00</td>
</tr>
<tr>
<td>Interpersonal trust</td>
<td>Dimension 1</td>
</tr>
<tr>
<td></td>
<td>≥5.00</td>
</tr>
<tr>
<td></td>
<td>&lt;5.00</td>
</tr>
</tbody>
</table>

<5.00 (0-6, 7-12, 13-18, 19-24) mos.
≥5.00 (25-30, 31-36, 37-42, 43-48) mos.

Similarly, the results from the ANOVA with Tukey and Games-Howell post hoc tests showed no statistically significant difference between the categories representing the length of time (months) that the dyads worked together (0-6, 7-12, 13-18, 19-24, 25-30, 31-36, 37-42, 43-48). The results from the analysis showed a slight difference for the 31-
36 month group based on responses to the interpersonal trust questions, but no significant difference for responses to cooperation questions:

Cooperation: $F(7,78) = 1.01, p = .427$

Interpersonal trust: $F(7,78) = 2.34, p = .032$

Table A-2
*ANOVA Test on Length of Time Working Together*

<table>
<thead>
<tr>
<th></th>
<th>Sum of squares</th>
<th>Df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cooperation</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between groups</td>
<td>1.890</td>
<td>7</td>
<td>.270</td>
<td>1.015</td>
<td>.427</td>
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<tr>
<td>Within groups</td>
<td>20.747</td>
<td>78</td>
<td>.266</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>22.637</td>
<td>85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interpersonal trust</strong></td>
<td>3.804</td>
<td>7</td>
<td>.543</td>
<td>2.341</td>
<td>.032</td>
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<tr>
<td>Between groups</td>
<td>18.103</td>
<td>78</td>
<td>.232</td>
<td></td>
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<tr>
<td>Total</td>
<td>21.907</td>
<td>85</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Time working together</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cooperation</strong></td>
<td>Dimension 1</td>
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<tr>
<td>0-6 mos</td>
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<td></td>
<td>.40449</td>
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<tr>
<td>7-12 mos</td>
<td>3.8818</td>
<td></td>
<td>.53632</td>
<td>.16171</td>
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<td></td>
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</tr>
<tr>
<td>0-6 mos</td>
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<td></td>
<td>.32787</td>
<td>.10929</td>
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<tr>
<td>7-12 mos</td>
<td>3.9364</td>
<td></td>
<td>.73113</td>
<td>.22044</td>
</tr>
<tr>
<td><strong>Cooperation</strong></td>
<td>Dimension 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-18 mos</td>
<td>3.7100</td>
<td></td>
<td>.61001</td>
<td>.19290</td>
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<tr>
<td>19-24 mos</td>
<td>3.7583</td>
<td></td>
<td>.60672</td>
<td>.17514</td>
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<td><strong>Interpersonal trust</strong></td>
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<td></td>
</tr>
<tr>
<td>13-18 mos</td>
<td>3.8700</td>
<td></td>
<td>.44234</td>
<td>.13988</td>
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<tr>
<td>19-24 mos</td>
<td>4.4000</td>
<td></td>
<td>.40899</td>
<td>.11807</td>
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<td><strong>Cooperation</strong></td>
<td>Dimension 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-30 mos</td>
<td>3.5250</td>
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<td>.46458</td>
<td>.23229</td>
</tr>
<tr>
<td>31-36 mos</td>
<td>4.1500</td>
<td></td>
<td>.37417</td>
<td>.13229</td>
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<td><strong>Interpersonal trust</strong></td>
<td>Dimension 1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>25-30 mos</td>
<td>4.0750</td>
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<td>.43493</td>
<td>.21747</td>
</tr>
<tr>
<td>31-36 mos</td>
<td>4.5750</td>
<td></td>
<td>.30119</td>
<td>.10649</td>
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<td><strong>Cooperation</strong></td>
<td>Dimension 1</td>
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<td></td>
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</tr>
<tr>
<td>37-42 mos</td>
<td>3.6750</td>
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<td>.83815</td>
<td>.41908</td>
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<tr>
<td>43-48 mos</td>
<td>3.9571</td>
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<td>.44840</td>
<td>.08474</td>
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<td><strong>Interpersonal trust</strong></td>
<td>Dimension 1</td>
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<tr>
<td>37-42 mos</td>
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<td>.27195</td>
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<tr>
<td>43-48 mos</td>
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<td>.47946</td>
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APPENDIX D:
ADDITIONAL ANALYSIS FOR HYPOTHESIS 5

Hypothesis 5 proposed that the relationship between interpersonal trust and cooperation would be stronger for dyads that interacted more than 12 times per month when compared to dyads that interacted 12 or less times per month. The results from the independent sample $t$ test showed that there was no statistically significant difference between the groups (12 or less monthly interactions vs. more than 12 monthly interactions):

Cooperation: $t (84) = 1.20, p = .233$

Interpersonal trust: $t (84) = .693, p = .490$

Table A-3
$T$ Test on Frequency of Monthly Interactions

<table>
<thead>
<tr>
<th>Time working together</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation Dim 1</td>
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</tr>
<tr>
<td>$\geq$3.00</td>
<td>44</td>
<td>3.9273</td>
<td>.49385</td>
<td>.07445</td>
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<tr>
<td>&lt;3.00</td>
<td>42</td>
<td>3.8119</td>
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<td>.08300</td>
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<tr>
<td>Interpersonal trust Dim 1</td>
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<td>$\geq$3.00</td>
<td>44</td>
<td>4.2477</td>
<td>.47027</td>
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<tr>
<td>&lt;3.00</td>
<td>42</td>
<td>4.1381</td>
<td>.54413</td>
<td>.08396</td>
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</tbody>
</table>

$<3.00$ (0-6, 7-12) interactions
$\geq3.00$ (13-18, 19-24, 25-30) interactions
The results from the ANOVA with Tukey and Games-Howell post hoc tests showed no statistically significant difference between the categories representing the number of monthly interactions (0-6, 7-12, 13-18, 19-24, 25-30) between the dyads. There was no significant difference between the responses for the frequency/interaction group.

Cooperation: $F(4,81) = 1.05, p = .386$

Interpersonal trust: $F(4,81) = .410, p = .801$

Table A-4

ANOVA Test on Frequency of Monthly Interactions

<table>
<thead>
<tr>
<th></th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation</td>
<td>Between groups</td>
<td>1.117</td>
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<td>1.051</td>
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<td>Within groups</td>
<td>21.520</td>
<td>81</td>
<td>.266</td>
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<td></td>
<td>Total</td>
<td>22.637</td>
<td>85</td>
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<td></td>
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<tr>
<td>Interpersonal trust</td>
<td>Between groups</td>
<td>.434</td>
<td>4</td>
<td>.109</td>
<td>.410</td>
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<td>Within groups</td>
<td>21.473</td>
<td>81</td>
<td>.265</td>
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<td>Total</td>
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<td>85</td>
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</table>

<table>
<thead>
<tr>
<th>Frequency of interaction</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Std. error mean</th>
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<tr>
<td>Cooperation</td>
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<tr>
<td>Dimension 1</td>
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<tr>
<td>0-6 times</td>
<td>3.8800</td>
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<td>.08100</td>
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<td>7-12 times</td>
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<td>Dimension 1</td>
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<td>13-18 times</td>
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<td>19-24 times</td>
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<td>Dimension 1</td>
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<td>13-18 times</td>
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</tr>
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<td>Dimension 1</td>
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</tr>
<tr>
<td>25-30 times</td>
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<td>.1492</td>
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<td>25-30 times</td>
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