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To the Graduate Council:

I am submitting herewith a dissertation written by Rodney Wayne Thomas entitled "Exploring Relational Aspects of Time-Based Competition in Supply Chains." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

Theodore P. Stank, Major Professor

We have read this dissertation and recommend its acceptance:

Terry L. Esper, Robert T. Ladd, David W. Schumann

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Exploring Relational Aspects of Time-Based Competition in Supply Chains

**A Dissertation
Presented for
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville**

Rodney Wayne Thomas
December 2008

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DEDICATION

This dissertation is dedicated to my wife and children.

Their unconditional love, support, and understanding made this journey possible.

ACKNOWLEDGEMENTS

I would like to thank a number of people for their help and encouragement throughout the doctoral program. I have learned a great deal about scholarship by interacting with the faculty and my peers in the Department of Marketing and Logistics. Their continued guidance was invaluable. I would also like to express thanks to my dissertation committee for their support, expertise, and advice. I am particularly grateful to Dr. Ted Stank and Dr. Terry Esper for being my mentors throughout this entire process. They have both spent countless hours helping me develop and grow.

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ABSTRACT

In today's evolving business environment, firms must increasingly focus on rapid adaptation, quick response, and time-based performance (Wisner et al., 2008; Eisenhardt and Martin, 2000; Barney et al., 2001). In order to remain competitive, firms are becoming time-based competitors because consumers have become more demanding. Firms now must quickly adapt, innovate, and implement new ways of serving the ever-changing preferences of customers (Dickson 1992). These changing consumer demands require firms to seek time-based sources of competitive advantage such as speed and flexibility in order to survive in hypercompetitive global markets (D'Aveni 1994; D'Aveni 1998).

Time-based competition (TBC) theory formally recognizes the strategic role of time and proposes that a strategy of intense focus on shrinking the time requirements of key supply chain activities can yield a competitive advantage (Stalk Jr. and Hout 1990). One approach to becoming a time-based competitor is relational (Droge, Jayaram, and Vickery 2004). However, with the relational approach, the TBC literature provides little explanation as to how interfirm supply chain relationships are used to achieve time-based performance. Although the interfirm relationship literature is vast, it does not address relationships in an environment with an intense pressure to focus on time. At its very essence, the continuous pursuit of time-based competitive advantage may mandate increasing pressure to perform more quickly. In the pursuit of such quick response, firms may place other supply chain members under time pressure (Thomas 2008). Therefore, the purpose of this mixed methods research is to begin to explore the phenomenon of time pressure in supply chain relationships.

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CHAPTER 1 – INTRODUCTION

Strategic management scholars are essentially concerned with differential firm performance and the fundamental issue in strategy research is the manner in which firms achieve and sustain competitive advantage (Teece, Pisano, and Shuen 1997). A competitive advantage is a capability and/or resource that provides a firm with an advantage over its competition that leads to relatively higher performance (Wiggins and Ruefli 2002). Although there are various schools of thought about how to achieve a competitive advantage, the notion that superior firm performance requires a business to gain and hold an advantage over the competition is central to strategic thinking (Day and Wensley 1988). Therefore, effective strategy starts with the assessment of a firm's current and potential advantages within the markets it serves.

There are multiple theories regarding strategy and competitive advantage, but in today's fast paced global environment, two sources of competitive advantage are increasingly salient to firm performance. The first source comes from the Relational View (RV) of competitive advantage (Dyer and Singh 1998). RV proposes that a firm's critical resources and capabilities may extend beyond a firm's boundaries. A central theme of RV is that "a pair or network of firms can develop relationships that result in sustained competitive advantage" (Dyer and Singh 1998 pg. 675). Interfirm relationships that create value that would be impossible for the individual firms to create independently are the essence of RV.

The second source of competitive advantage that is salient to firm performance in a fast paced global environment comes from time-based competition (TBC). TBC formally recognizes the strategic role of time and identifies the manner in which firms manage time as a powerful source of competitive advantage (Stalk Jr. 1988). TBC proposes that a strategy of customer

responsiveness, rapid product introduction, and supply chain time compression will yield substantial performance benefits (Stalk Jr. and Hout 1990). According to TBC theory, a strategy of intense focus on shrinking the time requirements of key business activities can yield a competitive advantage (Bozarth and Chapman 1996).

In the TBC literature, one suggested approach to becoming a time-based competitor is relational. Such an approach advocates looking beyond internally focused process efforts to include linkages with other members of a supply chain (Dibrell, Davis, and Danskin 2005; Droge, Jayaram, and Vickery 2004; Stalk Jr. and Hout 1990). With this approach, supply chain relationships are leveraged to increase the flow of information and reduce cycle times throughout the supply chain (Stalk Jr. 1988). Time-based competitors are concerned with supply chain collaboration that facilitates interfirm integration, coordination, and synchronization (Rich and Hines 1997).

Although the TBC literature advocates a relational approach, it provides little direction or explanation as to how relationships are used to achieve time-based performance. In the TBC literature, details of the relational approach are exogenous to the discussion and readers are left to explore the relationship literature on their own. The interfirm relationship literature is vast and clearly enumerates the requisite core attributes and collaborative behaviors needed for success (Cannon and Perreault Jr. 1999; Mohr and Spekman 1994). However, this literature does not address relationships in an environment with an intense focus on time. The purpose of this dissertation is to address this gap in the literature.

TBC mandates that supply chain members continuously improve cycle times, speed, and agility. Time-based metrics are used to drive quicker and more flexible responses to customer needs (Stalk Jr. 1988; Stalk Jr. and Webber 1993). Given the strategic importance of TBC, it is

likely that many supply chain relationships operate in an environment with ongoing pressure to improve time-based performance (Stalk Jr. and Hout 1990). Time-based competitors have a constant drive to adapt quickly and respond faster (Hum and Sim 1996; Stalk Jr. 1988). At its very essence, the continuous pursuit of time-based competitive advantage may mandate increasing pressure to perform more quickly. In the pursuit of such quick response, firms may place a supply chain partner under time pressure.

TBC can lead to the imposition of time pressure in a supply chain. In fact, the seminal work on TBC suggests that time pressure is needed to achieve time-based performance. Specifically, supply chains need customers to “*demand* time compression” in order to improve coordination, information flows, and cycle times (Stalk Jr. and Hout 1990 pg. 250). The seminal TBC work goes on to suggest that as firms continue to drive down inventories and quickly respond to customer needs, they demand shorter lead times from suppliers. The resulting “*pressure* on lead times travels up and down the supply chain” in order to meet time-based performance requirements (Stalk Jr. and Hout 1990 pg. 233). Consequently, the ongoing demands and pressures to continuously reduce cycle times may lead a firm to impose time pressure on a supply chain member. The pursuit of time-based performance can be a source of advantage, but many firms simply can not “resist the impulse to push it to the limit” and exhaust managers with a “relentless pace” (Stalk Jr. and Webber 1993 pg. 94). Exploring and extending this logic into the dynamics of interfirm supply chain relationships is the impetus for this research.

Time pressure is a situational variable that may influence individual behavior, decision making, and small group interactions (Maule, Hockey, and Bdzola 2000). It is typically defined in terms of a time constraint or impending deadline. When the time constraint induces feelings

of stress, the resulting time pressure creates a need to cope with the limited time constraint (Ordenez and Benson III 1997). Time pressure has been studied in a number of contexts relevant to business. Evidence suggests that time pressure may have adverse effects on aspects of decision making, negotiations, buyer behavior, small group dynamics, and auditing performance. Some have proposed that situational variables such as time pressure may account for more variability than many other constructs in research (Belk 1975; Ward and Robertson 1973). If similar effects apply to the business area of supply chain relationships, then a potential conflict exists. The conflict centers on a firm imposing time pressure on a supply chain member. Given the effects of time pressure in other business areas, research problems arise. Specifically:

1. Does time pressure exist in interfirm supply chain relationships?
2. Does a firm's imposition of time pressure on a supply chain member impact the supply chain relationship?
3. Can a firm simultaneously pursue time-based and relational sources of competitive advantage?

JUSTIFICATION

Exploring a firm's simultaneous pursuit of time-based and relational sources of competitive advantage is needed for two primary reasons. First, consumers have become increasingly demanding and "want companies to value their time and trouble." (Stern and Sturdivant 1987 pg. 34). Due to a wealth of information that is available from the Internet and other sources, consumers are able to easily compare prices, quality, products, and service. This technological change is a key driver impacting shopping behavior (Dibb 2001). Information has empowered consumers to demand competitive pricing, high quality, customized products, and

highly responsive customer service. Brand loyalty is diminishing and many consumers now exhibit crossover buyer behavior (Bennett and Rundle-Thiele 2005). Consequently, product life cycles have shortened as consumer wants and needs continually evolve (Ratneshwar et al. 1999). Firms now must rapidly adapt, innovate, and implement new ways of serving the ever-changing preferences of customers (Dickson 1992). Shifting demographics have also made time a critical consideration for many consumers (Herrington and Capella 1995). Single parent households and dual career families now demand more convenience, quicker response times, and around the clock service. These changing consumer demands require firms to seek time-based sources of competitive advantage such as speed and flexibility in order to survive in hypercompetitive global markets (D'Aveni 1994; D'Aveni 1998).

The second reason that a firm's simultaneous pursuit of time-based and relational sources of competitive advantage is important is that the nature of business competition has changed. In the current fast paced global environment, individual firms no longer compete against individual firms. Instead, networks of firms now compete against other networks of firms (Morgan and Hunt 1994; Thorelli 1986; Vickery et al. 2004) or value chains are competing against other value chains (Walters 2004). Firms realize they simply cannot compete as individual entities because they lack the total resources to be successful in global markets. Therefore, they avoid trying to do things where they lack a core competency, identify their weaknesses, and find a partner who can perform these tasks with expertise (Webster 1992). Competition has shifted from a firm level phenomenon to a supply chain level phenomenon. Supply chain management is now a strategic source of competitive advantage (Mentzer et al. 2001). At the most fundamental level, a supply chain is composed of a series of relationships among multiple firms (Cooper, Lambert, and Pagh 1997). Firms must ensure a high level of coordination with supply chain partners in

order to meet the quickly evolving needs of customers (Cannon and Perreault Jr. 1999; Lusch and Brown 1996; Webster 1992). Therefore, given the strategic importance of supply chain management, relational sources of competitive advantage are crucial to individual firm performance.

When faced with an environment characterized by increasing consumer demands and a shifting nature of competition, it would seem that individual firms must simultaneously pursue time-based and relational sources of competitive advantage. Focusing solely on the time-based sources of competitive advantage could lead to customer responsiveness, but a firm may miss the relational advantages from competing as a unified supply chain. On the other hand, focusing solely on the relational sources of advantage could lead to successful supply chain management, but a firm may miss the time-based advantages required to meet growing customer expectations. Therefore, it can be argued that prudent firms must pursue both time-based and relational forms of competitive advantage. In fact, literature supports the complementary nature of relational and time-based sources of competitive advantage (Droge, Jayaram, and Vickery 2004; Rich and Hines 1997; Stalk Jr. 1988; Stalk Jr. and Hout 1990). However, pursuing both forms of advantage presents a potential paradox. Relational sources of advantage depend on long term relationships between partners while time-based sources of advantage may fundamentally lead to increasing time pressure. As the literature shows, time pressure can have detrimental effects in a number of business areas. If time pressure also impacts supply chain relationships, then the simultaneous pursuit of time-based and relational sources of advantage becomes paradoxical. This research seeks to explore the potential paradox of maintaining strong supply chain relationships while simultaneously putting supply chain members under time pressure.

RESEARCH APPROACH

In order to explore the potential paradox between maintaining strong supply chain relationships and putting supply chain partners under time pressure, this research proceeded in three distinct phases. First, comprehensive literature reviews were conducted on the areas of interfirm relationships and time pressure. Based on the existing relationship literature, key relationship elements were identified. Core relationship attributes and collaborative behaviors were defined and established links between these elements were presented. Based on the existing relationship literature, hypotheses regarding the direct relationships between attributes and behaviors were proposed. Then multi-disciplinary time pressure literature was synthesized. The literature was used to define time pressure and identify potential aspects of the construct that could apply in a supply chain relationship context. The time pressure literature was used to logically support a potential moderating effect of time pressure on essential relationship dynamics. The goal in this conceptual phase was to develop a testable model of time pressure in supply chain relationships.

The second phase of exploring the potential paradox between maintaining strong supply chain relationships and putting supply chain partners under time pressure consisted of qualitative interviews with experienced managers. The literature on time pressure in supply chain relationships is sparse and qualitative methods are considered appropriate to research areas about which little is known (Stern 1980; Strauss and Corbin 1998). Therefore, qualitative research methods were utilized to gain a greater understanding of time pressure in supply chain relationships. Due to the exploratory nature of this research, the problematic social processes associated with the phenomenon, and the goal of developing a testable framework, the grounded theory tradition of qualitative research was selected as the appropriate methodology (Glaser and

Strauss 1967; Strauss 1987; Strauss and Corbin 1990). The goals of this qualitative phase were to gain a deeper understanding of the phenomenon and begin to fill gaps in the existing literature base.

The third phase of exploring the potential paradox between maintaining strong supply chain relationships and putting supply chain partners under time pressure consisted of quantitative testing of a priori hypotheses. Specifically, experimental design methods were used to test whether the imposition of time pressure interacts with different types of supply chain relationships to affect collaboration. The experiment consisted of a scenario based manipulation followed by a survey instrument. The goal of this quantitative phase was to test the model developed in the earlier conceptual and qualitative phases.

CONTRIBUTION

The results of this research make several significant contributions to the body of knowledge in strategic supply chain management. First, although the detrimental effects of time pressure have been studied in other business contexts, research is lacking in the interfirm relationship literature. Gaining a greater understanding of the potential effects of time pressure in relationships can provide valuable insight into relationship dynamics and shed light on why supply chain relationships succeed or fail. Second, this research may provide evidence that contradicts generally accepted thoughts on competitive advantage. Specifically, the literature supports the notion that time-based sources of advantage can be obtained through relational sources of advantage (Droge, Jayaram, and Vickery 2004; Rich and Hines 1997; Stalk Jr. 1988; Stalk Jr. and Hout 1990). However, if imposing time pressure on a relationship partner hinders

key elements of a relationship, the simultaneous pursuit of time-based and relational sources of competitive advantage may be brought into question.

ORGANIZATION OF DISSERTATION

This dissertation is divided into five chapters. Chapter 1 serves as an extended abstract and summarizes the research approach. The phenomenon of time pressure in supply chain relationships is introduced, the purpose of the research is presented, justification for the research is discussed, applicable theory is cited, and contribution of the research is presented. Chapter 2 serves as the literature review and develops a testable model. The literature is synthesized with preliminary qualitative fieldwork findings to propose testable research hypotheses. Chapter 3 reviews the research methodology used to test the a priori model. It discusses the research design, scale development and purification, sampling, data collection, and data analysis. Chapter 4 is a qualitative manuscript prepared for journal publication that explores how firms cope with the imposition of time pressure in supply chains. Chapter 5 is a quantitative manuscript prepared for journal publication that tests the effects of time pressure in supply chain relationships.

CHAPTER 2 - LITERATURE REVIEW

INTRODUCTION

The purpose of this chapter is to present and synthesize applicable literature, qualitative data, and theory in order to develop a testable model. The chapter is organized in the following manner. First, the TBC and interfirm relationship literature is reviewed. Second, the existence of time pressure in supply chains is discussed. Third, preliminary qualitative findings are shared in order to propose that time pressure can impact supply chain relationships. Fourth, relevant theory is presented. Finally, research hypotheses and a model are developed.

TIME-BASED COMPETITION

Time is an essential element in many forms of competitive advantage. As firms continually search for the elusive combination of resources and capabilities that yield differential financial performance, time is often a common aspect in sources of advantage. For example, the Austrian school of strategy highlights the need to innovate and discover opportunities more *quickly* than competitors (Jacobson 1992). Dynamic capabilities emphasize the need for firms to *rapidly* adapt to evolving markets (Barney, Wright, and Ketchen Jr. 2001). The Knowledge Based View suggests that organizations must learn *faster* than the competition (Grant 1996). The neoclassic Market Based View proposes that firms must obtain and defend a privileged market position *before* other entrants (Porter 2008). As these examples illustrate, elements of time are frequently at the core of competitive advantage.

Supply chain management is another approach to delivering a competitive advantage that features a focus on elements of time (Mentzer et al. 2001). Successful supply chains are designed to be flexible and responsive to evolving customer needs and shifting demand patterns (Mentzer, Myers, and Stank 2007). Managers accomplish this strategic goal by sharing timely information and continuously flowing goods as quickly as possible. In order to facilitate speed and responsiveness, many supply chain metrics are time-based (Stalk Jr. 1988; Stalk Jr. and Hout 1990). Customer service is often measured by *on-time* delivery. Operations are evaluated on *lead time* reductions. Financial measures of supply chain performance include *cash-to-cash cycle time*. Distribution efficiency measures include orders processed per *unit of time*. As these examples demonstrate, time is often a powerful dimension of supply chain performance (Srivastava, Shervani, and Fahey 1999; Stalk Jr. and Hout 1990).

Time-based competition theory formally recognizes the strategic role of time. Time-based competition (TBC) identifies the manner in which firms manage time as a powerful source of competitive advantage (Stalk Jr. 1988). TBC proposes that a strategy of customer responsiveness, rapid product introduction, and supply chain time compression will yield substantial performance benefits (Stalk Jr. and Hout 1990). Time-based competitors accelerate the flow of information and products to be highly responsive and attract the most profitable customers (Hum and Sim 1996; Stalk Jr. 1988). By focusing on speed and responsiveness, firms are able to provide fresher product lines, increase brand loyalty, extend market share, command price premiums, and improve cost efficiency (Bozarth and Chapman 1996). According to TBC theory, a strategy of intense focus on shrinking the time requirements of key business activities can yield a competitive advantage (Bozarth and Chapman 1996; Srivastava, Shervani, and Fahey 1999) and lead to exceptional firm performance (Hult, Ketchen Jr., and Nichols Jr. 2002).

There are two approaches to becoming a time-based competitor (Droge, Jayaram, and Vickery 2004). The first approach addresses operational process issues related to time. Such an approach is focused on an individual firm and looks for internal opportunities to reduce cycle time. There are numerous tactics associated with this approach to time-based competition. For example, functional business processes can be analyzed to eliminate waste, remove redundant steps, or perform steps in parallel (Bozarth and Chapman 1996; Hayes, Wheelwright, and Clark 1998; Rich and Hines 1997). Cross-functional teams can be utilized to design products, processes, and facilities that enable the reduction of overall cycle time (Cooper and Kleinschmidt 1995; Droge, Jayaram, and Vickery 2004; Hayes, Wheelwright, and Clark 1998). At a tactical level, manufacturing batch sizes may be reduced and distribution shipments may become smaller and more frequent (Blackburn 1991; Bozarth and Chapman 1996; De Toni and Meneghetti 2000). Postponement strategies may be utilized or the number of distribution centers may increase to quickly meet customer needs (De Toni and Meneghetti 2000; Hise 1995). Continuous improvement efforts are used to constantly analyze processes and identify obstacles that inhibit the velocity of information and product flow (Dibrell, Davis, and Danskin 2005; Hum and Sim 1996; Rich and Hines 1997). Information technology like computer aided design is leveraged to decrease new product development launch timelines (De Toni and Meneghetti 2000; Maybert, Muth, and Schmenner 1992; Millson, Raj, and Wilemon 1992). In this operational, process oriented environment, speed becomes part of the organizational culture for time-based competitors (Tucker 1991).

The second approach to becoming a time-based competitor is relational. Such an approach advocates looking beyond internally focused process efforts to include linkages with other members of a supply chain (De Toni and Meneghetti 2000; Dibrell, Davis, and Danskin

2005; Droge, Jayaram, and Vickery 2004; Jayaram, Vickery, and Droge 1999; Rich and Hines 1997; Stalk Jr. 1988). With this approach, supply chain relationships are leveraged to increase the flow of information and reduce cycle times throughout the supply chain. Externally focused boundary spanning initiatives with suppliers and customers are used to impact cycle times and responsiveness (Droge, Hayaram, and Vickery 2004). Some claim that supplier partnering is the most important factor in reducing new product development timelines (De Meyer and Van Hooland 1990) and others propose that closer supplier relationships are highly related to reduced delivery cycle times (Droge, Hayaram and Vickery 2004; Hendrick 1994). With this relational approach, time-based competitors are concerned with supply chain collaboration that facilitates interfirm integration, coordination, and synchronization (Rich and Hine 1997).

Unlike the operational process approach to TBC, the relational approach lacks specific tactical direction. The operational process approach is clearly enumerated and provides a number of specific tactics to compress overall supply chain cycle times. However, the TBC literature provides little explanation as to how relationships are used to achieve such time-based performance. General terms like “supplier partnering,” “closer relationships,” or “boundary spanning activities” are suggested in the relational approach to TBC, but the specific elements of these concepts are not discussed. Due to the lack of detail and guidance in the relational approach to TBC, readers are left to explore the existing relationship literature on their own.

In the following section, the interfirm relationship literature is reviewed and key elements of relationships are identified.

INTERFIRM RELATIONSHIPS

At the most fundamental level, a supply chain is composed of a series of relationships among multiple firms (Cooper, Lambert, and Pagh 1997). Competitive pressures, environmental uncertainties, and evolving consumer demands have led firms to increasingly seek highly developed collaborative supply chain relationships in order to remain competitive (Carr and Pearson 2002; Mentzer, Min, and Zacharia 2000; Morgan and Hunt 1994; Prahinski and Fan 2007). Developing such successful collaborative relationships is one of the most durable competitive advantages because high performing relationships are difficult for competitors to duplicate or displace (Day 2000) and numerous performance benefits are often associated with collaborative relationships (Cannon and Perreault Jr. 1999; Carter and Ellram 1994; Rinehart et al. 2004). Supply chain initiatives such as collaborative planning forecasting and replenishment (CPFR), collaborative transportation management (CTM), and vendor managed inventory (VMI) have illustrated the potential power of collaborative supply chain relationships (Esper and Williams 2003; Sherman 1998; Waller, Johnson, and Davis 1999).

Interfirm relationships are typically categorized along a continuum ranging from arm's length transactions to virtual integration (Golicic, Foggin, and Mentzer 2003; Webster 1992). Arm's length transactions are discrete events where there is no expectation of future transactions. Virtual integration occurs when two firms act together as one for an indefinite period of time. Between the endpoints of the relationship continuum lie various forms of collaborative relationships. Research has identified and labeled specific types of collaborative relationships such as partnerships, alliances, network organizations, service agreements, and administered relationships (Golicic, Foggin, and Mentzer 2003; Webster 1992). Although there is consensus concerning the endpoints of the relationship continuum, agreement is somewhat lacking

regarding the specific labeling of collaborative relationship types in the middle of the relationship continuum. However, researchers generally agree on the essential attributes and behaviors used to classify the various types of relationships.

Due to the importance of supply chain relationships, a vast literature base exists that has enumerated the requisite elements needed for relationship success. For example, attributes like trust, commitment, and dependence are commonly identified as the foundation of any successful relationship (Golicic, Foggin, and Mentzer 2003; Mohr and Spekman 1994; Morgan and Hunt 1994; Rinehart et al. 2004). Collaborative behaviors like information sharing, idiosyncratic investments, and effective governance are often cited as relational sources of competitive advantage (Cannon and Perreault Jr. 1999; Dyer and Singh 1998; Lambert, Emmelhainz, and Gardner 1996). Research is also widely available on the various links between relationship attributes and behaviors (Anderson and Weitz 1992; Ganesan 1994; Gundlach, Achrol, and Mentzer 1995; Heide and John 1988). The purpose of the following sections is to highlight the core attributes and collaborative behaviors that are the foundation of any of supply chain relationship.

Core Relationship Attributes

Core attributes form the foundation of supply chain relationships. Trust, commitment, and dependence are commonly cited as the attributes that help shape and define the nature of interfirm relationships (Mohr and Spekman 1994; Morgan and Hunt 1994). They function as antecedents to the collaborative behaviors, business processes, and coordinating actions that ultimately lead to competitive advantage (Mentzer, Min, and Zacharia 2000). Relationship

partners are unlikely to achieve optimal joint performance results without the presence of trust, commitment, and dependence.

Trust is the first essential attribute in a collaborative relationship. Without trust, any relationship is destined to fail (Lambert, Emmelhainz, and Gardner 1999). Trust is a belief that a firm is reliable and will fulfill its obligations in a relationship (Mohr and Spekman 1994). Trust is defined as the “willingness to rely on an exchange partner in whom one has confidence” (Moorman, Deshpande, and Zaltman 1993). Trust contains several elements. *Honesty* is the belief that a relationship partner will stand by their word. *Benevolence* is the belief that a firm is interested in their relationship partner’s welfare (Anderson and Narus 1990). *Credibility* is the belief that a relationship partner has the expertise to perform a task effectively (Ganesan 1994). Trust exists when one firm in a collaborative relationship has confidence in the other firm’s reliability and integrity. A trustworthy relationship partner is described as consistent, competent, honest, fair, responsible, helpful, and benevolent (Morgan and Hunt 1994).

Commitment is the second essential attribute in a relationship. Commitment is defined as “an enduring desire to maintain a valued relationship” (Moorman, Zaltman, and Deshpande 1992). It involves stability, sacrifice, and a long-term orientation between relationship partners (Anderson and Weitz 1992; Gundlach, Achrol, and Mentzer 1995). Committed relationship partners are willing to make short term sacrifices in order to develop the relationship and gain long term benefits (Dwyer, Schurr, and Oh 1987; Gundlach, Achrol, and Mentzer 1995). Commitment involves the pledge of continuity between relationship partners and a belief in putting forth maximum efforts to sustain the relationship (Morgan and Hunt 1994). Several dimensions of commitment have been identified in the literature. *Affective commitment* is the desire to continue a relationship because of positive feelings and emotional attachment toward a

relationship partner (Geyskens et al. 1996; Kumar, Scheer, and Steenkamp 1995). *Expectation of continuity* is the temporal intent to remain in the relationship for an extended period of time (Kim and Frazier 1997; Kumar, Scheer, and Steenkamp 1995). *Willingness to invest* is the intent to become more deeply involved in a relationship through investment (Kumar, Scheer, and Steenkamp 1995). *Calculative commitment* is the desire to continue a relationship due to awareness of termination costs, switching costs, or other instrumental components (Geyskens et al. 1996). *Normative commitment* is a desire to continue a relationship due to a perceived moral obligation (Allen and Meyer 1990). As these dimensions illustrate, commitment is a complex construct with far reaching implications in exchange relationships.

Dependence is the third essential attribute in a cooperative relationship. Dependence on a relationship partner is characterized by a firm's need to maintain the relationship in order to achieve its goals (Frazier 1983). The inability of a firm to replace a relationship partner has also been identified as an indication of dependence (Heide and John 1988). Dependence is defined as reliance between relationship partners on each other to perform functions and to obtain scarce resources (Buchanan 1992). Dependence contains several elements. *Importance* is the extent to which a firm requires a resource. *Discretion* is the extent to which the other relationship partner has control over a resource. *Alternatives* are the extent to which a firm has other sources for a resource (Pfeffer and Salancik 1978).

Collaborative Behaviors

Although the core attributes of trust, commitment, and dependence serve as the foundation of relationships, they yield little performance benefit in and of themselves. However, these core attributes do influence the essential actions firms engage in to increase performance.

Based on the Relational View (Dyer and Singh 1998), firms that pursue relational strategies engage in collaborative behaviors with their partners that may result in competitive advantage. The collaborative behaviors from the Relational View are knowledge sharing routines, relationship specific assets, effective governance, and complementary resource endowments (Dyer and Singh 1998). These four collaborative behaviors are the fundamental sources of relational competitive advantage.

The first source of relational advantage comes from knowledge sharing routines. *Knowledge sharing routines* are defined as a regular pattern of interactions between relationship partners that facilitates the transfer, recombination, or creation of specialized knowledge (Grant 1996). Effective knowledge sharing routines enable the transmission of both codified information and process “know-how” that may result in organizational learning and improved performance (Dyer and Singh 1998). Proactively sharing useful information with a relationship partner is the essence of a knowledge sharing routine (Cannon and Perreault Jr. 1999; Heide and John 1992). The quality of interfirm communication is characterized by its relevance, timeliness, frequency, and reliability (Lusch and Brown 1996; Mohr and Sohi 1995; Morgan and Hunt 1994). Knowledge sharing is important in supply chain relationships because information is a critical driver of efficiency, effectiveness, and overall supply chain performance (Lambert, Emmelhainz, and Gardner 1999; Lambert, Emmelhainz, and Gardner 1996; Mentzer et al. 2001; Mentzer, Foggin, and Golicic 2000; Mentzer, Min, and Zacharia 2000; Mentzer, Myers, and Stank 2007).

The second source of relational advantage comes from relationship specific assets. *Relationship specific assets* are defined as idiosyncratic investments that are specialized in conjunction with a relationship partner. Such assets lose significant value unless the

collaborative relationship continues and they are difficult to redeploy outside of the existing relationship (Anderson and Weitz 1992). There are three types of asset specificity germane to relationships (Williamson 1985). First, *site specificity* refers to the close location of immobile production stages. Such assets can reduce transportation costs, lower inventory levels, and improve coordination between relationship partners (Dyer 1996). Second, *physical asset specificity* refers to specific capital assets that are customized to the processes of a relationship partner. Such assets may improve quality and allow for increased product differentiation (Clark and Fujimoto 1991). Third, *human asset specificity* refers to relationship specific know-how accumulated over an extended period of time. Such assets allow for improved communication, enhanced quality, and increased speed to market (Asanuma 1989; Dyer 1996). These types of joint investments in specific assets are usually present in collaborative relationships (Lambert, Emmelhainz, and Gardner 1999).

The third source of relational advantage comes from effective governance. *Effective governance*, via self-enforcing agreements, is defined as the norms and standards of conduct between relationship partners (Dwyer, Schurr, and Oh 1987). Although third party enforcement is also a form of governance, relational norms are considered more effective and less costly over time (Dyer and Singh 1998). Such cooperative norms drive the expectations relationship partners have about working together and pursuing mutual or individual goals (Cannon and Perreault Jr. 1999). These shared expectations about behavior evolve into a self-regulating governance approach that reduces the conflict, uncertainty, and opportunism of typical market transactions (Gundlach, Achrol, and Mentzer 1995; Macneil 1980). Therefore, effective governance is critical to relationship performance because it reduces transaction costs and allows partners to engage in value-added initiatives (Dyer 1997; Dyer and Singh 1998).

The fourth source of relational advantage comes from complementary resource endowments. *Complementary resource endowments* are distinctive resources of relationship partners that, when combined together, collectively generate performance results above and beyond what the individual partners could have created on their own. If relationship partners combine complementary resources, a synergistic effect results in increased performance and a stronger competitive position. In these situations, the relationship helps create joint capabilities that are more valuable, more unusual, and more difficult to imitate than those of the individual firms (Dyer and Singh 1998). Complementary resource endowments are a key driver of relationship performance (Hamel 1991). Firms that have the ability to both identify and utilize the complementary resources of relationship partners can obtain sustainable competitive advantage (Dyer and Singh 1998).

The Relationship between Core Attributes and Collaborative Behaviors

Core attributes are important to interfirm supply chain relationships because they enable collaborative behaviors. Core attributes are antecedent to these critical relational sources of advantage. Without the presence of core relationship attributes, any supply chain relationship is destined to fail. The three core relationship attributes are trust, commitment, and dependence. These core attributes are positively related to collaborative behaviors from the relational view of competitive advantage.

Trust is positively related to collaborative behaviors in interfirm supply chain relationships. It reduces opportunistic behavior and increases the long term orientation of relationship partners (Ganesan 1994; Morgan and Hunt 1994). It leads to cooperation between relationship partners where each firm works together to achieve common goals (Dwyer, Schurr,

and Oh 1987; Morgan and Hunt 1994). When high levels of trust are present, relationship partners find ways to work through problems (Sullivan, Peterson, and Shimada 1982) and replace traditional adversarial assumptions with thoughts of mutual benefit (Webster 1992). Information sharing, cooperative norms, and idiosyncratic investments are forms of collaboration that are dependent on trust between partners (Anderson and Weitz 1992; Cannon and Perreault Jr. 1999; Ganesan 1994; Mentzer, Min, and Zacharia 2000). Trust serves as the foundation in a relationship and it is a significant variable in predicting the success of a relationship (Duffy and Fearne 2004; Mohr and Spekman 1994). Therefore, trust is positively related to collaborative behaviors in supply chain relationships.

Commitment has also been shown to be a significant variable in predicting the success of a relationship (Duffy and Fearne 2004). Commitment represents the highest stage of relational bonding (Dwyer, Schurr, and Oh 1987) and is key to achieving mutual goals between relationship partners (Morgan and Hunt 1994). Like trust, commitment reduces opportunistic behavior (Anderson and Weitz 1992) and increases the long term orientation of relationship partners (Gundlach, Achrol, and Mentzer 1995). The foundation for relational social norms of behavior between firms is based on commitment (Gundlach, Achrol, and Mentzer 1995). Idiosyncratic investments and information sharing between relationship partners are also dependent upon high levels of commitment (Anderson and Weitz 1992). Therefore, commitment is positively related to collaborative behaviors in supply chain relationships.

High levels of dependence between relationship partners has been shown to positively influence relationship performance (Anderson and Narus 1991; Buchanan 1992). Like trust and commitment, mutual dependence reduces opportunistic behavior (Buchanan 1992), increases the long term orientation of relationship partners (Anderson and Weitz 1992), and increases

idiosyncratic investments (Heide and John 1988). When firms depend on each other for valuable resources and capabilities, there is common interest in cooperating and finding ways to create value (Anderson and Narus 1991). Cooperation between partners may exist in terms of sharing information and value creation may exist in terms of developing synergies between complementary resources. Therefore, dependence is positively related to collaborative behaviors in supply chain relationships.

As the relationship literature shows, the core attributes of trust, commitment, and dependence are positively related to relational sources of advantage such as knowledge sharing, relationship specific assets, effective governance, and complementary resource endowments. Trust, commitment, and dependence are commonly cited as the attributes that help shape and define the nature of interfirm relationships (Mohr and Spekman 1994; Morgan and Hunt 1994). Due to their collective importance in interfirm relationships, these three distinct attributes have been conceptualized as a single second order construct called relationship magnitude (Golicic, Foggin, and Mentzer 2003). Relationship magnitude is defined as the “degree of closeness” between firms and evidence suggests that it determines the type of relationship that exists between firms (Golicic and Mentzer 2006). Therefore, in this research, relationship magnitude will serve as a proxy for the various types of interfirm relationships.

In the following section, a gap in the TBC and interfirm relationship literature will be identified.

THE EXISTENCE OF TIME PRESSURE IN SUPPLY CHAIN RELATIONSHIPS

Although the interfirm relationship literature is vast, it does not specifically address relationships in an environment with an intense pressure to focus on time. Time-based competitors can create a high pressure relational environment because TBC mandates that supply chain members continuously improve cycle times, speed, and agility (Dibrell, Davis, and Danskin 2005; Hum and Sim 1996; Rich and Hines 1997). Time-based metrics are used to drive quicker and more flexible responses to customer needs (Bozarth and Chapman 1996; Jayaram, Vickery, and Droge 1999). Time-based competitors have a constant drive to adapt quickly and respond faster (Barney, Wright, and Ketchen Jr. 2001). Given the strategic importance of TBC, it is possible that some supply chain relationships operate in an environment with ongoing pressure to improve time-based performance. At its very essence, the continuous pursuit of time-based competitive advantage may mandate increasing pressure to perform more quickly. In the pursuit of such quick response, firms may place a supply chain partner under time pressure.

TBC can lead to the imposition of time pressure in a supply chain. In fact, according to the seminal work on TBC, supply chains need customers to “*demand* time compression” in order to improve coordination, information flows, and cycle times (Stalk and Hout 1990). As firms continue to drive down inventories and quickly respond to customer needs, they demand shorter and shorter lead times from suppliers. The resulting “*pressure* on lead times travels up and down the supply chain” in order to meet time-based performance requirements (Stalk and Hout 1990). Many firms simply can not “resist the impulse to push it to the limit” and exhaust managers with

a “relentless pace” (Stalk and Webber 1993). Consequently, the ongoing demands and pressures to continuously reduce cycle times may lead a firm to impose time pressure on a supply chain member.

Time pressure is a situational variable that may influence individual behavior, decision making, and small group interactions (Maule, Hockey, and Bdzola 2000). Time pressure has been typically defined in terms of a time constraint, time shortage, or impending deadline (Durham et al. 2000; Herrington and Capella 1995; Svenson and Maule 1993). However, such conceptualizations are incomplete. Time pressure also involves aspects of perception, opportunity cost, stress, and coping (Iyer 1989; Ordonez and Benson III 1997; Park, Iyer, and Smith 1989; Rastegary and Landy 1993). A time constraint alone does not necessarily result in time pressure. It is only when the available time to complete a task is perceived as insufficient or limited that time pressure begins to manifest itself (Iyer 1989; Park, Iyer, and Smith 1989). Beyond the mere perception of insufficient time, an opportunity cost of missing a deadline is also required for time pressure to exist. The opportunity cost may take the form of sanctions for violating a time limit or the consequences of delaying an action or decision (Rastegary and Landy 1993). When the perception of limited time and potential negative consequences induce feelings of stress, the resulting time pressure creates a need to cope with the limited time constraint (Ordonez and Benson III 1997). Therefore, in this dissertation, time pressure is defined as:

The perception of limited time to complete a task and the perception of negative consequences for missing a deadline that result in feelings of stress and the need to cope with the limited time constraint.

TIME PRESSURE LITERATURE

Time pressure has been researched in a number of contexts relevant to business. Evidence suggests that time pressure may have adverse effects on aspects of decision making, negotiations, buyer behavior, small group dynamics, and auditing performance. The seminal work on time pressure was conducted in the area of decision making and this area continues to serve as the conceptual foundation for other types of time pressure research.

Time pressure is a prevalent type of situational constraint (Kelly, Jackson, and Hutson-Comeaux 1997) and decision making under time pressure is a common part of daily life (Ahituv, Igbaria, and Sella 1998). Most decision making situations involve some form of a time constraint (Kelly, Jackson, and Hutson-Comeaux 1997) and a number of real world decisions are frequently made under conditions of time pressure (Ordonez and Benson III 1997). For example, surgeons must make quick decisions when performing emergency operations. Stock brokers need to react swiftly to changing market conditions. Police officers are required to make split second decisions regarding the use of force. In any of these dynamic situations, decisions need to be made in real time (Brehmer 1992) and the decision maker is forced to quickly determine how much time to spend on acquiring information, selecting information, and integrating information (Kerstholt 1994). A significant amount of research suggests that time pressure has significant effects on decision making processes (Ben Zur and Breznitz 1981; Christensen-Szalanski 1980; Maule and Mackie 1990; Payne, Bettman, and Johnson 1988; Smith, Mitchell, and Beach 1982; Svenson and Edland 1987; Svenson, Edland, and Slovik 1990; Svenson and Maule 1993; Wright 1974; Zakay and Wooler 1984).

Time pressure creates extra cognitive demands on individuals (Ordonez and Benson III 1997) and limits how much information can be processed (Payne, Bettman, and Luce 1996).

When people are forced to make decisions within a limited time frame, psychological stress and arousal may increase (Keinan, Friedland, and Ben-Porath 1987; Maule and Hockey 1993). The additional cognitive effort required under time constraints often creates negative affect, perceptual narrowing, and reduced working memory capacity (Garbarino and Edell 1997; Sarter and Schroeder 2001). Although brief periods of increased workloads may energize some individuals (Thayer 1989), prolonged periods of continuous time pressure can lead to fatigue and anxiety (Maule, Hockey, and Bdzola 2000). Time pressured individuals have been found to be more anxious and lack confidence (Smith, Mitchell, and Beach 1982). This lack of confidence may be well justified as some studies have found that time pressure decreases the accuracy of human judgment and performance (Benbasat and Dexter 1986; Hwang 1994; Svenson and Maule 1993).

When faced with time pressure, people adapt to the increased cognitive demands and psychological stress in several ways. First, under conditions of moderate time pressure, people may simply attempt to accelerate their processing to meet an impending deadline (Ben Zur and Breznitz 1981; Maule and Mackie 1990). Second, a person may become much more selective and focus on only the most important pieces information (Ben Zur and Breznitz 1981; Payne, Bettman, and Luce 1996). For example, time pressure may cause an individual to place more emphasis on negative information, avoid risks, or consider fewer alternatives (Ben Zur and Breznitz 1981; Svenson and Edland 1987; Wright 1974). Third, people may shift their decision strategies as time pressure increases (Payne, Bettman, and Johnson 1988; Svenson, Edland, and Slovik 1990) and employ less complex, noncompensatory strategies (Christensen-Szalanski 1980; Payne, Bettman, and Johnson 1988; Smith, Mitchell, and Beach 1982; Zakay and Wooler 1984). In general, time pressured decision makers either filter the information that is used or

eliminate pieces of information from consideration (Miller 1960). Such coping mechanisms enable people to adapt and attempt to achieve their task goals at acceptable levels (Maule, Hockey, and Bdzola 2000).

Time pressure has also been shown to impact negotiations. Specifically, time pressure has significant effects on outcomes, processes, and attitudes (Stuhlmacher, Gillespie, and Champagne 1998). Some propose that high time pressure limits negotiation outcomes by encouraging quicker concessions, lower demands, and quicker agreements (Carnevale, O'Connor, and McCusker 1993; Druckman 1994; Hamner 1974; Lim and Murnighan 1994; Yukl 1974). Others suggest that time pressure impacts negotiation outcomes by reducing the ambition and goals of negotiators (Pruitt and Drews 1969). In terms of processes, time pressure changes negotiation strategy (Stuhlmacher, Gillespie, and Champagne 1998), reduces the accuracy of communications (Yukl et. al. 1976), and leads to only selective use of information (Stuhlmacher and Champagne 1997). Attitudes are also impacted by time pressure. High time pressure has been shown to increase perceptions of opponent toughness (Smith, Pruitt, and Carnevale 1982), decrease perceptions of opponent honesty (Baron 1988), and increase perceptions of feeling rushed (Carnevale and Lawler 1987).

In the field of consumer behavior, prior research has shown that time pressure impacts individual shopping behavior (Herrington and Capella 1995). Consumers operating under time pressure tend to purchase less than originally planned, spend less time shopping, and make fewer unplanned purchases (Iyer 1989; Park, Iyer, and Smith 1989). Time pressure reduces a consumer's ability to process in-store product information (Iyer 1989) and impacts consumer choice deferral (Dhar and Nowlis 1999). The increased stress from time pressure also hinders the retrieval of memories that are not well rehearsed (Bettman 1979). As consumers are

increasingly facing time shortages, time pressure is an important source of influence on buyer behavior (Herrington and Capella 1995).

Time pressure can also have significant effects on small group interactions in several ways. It can negatively affect group efficacy (Durham et. al. 2000) and reduce the progress of less confident groups (Gevers, Eerde, and Rutte 2001). It can lower the quality of group decisions, reduce group viewing of available information, and decrease the number of times groups re-examine information (Arnold et. al. 2000). Time pressure can also impact satisfaction with group performance, lower commitment to group results (Caballer, Gracia, and Peiro 2005), and reduce perceptions of group goal fulfillment (Nordqvist, Hovmark, and Zika-Viktorsson 2004). McGrath et al. (1989) also proposed that time pressure can impact interpersonal communications within small groups resulting in lower quality work and destructive behavior. As these studies indicate, time pressure can impact the performance and behaviors of small groups.

In the accounting literature, time pressure is cited as an important element of many auditing engagements (Spilker and Prawhitt 1997; Gibbons 1984). It is suggested that time pressure can impact auditor behavior, audit quality, and auditor turnover. Some propose that time pressure can impact auditor behavior (Coram, Ng, and Woodliff 2004) because it motivates auditors to prematurely sign-off on steps or accept substandard audit evidence (Margheim and Pany 1988; Kelley and Margheim 1990; Rhode 1978). There is also a common perception that time pressure is a major cause of substandard work that detracts from the quality of an audit (Alderman and Dietrick 1982). Many conclude that, due to time pressure, audit work does not always meet appropriate guidelines and affects audit quality (Rhode 1978; Kelley and Margheim 1990; Ragunathan 1991; Willett and Page 1996; Sutton and Lampe 1991; Lampe and Sutton

1994). Furthermore, a number of accountants perceive that time pressure is a primary cause of senior and staff employee turnover (Alderman and Deitrick 1982). As the previous research indicates, time pressure can have undesirable effects on the people and processes involved in auditing (McDaniel 1990).

As the literature shows, time pressure can impact a number of business areas such as decision making, negotiation, buyer behavior, small group dynamics, and auditing performance. When synthesized and viewed as a whole, three themes seem to be common across these areas of time pressure research. First, the use of information and communications are reduced in time pressured environments. People or groups of people simply can not process as much information when under time pressure and begin to use information selectively (Payne, Bettman, and Luce 1996). The selective use of information due to time pressure is seen in the decision making, negotiation, buyer behavior, and small group areas of time pressure research. For example, decision makers begin to filter information, negotiators become selective in their use of information, consumers are unable to process in-store information, and small groups tend to reduce the viewing of available information (Arnold et al. 2000; Iyer 1989; Miller 1960; Stuhlmacher, Gillespie, and Champagne 1998). Communication also changes in the presence of time pressure. For example, some contend that the accuracy of communication is reduced (Yukl et al. 1976) and others suggest that the quality of interpersonal communication is negatively impacted. As these examples from various areas of business indicate, time pressure can dramatically impact the use, exchange, and communication of information.

The second common theme across the time pressure literature is that negative affect, stress, and emotional consequences emerge in time pressured situations. Quite simply, people usually do not have positive affective responses to time pressure. For example, decision makers

experience psychological stress, anxiety, and lack confidence when put under time pressure (Keinan, Friedland, and Ben-Porath 1987; Smith, Mitchell, and Beach 1982). Small groups have lower group efficacy and reduced satisfaction with group performance under time pressure (Caballer, Gracia, and Peiró 2005; Durham et al. 2000). Some accountants believe that the stress associated with time pressure in an auditing environment leads to high employee turnover (Alderman and Deitrick 1982; McDaniel 1990). Negotiators feel rushed and experience negative perceptions of their opponents when placed under time pressure. As the examples demonstrate, time pressure can lead to negative affect and emotional consequences in a number of business areas.

The third common theme across the time pressure literature is that quality and performance usually suffer in time pressured environments. People or groups of people usually do not perform well under time pressure. For example, in the decision making literature, time pressure decreases the accuracy of human judgment and performance (Benbasat and Dexter 1986; Hwang 1994; Svenson and Maule 1993). In small groups, time pressure also reduces the quality of decision making as well as lowers the quality of work performed by a group (Arnold et al. 2000). In the accounting literature, evidence suggests that time pressure leads to substandard work, acceptance of inappropriate audit evidence, premature sign-off, and reduced audit quality (Alderman and Deitrick 1982; Kelley and Margheim 1990; Margheim and Pany 1986). As these examples show, time pressure can lead to lower quality and reduced performance.

Although the effects of time pressure have been researched in a number of business areas, research on the effects of time pressure in supply chain relationships is lacking. In the following section, the potential effects of time pressure in supply chain relationships will be discussed.

QUALITATIVE FIELDWORK

Although the seminal work on TBC suggests that time pressure may exist in supply chain relationships (Stalk Jr. and Hout 1990), other research on time pressure in supply chain relationships is lacking. Qualitative research methods are considered appropriate to research areas about which little is known (Stern 1980; Strauss and Corbin 1998). Therefore, qualitative research methods were utilized to gain a greater understanding of the phenomenon in order to help develop a theoretical framework that is “grounded” in the data. Due to the exploratory nature of this research, the problematic social processes associated with the phenomenon, and the goal of developing a testable framework, the grounded theory tradition of qualitative research was selected as the appropriate methodological guide for preliminary qualitative fieldwork (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1990).

Qualitative Findings

Although the seminal work on TBC suggests that time pressure may exist in supply chain relationships (Stalk Jr. and Hout 1990), additional research on the topic is lacking. However, qualitative interviews with experienced managers indicate that time pressure may exist in supply chain relationships. Multiple managers described examples of time pressure being imposed in their supply chains. The qualitative data suggests that both buyers and sellers may impose time pressure on other members of a supply chain. For example, the following quote from a Replenishment Director for a pharmaceutical retailer suggests that a seller can impose time pressure on a buyer in a supply chain relationship:

“I have a vendor right now putting me under time pressure. They got a couple new items, a highly specialty brand, which is what we are focused in on and it’s what our top

customers shop our stores for. They don't have huge volume but they want to add some new items and they want to increase their presence in our stores and they are pushing us to make it happen faster, faster, faster... I'm all about moving faster, but at the same time you need to be realistic."

Another example of the existence of time pressure in supply chain relationships comes from a Director of Merchandise Buying for a home improvement retailer. As this quote illustrates, buyers can impose time pressure on sellers in a supply chain relationship:

"I absolutely push them to do something more quickly. Depending on competitive factors or the market place whatever that may look like If somebody has product out there that we don't we would certainly push for them to do it in a quick manner. I would set aggressive deadlines, make it clear what we want when we want it. Push them to stretch their organization to do whatever it takes to meet those deadlines...I relentlessly push them to make the same time frame all their competitors are making. And there are fairly severe consequences if they don't do it. "

Not only does this quote give a concrete example of time pressure being imposed in a supply chain relationship, but it also supports key definitional aspects of time pressure. Specifically, the manager describes a tight deadline being imposed that may force the organization to cope with a limited time constraint in order to avoid penalties. As the time pressure literature shows, time constraints, coping, and negative consequences are basic components of time pressure.

Beyond confirming the mere existence of time pressure in supply chain relationships, the qualitative data also provided insight into the relationship between TBC and time pressure. In their seminal work on TBC, Stalk and Hout (1990) suggested that time pressure is a necessary condition for supply chains to achieve time-based performance. Although additional research has not specifically addressed this original claim, the qualitative inquiry in this dissertation provides evidence to support the notion that time pressure may be part of TBC. Specifically, managers described how the strategic pursuit of TBC could create time pressure. For example, a

retail merchant describes how the pursuit of rapid new product introduction, which is a key element of TBC, lead to the imposition of time pressure on a supplier:

“When it was a shared new product that would go to other retailers, our strategy would be to get it out there first, because we could execute faster than (competitor). That meant putting time pressure on the supplier to ensure our shipments went out ahead of schedule or when they (the competitor) were planning to launch.”

In the TBC literature, Just-In-Time (JIT) manufacturing is considered part of the broader TBC concept (Bozarth and Chapman 1996; Rich and Hines 1997; Stalk Jr. 1988). JIT is a specific type of implementation of the TBC concept in a manufacturing environment. In the following example, a Strategic Planning Manager for a computer manufacturer describes how a (JIT) manufacturing approach led to time pressure being imposed on suppliers:

“They rely on their suppliers, in a lot of ways they are only as good as their suppliers cause all they really do is assembly stuff. So when it comes to Intel, or Seagate for hard drives, things like that they have to push their suppliers to become better as well. A lot of times it is put up or get out. It’s here is what we need. The bar just raised and if you can’t deliver we’ll find someone else to deliver it. On the manufacturing side, they used the stick a whole lot more than the carrot.... First it was price and then second it would be delivery. It was a close second. They are not going to take a big sacrifice in delivery. Delivering product on time and managing the flow of product. The thing that kills the computer manufacturers is when they have a shortage of something. It’s like if we can’t get LCDs it is just lost revenue. Being able to deliver on time is the key and maintain steady product flow. It is a big time JIT environment.”

In another example, a Senior Vice President of Procurement in the banking industry describes his firm’s pursuit of TBC with both an operational approach and a relational approach. These two approaches are consistent with the TBC literature (Droge, Jayaram, and Vickery 2004). As the following comments demonstrate, the imposition of time pressure can be part of the relational approach to pursuing a time-based source of competitive advantage.

“We continually look at our processes to make certain we can do something quicker, better, faster. From a supplier standpoint, we outsource most everything so we do look

upon our suppliers to bring us a competitive advantage from a speed perspective. Leveraging their expertise or collaborating with them on new product introduction to get to market quicker...When trying to get to market quicker I would say that we put them under extreme time pressure for interim deliverables within that process.”

As the above quotes demonstrate, the qualitative data from this research lends support to the seminal TBC claims that time pressure is part of TBC and time pressure can exist in supply chain relationships (Stalk Jr. and Hout 1990). In the following section, the time pressure literature will be reviewed.

THE EFFECTS OF TIME PRESSURE IN SUPPLY CHAIN RELATIONSHIPS

Time pressure can exist in supply chain relationships. In fact, the seminal TBC literature suggests that time pressure is often needed for supply chains to achieve time-based performance metrics (Stalk Jr. and Hout 1990). In addition to the seminal TBC literature, qualitative findings in this research also suggests that time pressure can exist in supply chain relationships. However, beyond the mere existence of time pressure in supply chain relationships, qualitative data also shows that time pressure can adversely impact key elements of a relationship. For example, multiple managers described how the imposition of time pressure injects tension into a relationship and potentially jeopardizes the entire relationship:

“In a short term sense, time pressure puts a strain on the relationship. We can put too much time pressure on someone and they could walk away from us and we would lose all our bargaining power. It’s the straw that broke the camel’s back.”

The interviewed managers in this research also described how time pressure begins to impact collaborative behaviors in relationships. For example, a retail merchandising manager describes how she reacted to the imposition of time pressure from a large supplier:

“The relationship is strained. What it leads to is a lack of openness on my part to future new business and it takes some period of time to repair that.”

Notice that the term “strain” is used again to describe the tension within the relationship. However, unlike the previous quote, this manager does not immediately reference the complete dissolution of the relationship. Instead, she shows that the imposition of time pressure has made her less inclined to grow the business relationship. Rather than completely terminating the relationship, this manager seems to address the imposition of time pressure by pulling back and then taking a wait and see approach. She has not given up on the relationship, but she is explicitly saying the imposition of time pressure has damaged the relationship and that the relationship needs to be repaired.

Another manager describes how time pressure impacts collaboration in relationships. In this example, a director of procurement explains what happened when his company imposed time pressure on a supplier:

“Communication is lacking under time pressure. There is probably a direct correlation between the amount of time pressure we put on them and the lack of communication we received. Their willingness to invest is impacted too, but not as much - Probably 25%. It’s a matter of degree.”

Notice that two of the four sources of advantage from the Relational View (Dyer and Singh 1998) are referenced in this quote: sharing information and idiosyncratic investment. These essential collaborative behaviors enable firms to collectively create value above the sum of their individual parts. Without the presence of information sharing or joint investment, supply chain relationships are unlikely to achieve optimal performance results. However, when time pressure is imposed, these key collaborative behaviors seem to be reduced or jeopardized.

The imposition of time pressure also seems to impact the expectations of managers interviewed in this research. For example, a director of merchandising describes how his firm’s

plans for a relationship with a key supplier where dramatically changed when the supplier imposed time pressure on his firm. The supplier demanded that the manager needed to make a quick buying decision on a new product introduction and commit his firm to a long term, high volume agreement:

“Is them putting me under time pressure going to impact my relationship with them? Sure it is going to impact my relationship with them. I had high hopes for a strong partnership with this supplier. They are innovative, they are usually good at what they dobut it’s made clear that they literally want volume and that’s it. They keep talking partnership and our relationship and everything else, but at the end of the day that’s not important to them at all. It is who will buy a bunch right now. And this example, and putting pressure on me, this made it clear that all they want to do is sell this thing and when production starts in April they want a big order from somebody to take every piece of capacity they got. And if it wasn’t going to be me then they are going to start selling it to the next guy. That’s what time pressure looked like to me so what it meant to me is let’s just treat them like what they are, a transactional relationship where if they make something I like I’ll buy it, if they don’t that’s fine too – we’ll just move along.”

Another manager also describes how the ongoing imposition of time pressure changed his firm’s view of a key supplier relationship:

“I think they start to lose credibility. They keep coming back and they say we absolutely have to have this for the end of quarter again and again. You get to the third quarter and you start to say I’m not really believing what these guys are saying or they are certainly not looking to partner with us or be a good partner to us – they are really just looking out for themselves.”

As was shown in the previous quote, the imposition of time pressure seems to change the expectations of the relationship type. In both these examples, a “partnership” was referenced but then downgraded to a more transactional relationship due to the imposition of time pressure.

Across all the interviews, it is important to note that time pressure was never described as having a positive impact on the quality of a relationship, the collaboration in a relationship, or the expectations towards a relationship. Although the imposition of time pressure was frequently

recognized as a detriment to a relationship, it was often viewed as justifiable. In a simplistic sense, time pressure was viewed as a relational cost to be evaluated against a benefit. For example, one manager suggested that the use of time pressure was really just a utilitarian way to get information that he needed:

“You often have to put people under time pressure or you will never get an answer.

Another manager echoed these utilitarian sentiments when he explained how his firm uses time pressure in managing their supply base and negotiating with suppliers:

“If we want to put a lot of pressure on a supplier, we would start out with a demand whether it was for a service or a response and then add time pressure. Time pressure is like a catalyst – it’s the liquid nitrogen. We are very demanding...we would put time pressure on a supplier to gas it up.”

As the previous two examples demonstrate, firms that impose time pressure often view the use of time pressure as a justified tool to achieve a desirable outcome. On the other hand, firms that are on the receiving end of time pressure often resent such tactics. In fact, several managers described their use of time pressure as completely justified, but those same managers became noticeably irritated when describing how another supply chain member imposed time pressure on their firm. Most managers were unaware of this duality, but one manufacturing manager described his firm’s epiphany regarding the split role of time pressure in relationships:

“Big customers like GE and Wal-Mart just really put the clamps on us and said you got to deliver this by this time and really asked for extraordinary things. There the tables were turned. We knew it was the price of admission...We f___ing sucked it up and did it. And we would say, ‘damn it, we hate this, this is like dealing with us.’”

As the qualitative findings in this research show, the imposition of time pressure can impact supply chain relationships. Multiple managers repeatedly described how time pressure could create tension, reduce collaboration, or alter relationship expectations. Time pressure was essentially viewed as a relational cost. If firms were imposing time pressure, then the cost was

justified based on the expected benefits. If firms were on the receiving end of time pressure, such relational costs were resented and viewed as significant. These qualitative findings are consistent with several relationship theories. In the following section, applicable theories will be discussed.

APPLICABLE THEORIES

Two theories are relevant to the study of time pressure and supply chain relationships. The first, Social Exchange Theory (SET), proposes that individuals or groups attempt to obtain profitable outcomes in social interaction by maximizing rewards and minimizing costs (McDonald 1981; Thibaut 1959). The basic motivation for interaction is to gain rewards and avoid punishment (Emerson 1976). SET also contends that relational behaviors are determined by rewards of interaction minus the costs of interaction (Griffith, Harvey, and Lusch 2006). Therefore, corporate group behavior possesses a quasi-economic mode of analysis (Emerson 1976).

The second theory relevant to the study of time pressure and supply chain relationships is the Norm of Reciprocity (Gouldner 1960). The Norm of Reciprocity proposes that people usually help those that help them; that is they mirror the actions of others in exchange relationships. Reciprocity evokes obligations to others based on past behavioral interactions. In a positive sense, reciprocity can be described as the mutually contingent or gratifying exchange of goods, services, or benefits. In a negative sense, reciprocity can include sentiments of retaliation where emphasis is placed on the return of injuries rather than benefits. It is proposed

that reciprocity is one of the most basic moral codes upon which civilizations achieve social equilibrium and cohesion.

SET and the Norm of Reciprocity will serve as the theoretical foundation in the quantitative phase of this research. The Norm of Reciprocity would indicate that the imposition of time pressure may invoke a supply chain member to retaliate against a firm. In a supply chain relationship, such retaliatory sentiments may manifest themselves through a reduction in collaborative behaviors or relationship management. Although reciprocity may imply a mirroring effect, SET would indicate that the cost of time pressure would be weighed against the benefits of an overall supply chain relationship. Therefore, a supply chain member may be driven to act by both a sense of reciprocal action and a quasi-economic mode of cost/benefit analysis.

In the following section, research hypotheses are developed from the synthesis of applicable literature, qualitative findings, and theory.

HYPOTHESES

Information and knowledge are powerful drivers of efficiency, effectiveness, and overall supply chain performance (Lambert, Emmelhainz, and Gardner 1999; Lambert, Emmelhainz, and Gardner 1996; Mentzer et al. 2001; Mentzer, Foggin, and Golicic 2000; Mentzer, Min, and Zacharia 2000; Mentzer, Myers, and Stank 2007). Information enables the coordination of key activities and knowledge allows supply chain members to anticipate and respond to each other's needs (Lusch and Brown 1996). According to the Relational View of Competitive Advantage (Dyer and Singh 1998), knowledge sharing routines are a key source of competitive advantage.

Knowledge sharing routines are broadly conceptualized as regular interactions between relationship partners that facilitates the transfer, recombination, or creation of specialized knowledge and information (Grant 1996). Effective knowledge sharing routines enable the transmission of both codified information and process “know-how” that may result in organizational learning and improved performance (Dyer and Singh 1998).

Due to the broad conceptual scope of knowledge sharing routines, four distinct constructs will be used in this research in order to tap into the domain of knowledge sharing routines. The four constructs are information exchange, communication quality, operational knowledge transfer, and shared interpretation. Information exchange is the expectation that supply chain members will provide basic information to each other (Lusch and Brown 1996). Communication quality refers to the completeness, credibility, accuracy, timeliness, and adequacy of communication flows between supply chain members (Mohr and Sohi 1995). Operational knowledge transfer refers to the transfer of tacit knowledge or know-how between supply chain members (Modi and Mabert 2007). Shared interpretation refers to a consensus on the meaning of information and its implications for business between supply chain members (Slater and Narver 1995). These four constructs will serve as dependent variables in this research.

The constructs of information exchange, communication quality, operational knowledge transfer, and shared interpretation were selected as appropriate dependent variables in this research due to their direct links to aspects of supply chain management. For example, information exchange can include basic information like point-of-sale (POS) data or advanced-shipped-notices (ASNs) that are directly related to supply chain operations. Communication quality extends the concept of basic information exchange to insure it is communicated in a timely, accurate, and complete manner. The quality of communication flows is also related to

supply chain operations. Operational knowledge transfer goes beyond the quality and exchange of basic information exchange to provide other supply chain members with valuable training and know-how. Such knowledge transfer activities are directly related to supplier development efforts. Shared interpretation of information is related to the strategic coordination of supply chain actions based on available information. As these examples demonstrate, the constructs of information exchange, communication quality, operational knowledge transfer, and shared interpretation are appropriate for supply chain relationship research.

Other variables are also appropriate for supply chain relationship research. As discussed in the interfirm relationship literature review, relationship magnitude serves as the foundation of any relationship (Golicic, Foggin, and Mentzer 2003; Mohr and Spekman 1994; Morgan and Hunt 1994; Rinehart et al. 2004). As previously cited, relationship magnitude enables collaborative behaviors and relational sources of advantage. Therefore, relationship magnitude served as an independent variable in this research. Based on the relationship literature, the following hypotheses were tested:

H1a: Relationship magnitude is positively related to information exchange.

H1b: Relationship magnitude is positively related to communication quality.

H1c: Relationship magnitude is positively related to operational knowledge transfer.

H1d: Relationship magnitude is positively related to shared interpretation.

As the qualitative research showed, the imposition of time pressure can impact a supply chain relationship. In general, collaboration seems to decline, tension increases, and relationship expectations are altered in the presence of time pressure. The qualitative data also specifically

showed that communication is impacted by time pressure. This qualitative finding was consistent with a theme from the existing time pressure literature. Although time pressure has not been researched in the context of supply chain relationships, research in other areas of business has shown that time pressure can dramatically impact the use, exchange, and communication of information. Therefore, time pressure served as an independent variable in this research. Based on the qualitative findings and the existing time pressure literature, the following hypotheses were tested:

H2a: Time pressure is negatively related to information exchange.

H2b: Time pressure is negatively related to communication quality.

H2c: Time pressure is negatively related to operational knowledge transfer.

H2d: Time pressure is negatively related to shared interpretation.

Relationship magnitude and time pressure are independent variables in this research and are hypothesized to have effects on the dependent variables of information exchange, communication quality, operational knowledge transfer, and shared interpretation. However, beyond the main effects of these independent variables, qualitative data and applicable theory would suggest that an interaction exists between the independent variables. Specifically, the qualitative findings suggest that time pressure may impact one type of relationship more than another type of relationship. This qualitative finding is consistent with insight from Social Exchange Theory (SET). SET suggests that relational behaviors are determined by rewards of interaction minus the costs of interaction (Griffith, Harvey, and Lusch 2006). Different types of relationships will have different types of rewards associated with them. Therefore, the quasi-

economic mode of cost/benefit analysis in SET will view the “cost” of time pressure differently across different types of relationships. Based on the qualitative data and applicable theory, the following hypotheses were tested:

H3a: Time pressure will have a stronger negative impact on information exchange in higher magnitude relationships than in lower magnitude relationships.

H3b: Time pressure will have a stronger negative impact on communication quality in higher magnitude relationships than in lower magnitude relationships.

H3c: Time pressure will have a stronger negative impact on operational knowledge transfer in higher magnitude relationships than in lower magnitude relationships.

H3d: Time pressure will have a stronger negative impact on shared interpretation in higher magnitude relationships than in lower magnitude relationships.

CHAPTER 3 – METHODOLOGY

The purpose of this chapter is to present the qualitative and quantitative methodologies used in this research. This chapter is divided into two sections. In the first section quantitative methodology is explained. Specifically, a general overview is provided, the sample is described, the procedure is explained, the pre-test procedure is proposed, the instrument and measures are discussed and the analytical techniques for testing hypotheses are reviewed. In the second section, the qualitative methodology is explained. Specifically, a general overview is provided, the data collection is described, the data analysis is explained, the sampling plan is presented, and the trustworthiness criteria delineated.

QUANTITATIVE RESEARCH OVERVIEW

In order to test the proposed hypotheses concerning the nature of the relationship between time pressure and supply chain relationships, quantitative methods were utilized. The method of investigation in this phase of the dissertation was a between subjects, scenario based experiment. This method was appropriate because scenario based experimental designs permit the investigation of situations that are not easily duplicated where companies are normally unwilling to share complete details (Pilling, Crosby, and Jackson Jr. 1994). Due to contractual or competitive reasons, companies are often reluctant to discuss specific elements of their actual interfirm relationships (Day and Klein 1987). However, a scenario based approach is less threatening to participants and allows researchers to explore interfirm relationship phenomena.

Six treatment cells resulted from the 2 x 3 factorial design as depicted in Appendix 1. The independent variables manipulated in this factorial design are time pressure and relationship magnitude. There were three levels of time pressure (high, low, and none) and two levels of relationship magnitude (high and low). The dependent variables include information exchange, communication quality, operational knowledge transfer, and shared interpretation. In order to insure valid and reliable measures of the variables in this research, confirmatory factor analysis was performed using structural equations modeling with AMOS software. The hypothesized simple main effects and interaction effects of the experiment were tested through MANOVA and ANOVA in SPSS statistical software.

Sample

Participants in this research were MBA students at a major southeastern university. The sample was seventy percent male, their average age was 38, and the average work experience was slightly 17 years. The total sample size was 204 with 34 participants for each of the six treatment conditions. MBA student populations are accepted in the literature for interfirm relationship research that utilizes scenario based experimental methodology (Antia et al. 2006; Scheer and Stern 1992). Utilizing graduate students as participants also serves as a control mechanism for the experimental nature of this research due to the relative homogeneity of the sample. Unlike a graduate student population, demographic characteristics of managers in industry may be very diverse and could potentially introduce uncontrolled variance in response to experimental treatments. For example, the educational background of corporate managers may range from high school dropouts to post-doctoral fellowships. Such a wide range of education levels in a sample may unexpectedly influence experimental results. However, a

graduate business student sample consists of managers with similar educational backgrounds and reduces the risk of uncontrolled variance in the experiment.

Procedure

After a brief introduction, participants were randomly assigned to one condition in the 2 x 3 factorial experimental design. Participants read a scenario that described a buyer-supplier relationship and explained how much time pressure the buyer imposed on the supplier. The scenario included manipulations of the amount of time pressure and relationship magnitude. After reading the scenario, participants were asked how they think the supplier would react to the scenario. This method assumes that participants will project themselves into the hypothetical situation and provide answers that reflect how the supplier would actually respond to the situation described in the scenario. Prior research has shown that projective methods can accurately represent underlying attitudes of participants and that the judgments of individual managers can provide important insights into corporate strategies (Antia et al. 2006; Chandy, Prabhu, and Antia 2003; Fisher 1993). The use of written scenarios to operationalize independent variables is a widely used and credible research approach (Dabholkar and Bagozzi 2002; Dabholkar and Kellaris 1992; Joshi and Arnold 1998; Monga and Zhu 2005; Pilling, Crosby, and Jackson Jr. 1994; Scheer and Stern 1992).

Pretest

A pretest was performed to assess readability, validity, reliability, and experimental manipulation. Current business managers and academic subject matter experts evaluated the

scenario and questionnaire for face validity and readability. Undergraduate students with previous work experience were used to validate scale items and the experimental manipulation.

All variables used in this research (with the exception of time pressure) have been pre-tested on graduate students and/or managers in related scenario based research. Pretest results indicated the questionnaire was readable, scale items were valid and reliable, and the manipulations were successful. Coefficient alpha values for each multi-item measure exceeded the recommended level of 0.70 (Nunnally 1978). All multi-item measures showed acceptable levels of internal validity with rotated factor loadings above recommended levels (Hair et al. 1998; Nunnally 1978). The manipulation checks for time pressure and relationship magnitude were statistically significant at the $p < 0.05$ level.

Instrument and Measures

Each questionnaire consisted of a brief overview, instructions, a two paragraph scenario, scale items, manipulation check items, realism check items, and demographic questions. Each of these questionnaire components will be described in detail below.

The overview and instructions in the questionnaire provided general guidance to the participants. The overview reminded participants that their involvement was voluntary and their responses would remain completely anonymous. The instructions asked participants to read a short scenario and then answer a few questions about the scenario. The participants were instructed that there are not any specific right or wrong answers to the questions; rather they should simply answer questions based on the scenario provided.

The scenarios used in this experimental research consisted of two paragraphs. In the first paragraph, a fictitious supplier and buyer relationship was described. The relationship was

described as having either high or low levels of relationship magnitude. The intent of this description is to manipulate a participant's perception of the type of relationship. High levels of relationship magnitude are associated with partnerships whereas low levels of relationship magnitude are associated with transactional relationships (Cannon and Perreault Jr. 1999; Lambert, Emmelhainz, and Gardner 1999; Rinehart et al. 2004).

In the second paragraph of the scenario, the buyer was described as placing time pressure on the supplier. The scenario described the time pressure as being high, low, or non-existent. The intent of this description was to manipulate a participant's perception of the amount of time pressure that is being imposed on the supplier. Two of the six cells in the factorial experimental design received a non-existent time pressure treatment. These cells served as control groups for comparison purposes in the analysis phases.

Item scales for the independent variables were modified from existing scales. The modifications were minimal and consisted of simply adapting the language to be consistent with the scenario used in the experimental treatment. Wording was adjusted to insure subject/verb agreement, but the original intent and structure of the items remained intact. Items to measure relationship magnitude were adapted from Golicic and Mentzer (2006). Items to measure time pressure were adapted from Herrington and Capella (1995). All items were measured on a 7-point Likert scale. Endpoints for these scales ranged from "strongly disagree" to "strongly agree." In their original forms, the item scales were found to be reliable and valid for each construct. The modified item scales were analyzed to reconfirm reliability and validity within this experiment. These independent variable measures were used to confirm that scenario manipulations were successful. A manipulation check was performed to insure that the treatment cells in the experiment had statistically significant differences on the independent variable scores

as intended by the research design. In a scenario based experiment, an unsuccessful manipulation is a fatal flaw.

Item scales for the dependent variables were also modified from existing scales. The modifications also consisted of simply adapting the language to be consistent with the scenario in the experimental treatment. Wording was adjusted to insure subject/verb agreement, but the original intent and structure of the items remained intact. Items to measure information exchange were adapted from Lusch and Brown (1996). Items to measure communication quality were adapted from Mohr and Sohi (1995). Items to measure operational knowledge transfer were adapted from Modi and Mabert (2007). Items to measure shared interpretation were adapted from Brockman and Morgan (2003). All items were measured on a 7-point Likert scale. Endpoints for these scales ranged from “strongly disagree” to “strongly agree.” In their original forms, the item scales were found to be reliable and valid for each construct. The modified item scales were analyzed to reconfirm reliability and validity within this experiment. Dependent variable measures were used to assess the nature of the relationships in the proposed hypotheses.

Due to the scenario based nature of this experiment, a realism check was performed. The purpose of this check was to determine if the scenario approximated a real world situation and engaged the participants. In order for scenario based experimental methods to be reliable, participants must understand and respond to experimental tasks (Louviere, Hensler, and Swait 2000). Realistic research situations increase the strength of variables and contribute to external validity (Kerlinger and Lee 2000). Therefore, realism of this scenario based experimental design was assessed. Items to measure the realism of this scenario were adapted from Dabholkar (1994).

Scale Purification

Scale purification assessed unidimensionality, reliability, internal consistency, convergent validity, and discriminant validity (Garver and Mentzer 1999). Each construct was tested for unidimensionality to confirm the existence of only one latent construct underlying a set of measures (Hattie 1985). Based on the literature, constructs used in this research were assumed to be reflective and cause the observed variations in measures. Confirmatory factor analysis was used to test unidimensionality because it has been shown to provide a more rigorous interpretation than other available methods including exploratory factor analysis, item total correlations, and coefficient alpha (Gerbing and Anderson 1988). Internal consistency reliability was assessed using Cronbach's coefficient alpha. Alpha values above a .7 cutoff were sought for all variables as that level suggests good correlation between the item and true scores, while lower alpha values indicate the item set does a poor job of capturing the construct of interest (Churchill 1979; Nunnally and Bernstein 1994).

Convergent and discriminant validity was evaluated using the process outlined by Garver and Mentzer (1999). The overall fit of the measurement model, and the magnitude, direction, and statistical significance of the estimated parameters between the latent variables and their survey items were used to assess convergent validity. A value of .7 or greater of substantial magnitude of the parameter estimate is desired to indicate convergent validity. Discriminant validity was examined with average variance extracted. The approach delineated above resulted in the elimination of several items.

In order to further insure rigorous measurement in this research, steps were taken to address common method bias. Common method bias, also referred to as common method variance (Campbell and Fisk 1959), can occur when measures of both predictor and criterion

variables are obtained from the same source in the same context (Podsakoff et al. 2003). In order to minimize the potential for common method bias in this research, participants were guaranteed anonymity and independent and dependent variable measures were separated on the questionnaire. However, because this experimental design uses single participants to capture both independent and dependent variables, a marker variable representing a theoretically unrelated construct was also incorporated into the questionnaire. The marker variable was used to assess whether the survey-like method of data collection influenced participants responses (Lindell and Whitney 2001; Podsakoff et al. 2003). The marker variable used in this research was “risk attraction” for the individual participants (Griffin, Babin, and Attaway 1996).

Analysis

The independent variables manipulated in this experiment were time pressure and relationship magnitude. In order to insure these experimental manipulations were successful, manipulation checks were performed. In order to perform a time pressure manipulation check, participants were placed into three groups based on the time pressure scenario they read in the experimental manipulation. The three groups were high time pressure, low time pressure, and no time pressure (control group). Time pressure scores for these three groups were compared using a one-way ANOVA test in SPSS. Differences between these groups were statistically significant at the $p < 0.05$ level. Means scores for each group also corresponded to the grouping (i.e., the high time pressure group had the highest time pressure mean score).

In order to perform the relationship magnitude manipulation check, participants were placed into two groups based on the scenario read in the experimental manipulation. The two groups are high and low relationship magnitude. Scores for these two groups were compared

using a one-way ANOVA test in SPSS. Differences between these groups were statistically significant at the $p < 0.05$ level. Means scores for each group corresponded to the grouping (i.e., the high group had the highest mean score).

In order to test for the hypothesized main effects and interaction effects in this research, multivariate analysis of variance (MANOVA) tests were performed using SPSS software. MANOVA is appropriate for testing experimental data where more than one dependent variable is involved. This analysis proceeded in three steps. First, an omnibus test was performed to determine if there was an overall significant effect in the experimental model. The omnibus test was significant at the $p < 0.05$ level. Second, tests for main effects were performed. These tests were significant at the $p < 0.05$ level. Third, post-hoc tests were performed to assess interaction effects. Tukey's adjustments were made to insure the family-wise Type 1 errors were not higher than the accepted level of 0.05.

QUALITATIVE RESEARCH OVERVIEW

The purpose of any qualitative research tradition is to increase understanding or explanation of a phenomenon (Lincoln and Guba 1985). Grounded theory is a discovery oriented qualitative research method that examines a core phenomenon that challenges people. It focuses on the personal experiences of participants and utilizes field data to understand social activity. The goal of grounded theory is to synthesize and abstract qualitative field data to a higher level and facilitate theory construction of problematic, dynamic, social processes. Unlike quantitative methods, grounded theory does not seek to verify, generalize, or test a theory. Grounded theory is used to explore concepts, describe concepts, organize concepts, and propose

relationships based on raw field data (Stern 1980; Strauss and Corbin 1998). In logistics research, the literature shows grounded theory to be a viable and growing methodology (see the following: Davis and Mentzer 2006; Flint et al. 2005; Flint and Mentzer 2000; Fugate, Sahin, and Mentzer 2006).

Data Collection

In order to learn more about the phenomenon of time pressure in supply chain relationships, discovery oriented depth interviews (McCracken 1988) were conducted with experienced managers. Depth interviews are a powerful and revealing method for gaining a deeper understanding of a participant's experience with a phenomenon. The depth interviews were initiated with a grand tour technique (McCracken 1988; Spradley 1979) and designed to be open-ended. An interview guide was utilized to provide some initial direction in the interview and to provide focus on research questions of interest. However, flexibility was maintained so theory could emerge. Managers were given freedom to openly discuss topics and take the interviews in any reasonable direction. Interviews lasted between 30-90 minutes and were audio-taped or detailed notes were taken. The interviews were then transcribed verbatim.

Data Analysis

Interview transcripts were analyzed using grounded theory procedures (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1998; Strauss and Corbin 1990). Prior to coding, each interview transcript was completely read several times to gain a holistic understanding of the participant. The uninterrupted general transcript readings also permitted the researcher to "re-live" the interview and increase contextual sensitivity. Detailed analysis then began on

interview transcripts and notes. Paragraphs and sentences were coded for conceptual content. Utilizing the constant comparative method (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1998), the researchers moved back and forth between transcripts and within transcripts to compare and contrast conceptual codes. Through multiple iterations of this process, a clearer understanding of the phenomenon began to emerge from the data. As additional interview data became available, utilizing the constant comparative method helped to increase understanding of time pressure in supply chain relationships.

Sampling

Consistent with grounded theory research techniques (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1998), a purposive and theoretical sampling plan was used in this study. Purposive sampling is the deliberate selection of specific settings, people, or events in order to collect pertinent field data that can not be obtained from other participants (Maxwell 1996). Initially, two managers in the retail industry were selected based on the *a priori* assessment that these managers had direct experience with time pressure in supply chain relationships. These initial managers can be considered a convenience sample.

Additional interview participants were selected based on theoretical sampling guidelines (Belk 1989; Strauss and Corbin 1998). Theoretical sampling “seeks to expand on and provisionally test emergent concepts and relationships as the theory develops” (Flint et al. 2005, p. 124). Therefore, as links between concepts began to emerge, other participants were included in the sample to provisionally test aspects of the developing theory. For example, the research team questioned if early findings were limited to a merchandising manager in a single company who were responsible for purchasing finished goods. In order to provisionally test the emerging

concepts in other contexts, the research team explored the phenomenon in other functional areas of logistics and in other industries.

Sampling continued until conceptual redundancy emerged from the data, theoretical saturation was reached, and incremental interviews provided no additional information on the phenomenon of interest. Flint, Woodruff, and Gardial (2002) suggest data collection cease once redundant information is obtained and conceptual complexity is understood. The final sample consisted of 24 managers from various industries and companies. In quantitative studies, a sample size of 24 would be considered completely inadequate. However, in qualitative research traditions, it is common to rely on the deep understanding of a few key informants in order to achieve saturation (McCracken 1988; Strauss and Corbin 1998). Therefore, the sample in this qualitative fieldwork phase is consistent with established qualitative research guidelines.

Research Trustworthiness

The trustworthiness of this study was assessed by applying interpretive research criteria focused on credibility, transferability, dependability, and confirmability (Hirschman 1986). Flint, Woodruff, and Gardial (2002) succinctly define each element of the interpretive research criteria as:

- *Credibility* is the extent to which results appear to be acceptable representations of the data.
- *Transferability* is the extent to which findings from one context apply to another context.
- *Dependability* is the extent to which findings are unique to time and place; the stability or consistency of explanations.
- *Confirmability* is the extent to which interpretations are the result of the participants and the phenomenon as opposed to researcher biases.

In order to establish credibility, participants were provided with initial interpretations of their interviews and feedback was solicited. Transferability was established through the

theoretical sampling process that expanded the participant sample to include different functional areas and industry types. Support for conceptual links and the emerging theory was found in all participant interview transcripts. Dependability was established based on the consistency of participant experiences regardless of varying time periods for the occurrence of referenced events. Some participants talked about current relationships while others shared past interfirm relationship experiences. Confirmability was established through a separate peer review process. Expert peer reviews were solicited from two experienced qualitative researchers to review the methodology and assess the findings. The peer reviews confirmed the methodological rigor and findings of the qualitative fieldwork.

CHAPTER 4 - QUALITATIVE MANUSCRIPT: EXPLORING HOW FIRMS COPE WITH TIME PRESSURE IN SUPPLY CHAIN RELATIONSHIPS

INTRODUCTION

As firms continually strive to meet the evolving needs of customers, there is a constant push to make supply chains more flexible and responsive (Mentzer, Myers, and Stank 2007). By leveraging their supply chains to focus on speed and agility, firms are often able to provide fresher product lines, increase brand loyalty, extend market share, and command price premiums (Bozarth and Chapman 1996). However, such a focus on time comes at a cost. The continuous improvement efforts aimed at rapid adaptation and faster responses may create an environment with ongoing pressure to improve time-based performance. At its very essence, the continuous pursuit of time-based performance may mandate increasing pressure to perform more quickly. In the pursuit of such quick response, firms may impose time pressure on other supply chain members (Stalk Jr. and Hout 1990). Therefore, time pressure can exist in contemporary supply chains (Thomas 2008).

It is important to understand time pressure because this common situational constraint can negatively impact interfirm relationships by reducing collaboration, increasing tensions, and altering relationship expectations (Thomas 2008). Interfirm relationships form the foundation of successful supply chains (Carr and Pearson 2002; Mentzer, Min, and Zacharia 2000; Morgan and Hunt 1994; Prahinski and Fan 2007). By leveraging the collective strengths of individual supply chain members, firms can achieve a competitive advantage in the markets they serve (Dyer and Singh 1998). Developing collaborative interfirm relationships is one of the most durable

competitive advantages because high performing relationships are difficult for competitors to duplicate or displace (Day 2000) and numerous performance benefits are often associated with collaborative relationships (Cannon and Perreault Jr. 1999; Carter and Ellram 1994; Rinehart et al. 2004). Supply chain initiatives such as collaborative planning, forecasting, and replenishment (CPFR), collaborative transportation management (CTM), and vendor managed inventory (VMI) have illustrated the potential power of collaborative supply chain relationships (Esper and Williams 2003; Sherman 1998; Waller, Johnson, and Davis 1999). Therefore, jeopardizing such collaborative supply chain relationships with the imposition of time pressure may ultimately impact overall supply chain and firm performance.

Time-based competition and interfirm relationships are two forms of competitive advantage (Dyer and Singh 1998; Stalk Jr. and Hout 1990) that are essential to the supply chain concept. Providing time utility is one of the primary goals of supply chains (Mentzer, Stank, and Esper 2008) and interfirm relationships form the foundation of supply chains (Cooper, Lambert, and Pagh 1997). At first glance, it would seem that these two sources of competitive advantage are complementary. However, due to the potential existence of time pressure and the negative effects time pressure may have on supply chain relationships (Thomas 2008), it is important to learn how firms deal with this paradoxical issue. Due to the strategic importance of both time-based performance and interfirm relationships, it is likely that firms have developed strategies for coping with situations where other supply chain members impose time pressure.

Although the seminal work on time-based competition suggests that time pressure may be imposed on members of a supply chain (Stalk Jr. and Hout 1990), there is limited research that explains how firms address this potentially problematic issue of time pressure. The purpose of this research is to begin to address this gap in the literature. Specifically, qualitative methods

were utilized to explore how firms cope with the imposition of time pressure in their supply chains.

This manuscript is organized in the following manner. First, applicable time pressure literature is summarized. Second, the qualitative methodology used in this research is explained. Third, the qualitative findings in this research are presented. Finally, research and managerial implications are discussed.

LITERATURE REVIEW

Time pressure is a situational variable that may influence individual behavior, decision making, and small group interactions (Maule, Hockey, and Bdzola 2000). Although time pressure is often operationalized as an impending deadline (Durham et al. 2000; Herrington and Capella 1995; Svenson and Maule 1993) conceptually it is much more complex. Time pressure also involves aspects of perception, opportunity cost, stress, and coping (Iyer 1989; Ordonez and Benson III 1997; Park, Iyer, and Smith 1989; Rastegary and Landy 1993). Time pressure exists when there is a perception of insufficient time to complete a task and the potential negative consequences of missing a deadline induce feelings of stress and a need to cope with the limited time constraint (Ordonez and Benson III 1997).

Time pressure creates extra cognitive demands on individuals (Ordonez and Benson III 1997) and limits how much information can be processed (Payne, Bettman, and Luce 1996). When people are forced to make decisions within a limited time frame, psychological stress may increase (Keinan, Friedland, and Ben-Porath 1987; Maule and Hockey 1993). The additional cognitive effort required under time constraints often creates negative affect, perceptual

narrowing, and reduced working memory capacity (Garbarino and Edell 1997; Sarter and Schroeder 2001). Although brief periods of increased workloads may energize some individuals (Thayer 1989), prolonged periods of continuous time pressure can lead to fatigue and anxiety (Maule, Hockey, and Bdzola 2000). Time pressured individuals have been found to be more anxious and lack confidence (Smith, Mitchell, and Beach 1982). This lack of confidence may be well justified as some research has found that time pressure decreases the accuracy of human judgment and performance (Benbasat and Dexter 1986; Hwang 1994; Svenson and Maule 1993).

When faced with time pressure, people adapt to the increased cognitive demands and psychological stress in several ways. First, under conditions of moderate time pressure, people may simply attempt to accelerate their processing to meet an impending deadline (Ben Zur and Breznitz 1981; Maule and Mackie 1990). Second, a person may become much more selective and focus on only the most important pieces of information (Ben Zur and Breznitz 1981; Payne, Bettman, and Luce 1996). For example, time pressure may cause an individual to place more emphasis on negative information, avoid risks, or consider fewer alternatives (Ben Zur and Breznitz 1981; Svenson and Edland 1987; Wright 1974). Third, people may shift their decision strategies as time pressure increases (Payne, Bettman, and Johnson 1988; Svenson, Edland, and Slovik 1990) and employ less complex, noncompensatory strategies (Christensen-Szalanski 1980; Payne, Bettman, and Johnson 1988; Smith, Mitchell, and Beach 1982; Zakay and Wooler 1984). In general, time pressured decision makers either filter the information that is used or eliminate pieces of information from consideration (Miller 1960). Such coping strategies enable people to adapt and attempt to achieve their task goals at acceptable levels (Maule, Hockey, and Bdzola 2000).

Time pressure has been researched in a number of contexts relevant to business. Evidence suggests that time pressure may have adverse effects on aspects of decision making, negotiations, buyer behavior, small group dynamics, and auditing performance (Gevers, Eerde, and Rutte 2001; Iyer 1989; Payne, Bettman, and Luce 1996; Spilker and Prawitt 1997; Stuhlmacher, Gillespie, and Champagne 1998). However, the vast majority of this research only examines how individuals or small groups are affected by time pressure and cope with time pressure. Given the intense focus on time in supply chains and given the potentially adverse effects of time pressure, expanding the scope of time pressure research to include the firm level unit of analysis is warranted. Although exploratory qualitative research provided some initial evidence to suggest that time pressure may affect interfirm supply chain relationships (Thomas 2008), no research has addressed how firms *cope with time pressure* that is imposed by other supply chain members. Due to the strategic importance of supply chain relationships, it is important to understand how firms cope with time pressure and how coping with time pressure may impact supply chain relationships.

METHODOLOGY

Qualitative research methods are considered appropriate to research areas about which little is known (Stern 1980; Strauss and Corbin 1998). Therefore, qualitative research methods were utilized to gain a greater understanding of how firms cope with time pressure in their supply chain relationships. Due to the exploratory nature of this research, the problematic social processes associated with the phenomenon, and the goal of developing a potentially testable framework, the grounded theory tradition of qualitative research was selected as the appropriate

methodological guide for this exploratory qualitative fieldwork (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1990).

The purpose of any qualitative research tradition is to increase understanding or explanation of a phenomenon (Lincoln and Guba 1985). Grounded theory is a discovery oriented qualitative research method that examines a core phenomenon which challenges people. It focuses on the personal experiences of participants and utilizes field data to understand social activity. The goal of grounded theory is to synthesize and abstract qualitative field data to a higher level and facilitate theory construction of problematic, dynamic, social processes. Unlike quantitative methods, grounded theory does not seek to verify, generalize, or quantitatively test a theory. Grounded theory is used to explore concepts, describe concepts, organize concepts, and propose relationships based on raw field data (Stern 1980; Strauss and Corbin 1998). In supply chain management research, the literature shows grounded theory to be a viable and growing methodology (For Example: Flint et al. 2005; Flint and Mentzer 2000; Fugate, Sahin, and Mentzer 2006).

Data Collection

In order to learn more about the phenomenon of coping with time pressure in supply chain relationships, discovery oriented depth interviews (McCracken 1988) were conducted with experienced managers either individually or in small groups. Depth interviews are a powerful and revealing method for gaining a deeper understanding of a participant's experience with a phenomenon. The depth interviews were initiated with a grand tour technique (McCracken 1988; Spradley 1979) and designed to be open-ended. A grand tour technique utilizes a general interview guide to provide some initial direction in the interview and to provide focus on

research questions of interest. However, flexibility was maintained so theory could emerge. Managers were given freedom to openly discuss topics and take the interviews in any reasonable direction. Interviews lasted between 30-90 minutes. Interviews were either audio taped and transcribed or detailed interview notes were taken.

Data Analysis

Interview transcripts and notes were analyzed using grounded theory procedures (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1998; Strauss and Corbin 1990). Prior to coding, individual interview transcripts and notes were read again several times to gain a holistic understanding of the participant. The uninterrupted general transcript readings also permitted the researcher to “re-live” the interview and increase contextual sensitivity. Detailed analysis then began on interview transcripts and notes. Paragraphs and sentences were coded for conceptual content. Utilizing the constant comparative method (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1998), the researchers moved back and forth between transcripts and within transcripts to compare and contrast conceptual codes. Through multiple iterations of this process, a clearer understanding of the phenomenon began to emerge from the data. As additional interview data became available, utilizing the constant comparative method helped to increase understanding of coping with time pressure in supply chain relationships.

Sampling

Consistent with grounded theory research techniques (Glaser and Strauss 1967; Strauss 1987; Strauss and Corbin 1998), a purposive and theoretical sampling plan was used in this study. Purposive sampling is the deliberate selection of specific settings, people, or events in order to collect pertinent field data that can not be obtained from other participants (Maxwell

1996). Initially, two managers in the retail industry were selected based on the *a priori* assessment that these managers had direct experience with time pressure in supply chain relationships. These initial managers can be considered a convenience sample.

Additional interview participants were selected based on theoretical sampling guidelines (Belk 1989; Strauss and Corbin 1998). Theoretical sampling “seeks to expand on and provisionally test emergent concepts and relationships as the theory develops” (Flint et al. 2005, p. 124). Therefore, as links between concepts began to emerge, other participants were included in the sample to provisionally test aspects of the developing theory. For example, the research team questioned the appropriateness of early findings that were limited to a merchandising manager in a single company who were responsible for purchasing finished goods. In order to provisionally test the emerging concepts in other contexts, the research team explored the phenomenon in other functional areas of supply chain management and in other industries.

Sampling continued until conceptual redundancy emerged from the data, theoretical saturation was reached, and incremental interviews provided no additional information on the phenomenon of interest. Flint, Woodruff, and Gardial (2002) suggest data collection cease once redundant information is obtained and conceptual complexity is understood. The final sample consisted of 24 experienced managers from various industries and companies. In quantitative studies, such a sample size would be considered completely inadequate. However, in qualitative research traditions, it is common to rely on the deep understanding of a few key informants in order to achieve saturation (McCracken 1988; Strauss and Corbin 1998). Therefore, the sample in this exploratory research is consistent with established qualitative research guidelines.

Research Trustworthiness

The trustworthiness of this study was assessed by applying interpretive research criteria focused on credibility, transferability, dependability, and confirmability (Hirschman 1986). Flint, Woodruff, and Gardial (2002) succinctly define each element of the interpretive research criteria as:

- *Credibility* is the extent to which results appear to be acceptable representations of the data.
- *Transferability* is the extent to which findings from one context apply to another context.
- *Dependability* is the extent to which findings are unique to time and place; the stability or consistency of explanations.
- *Confirmability* is the extent to which interpretations are the result of the participants and the phenomenon as opposed to researcher biases.

In order to establish credibility, participants were provided with initial interpretations of their interviews and feedback was solicited. Follow up discussions between the researcher and participants clarified interpretations in order to insure accurate representations of the qualitative data. If discrepancies between initial interpretations and participants' feedback arose, the researcher and participants would continue discussions until interpretations were accurate. Based on this iterative feedback loop, this research meets the criteria of credibility.

Transferability was established through the theoretical sampling process that expanded the participant sample to include different functional areas and industry types. The participant sample included managers from functional areas such as marketing, sales, logistics, manufacturing, and procurement in a variety of industries such as automotive, computers, retail, banking, aerospace, office supplies, consumer products, packaged food, communications, building supplies. Across these diverse functions and industries, support for conceptual links

and the emerging theory was consistently found in participant interviews. Therefore, this qualitative research meets the criteria of transferability.

Dependability was established based on the consistency of participant experiences regardless of varying time periods for the occurrence of referenced events. Some participants talked about current relationships while others shared past interfirm relationship experiences. Regardless of the time frame for the referenced events, participant accounts of the phenomenon were consistent and the participant explanations of their experience with the phenomenon were stable. Based on the consistency of participant accounts, this research meets the criteria of dependability.

Confirmability was established through a separate peer review process. Expert peer reviews were solicited from two experienced qualitative researchers to review the methodology and assess the findings. After the qualitative data had been initially collected, analyzed, and synthesized by the primary researcher, the peer reviewers examined the data, conceptual codes, and emergent themes to insure that interpretations were unbiased. Any discrepancies between the primary researcher and the peer reviewers were discussed and reconciled. The peer reviews confirmed the methodological rigor and unbiased findings of this qualitative fieldwork. Therefore, this research meets the criteria of confirmability.

FINDINGS

Overview

Participants in this research were very familiar with the phenomenon of coping with time pressure in their supply chain relationships. In fact, some managers felt that time pressure was a

common aspect of many supply chain relationships. When asked if his firm ever had time pressure imposed on it by other supply chain members, one manager responded with sarcastic laughter and said, “We deal with this every day. Time pressure is a fact of life in our industry.”

Due to their familiarity with time pressure in supply chain relationships, participants in this research were able to describe how their firms coped with time pressure that was imposed by other supply chain members. Based on these participant accounts, a time pressure coping strategies model was revealed through grounded theory analysis (See Appendix 2). As depicted in this model, firms essentially looked at three continuums of evaluative criteria in order to determine how they would adapt to the imposition of time pressure in their supply chain relationships. The evaluative criteria were the frequency of time pressure, the magnitude of time pressure, and the source attribution of time pressure. Once the levels of these evaluative criteria were determined, firms began to pursue specific coping strategies. The coping strategies were responding, problem solving, protecting, re-appraising, withdrawing, and terminating. In the following sections, the evaluative criteria and coping strategies are reviewed.

Evaluative Criteria

Evaluative criteria are the foundation of the time pressure coping strategies model. The relative levels of these key criteria determine how firms react to time pressure and the strategies firm pursue when time pressure is imposed by another supply chain member. As the qualitative data will show, the evaluative criteria of frequency, magnitude, and attribution were continually referenced as managers described their firm’s strategic approach to coping with time pressure. These three evaluative criteria are discussed below.

The first type of evaluative criteria is the *frequency* of time pressure. Frequency refers to how often time pressure is imposed on a firm by a supply chain member. Endpoints of the frequency continuum range from low to high. For example, the imposition of time pressure could rarely happen or it could be a daily event in a relationship. The frequency of time pressure is important because it is a key driver of how a firm responds to time pressure. The actions firms take to cope with a low frequency of time pressure are quite different than the actions associated with a high frequency of time pressure. A number of managers alluded to this key evaluative criteria and made statements like, “If this (time pressure) continues to happen, we will do X,Y,Z....” However, a Director of Operations crystallized the importance of frequency when he said, “On-going time pressure begins to change the nature of how you partner.” As this quote illustrated, the evaluative criteria of frequency can impact how a firm responds to time pressure and ultimately impacts its supply chain relationships. Notice that the manager did not say time pressure was the reason for a change. Rather, the manager qualified his statement with the term “on-going,” implying that increasing *frequency* of time pressure is a fundamental consideration for a firm’s strategic response to situations where another supply chain member imposes time pressure.

The second type of evaluative criteria firms used to determine their time pressure coping strategy is the *magnitude* of time pressure. Magnitude refers to the degree, amount, or “how much” time pressure is imposed on a firm by a supply chain member. The magnitude of time pressure could vary from an easy to meet deadline all the way to an impossible to achieve deadline. The magnitude of time pressure is important because it is a key driver of how a firm responds to time pressure. Multiple managers referenced this specific type of evaluative criteria by making statements similar to this Director of Replenishment:

“It depends what kind of time pressure. We are all reasonable people. If someone comes back to me and tells me that I have to do something that is a 3 month project and I have to do it in 2 weeks – that is not reasonable and that will really impact our relationship. If they ask me to trim 2 weeks off a three month project, that is much more reasonable. I’ll try to work with them.”

Similar to the previous quote about frequency, this manager did not say generic time pressure will impact a strategic response or a supply chain relationship. Instead, the manager made a distinction about the “kind” of time pressure and proceeds to describe two situations with varying degrees of time pressure *magnitude*. The manager quantified the magnitude of time pressure by contrasting the feasibility of meeting two very different deadlines. Based on this assessment of magnitude, the manager then gave a glimpse at how his firm would respond to these situations and the impact it would have on the supply chain relationship. As the above quote illustrates, the magnitude of time pressure is a key type of evaluative criteria that will impact how firms cope with the imposition of time pressure.

The third type of evaluative criteria is the *source attribution* of time pressure. Source attribution refers to where the responsibility for time pressure is placed. In a negative sense, source attribution identifies the underlying cause or the entity to blame for time pressure. Endpoints of the source attribution continuum are uncontrollable circumstances and a specific entity. For example, the source of time pressure can be attributed to the common business practices in an industry or it could be attributed to an individual firm acting in an irresponsible manner. The actions firms take to cope with time pressure vary depending on the source attribution. As the following quote demonstrates, the source of time pressure can be attributed to an industry.

“The ones that have dealt with (Company Name) for so long - they just know it’s (time pressure) part of the game and they just knew that that was the price of admission so to speak. So they just kind of sucked it up and did it....They knew it was coming. There

weren't any punches pulled. They just knew that that is the way it worked in the Tech industry and there would be very demanding timelines."

In the example above, the manager clearly attributed the imposition of time pressure to an industry standard. There was no responsibility given to an individual firm. Instead, the "blame" for time pressure was assigned to well-known and accepted aspects of the business environment. However, on the other end of the continuum, the source of time pressure can be attributed to an individual firm. Unlike the innocuous association with an industry standard, this type of source attribution evokes negative emotional responses and becomes very personal. For example, one manager explained:

"I want them to explain to me why this quick timeline is needed? Why the big order at the last minute? Are you dumb? Can't you forecast? Can't you plan? Is this real demand? I want to know why you are putting us through all of this?"

As the above comment showed, the imposition of time pressure can be specifically directed towards an individual firm. This manager emotionally blamed "them" and was noticeably agitated. Rather than accepting time pressure as just an uncontrollable circumstance (like an industry standard or natural disaster), this manager attributed blame to an individual firm being "dumb" (unable to "forecast" or "plan"). In this situation, the manager was clearly responding to time pressure with a lack of trust and doubt about the validity of time pressure. As these two contrasting examples show, the source attribution of time pressure is a key type of evaluative criteria that will influence how firms approach their supply chain relationships and respond to the imposition of time pressure.

Time Pressure Coping Strategies

When faced with situations where time pressure is imposed by another supply chain member, the qualitative data in this research suggests that firms may pursue different types of

coping strategies. As the key evaluative criteria identified above shift along a continuum, firms selected coping strategies such as responding, problem-solving, protecting, re-appraising, withdrawing, and terminating. Based on the relative levels of the evaluative criteria, firms selected a coping strategy. The six coping strategies are described below.

The first type of coping strategy is *responding*. Responding refers to a firm's embracing and quick reaction to time pressure. Responsive firms view the imposition of time pressure as an opportunity. They view time pressure as a chance to differentiate themselves from competitors. For example, one National Account Manager said:

“Our focus is on high quality relationships. We try to take care of the customer and build that relationship to the highest level. If we respond to a last minute very tight deadline, that can separate us from the competition. People remember when you respond and help them out.”

With this type of approach, firms use the imposition of time pressure as a way to solidify existing supply chain relationships or to develop new supply chain relationships. In the example above, the manager explains that his firm can “build” the relationship and “separate” from the competition. This firm is using a responsive time pressure coping strategy as a relationship building tool.

When talking about a responding coping strategy, one vice president discussed the relationship building opportunity associated with the imposition of time pressure, “This can bring us closer together – because I can do it for you then I gain your trust.” Here the phrase “closer together” emphasizes the goal of developing a higher quality relationship with a supply chain member that imposes time pressure. This manager also identified that the core relationship attribute of “trust” increases when his firm pursues a highly responsive strategy. Another

manager echoed the growth opportunities associated with a responsive approach: “A lot of times responding to time pressure seals the deal and we get new business.”

Beyond the explicit references to developmental opportunities like gaining “new business” or building relationships to the “highest level,” the above quotes also implicitly make reference to key evaluative criteria of magnitude. A response to time pressure that results in a stronger relationship may imply that the firm was able to successfully meet or exceed the tight deadline. In order to feasibly meet such a deadline, the time pressure must have been achievable. That is, the time pressure was low in magnitude. The key evaluative criteria of magnitude was consistently implied throughout participant accounts of responsive coping strategies.

The second type of coping strategy is *problem solving*. Problem solving refers to a firm’s desire to fix the “problem” of time pressure. In this stage of response, time pressure is not viewed as a pure relationship building opportunity as it was in the responsiveness stage. Rather, time pressure is viewed as problematic. It is an opportunity to understand a problem, develop a solution to the problem, and prevent the problem from happening again. Although the majority of focus is on problem solving, some relationship building elements continue to exist in the form of collaboration. For example, one manager said:

“I tried to work with the customers to identify their constraints and explain our constraints. We need to know what is going on so we can prevent this from happening again and again.”

Here the manager described the collaborative efforts to communicate, understand the problem, and ultimately resolve the issue. By trying to “work with the customers” and “explain” the problem, this firm demonstrated key collaborative behaviors and maintaining the relationship. By attempting to understand “what is going on” in order to prevent a reoccurrence of the situation, the firm is clearly trying to resolve a problematic issue.

The manager also made reference to the evaluative criteria of frequency (i.e. "...happening again and again."). Frequency was a common underlying element for firms in the problem solving phase of response. Managers continually indicated that their firm's were trying to reduce the frequency of time pressure by working together:

"If this continues to happen, we want to get to the causes and figure out how to prevent it. We would pursue six sigma and lean projects with them to figure this out. Most companies are open to this if you make a good case for why you want to do this."

As the above quotes illustrate, the evaluative criteria of magnitude is also implied. By attempting to "prevent" time pressure, these firms are viewing time pressure as problematic. That is, the time pressure is at a point where it is more difficult to effectively meet the deadlines. The magnitude of time pressure is high enough that firms are willing to dedicate resources to solve the problem and prevent it. As these examples indicate, firms may cope with the imposition of time pressure through collaborative problem solving efforts as the key evaluative criteria of frequency and magnitude increase.

The third type of coping strategy is *protecting*. Protecting refers to a defensive position firms take to shield themselves from issues related to time pressure. With this strategy, time pressure is not viewed as an incremental business opportunity or problem solving challenge. Instead, time pressure begins to manifest itself as a potential threat that requires advanced preparation. The focus in this stage of response is to shield the firm from financial penalties and risks. For example, one manager said:

"This on-going time pressure begins to change the nature of how you partner. I'll still collaborate with them but I have more of a protective or defensive posture. I'll track my processes closely and have a reason for why we couldn't meet a deadline and we tell them that we won't accept any fines for being late."

Two points are relevant in the above quote. First, this manager references partnering and collaboration, but then immediately discusses how the firm can protect itself from a supply chain “partner” who imposes time pressure. Such a response could indicate a lack of trust. The attribute of trust is normally considered the foundation of any successful partnership. This quote may imply that trust is beginning to erode in the relationship due to the imposition of time pressure and may foreshadow future relationship problems. Second, the evaluative criteria of frequency is identified in this stage of response (i.e. “If this continues to happen...”). As this manager indicated, protecting may not be the initial response when time pressure is first imposed. However, as the frequency of time pressure increases, firms begin to protect themselves. Another manager identifies the evaluative criteria of frequency and also specifically alludes to the evaluative criteria of magnitude when he discussed his firm’s protective response to time pressure:

“This issue of time pressure is like the Walmart effect – you get great volume but then they add-on every year and you are going to give back 5%. The same thing happens with lead-times. You reduce it once and then they expect that again next year. In the auto industry, improvements become the benchmark. You have to be careful, because there comes a point where you just can’t do it.”

As the above quote shows, firms may respond to time pressure with protective actions as the frequency and magnitude of time pressure increase. This firm’s cautious approach is exemplified by the “you have to be careful” protective coping strategy. The evaluative criteria of frequency (i.e. “add-on every year”) and magnitude (i.e. “there comes a point where you just can’t do it”) are also clearly identified as drivers of the protective strategy.

The fourth type of coping strategy is *re-appraising*. Re-appraising refers to the questioning and evaluating of a supply chain relationship that imposes time pressure. With this type of coping strategy, firms begin to look at their relationships through a critical lens and begin

to really question the imposition of time pressure. Frustration and resentment begin to emerge in this type of response as time pressure is viewed as a more personal issue. For example, one manager explained how her firm began to question the validity of time pressure and the cost associated with it:

“After a while, you just wonder if they are crying wolf and wonder if they really need it that quickly or do they just want it....It’s really costly to do this. It takes a lot of money and resources to respond that quickly. So I want to know why they need it so quick and why we need to jump through all these hoops for them.”

In the response above, notice all three evaluative criteria are identified. Frequency is implied by the “after a while” and “crying wolf” (i.e., you can not “cry wolf” unless this has happened repeatedly) statements. Magnitude is alluded to by the emphasis on needing something “so quick.” Source attribution also begins to emerge as blame is assigned to a specific entity. Time pressure is no longer attributed to an industry standard, common business practice, or uncontrollable circumstance. Rather, time pressure is attributed to an individual firm as an almost personal attack. Managers describing this type of coping strategy became noticeably agitated and emotional. One manager even used the phrase, “We get abused with this (time pressure).” Another manager went on to describe how he began to question both the imposition of time pressure and the supply chain relationship:

“I think they start to lose credibility. They keep coming back and they say we absolutely have to have this for the end of quarter again and again. You get to the third quarter and you start to say I’m not really believing what these guys are saying or they are certainly not looking to partner with us or be a good partner to us – they are really just looking out for themselves.”

As the above quotes demonstrated, firms may cope with the imposition of time pressure by re-appraising the relationship. Questions arise about whether dealing with the imposition of time pressure is actually worth the value of the relationship. Doubt begins to manifest itself in

the relationship as “credibility” is lost, firms begin to “not really believe” each other, and they realize that a supply chain member is “not looking to partner with us.” Such a coping strategy is driven by increasing levels of time pressure frequency, magnitude, and attribution.

The fifth type of coping strategy is *withdrawing*. Withdrawing refers to a firm pulling back from a relationship. In this type of response, collaboration and communication are reduced. Firms have moved beyond the questioning attitude of the re-appraising strategy and are consciously beginning to disengage. The frequency, magnitude, and attribution of time pressure have reached a point where a firm begins to pull back from a relationship partner. For example, one manager described how communication was reduced:

“It got to the point that I just wouldn’t pick up the phone if I saw it was them calling. All they were going to do was complain and bitch about not getting their stuff faster. I didn’t need to hear that again and again.”

As the above quotes showed, collaboration is dramatically reduced with this type of coping strategy to the point where firms won’t even “pick up a phone” to communicate with each other. When firms pursue this type of coping strategy, frequency is high (i.e., “again and again”), magnitude is high (i.e., “bitch about not getting their stuff faster”), and attribution is specifically directed (i.e., “if I saw it was *them*...”).

Another example of a withdrawing type of coping strategy comes from a Director of Merchandise Buying who described downgrading a potential partnership based on the imposition of time pressure where a supplier was demanding a quick buying decision:

“Is them putting me under time pressure going to impact my relationship with them? Sure it is going to impact my relationship with them. I had high hopes for a strong partnership with this supplier. They are innovative, they are usually good at what they dobut it’s made clear that they literally want volume and that’s it. They keep talking partnership and our relationship and everything else, but at the end of the day that’s not important to them at all. It is who will buy a bunch right now. And this example, and putting pressure on me, this made it clear that all they want to do is sell this thing and when production

starts in April they want a big order from somebody to take every piece of capacity they got. And if it wasn't going to be me then they are going to start selling it to the next guy. That's what time pressure looked like to me so what it meant to me is let's just treat them like what they are, a transactional relationship where if they make something I like I'll buy it, if they don't that's fine too – we'll just move along.”

As the above quotes showed, firms may respond to time pressure by withdrawing from a supply chain relationship. In this instance, the manager had “high hopes for a partnership” that were downgraded to a “transactional relationship” based on the imposition of time pressure. With a withdrawing coping strategy, firms make the decision to pull back from relationships with supply chain members who impose time pressure.

The sixth type of coping strategy is *terminating*. Terminating refers to the complete dissolution of a supply chain relationship. In this type of response strategy, the frequency, magnitude, and source attribution have reached a point where the relationship can no longer continue. Firms end their business relationship with the supply chain member who imposed time pressure rather than endure the time pressure. The costs associated with time pressure reached the point that they exceeded the value of the relationship. Terminating the relationship can be a phased approach or abrupt ending. For example, one Sales Manager explained:

“If they continue to pressure for these incredibly short timelines, we sit down with them and workout an exit plan or we have given some customers large price increases so they read between the lines and say you don't really want our business.”

As this example shows, firms that pursued this type of coping strategy completely dissolved the relationship (i.e., “exit plan” and “you don't really want our business”) due to high frequency (i.e., “continue to press..”), high magnitude (i.e., “incredibly short timelines”), and attribution is specifically directed (i.e., “If *they* continue to...”). Another manager went on to explain a more direct approach to terminating the relationship due to time pressure:

“We had a government agency continue to push for insanely short lead-times. We told them again and again that our manufacturing schedule was locked 60-90 days out and we weren’t going to hold finished goods inventory on all their products just in case they decided to order with a 4 day lead-time. They continued to ask and we continued to say no. When they tried to write it into the next contract, we quit doing business with them.”

As these quotes demonstrated, firms may cope with the imposition time pressure by simply eliminating the relational source of the time pressure. Firms that pursue these types of strategic responses are driven by the relative levels of the key evaluative criteria as shown in the above quote. This firm had a customer “continue to push” for “insanely short lead-times” and terminated the relationship “when *they* tried to...” contractually impose time pressure. Clearly, frequency, magnitude, and attribution were key drivers of this strategic decision.

As the above examples illustrate, firms may respond to the imposition of time pressure with six distinct types of coping strategies. The qualitative data shows that firms determine their responses to time pressure based on the relative levels of evaluative criteria. This key finding suggests that the frequency, magnitude, and attribution of time pressure ultimately determine how firms strategically view time pressure and approach time pressure within their supply chain relationships. In the following section, a higher level categorization of the coping strategies will be discussed based on commonality of their strategic emphasis.

Strategic Emphasis

Based on the evaluative criteria and coping strategies identified in this research, it appears that firms cope with time pressure with three types of strategic emphasis as depicted in Appendix 3. The first type of strategic emphasis can be described as *growing*. Firms pursuing this approach generally view time pressure as a developmental opportunity. Growing is viewed from either a relationship building or knowledge building perspective. Firms that utilize a

strategic emphasis on growth respond to the imposition of time pressure with either a responding or problem solving coping strategy. With these coping strategies, firms either grow their business through improved relationships or grow their knowledge base through collaborative problem solving. Based on participant feedback, a growth orientation seems appropriate when the frequency and magnitude of time pressure are low and the attribution of time pressure is associated with uncontrollable circumstances. The goal of this type of strategic emphasis is for a firm to embrace time pressure and use it as way for the firm to grow their business and know-how.

The second type of strategic emphasis for coping with time pressure is *defending*. Firms with this emphasis view time pressure as a threat. Unlike growth oriented firms, this approach has firms utilize either a protecting or re-appraising coping strategy for responding to time pressure. Based on participant feedback, a defending strategic emphasis seems to manifest itself when the frequency and magnitude of time pressure begin to increase and the attribution of time pressure begins to shift from uncontrollable circumstances towards an individual entity. One goal of this type of strategic emphasis is for a firm to re-assess how it views time pressure and the supply chain relationship responsible for time pressure. The other goal with this approach is to shield the firm from the imposition of time pressure.

The third type of strategic emphasis firms use to address the imposition of time pressure is *disengaging*. With this approach, firms view time pressure as something to be avoided. Disengaging is viewed from a relational perspective. Firms with this strategic emphasis respond to the imposition of time pressure by pulling back from a supply chain relationship or completely ending a supply chain relationship. Based on participant feedback, a disengaging emphasis seems appropriate when the frequency and magnitude of time pressure are high and the

attribution of time pressure is associated with a specific firm. A firm with a disengaging orientation seeks to protect itself from time pressure by eliminating the source of time pressure.

DISCUSSION

Perhaps one of the most interesting findings from this exploratory qualitative research is that time pressure can help or hinder a supply chain relationship. In a positive sense, the imposition of time pressure can lead a firm to pursue growth oriented strategies that enhance or further develop a supply chain relationship. Based on the time pressure coping strategy model that emerged through grounded theory analysis, it would appear that low levels of time pressure frequency and magnitude as well as a circumstantial source attribution can potentially help supply chain members form a collaborative relationship. On the other hand, the imposition of time pressure can lead a firm to pursue disengagement oriented strategies that deteriorate a supply chain relationship. Based on the qualitative data, it would appear that high levels of time pressure frequency and magnitude as well as very specific source attribution can potentially hinder the relational efforts of supply chain members.

Although the duality of time pressure effects in supply chain relationships may seem contradictory, similar findings have been reported in time pressure literature with a focus on individuals or small groups. In a positive sense, occasional low levels of time pressure have been found to energize individuals and temporarily accelerate their processing (Thayer 1989). The common example used to illustrate this concept involves competitive athletics. Think of athletes that rise to the occasion as time winds down and they score the winning points. In many ways, this metaphor is similar to the growth strategy proposed in time pressure coping strategies

model. Firms are energized by the opportunity to gain or enhance new business. They rally their resources in order to quickly respond to last minute opportunities. Like an athlete, firms want to win the game as time runs out by gaining the loyalty of a customer. Conversely, high levels of time pressure have been found to overwhelm individuals to the point that they give up on time pressured tasks because they think the goal is simply unattainable in the allotted time (Maule, Hockey, and Bdzola 2000). In a similar manner, firms that pursue disengaging strategies when coping with the imposition of time pressure may become overwhelmed and give up on meeting the requirements of tight or unrealistic deadlines. In this instance, the costs of time pressure are simply too high and take a toll on a supply chain relationship. As these examples show, time pressure may have similar effects on individual, small group, and *firm* interactions.

Beyond parallels with the seminal time pressure literature, findings of this exploratory research also appear to be supported by theoretical frameworks often cited in the interfirm relationship literature. The time pressure coping strategies model discovered in this research demonstrates consistency with aspects of Social Exchange Theory (Thibaut 1959) and Transaction Cost Economics (Williamson 1979). Post hoc analysis and integration with established theoretical foundations lends further support to these qualitative findings. In the following sections, the relationship between these theories and the time pressure coping strategies model will be discussed.

Social Exchange Theory (SET) proposes that relational behaviors are determined by rewards of interaction minus the costs of interaction (Griffith, Harvey, and Lusch 2006) and firm level behaviors are driven by quasi-economic modes of cost/benefit analysis (Emerson 1976). This theory offers insight into the duality of time pressure effects in supply chain relationships. Specifically, when firms pursue growth oriented coping strategies such as responding or

problem-solving, the rewards of the collaborative supply chain relationships outweigh the costs associated with time pressure. In these instances, the evaluative criteria identified in the time pressure coping strategies model are considered low enough that continuing the relationship is advantageous. On the other hand, when firms pursue disengaging oriented strategies like withdrawing or terminating, the costs of time pressure simply overwhelm any potential benefits of the relationship. In these instances, time pressure is simply too frequent, too large, or too specifically attributed to justify any additional investments into the relationship. Consequently, the relationship deteriorates.

Transaction Cost Economics (TCE) asserts that firms must align various transaction types with appropriate governance structures in order to minimize costs (Williamson 1985; Williamson 1981; Williamson 1979; Williamson, Wachter, and Harris 1975). Governance structures may range between extremes of full ownership and arms length market transactions. Collaborative interfirm relationships exist between these endpoints. According to TCE, collaborative relationships are an appropriate governance structure to balance transaction costs stemming from the threat of opportunistic behavior from a relationship partner and the economic costs associated with ownership. If a firm has lower total costs than competitors, positive financial performance results are achievable. Viewed through a TCE lens, the time pressure coping strategies model would suggest that low levels of time pressure frequency, magnitude, and attribution make transaction costs low and justify the continuance of a supply chain relationship. On the other hand, increasing levels of evaluative criteria make the transaction costs of a relationship excessive. In these situations, the imposition of time pressure may be viewed as opportunistic behavior that must be addressed with a different governance structure. The outcome of TCE,

appropriate alignment of governance structures that drive performance, is conceptually consistent with the time pressure coping strategies modeled proposed in this research.

As the above examples demonstrate, the framework that emerged through grounded theory analysis in this research is conceptually similar to both existing literature and theory. This consistency extends the scope of the existing time pressure literature, offers additional evidence to support two common relationship theories, and further validates the results of this exploratory qualitative research.

RESEARCH IMPLICATIONS

This research offers several meaningful contributions to the body of knowledge in supply chain management. First, the qualitative data offers additional evidence to support the notion that time pressure can exist in contemporary supply chains. Numerous interviews with experienced managers demonstrated that time pressure may be imposed in supply chain relationships as firms attempt to provide time utility and pursue time-based performance. By confirming that such a phenomenon can exist in supply chains, research streams that begin to address this critical issue can now develop. Time pressure has received little attention in previous supply chain relationship literature. However, this research suggests that it can impact key relational concepts such as collaborative behaviors, trust, long-term orientation, and information exchange. Future research may now explore existing supply chain relationship models within the context of time pressure. This research suggests that time pressure is a common situational constraint that warrants additional consideration in supply chain management research.

The second contribution that this research makes to the body of knowledge is the development of a framework that can lead to future quantitative testing of key aspects of time pressure in supply chain relationships. Specifically, the time pressure coping strategies model that emerged from this qualitative data suggests that increasing levels of key evaluative criteria like frequency, magnitude, and attribution can lead to reduced collaboration and relationship quality in a supply chain. The potential relationships discovered in this exploratory qualitative research can be tested via future confirmatory quantitative methods. For example, the three types of evaluative criteria could be measured and tested to determine if they directly impact collaborative behaviors. Additionally, quantitative research could be used to determine the relative strengths of the evaluative criteria and ultimately determine which variable has the greatest impact on supply chain relationships. Although the qualitative data in this research predominantly showed the evaluative criteria varying together, it is not hard to imagine situations where the criteria vary differently. By identifying the three types of evaluative criteria, this qualitative fieldwork may inform and enable future quantitative research on time pressure in supply chain relationships.

This research makes a third contribution to the body of knowledge. Specifically, it offers evidence to contradict the widely accepted notion the time-based and relational sources of competitive advantage are complementary (Bozarth and Chapman 1996; Droge, Jayaram, and Vickery 2004; Mentzer, Foggin, and Golicic 2000; Srivastava, Shervani, and Fahey 1999). Although some situations permit supply chain relationships to be leveraged and improve time-based performance, other situations may not permit such synergies. If the simultaneous pursuit of time-based and relational sources of competitive advantage results in time pressure that is frequently imposed, of high magnitude, and attributed to a specific firm, then time-based and

relational sources of advantage are not complementary. Rather, the simultaneous pursuit of these sources of competitive advantage is destructive. When the three evaluative criteria associated with time pressure coping strategies are high, this qualitative research suggests that collaborative supply chain relationships will deteriorate. Such deterioration suggests that the simultaneous pursuit of relational and time-based sources of competitive advantage may be paradoxical.

Finally, the results of this research also make a contribution to the body of knowledge by extending the scope of the traditional time pressure literature. The existing time pressure literature focuses on individuals and small groups. Although findings in this exploratory work confirms some of the seminal findings in the time pressure literature, this research extends the scope of time pressure research to include firm level and dyadic units of analysis. These extensions make a contribution in their own right, but they also suggest that future supply chain relationship research may be informed by time pressure research in other areas. Such interdisciplinary integration can lead to additional research streams and insights.

MANAGERIAL IMPLICATIONS

Although qualitative research methods are not designed to provide generalizable results, this research does offer several potential implications for managers. First, this research suggests that increasing levels of time pressure may jeopardize an existing supply chain relationship. As any experienced manager knows, interfirm relationships are the foundation of successful supply chains. By demonstrating that many firms use three key evaluative criteria to determine their response to the imposition of time pressure, this research may enable managers to make more informed decisions. Specifically, firms may use this information to more effectively weigh the

costs and benefits associated with imposing time pressure on suppliers or customers within their supply chains. Prior research has shown the potential benefits of time-based performance. However, such research only provides managers with half of the information needed to make completely informed decisions. This research begins to shed light on the potential costs associated with relational environments characterized by an intense pressure to focus on time. Armed with this information, managers are closer to being able to make strategic decisions within a more accurate cost/benefit framework.

Another potential implication for managers is that the time pressure coping strategies model provides several options for firms to consider when another supply chain member imposes time pressure. This framework enables firms to consider multiple approaches for responding to time pressure, provides key evaluative criteria to consider, and offers a potential strategic thought progression. Firms may be able to use the framework to drive their decision making processes in time pressured situations. When viewed in a progressive manner, the coping strategies in the framework could provide strategic guidance to firms. For example, firms may start by initially considering a responsive time pressure coping strategy. However, if such a strategy is not viable, firms may consider other coping strategies as they progress from left to right in the framework. Such a progression provides firms with additional strategies, but small incremental changes in the type of time pressure response. Although the purpose of this research was discovery oriented and not meant to be prescriptive, exposing firms to potential coping strategies may provide some valuable insight. Understanding how other firms have dealt with similar problems can often be a valuable benchmarking tool for a firm. Such knowledge can be used to provide either specific solutions or it can be used to inform the creation of new strategies.

REFERENCES

- Belk, Russell W. (1989), "Extended Self and Extending Paradigmatic Perspective," *Journal of Consumer Research*, 16 (1), 129-33.
- Ben Zur, H. and S. J. Breznitz (1981), "The Effect of Time Pressure on Risky Choice Behavior," *Acta Psychologica*, 47, 89-104.
- Benbasat, I. and A.S. Dexter (1986), "An Investigation of the Effectiveness of Color and Graphical Information Presentation under Varying Time Constraints," *MIS Quarterly*, 10, 59-80.
- Bozarth, Cecil and Steve Chapman (1996), "A Contingency View of Time-Based Competition for Manufacturers," *International Journal of Operations and Production Management*, 16 (6), 56-67.
- Cannon, Joseph P. and William D. Perreault Jr. (1999), "Buyer-Seller Relationships in Business Markets," *Journal of Marketing Research*, 36 (4), 439-60.
- Carr, Amelia S. and John N. Pearson (2002), "The Impact of Purchasing and Supplier Involvement on Strategic Purchasing and Its Impact on Firm Performance," *International Journal of Operations and Production Management*, 22 (9), 1032-53.
- Carter, Joseph R. and Lisa M. Ellram (1994), "The Impact of Interorganizational Alliances in Improving Supplier Quality," *International Journal of Physical Distribution & Logistics Management*, 24 (5), 15.
- Christensen-Szalanski, J. (1980), "A Further Examination of the Selection of Problem-Solving Strategies: The Effects of Deadlines and Analytic Aptitudes," *Organizational Behavior and Human Performance*, 25, 107-22.
- Cooper, Martha C., Douglas M. Lambert, and Janus D. Pagh (1997), "Supply Chain Management: More Than a New Name for Logistics," *International Journal of Logistics Management*, 8 (1), 1-14.
- Day, George S. (2000), "Managing Market Relationships," *Journal of the Academy of Marketing Sciences*, 28, 24-30.
- Droge, Cornelia, Jayanth Jayaram, and Shawnee K. Vickery (2004), "The Effects of Internal Versus External Integration Practices on Time-Based Performance and Overall Firm Performance," *Journal of Operations Management*, 22 (6), 557-73.

Durham, Cathy C., Edwin A. Locke, June M. L. Poon, and Poppy L. McLeod (2000), "Effects of Group Goals and Time Pressure on Group Efficacy, Information-Seeking Strategy and Performance," *Human Performance*, 13 (2), 115-40.

Dyer, Jeffrey H. and Harbir Singh (1998), "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage," *Academy of Management Review*, 23 (4), 660-79.

Emerson, R.M. (1976), "Social Exchange Theory," *Annual Review of Sociology*, 2, 335-62.

Esper, Terry L. and Lisa R. Williams (2003), "The Value of Collaborative Transportation Management (Ctm): Its Relationship to Cpfr and Information Technology," *Transportation Journal*, 42 (4), 55-65.

Flint, Daniel J., Everth Larsson, Britta Gammelgaard, and John T. Mentzer (2005), "Logistics Innovation: A Customer Value Oriented Social Process," *Journal of Business Logistics*, 26 (1), 113-47.

Flint, Daniel J. and John T. Mentzer (2000), "Logisticians as Marketers: Their Role When Customer's Desired Value Changes," *Journal of Business Logistics*, 21 (2), 19-45.

Flint, Daniel J., Robert B. Woodruff, and Sarah Fisher Gardial (2002), "Exploring the Phenomenon of Customers' Desired Value Change in a Business-to-Business Context," *Journal of Marketing*, 66 (October), 102-17.

Fugate, Brian, Funda Sahin, and John T. Mentzer (2006), "Supply Chain Management Coordination Mechanisms," *Journal of Business Logistics*, 27 (2), 129-61.

Garbarino, Ellen and Julie Edell (1997), "Cognitive Effort, Affect, and Choice," *Journal of Consumer Research*, 24, 147-58.

Gevers, Josette M.P., Wendelien Eerde, and Christel G. Rutte (2001), "Time Pressure, Potency, and Progress in Project Groups," *European Journal of Work & Organizational Psychology*, 10 (2), 205-21.

Glaser, Barney G. and Anselm L. Strauss (1967), *The Discovery of Grounded Theory*. Chicago: Aldine.

Griffith, David A., Michael G. Harvey, and Robert F. Lusch (2006), "Social Exchange in Supply Chain Relationships: The Resulting Benefits of Procedural and Distributive Justice," *Journal of Operations Management*, 24 (2), 85-98.

Herrington, J. Duncan and Louis M. Capella (1995), "Shopper Reactions to Perceived Time Pressure," *International Journal of Retail & Distribution Management*, 23 (12), 13-21.

- Hirschman, Elizabeth C. (1986), "Humanistic Inquiry in Marketing Research: Philosophy, Method, and Criteria," *Journal of Marketing Research*, 23 (August), 237-49.
- Hwang, M.I. (1994), "Decision Making under Time Pressure: A Model for Information Systems Research," *Information and Management*, 27, 197-203.
- Iyer, Easwar S. (1989), "Unplanned Purchasing: Knowledge of Shopping Environment and Time Pressure," *Journal of Retailing*, 65 (1), 40-58.
- Keinan, G., N. Friedland, and Y. Ben-Porath (1987), "Decision Making under Stress: Scanning of Alternatives under Physical Threat," *Acta Psychologica*, 64, 219-28.
- Lincoln, Yvonna S. and Egon G. Guba (1985), "Establishing Trustworthiness," in *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.
- Maule, A. John and Robert J. Hockey (1993), "State, Stress, and Time Pressure," in *Time Pressure and Stress in Human Judgment and Decision Making*, O. Svenson and A. John Maule, Eds. New York: Plenum.
- Maule, A. John, Robert J. Hockey, and L. Bdzola (2000), "Effects of Time Pressure on Decision Making under Uncertainty: Changes in Affective State and Information Processing Strategy," *Acta Psychologica*, 104 (3), 283-301.
- Maule, A. John and P. Mackie (1990), "A Componential Investigation of the Effects of Deadlines on Individual Decision Making," in *Contemporary Issues in Decision Making*, K. Borcherding, Ed. Amsterdam: North-Holland.
- Maxwell, Joseph Alex (1996), *Qualitative Research Design: An Iterative Approach*. Thousand Oaks, CA: Sage Publications.
- McCracken, Grant (1988), *The Long Interview*. Beverly Hills, CA: Sage Publications.
- Mentzer, John T., James H. Foggin, and Susan L. Golicic (2000), "Collaboration: The Enablers, Impediments, and Benefits," *Supply Chain Management Review*, 4 (4), 52-59.
- Mentzer, John T., Soonhong Min, and Zach G. Zacharia (2000), "The Nature of Interfirm Partnering in Supply Chain Management," *Journal of Retailing*, 76 (4), 549.
- Mentzer, John T., Matthew B. Myers, and Theodore P. Stank (2007), *Handbook of Global Supply Chain Management*. Thousand Oaks: Sage Publications.
- Mentzer, John T., Theodore P. Stank, and Terry L. Esper (2008), "Supply Chain Management and Its Relationship to Logistics, Marketing, Production, and Operations Management," *Journal of Business Logistics*, 29 (1), 31-45.

Miller, J. G. (1960), "Information Input Overload and Psychopathy," *American Journal of Psychiatry*, 116, 695-704.

Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (3), 20.

Ordonez, Lisa and Lehman Benson III (1997), "Decisions under Time Pressure: How Time Constraint Affects Risky Decision Making," *Organizational Behavior and Human Decision Processes*, 71 (2), 121-40.

Park, C. Whan, Easwar S. Iyer, and Daniel C. Smith (1989), "The Effects of Situational Factors on in-Store Grocery Shopping Behavior: The Role of Store Environment and Time Available for Shopping," *Journal of Consumer Research*, 15 (4), 422-35.

Payne, John W., James R. Bettman, and M. Eric Johnson (1988), "Adaptive Strategy Selection in Decision Making," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 14, 534-52.

Payne, John W., James R. Bettman, and Mary Frances Luce (1996), "When Time Is Money: Decision Behavior under Opportunity-Cost Time Pressure," *Organizational Behavior and Human Decision Processes*, 66 (2), 131-52.

Prahinski, Carol and Ying Fan (2007), "Supplier Evaluations: The Role of Communication Quality," *Journal of Supply Chain Management: A Global Review of Purchasing and Supply*, 43 (3), 16-28.

Rastegary, Haleh and Frank Landy (1993), "The Interactions among Time Urgency, Uncertainty, and Time Pressure," in *Time Pressure and Stress in Human Judgement and Decision Making*, O. Svenson and A. John Maule, Eds. New York: Plenum Press.

Rinehart, Lloyd M., James A. Eckert, Robert B. Handfield, Thomas J. Page Jr., and Thomas Atkin (2004), "An Assessment of Supplier-Customer Relationships," *Journal of Business Logistics*, 25 (1), 25-62.

Sarter, Nadine and Beth Schroeder (2001), "Supporting Decision Making and Action Selection under Time Pressure and Uncertainty: The Case of in-Flight Icing," *Human Factors*, 43 (4).

Sherman, Richard J. (1998), "Collaborative Planning, Forecasting, and Replenishment (Cpfr): Realizing the Promise of Efficient Consumer Response through Collaborative Technology," *Marketing Theory and Practice*, 6 (4).

Smith, J. F., T. R. Mitchell, and L. R. Beach (1982), "A Cost-Benefit Mechanism for Selecting Problem Solving Strategies: Some Extensions and Empirical Tests," *Organizational Behavior and Human Performance*, 29, 370-96.

Spilker, Brian C. and Douglas F. Prawitt (1997), "Adaptive Responses to Time Pressure: The Effects of Experience of Tax Information Search Behavior," *Behavior Research in Accounting*, 9, 172-99.

Spradley, J.P. (1979), *The Ethnographic Interview*. New York: Holt, Rinehart, & Winston.

Srivastava, Rajendra K., Tasadduq A. Shervani, and Liam Fahey (1999), "Marketing, Business Processes, and Shareholder Value: An Organizationally Embedded View of Marketing Activities and the Discipline of Marketing," *Journal of Marketing*, 63 (4), 168-79.

Stalk Jr., George and Thomas M. Hout (1990), *Competing against Time*. New York: The Free Press.

Stern, Phyllis N. (1980), "Grounded Theory Methodology: Its Uses and Processes," *Image*, Volume 12 (Number 1), 20-23.

Strauss, Anselm L. and Juliet Corbin (1998), *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks: Sage Publications.

Strauss, Anselm L. (1987), *Qualitative Analysis for Social Scientists*. Cambridge: Cambridge University Press.

Strauss, Anselm L. and Juliet Corbin (1990), *Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage Publications.

Stuhlmacher, Alice F., Trina L. Gillespie, and Matthew V. Champagne (1998), "The Impact of Time Pressure in Negotiation: A Meta-Analysis," *International Journal of Conflict Management*, 9 (2), 97-116.

Svenson, O. and A. Edland (1987), "Change of Preferences under Time Pressure: Choices and Judgments," *Scandinavian Journal of Psychology*, 28 (322-330).

Svenson, O., A. Edland, and P. Slovik (1990), "Choices and Judgments of Incompletely Described Decision Alternatives under Time Pressure," *Acta Psychologica*, 75, 153-69.

Svenson, O. and A. John Maule (1993), *Time Pressure and Stress in Human Judgement and Decision Making*. New York: Plenum.

Thayer, R. E. (1989), *The Biopsychology of Mood and Arousal*. New York: Oxford University Press.

Thibaut, J., Kelley, H. (1959), *The Social Psychology of Groups*. Wiley, NY.

Waller, Matt, M. Eric Johnson, and Tom Davis (1999), "Vendor-Managed Inventory in the Retail Supply Chain," *Journal of Business Logistics*, 20 (1), 183-203.

Williamson, Oliver E. (1985), *The Economic Institutions of Capitalism*. New York: The Free Press.

---- (1981), "The Modern Corporation: Origins, Evolution, Attributes," *Journal of Economic Literature*, 19 (4), 1537-68.

---- (1979), "Transaction-Cost Economics: The Governance of Contractual Relations," *Journal of Law & Economics*, 22 (2), 233-61.

Williamson, Oliver E., Michael L. Wachter, and Jeffrey E. Harris (1975), "Understanding the Employment Relation: The Analysis of Idiosyncratic Exchange," *Bell Journal of Economics*, 6 (1), 250-78.

Wright, Peter (1974), "The Harassed Decision Maker: Time Pressures, Distractions, and the Use of Evidence," *Journal of Applied Psychology*, 59 (5), 555-61.

Zakay, D. and S. Wooler (1984), "Time Pressure, Training, and Decision Effectiveness," *Ergonomics*, 27, 273-84.

CHAPTER 5 - QUANTITATIVE MANUSCRIPT: TESTING THE EFFECTS OF TIME PRESSURE IN SUPPLY CHAIN RELATIONSHIPS

INTRODUCTION

In today's evolving business environment, firms must increasingly focus on rapid adaptation, quick response, and time-based performance (Wisner et al., 2008; Eisenhardt and Martin, 2000; Barney et al., 2001). In order to remain competitive, firms are becoming time-based competitors because consumers have become more demanding and "want companies to value their time and trouble" (Stern and Sturdivant 1987 pg. 34). Due to a wealth of information that is available from the Internet and other sources, consumers are able to easily compare prices, quality, products, and service. This technological change is a key driver impacting shopping behavior (Dibb 2001). Information has empowered consumers to demand competitive pricing, high quality, customized products, and highly responsive customer service. Brand loyalty is diminishing and many consumers now exhibit crossover buyer behavior (Bennett and Rundle-Thiele 2005). Consequently, product life cycles have shortened as consumer wants and needs continually evolve (Ratneshwar et al. 1999).

Firms now must quickly adapt, innovate, and implement new ways of serving the ever-changing preferences of customers (Dickson 1992). Shifting demographics have also made time a critical consideration for many consumers (Herrington and Capella 1995). Single parent households and dual career families now demand more convenience, quicker response times, and around the clock service. These changing consumer demands require firms to seek time-based

sources of competitive advantage such as speed and flexibility in order to survive in hypercompetitive global markets (D'Aveni 1994; D'Aveni 1998).

Time-based competition theory formally recognizes the strategic role of time and identifies the manner in which firms manage time as a powerful source of competitive advantage (Stalk Jr. 1988). TBC proposes that a strategy of customer responsiveness, rapid product introduction, and supply chain time compression will yield substantial performance benefits (Stalk Jr. and Hout 1990). According to TBC theory, a strategy of intense focus on shrinking the time requirements of key business activities can yield a competitive advantage (Bozarth and Chapman 1996).

In order to effectively meet the constantly changing needs of customers and pursue time-based performance, firms are increasingly leveraging the capabilities of other supply chain members (De Toni and Meneghetti 2000; Dibrell, Davis, and Danskin 2005; Droge, Jayaram, and Vickery 2004; Jayaram, Vickery, and Droge 1999; Rich and Hines 1997; Stalk Jr. 1988). Firms realize they simply cannot compete as individual entities because they lack the total resources to be successful in global markets. Therefore, they avoid trying to do things where they lack a core competency, identify their weaknesses, and find a partner who can perform these tasks with expertise (Webster 1992). As a result, firms no longer compete against individual firms. Instead, networks of firms now compete against other networks of firms (Morgan and Hunt 1994; Thorelli 1986; Vickery et al. 2004) or value chains are competing against other value chains (Walters 2004). Competition has shifted from a firm level phenomenon to a supply chain level phenomenon and supply chain management is now a strategic source of competitive advantage (Mentzer et al. 2001). Seeking competitive advantage via supply chain management requires supply chain members to collaborate and insure essential activities are highly

coordinated to quickly meet customer needs (Cannon and Perreault Jr. 1999; Lusch and Brown 1996; Webster 1992).

One of the most basic goals of a supply chain is to enable firms to strategically differentiate themselves through time-based performance (Stalk Jr. and Hout 1990) and ultimately provide time utility to their customers (Mentzer, Stank, and Esper 2008). One approach to achieving this objective is for firms to look beyond internally focused process efforts to include linkages with other members of a supply chain (Dibrell, Davis, and Danskin 2005; Droge, Jayaram, and Vickery 2004). With this type of external supply chain focus, interfirm relationships are leveraged to increase the flow of information and reduce cycle times throughout the supply chain (Stalk Jr. 1988). Time-based competitors that pursue this relational approach are concerned with supply chain collaboration that facilitates interfirm integration, coordination, and synchronization (Rich and Hines 1997).

A potential conflict exists between the pursuit of time-based performance and the development of collaborative supply chain relationships. Time-based competitors may create a high pressure relational environment because TBC mandates that supply chain members continuously improve cycle times, speed, and agility (Rich and Hines 1997). At its very essence, the continuous pursuit of time-based competitive advantage may mandate increasing pressure to perform more quickly. In the pursuit of such quick response, firms may place a supply chain member under time pressure (Thomas 2008). Prior conceptual and qualitative research supports the notion that time pressure exists in contemporary supply chains (Stalk Jr. and Hout 1990; Stalk Jr. and Webber 1993; Thomas 2008). The purpose of this research is to quantitatively test how the imposition of time pressure affects key elements of interfirm supply chain relationships. By gaining a greater understanding of how time pressure impacts supply chain relationships,

firms can more effectively manage the cost and benefit trade-offs associated with the pursuit of time-based performance.

Time pressure is a situational variable that may influence individual behavior, decision making, and small group interactions (Maule, Hockey, and Bdzola 2000). Time pressure has been typically defined in terms of a time constraint, time shortage, or impending deadline (Durham et al. 2000; Herrington and Capella 1995; Svenson and Maule 1993). However, such conceptualizations are incomplete. Time pressure also involves aspects of perception, opportunity cost, stress, and coping (Iyer 1989; Ordonez and Benson III 1997; Park, Iyer, and Smith 1989; Rastegary and Landy 1993). A time constraint alone does not necessarily result in time pressure. It is only when the available time to complete a task is perceived as insufficient or limited that time pressure begins to manifest itself (Iyer 1989; Park, Iyer, and Smith 1989). Beyond the mere perception of insufficient time, an opportunity cost of missing a deadline is also required for time pressure to exist. The opportunity cost may take the form of sanctions for violating a time limit or the consequences of delaying an action or decision (Rastegary and Landy 1993). When the perception of limited time and potential negative consequences induce feelings of stress, the resulting time pressure creates a need to cope with the limited time constraint (Ordonez and Benson III 1997). Therefore, in this research, time pressure is defined as:

The perception of limited time to complete a task and the perception of negative consequences for missing a deadline that result in feelings of stress and the need to cope with the limited time constraint.

This manuscript is organized in the following manner. First, applicable interfirm relationship and time pressure literature are reviewed. Second, relevant theories are synthesized

with the literature to propose testable hypotheses. Third, the quantitative experimental methodology is explained. Fourth, the experimental data is analyzed and interpreted. Finally, research and managerial implications are discussed.

LITERATURE REVIEW

Interfirm Relationships

At the most fundamental level, a supply chain is composed of a series of relationships among multiple firms (Cooper, Lambert, and Pagh 1997). Competitive pressures, environmental uncertainties, and evolving consumer demands have led firms to increasingly seek highly developed collaborative supply chain relationships in order to remain competitive (Carr and Pearson 2002; Mentzer, Min, and Zacharia 2000; Morgan and Hunt 1994; Prahinski and Fan 2007). High performing collaborative supply chain relationships are one of the most durable competitive advantages (Day 2000) and result in numerous performance benefits (Cannon and Perreault Jr. 1999; Carter and Ellram 1994; Rinehart et al. 2004).

Interfirm relationships are typically categorized along a continuum ranging from arm's length transactions to virtual integration (Golicic, Foggin, and Mentzer 2003; Webster 1992). Arm's length transactions are discrete events where there is no expectation of future transactions. Virtual integration occurs when two firms act together as one for an indefinite period of time. Between the endpoints of the relationship continuum lie various forms of collaborative relationships. Research has identified and labeled numerous types of collaborative relationships such as partnerships, alliances, network organizations, service agreements, and administered relationships (Golicic, Foggin, and Mentzer 2003; Webster 1992). Although there is consensus

concerning the endpoints of the relationship continuum, agreement is somewhat lacking regarding the specific labeling of collaborative relationship types in the middle of the relationship continuum. However, researchers generally agree on the essential attributes and behaviors used to classify the various types of relationships.

Due to the importance of supply chain relationships, a vast literature base exists that has enumerated the requisite elements needed for relationship success. For example, attributes like trust, commitment, and dependence are commonly identified as the foundation of any successful relationship and are antecedent to collaboration (Golicic, Foggin, and Mentzer 2003; Mohr and Spekman 1994; Morgan and Hunt 1994; Rinehart et al. 2004). Collaborative behaviors like information sharing, idiosyncratic investments, and effective governance are often cited as relational sources of competitive advantage (Cannon and Perreault Jr. 1999; Dyer and Singh 1998; Lambert, Emmelhainz, and Gardner 1996). Research is also widely available on the various links between relationship attributes and behaviors (Anderson and Weitz 1992; Ganesan 1994; Gundlach, Achrol, and Mentzer 1995; Heide and John 1988).

Interfirm relationships are typically categorized based on the relative levels of core attributes (Cannon and Perreault Jr. 1999; Lambert, Emmelhainz, and Gardner 1999; Rinehart et al. 2004). Higher levels of core attributes are associated with stronger, more integrated relationships. Lower levels of these essential relational components are associated with weaker, more transactional relationships. Trust, commitment, and dependence are commonly cited as the attributes that help shape and define the nature of interfirm relationships (Mohr and Spekman 1994; Morgan and Hunt 1994). They function as antecedents to the collaborative behaviors, integrated processes, and coordinating actions that ultimately lead to performance and competitive advantage (Mentzer, Min, and Zacharia 2000). Relationship partners are unlikely to

achieve optimal joint performance results without the presence of trust, commitment, and dependence. Due to their collective importance in interfirm relationships, these three distinct attributes have been conceptualized as a single second order construct called relationship magnitude (Golicic, Foggin, and Mentzer 2003). Relationship magnitude is defined as the “degree of closeness” between firms and evidence suggests that it determines the type of relationship that exists between firms (Golicic and Mentzer 2006). Therefore, in this research, relationship magnitude will serve as a proxy for the various types of interfirm relationships.

Time Pressure

Time pressure is a prevalent type of situational constraint (Kelly, Jackson, and Hutson-Comeaux 1997) and decision making under time pressure is a common part of daily life (Ahituv, Igbaria, and Sella 1998). Most decision making situations involve some form of a time constraint (Kelly, Jackson, and Hutson-Comeaux 1997) and a number of real world decisions are frequently made under conditions of time pressure (Ordonez and Benson III 1997). For example, surgeons must make quick decisions when performing emergency operations. Stock brokers need to swiftly react to changing market conditions. Police officers are required to make split second decisions regarding the use of force. In any of these dynamic situations, decisions need to be made in real time (Brehmer 1992) and the decision maker is forced to quickly determine how much time to spend on acquiring information, selecting information, and integrating information (Kerstholt 1994). A substantial amount of research suggests that time pressure has negative effects on decision making processes because it creates extra cognitive demands and limits how much information can be processed (Ben Zur and Breznitz 1981; Christensen-Szalanski 1980; Maule and Mackie 1990; Ordonez and Benson III 1997; Payne, Bettman, and Johnson 1988;

Smith, Mitchell, and Beach 1982; Svenson and Edland 1987; Svenson, Edland, and Slovik 1990; Svenson and Maule 1993; Wright 1974; Zakay and Wooler 1984).

Time pressure has also been shown to impact negotiations. Specifically, time pressure has significant effects on outcomes, processes, and attitudes (Stuhlmacher, Gillespie, and Champagne 1998). Some propose that high time pressure limits negotiation outcomes by encouraging quicker concessions, lower demands, and quicker agreements (Carnevale, O'Connor, and McCusker 1993; Druckman 1994; Hamner 1974; Lim and Murnighan 1994; Yukl 1974). Others suggest that time pressure impacts negotiation outcomes by reducing the ambition and goals of negotiators (Pruitt and Drews 1969). In terms of processes, time pressure changes negotiation strategy (Stuhlmacher, Gillespie, and Champagne 1998), reduces the accuracy of communications (Yukl et. al. 1976), and leads to only selective use of information (Stuhlmacher and Champagne 1997). Attitudes are also impacted by time pressure. High time pressure has been shown to increase perceptions of opponent toughness (Smith, Pruitt, and Carnevale 1982), decrease perceptions of opponent honesty (Baron 1988), and increase perceptions of feeling rushed (Carnevale and Lawler 1987).

In the field of consumer behavior, prior research has shown that time pressure impacts individual shopping behavior (Herrington and Capella 1995). Consumers operating under time pressure tend to purchase less than originally planned, spend less time shopping, and make fewer unplanned purchases (Iyer 1989; Park, Iyer, and Smith 1989). Time pressure reduces a consumer's ability to process in-store product information (Iyer 1989) and impacts consumer choice deferral (Dhar and Nowlis 1999). The increased stress from time pressure also hinders the retrieval of memories that are not well rehearsed (Bettman 1979). As consumers increasingly

face time shortages, time pressure becomes an important source of influence on buyer behavior (Herrington and Capella 1995).

Time pressure can also have significant effects on small group interactions. It can negatively affect group efficacy (Durham et. al. 2000) and reduce the progress of less confident groups (Gevers, Eerde, and Rutte 2001). It can lower the quality of group decisions, reduce group viewing of available information, and decrease the number of times groups re-examine information (Arnold et. al. 2000). Time pressure can also impact satisfaction with group performance, lower commitment to group results (Caballer, Gracia, and Peiro 2005) and reduce perceptions of group goal fulfillment (Nordqvist, Hovmark, and Zika-Viktorsson 2004). McGrath et al. (1989) also proposed that time pressure can impact interpersonal communications within small groups resulting in lower quality work and destructive behavior. As these studies indicate, time pressure can impact the performance and behaviors of small groups.

In the accounting literature, time pressure is cited as an important element of many auditing engagements (Spilker and Prawhitt 1997; Gibbons 1984). It is suggested that time pressure can impact auditor behavior, audit quality, and auditor turnover. Time pressure can impact auditor behavior (Coram, Ng, and Woodliff 2004) because it motivates auditors to prematurely sign-off on steps or accept substandard audit evidence (Margheim and Pany 1988; Kelley and Margheim 1990; Rhode 1978). There is also a common perception that time pressure is a major cause of substandard work that detracts from the quality of an audit (Alderman and Dietrick 1982). Many conclude that, due to time pressure, audit work does not always meet appropriate guidelines and affects audit quality (Rhode 1978; Kelley and Margheim 1990; Ragunathan 1991; Willett and Page 1996; Sutton and Lampe 1991; Lampe and Sutton 1994). Furthermore, a number of accountants perceive that time pressure is a primary cause of senior

and staff employee turnover (Alderman and Deitrick 1982). As the previous research indicates, time pressure can have undesirable effects on the people and processes involved in auditing (McDaniel 1990).

Time Pressure Literature Themes

When synthesized and viewed as a whole, three themes seem to be common across these areas of time pressure research. First, the use of information and communications are reduced in time pressured environments. People or groups of people simply cannot process as much information when under time pressure and begin to use information selectively (Payne, Bettman, and Luce 1996). The selective use of information due to time pressure is seen in the decision making, negotiation, buyer behavior, and small group areas of time pressure research. For example, decision makers begin to filter information, negotiators become selective in their use of information, consumers are unable to process in-store information, and small groups tend to reduce the viewing of available information (Arnold et al. 2000; Iyer 1989; Miller 1960; Stuhlmacher, Gillespie, and Champagne 1998). Communication also changes in the presence of time pressure. For example, some contend that the accuracy of communication is reduced (Yukl et al. 1976) and others suggest that the quality of interpersonal communication is negatively impacted. As these examples from various areas of business indicate, time pressure can dramatically impact the use, exchange, and communication of information.

The second common theme across the time pressure literature is that negative affect, stress, and emotional consequences emerge in time pressured situations. Quite simply, people usually do not have positive affective responses to time pressure. For example, decision makers experience psychological stress, anxiety, and lack confidence when put under time pressure

(Keinan, Friedland, and Ben-Porath 1987; Smith, Mitchell, and Beach 1982). Small groups have lower group efficacy and reduced satisfaction with group performance under time pressure (Caballer, Gracia, and Peiró 2005; Durham et al. 2000). Some accountants believe that the stress associated with time pressure in an auditing environment leads to high employee turnover (Alderman and Deitrick 1982; McDaniel 1990). Negotiators feel rushed and experience negative perceptions of their opponents when placed under time pressure.

The third common theme across the time pressure literature is that quality and performance usually suffer in time pressured environments. People or groups of people usually do not perform well under time pressure. For example, in the decision making literature, time pressure decreases the accuracy of human judgment and performance (Benbasat and Dexter 1986; Hwang 1994; Svenson and Maule 1993). In small groups, time pressure also reduces the quality of decision making as well as lowers the quality of work performed by a group (Arnold et al. 2000). In the accounting literature, evidence suggests that time pressure leads to substandard work, acceptance of inappropriate audit evidence, premature sign-off, and reduced audit quality (Alderman and Deitrick 1982; Kelley and Margheim 1990; Margheim and Pany 1986).

Although the effects of time pressure have been researched in a number of business related areas, research on the effects of time pressure in supply chain relationships is lacking. The purpose of this research is to begin to fill this gap in the literature and determine how time pressure impacts supply chain relationships. In the following section, theoretical foundations that inform this research are summarized.

THEORETICAL FOUNDATION

Two theories are particularly relevant to researching the impact of time pressure in supply chain relationships. The first, Social Exchange Theory (SET), proposes that individuals or groups attempt to obtain profitable outcomes in social interactions by maximizing rewards and minimizing costs (McDonald 1981; Thibaut 1959). The basic motivation for interaction is to gain rewards and avoid punishment (Emerson 1976). SET also contends that relational behaviors are determined by rewards of interaction minus the costs of interaction (Griffith, Harvey, and Lusch 2006). Therefore, corporate group behavior possesses a quasi-economic mode of analysis (Emerson 1976).

The second theory relevant to the study of time pressure and supply chain relationships is the Norm of Reciprocity (Gouldner 1960). The Norm of Reciprocity proposes that people usually help those that help them; that is they mirror the actions of others in exchange relationships. Reciprocity evokes obligations to others based on past behavioral interactions. In a positive sense, reciprocity can be described as the mutually contingent or gratifying exchange of goods, services, or benefits. In a negative sense, reciprocity can include sentiments of retaliation where emphasis is placed on the return of injuries rather than benefits. It is proposed that reciprocity is one of the most basic moral codes upon which civilizations achieve social equilibrium and cohesion.

SET and the Norm of Reciprocity will serve as the theoretical foundation in this research. The Norm of Reciprocity indicates that the imposition of time pressure may invoke a supply chain member to retaliate against a firm. In a supply chain relationship, such retaliatory sentiments may manifest themselves through reductions in collaborative behaviors, relationship

quality, or relationship loyalty. Although reciprocity may imply a simple mirroring effect, SET would indicate that the cost of time pressure would be weighed against the benefits of an overall supply chain relationship. When viewed through the theoretical lens of SET, the imposition of time pressure may impact one type of supply chain relationship more than another. Based on these theoretical frameworks, it appears that a supply chain member may respond to time pressure by both a sense of reciprocal action and a quasi-economic mode of cost/benefit analysis.

VARIABLES & HYPOTHESES

Variables

The purpose of this research is to quantitatively test the effects of time pressure in supply chain relationships. In the literature review, the constructs of time pressure and relationship magnitude were defined and their conceptual importance was explained. These two constructs will serve as independent variables in this research.

In the time pressure literature review, three themes were identified. The first theme in the time pressure literature was that the flow of information and the quality of communication is reduced in time pressured environments. Due to the broad conceptual scope of this theme, several dependent variables related to interfirm relationship information flows were selected. The dependent variables in this research corresponding to the first time pressure literature theme are information exchange, communication quality, operational knowledge transfer, and shared interpretation. Information exchange is the expectation that supply chain members will provide basic information to each other (Lusch and Brown 1996). Communication quality refers to the completeness, credibility, accuracy, timeliness, and adequacy of communication flows between

supply chain members (Mohr and Sohi 1995). Operational knowledge transfer refers to the transfer of tacit knowledge or know-how between supply chain members (Modi and Mabert 2007). Shared interpretation refers to a consensus on the meaning of information and its implications for business between supply chain members (Slater and Narver 1995).

The second theme in the time pressure literature was that time pressure tends to create negative affect and reduce satisfaction. Therefore, a dependent variable was selected in order to determine if supply chain relationships are impacted in a similar manner. The dependent variable used in this research to assess this time pressure literature theme is relationship loyalty. Relationship loyalty refers to the long-term bonds and emotional connections to a relationship (Davis and Mentzer 2006; Kandampully 1998).

The third theme in the time pressure literature was that time pressure reduces performance and quality. In order to determine if time pressure has similar effects on supply chain relationships, a dependent variable was selected to assess an outcome of interfirm relationships. The dependent variable used in this research to assess this time pressure literature theme is relationship value. Relationship value refers to an assessment of satisfaction with a relationship based on perceived costs and benefits (Golicic and Mentzer 2006; Monroe 1990; Novack, Langley, and Rinehart 1995)

The constructs selected as dependent variables in this research are appropriate for testing the effects of time pressure in supply chain relationships for three reasons. First, these existing relational constructs were selected based on known effects of time pressure in other contexts, making them relevant to both interfirm relationship and time pressure research. Second, information and knowledge sharing are powerful drivers of efficiency, effectiveness, and overall supply chain performance (Lambert, Emmelhainz, and Gardner 1999; Lambert, Emmelhainz,

and Gardner 1996; Mentzer et al. 2001; Mentzer, Foggin, and Golcic 2000; Mentzer, Min, and Zacharia 2000; Mentzer, Myers, and Stank 2007). The flow of information is at the heart of the supply chain concept thereby making information exchange oriented constructs essential to supply chain management research. Third, high performing supply chains require collaborative, long-term interfirm relationships (Cooper, Lambert, and Pagh 1997; Mentzer et al. 2001). High performing supply chains simply cannot exist if firms do not value or remain loyal to their supply chain relationships (Davis and Mentzer 2006). As these three reasons demonstrate, the dependent variables selected in this research are appropriate for researching the phenomenon of interest.

Hypotheses

As discussed in the interfirm relationship literature review, relationship magnitude (trust, commitment, and dependence) serves as the foundation of any relationship (Golcic, Foggin, and Mentzer 2003; Mohr and Spekman 1994; Morgan and Hunt 1994; Rinehart et al. 2004) and is antecedent to collaborative behaviors and relational sources of advantage (Golcic and Mentzer 2006; Mentzer, Min, and Zacharia 2000). When viewed through the theoretical lens of Reciprocity (Gouldner 1960), it logically follows that increasing levels of relationship magnitude lead to higher degrees of collaboration. The Norm of Reciprocity suggests that firms will favorably respond to positive perceptions of trust, commitment, and dependence in their supply chain relationships by reinforcing key behavioral aspects of the relational exchange. Therefore, based on the relationship literature and applicable theory, the following hypotheses are presented:

H1a: Relationship magnitude is positively related to information exchange.

- H1b:** Relationship magnitude is positively related to communication quality.
- H1c:** Relationship magnitude is positively related to operational knowledge transfer.
- H1d:** Relationship magnitude is positively related to shared interpretation.
- H1e:** Relationship magnitude is positively related to relationship value.
- H1f:** Relationship magnitude is positively related to relationship loyalty.

As previous qualitative research showed, the imposition of time pressure can impact a supply chain relationship (Thomas 2008). In general, collaboration seems to decline, relationship expectations are altered, and communication is impacted by time pressure. Although time pressure has not been quantitatively researched in the context of supply chain relationships, research in other areas of business has shown that time pressure can dramatically impact information flows, satisfaction, and performance. In addition, theoretical insight from the Norm of Reciprocity suggests that the imposition of time pressure could result in some type of relational retaliation. Therefore, based on the time pressure literature and applicable theory, the following hypotheses are presented:

- H2a:** Time pressure is negatively related to information exchange.
- H2b:** Time pressure is negatively related to communication quality.
- H2c:** Time pressure is negatively related to operational knowledge transfer.
- H2d:** Time pressure is negatively related to shared interpretation.
- H2e:** Time pressure is negatively related to relationship value.
- H2f:** Time pressure is negatively related to relationship loyalty.

Relationship magnitude and time pressure are independent variables in this research and are hypothesized to affect the dependent variables of information exchange, communication quality, operational knowledge transfer, shared interpretation, relationship value, and relationship loyalty. Beyond these simple main effects, applicable theory suggests that an interaction may exist between these independent variables. Specifically, application of Social Exchange Theory (SET) suggests that relational behaviors are determined by rewards of interaction minus the costs of interaction (Griffith, Harvey, and Lusch 2006). Different types of relationships will have different types of costs and rewards. The quasi-economic mode of cost/benefit analysis in SET will view the “cost” of time pressure differently across different types of relationships. In lower magnitude relationships, a firm may not view the imposition of time pressure as costly because the firm is not heavily invested in the relationship. The relationship is likely more transactional and expectations from the relationship are low. However, in higher magnitude relationships, a firm may view the imposition of time pressure as very costly. In higher magnitude relationships, firms have simply dedicated more time and energy to the relationship and rightfully expect their efforts to be reciprocated. The imposition of time pressure would violate this mutually gratifying expectation, materially impact the cost/benefit approach of SET, and potentially invoke retaliatory behaviors associated with the norm of reciprocity. Therefore, based on the literature and applicable theory, the following hypotheses are presented:

H3a: Time pressure will have a stronger negative impact on information exchange in higher magnitude relationships than in lower magnitude relationships.

H3b: Time pressure will have a stronger negative impact on communication quality in higher magnitude relationships than in lower magnitude relationships.

H3c: Time pressure will have a stronger negative impact on operational knowledge transfer in higher magnitude relationships than in lower magnitude relationships.

H3d: Time pressure will have a stronger negative impact on shared interpretation in higher magnitude relationships than in lower magnitude relationships.

H3e: Time pressure will have a stronger negative impact on relationship value in higher magnitude relationships than in lower magnitude relationships.

H3f: Time pressure will have a stronger negative impact on relationship loyalty in higher magnitude relationships than in lower magnitude relationships.

METHODOLOGY

Overview

In order to test the proposed hypotheses concerning the nature of the relationship between time pressure and supply chain relationships, a between subjects scenario based experimental methodology was utilized. This method is appropriate because scenario based experimental designs permit the investigation of situations that are not easily duplicated where companies are normally unwilling to share complete details (Pilling, Crosby, and Jackson Jr. 1994). Due to contractual or competitive reasons, companies are often reluctant to discuss specific elements of their actual interfirm relationships (Day and Klein 1987). However, a scenario based approach is less threatening to participants and allows researchers to explore interfirm relationship phenomena.

In this research, six treatment cells result from the 2 x 3 factorial experimental design (see Appendix 1). The independent variables manipulated in this factorial design are time pressure and relationship magnitude. There are three levels of time pressure (high, low, and

none) and two levels of relationship magnitude (high and low). The dependent variables include information exchange, communication quality, operational knowledge transfer, shared interpretation, relationship value, and relationship loyalty. In order to insure valid and reliable measures of the variables in this research, confirmatory factor analysis was performed using structural equations modeling with AMOS software. The hypothesized simple main effects and interaction effects of the experiment were tested through MANOVA and ANOVA in SPSS statistical software.

Sample

Participants in this research were experienced full-time working professionals enrolled in a weekend Executive MBA program at a major southeastern university. This sample was seventy percent male, the average age was 38, and the average work experience was 17 years. The total sample size was 204 with 34 participants for each of the six treatment conditions. MBA student populations are commonly accepted in the literature for interfirm relationship research that utilizes scenario based experimental methodology (Antia et al. 2006; Scheer and Stern 1992). Utilizing graduate students as participants also serves as a desirable control mechanism for the experimental nature of this research due to the relative homogeneity of the sample and the consistency of a classroom delivery setting.

Procedure

After a brief introduction, participants were randomly assigned to one condition in the 2 x 3 factorial experimental design. Participants read a scenario that described a buyer-supplier relationship and explained how the buyer imposes time pressure on the supplier. The scenario included manipulations of relationship magnitude and the amount of time pressure. After

reading the scenario, participants were asked how they think the supplier would react to the scenario. This method assumes that participants projected themselves into the hypothetical situation and provided answers that reflect how the supplier would actually respond to the situation described in the scenario.

Prior research has shown that individual managers can provide important insights into corporate strategies and projective scenario based methods can accurately represent the underlying attitudes of these managers. (Antia et al. 2006; Chandy, Prabhu, and Antia 2003; Fisher 1993). The use of written scenarios to operationalize independent variables is a widely used and credible research approach (Dabholkar and Bagozzi 2002; Dabholkar and Kellaris 1992; Joshi and Arnold 1998; Monga and Zhu 2005; Pilling, Crosby, and Jackson Jr. 1994; Scheer and Stern 1992). It is important to understand that scenario based manipulations are not simply reading comprehension tests. Instead the scenarios are descriptive and designed to provide an experimental treatment condition. For example, in this research, the term “time pressure” never appeared in the written scenarios. However, the scenarios did use terms like “difficult to meet deadlines” that create “considerable strain” within an organization. Such descriptions are designed to invoke a sense of time pressure within the participants. Follow-up manipulation check items then test for the effectiveness of the manipulations. The written scenario manipulations used in this research are provided in Appendix 4.

Instrument and Measures

The overview and instructions in the questionnaire provided general guidance to the participants. The overview explained to participants that their involvement is voluntary and their responses will remain completely anonymous. The instructions asked participants to read a short

business scenario and then answer a few questions about the scenario. They were instructed to answer the questions based on how they think the supplier would respond in the scenario provided. The instructions are provided in Appendix 4.

Item scales for the independent and dependent variables were modified from existing multi-item scales in order to ground them in this research context. The modifications were minimal and consisted of simply adapting the language to be consistent with the scenario used in the experimental treatment. Wording was adjusted to insure subject/verb agreement, but the original intent and structure of the items remained intact. All items were measured on a 7-point Likert scale. Endpoints for these scales ranged from “strongly disagree” to “strongly agree.” The individual item scales are provided in Appendix 5.

ANALYSIS

Scale Purification

Scale purification procedures were used to assess unidimensionality, reliability, convergent validity, and discriminant validity (Garver and Mentzer 1999). Confirmatory factor analysis was used to test unidimensionality and convergent validity because it has been shown to provide a more rigorous interpretation than other available methods such as exploratory factor analysis, item total correlations, and coefficient alpha (Gerbing and Anderson 1988). The fit of the measurement model was good with a RMSEA of 0.069, CFI of 0.933, and CMIN/df ratio of 1.995. The regression weights of the items on the latent variables were all statistically significant at the $p < 0.001$ level and in the correct direction. The regression weights on all but two items (See Appendix 6) exceeded the recommended value of 0.70 (Garver and Mentzer

1999). Internal consistency reliability was assessed using Cronbach's coefficient alpha. All alpha values exceeded the recommended value of 0.70 (See Appendix 5) suggesting the items sufficiently captured the constructs of interest (Churchill 1979; Nunnally and Bernstein 1994). Discriminant validity was assessed by the average variance extracted (AVE). The AVE exceeded the shared variance with other constructs (See Appendix 15) as recommended thereby demonstrating discriminant validity (Fornell and Larcker 1981). Based on these test results, the measures used in this research were considered acceptable.

Manipulation and Confounding Checks

The independent variables manipulated in this experiment were time pressure and relationship magnitude. In order to insure these experimental manipulations were successful, manipulation checks were performed. Items to measure the manipulations were placed at the end of the questionnaire in order to avoid introducing bias or cueing responses from participants. The time pressure manipulation check consisted of comparing the time pressure scores of three groups (high time pressure, low time pressure, and no time pressure). The three groups were based on the time pressure scenario read in the experimental treatment. Time pressure scores for the three groups were analyzed using a one-way ANOVA test and Turkey's post-hoc tests in SPSS. Differences between all three groups were statistically significant at the $p < 0.001$ level. Mean scores for each group were consistent with the intended manipulation grouping (high time pressure = 5.75, low time pressure = 4.72, no time pressure = 1.87). Therefore, participants did perceive significant differences between each level of the time pressure experimental conditions and the manipulation of time pressure was successful.

The relationship magnitude manipulation check consisted of comparing the relationship magnitude scores of two groups (high relationship magnitude and low relationship magnitude). Due to the second order nature of the relationship magnitude construct, the relationship magnitude score used in the manipulation check was a summation of the trust, commitment, and dependence scores. The two relationship magnitude groups were based on the relationship magnitude scenario read in the experimental treatment. Relationship magnitude scores for the two groups were analyzed using a one-way ANOVA test in SPSS. Differences between the two groups were statistically significant at the $p < 0.001$ level. Mean scores for each group were consistent with the intended manipulation grouping (high relationship magnitude = 4.95, low relationship magnitude = 3.10). Therefore, participants did perceive significant differences between each level of the relationship magnitude experimental conditions and the manipulation of relationship magnitude was successful.

In addition to manipulation checks, confounding checks were also performed on the relationship magnitude and time pressure manipulations. Confounding checks are used to assess the “discriminant validity” of manipulations (Wetzel 1977) and insure that one experimental manipulation is not influenced by another manipulation. In this research, a slight amount of confounding was present in the manipulations. When confounding occurs, further analysis should be performed in order to determine if the degree of confounding is substantial enough to invalidate the results of the main experiment (Perdue and Summers 1986). The analysis consists of measuring and comparing the effects sizes of main effects and interaction effects of the manipulations with relationship magnitude and time pressure measures also serving as dependent variables. For a confounding check to be successful, the effect size of the main effect should be sufficiently large and the effect size of the interaction effect should be near zero (Perdue and

Summers 1986). Therefore, effect sizes were measured using a Partial Eta Squared calculation in SPSS. The Partial Eta Squared score for the dependent variable of relationship magnitude main effect manipulation was 0.475 compared to 0.048 for the interaction manipulation. The Partial Eta Squared score for the dependent variable of time pressure main effect manipulation was 0.770 compared to 0.049 for the interaction manipulation. Based on this effect size analysis, the degree of confounding present in the manipulations was minimal and the results of this research can be interpreted in a straightforward manner.

Realism Checks

Due to the scenario based nature of this experiment, a realism check was performed in order to assess how participants viewed the scenario. In order for scenario based experimental methods to be reliable, participants must understand and respond to experimental tasks (Louviere, Hensler, and Swait 2000). Therefore, participants were asked if they thought the scenario was realistic and if they could imagine themselves in the situation described. The purpose of this check was to determine if the scenario approximated a real world situation and engaged the participants. Realistic research situations increase the strength of variables and contribute to external validity (Kerlinger and Lee 2000). Realism of this scenario based experimental design was assessed with items developed by Dabholkar (1994). The realism check showed that participants considered the scenarios to be realistic with an average score of 5.06 on a 7 point scale.

Tests of Hypotheses

In order to test the hypotheses in this research, a three step process was used. First, a MANOVA was run for each independent variable and the interaction in order to determine if a

significant difference existed in the overall model. Second, if the MANOVA results indicated that a significant difference did exist in the model, then additional univariate tests were performed for each dependent variable. Third, if the univariate tests showed a significant interaction existed, then post hoc test with a Tukey's adjustment were performed to identify specific significant differences among individual cell means. Based on this analysis, all hypotheses and their significance are summarized in Appendix 7 and all dependent variable cell means are provided in Appendix 8.

Results of the initial MANOVAs were all significant. The general prediction that relationship magnitude was positively related to the dependent variables in this research was supported (Wilks' lambda = .457; $F = 38.15$; $p < 0.001$). The general prediction that time pressure was negatively related to the dependent variables in this research was supported (Wilks' lambda = .666; $F = 7.24$; $p < 0.001$). The general prediction that time pressure would have a greater negative impact on high magnitude relationships than on low magnitude relationships was supported (Wilks' lambda = .894; $F = 1.86$; $p < 0.05$). Based on these results, the analysis moved forward with additional univariate tests for each dependent variable.

Univariate tests for the dependent variable information exchange were all statistically significant and supported all three hypotheses. The H1a simple main effect prediction that relationship magnitude would have a positive effect on information exchange was supported ($F = 166.31$; $p < 0.001$). The H2a simple main effect prediction that time pressure would have a negative effect on information exchange was supported ($F = 7.24$; $p = 0.001$). These simple main effects must be interpreted in light of a significant two-way interaction. The H3a prediction of an interaction between relationship magnitude and time pressure on information exchange was supported ($F = 5.39$; $p = 0.005$). Tukey's post hoc tests showed no significant

differences of time pressure effects on low magnitude relationships, but there was a significant difference of time pressure effects on high magnitude relationships. Specifically, the high time pressure condition in high magnitude relationships was significantly less than either the low time pressure condition ($t = 3.99$; $p < 0.001$) or the no time pressure condition ($t = 4.67$; $p < 0.001$).

Unlike the results for information exchange, univariate tests for the dependent variable communication quality were not all statistically significant and did not support all three hypotheses. The H1b simple main effect prediction that relationship magnitude would have a positive effect on communication quality was supported ($F = 132.15$; $p = 0.001$). The H2b simple main effect prediction that time pressure would have a negative effect on communication quality was not supported. The H3b prediction of an interaction between relationship magnitude and time pressure on communication quality was not supported.

Similar to the results for communication quality, univariate tests for the dependent variable operational knowledge transfer revealed only one simple main effect. The H1c simple main effect prediction that relationship magnitude would have a positive effect on operational knowledge transfer was supported ($F = 116.07$; $p < 0.001$). The H2c simple main effect prediction that time pressure would have a negative effect on operational knowledge transfer was not supported. The H3c prediction of an interaction between relationship magnitude and time pressure on operational knowledge transfer was not supported.

Just as the results reflected for information exchange, univariate tests for the dependent variable shared interpretation were all statistically significant and supported all three hypotheses. The H1d simple main effect prediction that relationship magnitude would have a positive effect on shared interpretation was supported ($F = 116.07$; $p < 0.001$). The H2d simple main effect prediction that time pressure would have a negative effect on shared interpretation was supported

($F = 17.40$; $p < 0.001$). These simple main effects must be interpreted in light of a significant two-way interaction. The H3d prediction of an interaction between relationship magnitude and time pressure on shared interpretation was supported ($F = 4.48$; $p = 0.012$). Tukey's post hoc tests showed no significant differences of time pressure effects on low magnitude relationships, but there was a significant difference of time pressure effects on high magnitude relationships. Specifically, the high time pressure condition in high magnitude relationships was significantly less than either the low time pressure condition ($t = 5.46$; $p < 0.001$) or the no time pressure condition ($t = 5.85$; $p < 0.001$).

Like the results of information exchange and shared interpretation, the analysis for the dependent variable relationship value revealed two simple main effects and a 2-way interaction. The H1e simple main effect prediction that relationship magnitude would have a positive effect on relationship value was supported ($F = 82.79$; $p < 0.001$). The H2e simple main effect prediction that time pressure would have a negative effect on relationship value was supported ($F = 9.35$; $p < 0.001$). These simple main effects must be interpreted in light of a significant two-way interaction. The H3e prediction of an interaction between relationship magnitude and time pressure on relationship value was supported ($F = 4.12$; $p = 0.018$). Tukey's post hoc tests showed no significant differences of time pressure effects on low magnitude relationships, but there was a significant difference of time pressure effects on high magnitude relationships. Specifically, the high time pressure condition in high magnitude relationships was significantly less than either the low time pressure condition ($t = 5.30$; $p < 0.001$) or the no time pressure condition ($t = 5.55$; $p < 0.001$).

Univariate tests for the dependent variable relationship loyalty showed two simple main effects, but no significant interaction. The H1f simple main effect prediction that relationship

magnitude would have a positive effect on relationship loyalty was supported ($F = 49.46$; $p < 0.001$). The H2f simple main effect prediction that time pressure would have a negative effect on relationship loyalty was supported ($F = 22.28$; $p < 0.001$). The H3f prediction of an interaction between relationship magnitude and time pressure on relationship loyalty was not supported.

GENERAL DISCUSSION

The purpose of this research was to examine predictions related to the imposition of time pressure in supply chain relationships. Based on existing literature and applicable theory, hypotheses were developed in order to quantitatively test the effects of time pressure in supply chain relationships. Specifically, the effects of time pressure were evaluated in different types of relationships and shown to impact relational constructs such as information exchange, communication quality, operational knowledge transfer, shared interpretation, relationship value, and relationship loyalty. Appendix 7 provides a summary of the hypotheses and their significance in this research. In general, most hypotheses were supported. These results indicate that time pressure is a potentially important consideration for supply chain relationship research.

There are several interesting findings based on the results of this research. First, the data suggests that concept of relationship magnitude is directly related to a number of key collaborative behaviors and relationship outcomes. As depicted in Appendices 9 through 14, graphical plots of all dependent variables in this research show a clear simple main effect for relationship magnitude. As the magnitude of a relationship increases, the experimental data suggests that information exchange, relationship value, operational knowledge transfer,

communication quality, shared interpretation, and relationship loyalty all increase. These results provide additional empirical support for the notion that relationship magnitude is antecedent to the type of relationship and collaboration that will exist between supply chain members.

Another interesting finding of this research is the significant interactions between relationship magnitude and time pressure on three of the six dependent variables. In lower magnitude, more transactional relationships, the imposition of time pressure does not appear to significantly change levels of information exchange, relationship value, or shared interpretation (See Appendices 9, 10, and 13). However, in higher magnitude, more collaborative relationships, high levels of time pressure does significantly reduce information exchange, relationship value, and shared interpretation. These findings suggest that low levels of time pressure do not impact these three dependent variables regardless of the type of relationship. These finding also suggest that high levels of time pressure impact the three dependent variables *only* in higher magnitude relationships.

Perhaps the most interesting finding in the research is the impact of time pressure on the dependent variable of relationship loyalty. As depicted in Appendix 14, time pressure has a simple main effect on relationship loyalty. Unlike the dependent variables of information exchange, relationship value, and shared interpretation, relationship loyalty is significantly reduced by even low levels of time pressure. Regardless of the magnitude of the relationship, low levels of time pressure reduce relationship loyalty.

IMPLICATIONS & FUTURE RESEARCH

Research

This research makes several significant contributions to the body of knowledge in strategic supply chain management. Although the detrimental effects of time pressure have been studied in other business contexts, research is lacking in the interfirm relationship literature. Gaining a greater understanding of the potential effects of time pressure in relationships can provide valuable insight into relationship dynamics and potentially shed light on why supply chain relationships succeed or fail. This research represents a first step in quantifying the effects of a significant contextual element which is present in many interfirm supply chain relationships. As firms continue to focus on providing time utility to customers and achieving supply chain excellence through time-based competition, additional research on the effects of time pressure is warranted.

This research also makes a methodological contribution to the body of knowledge. Although general experimental methodology is commonly used in other disciplines to conduct behavioral research and projective scenario based experimentation has been used extensively in the marketing literature to address interfirm relationship issues, this research technique is not commonly used in logistics and supply chain oriented research. This omission is noticeable given the strategic importance of interfirm supply chain relationships and the emerging importance of behavioral aspects in logistics and supply chain management research. By extending this methodology into the discipline, researchers will have another methodological approach to increase our understanding of behavioral issues associated with interfirm supply chain relationship phenomena.

Managerial

Although the generalizability of laboratory based experimental methodology is somewhat limited, the results of this research may have several implications for managers. Perhaps most importantly, this research suggests that imposing time pressure on other supply chain members may jeopardize critical aspects of interfirm relationships. The results show that time pressure can reduce the flow and interpretation of information, relationship value, and relationship loyalty in supply chain relationships. These potentially adverse effects are important for managers to understand because it will provide them with more information to successfully manage key interfirm linkages throughout the supply chain. The imposition of time pressure appears to have some substantial costs associated with it. By understanding these costs, managers can more effectively assess and balance the trade-offs of time-based competitive actions. These insights may help managers make better supply chain management decisions and preserve essential supply chain relationships.

Another managerially relevant finding of this research is that time pressure affects the various types of supply chain relationships in different ways. Although there may be some marginal impact to transactional relationships, the imposition of time pressure has the strongest negative effects on strong relationships. As any manager knows, highly collaborative relationships are the foundation of successful supply chains. However, the negative effects of time pressure are intensified in such partnerships. Stressing these critical partnerships with the imposition of time pressure places an entire supply chain at risk. With this insight, managers may need to reconsider any strategic approach or tactical decision that imposes time pressure on other partners within their supply chains. Failing to understand this concept jeopardizes not only key supply chain relationships, but the overall long-term performance of supply chains.

Future Research

This research represents a critical first step in quantifying and understanding the effects of time pressure in interfirm supply chain relationships. However, beyond this basic initial approach, future research is needed to explore and test this complex issue. Future research could focus on several critical areas. First, a variety of types of interfirm relationships exist in supply chains. This research tested two types of relationships based on relative levels of relationship magnitude. However, future research can explore other types of relationships. Examples might include asymmetric power/dependence relationships or temporary outsourcing relationships.

The second area of future research could determine if the imposition of time pressure in a supply chain is multi-dimensional. Although this research tested the basic concept of time pressure as a starting point for a program of research, future research can address potential dimensions of time pressure. Examples might include the frequency of time pressure, the magnitude of time pressure, or the attribution of time pressure.

The third area of future research could test if time pressure impacts other collaborative behaviors or outcomes in interfirm supply chain relationships. In this research, dependent variables were selected based on common themes in time pressure literature from other areas. Now that evidence exists to suggest that time pressure also impacts interfirm relationships, other dependent variables can also be explored. Examples might include idiosyncratic investments, social norms, and collaboration.

The fourth area of future research could explore how culture impacts perceptions of time pressure. In this research, time pressure was studied with a sample of managers from the United States. Future research could test if similar effects are present in other areas of the world with different cultures and orientations toward the concept of time. Although the need to provide time

utility is universal in supply chains, effects of time pressure may vary in different global environments.

REFERENCES

- Ahituv, Niv, Magid Igarria, and Aviem Sella (1998), "The Effects of Time Pressure and Completeness of Information on Decision Making," *Journal of Management Information Systems*, 15 (2), 153-72.
- Alderman, C. Wayne and James W. Deitrick (1982), "Auditors' Perceptions of Time Budget Pressures and Premature Sign-Offs: A Replication and Extension," *Auditing*, 1 (2), 54-70.
- Anderson, Erin and Barton Weitz (1992), "The Use of Pledges to Build and Sustain Commitment in Distribution Channels," *Journal of Marketing Research*, 29 (1), 18-34.
- Angulo, Andres, Heather Nachtmann, and Matthew A. Waller (2004), "Supply Chain Information Sharing in a Vendor Managed Inventory Partnership," *Journal of Business Logistics*, 25 (1), 101-20.
- Antia, Kersi D., Mark E. Bergen, Shantanu Dutta, and Robert J. Fisher (2006), "How Does Enforcement Deter Gray Market Incidence?," *Journal of Marketing*, 70 (1), 92-106.
- Arnold, Vicky, Steve G. Sutton, Stephen C. Hayne, and Charles A. P. Smith (2000), "Group Decision Making: The Impact of Opportunity-Cost Time Pressure and Group Support Systems," *Behavior Research in Accounting*, 12, 69-97.
- Ben Zur, H. and S. J. Breznitz (1981), "The Effect of Time Pressure on Risky Choice Behavior," *Acta Psychologica*, 47, 89-104.
- Benbasat, I. and A.S. Dexter (1986), "An Investigation of the Effectiveness of Color and Graphical Information Presentation under Varying Time Constraints," *MIS Quarterly*, 10, 59-80.
- Bennett, Rebekah and Sharyn Rundle-Thiele (2005), "The Brand Loyalty Life Cycle: Implications for Marketers," *Journal of Brand Management*, 12 (4), 250-63.
- Bozarth, Cecil and Steve Chapman (1996), "A Contingency View of Time-Based Competition for Manufacturers," *International Journal of Operations and Production Management*, 16 (6), 56-67.
- Brehmer, B. (1992), "Dynamic Decision Making: Human Control of Complex Systems," *Acta Psychologica*, 81, 211-41.
- Brockman, Beverly K. and Robert M. Morgan (2003), "The Role of Existing Knowledge in New Product Innovativeness and Performance," *Decision Sciences*, 34 (2), 385-415.

- Caballer, Amparo, Francisco Gracia, and José-María Peiró (2005), "Affective Responses to Work Process and Outcomes in Virtual Teams: Effects of Communication Media and Time Pressure," *Journal of Managerial Psychology*, 20 (3), 245-60.
- Cannon, Joseph P. and William D. Perreault Jr. (1999), "Buyer-Seller Relationships in Business Markets," *Journal of Marketing Research*, 36 (4), 439-60.
- Carr, Amelia S. and John N. Pearson (2002), "The Impact of Purchasing and Supplier Involvement on Strategic Purchasing and Its Impact on Firm Performance," *International Journal of Operations and Production Management*, 22 (9), 1032-53.
- Carter, Joseph R. and Lisa M. Ellram (1994), "The Impact of Interorganizational Alliances in Improving Supplier Quality," *International Journal of Physical Distribution & Logistics Management*, 24 (5), 15.
- Chandy, Rajesh K., Jaideep C. Prabhu, and Kersi D. Antia (2003), "What Will the Future Bring? Dominance, Technology Expectations, and Radical Innovation," *Journal of Marketing*, 67 (3), 1-18.
- Christensen-Szalanski, J. (1980), "A Further Examination of the Selection of Problem-Solving Strategies: The Effects of Deadlines and Analytic Aptitudes," *Organizational Behavior and Human Performance*, 25, 107-22.
- Churchill, Gilbert A. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, 16 (1), 64-73.
- Cooper, Martha C., Douglas M. Lambert, and Janus D. Pagh (1997), "Supply Chain Management: More Than a New Name for Logistics," *International Journal of Logistics Management*, 8 (1), 1-14.
- D'Aveni, Richard (1994), *Hypercompetition: Managing the Dynamics of Strategic Maneuvering*. New York: The Free Press.
- (1998), "Waking up to the New Era of Hypercompetition," *Washington Quarterly Winter*, 21 (1), 183-85.
- Dabholkar, Pratibha A. (1994), "Incorporating Choice into an Attitudinal Framework: Analyzing Models of Mental Comparison Processes," *Journal of Consumer Research*, 21 (1), 100-18.
- Dabholkar, Pratibha A. and Richard P. Bagozzi (2002), "An Attitudinal Model of Technology-Based Self-Service: Moderating Effects of Consumer Traits and Situational Factors," *Journal of the Academy of Marketing Sciences*, 30 (3), 184-201.

- Dabholkar, Pratibha A. and James J. Kellaris (1992), "Toward Understanding Marketing Students' Ethical Judgment of Controversial Personal Selling Practices," *Journal of Business Research*, 24 (4), 313-29.
- Davis, Beth and John T. Mentzer (2006), "Logistics Service Driven Loyalty: An Exploratory Study," *Journal of Business Logistics*, 27 (2), 53-73.
- Day, George S. (2000), "Managing Market Relationships," *Journal of the Academy of Marketing Sciences*, 28, 24-30.
- Day, George S. and Saul Klein (1987), "Cooperative Behavior in Vertical Markets: The Influence of Transaction Costs and Competitive Strategies," in *Review of Marketing*, Michael J. Houston, Ed. Chicago: American Marketing Association.
- De Toni, Alberto and Antonella Meneghetti (2000), "Traditional and Innovative Paths Towards Time-Based Competition," *International Journal of Production Economics*, 66 (3), 255-68.
- Dibb, Sally (2001), "New Millennium, New Segments: Moving Towards the Segment of One?," *Journal of Strategic Marketing*, 9 (3), 193-213.
- Dibrell, Clay, Peter Davis, and Paul Danskin (2005), "The Influence of Internationalization on Time-Based Competition," *Management International Review*, 45 (2), 173-95.
- Dickson, Peter Reid (1992), "Toward a General Theory of Competitive Rationality," *Journal of Marketing*, 56 (1), 69-83.
- Droge, Cornelia, Jayanth Jayaram, and Shawnee K. Vickery (2004), "The Effects of Internal Versus External Integration Practices on Time-Based Performance and Overall Firm Performance," *Journal of Operations Management*, 22 (6), 557-73.
- Durham, Cathy C., Edwin A. Locke, June M. L. Poon, and Poppy L. McLeod (2000), "Effects of Group Goals and Time Pressure on Group Efficacy, Information-Seeking Strategy and Performance," *Human Performance*, 13 (2), 115-40.
- Dyer, Jeffrey H. and Harbir Singh (1998), "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage," *Academy of Management Review*, 23 (4), 660-79.
- Emerson, R.M. (1976), "Social Exchange Theory," *Annual Review of Sociology*, 2, 335-62.
- Fisher, Robert J. (1993), "Social Desirability Bias and the Validity of Indirect Questioning," *Journal of Consumer Research*, 20 (2), 303-15.

- Fornell, Claes and David F Larcker (1981), "Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics," *Journal of Marketing Research*, 18 (3), 382-88.
- Ganesan, Shankar (1994), "Determinants of Long-Term Orientation in Buyer-Seller Relationships," *Journal of Marketing*, 58 (2), 1-19.
- Garver, Michael S. and John T. Mentzer (1999), "Logistics Research Methods: Employing Structural Equations Modeling to Test for Construct Validity," *Journal of Business Logistics*, 20 (1), 33-57.
- Gerbing, David W. and James C. Anderson (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment," *Journal of Marketing Research*, 25 (2), 186-92.
- Golicic, Susan L., James H. Foggin, and John T. Mentzer (2003), "Relationship Magnitude and Its Role in Interorganizational Relationship Structure," *Journal of Business Logistics*, 24 (1), 57-75.
- Golicic, Susan L. and John T. Mentzer (2006), "An Empirical Examination of Relationship Magnitude," *Journal of Business Logistics*, 27 (1), 81-108.
- Gouldner, Alvin W. (1960), "The Norm of Reciprocity: A Preliminary Statement," *American Sociological Review*, 25 (2), 161-78.
- Griffith, David A., Michael G. Harvey, and Robert F. Lusch (2006), "Social Exchange in Supply Chain Relationships: The Resulting Benefits of Procedural and Distributive Justice," *Journal of Operations Management*, 24 (2), 85-98.
- Gundlach, Gregory T., Ravi S. Achrol, and John T. Mentzer (1995), "The Structure of Commitment in Exchange," *Journal of Marketing*, 59 (1), 78-92.
- Heide, Jan B. and George John (1988), "The Role of Dependence Balancing in Safeguarding Transaction-Specific Assets in Conventional Channels," *Journal of Marketing*, 52 (1), 20-35.
- Herrington, J. Duncan and Louis M. Capella (1995), "Shopper Reactions to Perceived Time Pressure," *International Journal of Retail & Distribution Management*, 23 (12), 13-21.
- Hwang, M.I. (1994), "Decision Making under Time Pressure: A Model for Information Systems Research," *Information and Management*, 27, 197-203.
- Iyer, Easwar S. (1989), "Unplanned Purchasing: Knowledge of Shopping Environment and Time Pressure," *Journal of Retailing*, 65 (1), 40-58.

Jayaram, Jayanth, Shawnee K. Vickery, and Cornelia Droge (1999), "An Empirical Study of Time-Based Competition in the North American Automotive Supplier Industry," *International Journal of Operations and Production Management*, 19 (10), 1010-32.

Joshi, Ashwin W. and Stephen J. Arnold (1998), "How Relational Norms Affect Compliance in Industrial Buying," *Journal of Business Research*, 41 (2), 105-14.

Kandampully, Jay (1998), "Service Quality to Service Loyalty: A Relationship Which Goes Beyond Customer Services," *Total Quality Management*, 9 (6), 431-43.

Keinan, G., N. Friedland, and Y. Ben-Porath (1987), "Decision Making under Stress: Scanning of Alternatives under Physical Threat," *Acta Psychologica*, 64, 219-28.

Kelley, Tim and Loren Margheim (1990), "The Impact of Time Budget Pressure, Personality, and Leadership Variables on Dysfunctional Auditor Behavior," *Auditing*, 9 (2), 21-42.

Kelly, Janice, Jay Jackson, and Sarah Hutson-Comeaux (1997), "The Effects of Time Pressure and Task Differences on Influence Modes and Accuracy in Decision-Making Groups," *Personality & Social Psychology Bulletin*, 23 (1).

Kerlinger, Fred N. and Howard B. Lee (2000), *Foundations of Behavioral Research*. United States: Thomson Learning.

Kerstholt, Jose H. (1994), "The Effect of Time Pressure on Decision-Making Behavior in a Dynamic Task Environment," *Acta Psychologica*, 86 (1), 89-104.

Lambert, Douglas M., Margaret A. Emmelhainz, and John T. Gardner (1999), "Building Successful Logistics Partnerships," *Journal of Business Logistics*, 20 (1), 165-81.

---- (1996), "Developing and Implementing Supply Chain Partnerships," *International Journal of Logistics Management*, 7 (2), 1-17.

Louviere, J., D. A. Hensler, and J. D. Swait (2000), *Stated Choice Methods: Analysis and Application*. Cambridge, UK: Cambridge University Press.

Lusch, Robert F. and James R. Brown (1996), "Interdependency, Contracting, and Relational Behavior in Marketing Channels," *Journal of Marketing*, 60 (4), 19-38.

Margheim, Loren and Kurt Pany (1986), "Quality Control, Premature Signoff, and Underreporting of Time: Some Empirical Findings," *Auditing*, 5 (2), 50-64.

Maule, A. John, Robert J. Hockey, and L. Bdzola (2000), "Effects of Time Pressure on Decision Making under Uncertainty: Changes in Affective State and Information Processing Strategy," *Acta Psychologica*, 104 (3), 283-301.

- Maule, A. John and P. Mackie (1990), "A Componential Investigation of the Effects of Deadlines on Individual Decision Making," in *Contemporary Issues in Decision Making*, K. Borcharding, Ed. Amsterdam: North-Holland.
- McDaniel, Linda S. (1990), "The Effects of Time Pressure and Audit Program Structure on Audit Performance," *Journal of Accounting Research*, 28 (2), 267-85.
- McDonald, Gerald W. (1981), "Structural Exchange and Marital Interaction," *Journal of Marriage and the Family* (November), 825-39.
- Mentzer, John T., William DeWitt, James S. Keebler, Min Soonhoong, Nancy W. Nix, Carlo D. Smith, and Zach G. Zacharia (2001), "Defining Supply Chain Management," *Journal of Business Logistics*, 22 (2), 1-25.
- Mentzer, John T., James H. Foggin, and Susan L. Golicic (2000), "Collaboration: The Enablers, Impediments, and Benefits," *Supply Chain Management Review*, 4 (4), 52-59.
- Mentzer, John T., Soonhong Min, and Zach G. Zacharia (2000), "The Nature of Interfirm Partnering in Supply Chain Management," *Journal of Retailing*, 76 (4), 549.
- Mentzer, John T., Matthew B. Myers, and Theodore P. Stank (2007), *Handbook of Global Supply Chain Management*. Thousand Oaks: Sage Publications.
- Mentzer, John T., Theodore P. Stank, and Terry L. Esper (2008), "Supply Chain Management and Its Relationship to Logistics, Marketing, Production, and Operations Management," *Journal of Business Logistics*, 29 (1), 31-45.
- Miller, J. G. (1960), "Information Input Overload and Psychopathy," *American Journal of Psychiatry*, 116, 695-704.
- Modi, Sachin B. and Vincent A. Mabert (2007), "Supplier Development: Improving Supplier Performance through Knowledge Transfer," *Journal of Operations Management*, 25 (1), 42-64.
- Mohr, Jakki J. and Ravipreet S. Sohi (1995), "Communication Flows in Distribution Channels: Impact on Assessment of Communication Quality and Satisfaction," *Journal of Retailing*, 71 (4).
- Mohr, Jakki and Robert Spekman (1994), "Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques," *Strategic Management Journal*, 15 (2), 135-52.
- Monga, Ashwani and Rui Zhu (2005), "Buyers Versus Sellers: How They Differ in Their Responses to Framed Outcomes," *Journal of Consumer Psychology*, 15 (4), 325-33.
- Monroe, Kent B. (1990), *Pricing: Making Profitable Decisions*. New York, NY: McGraw-Hill Publishing Company.

Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (3), 20.

Novack, Robert A., C. John Langley, and Lloyd M. Rinehart (1995), *Creating Logistics Value: Themes for the Future*. Oak Brook, IL: Council of Logistics Management.

Nunnally, Jun C. and Ira H. Bernstein (1994), *Psychometric Theory* (3rd ed.). New York: McGraw-Hill.

Ordonez, Lisa and Lehman Benson III (1997), "Decisions under Time Pressure: How Time Constraint Affects Risky Decision Making," *Organizational Behavior and Human Decision Processes*, 71 (2), 121-40.

Park, C. Whan, Easwar S. Iyer, and Daniel C. Smith (1989), "The Effects of Situational Factors on in-Store Grocery Shopping Behavior: The Role of Store Environment and Time Available for Shopping," *Journal of Consumer Research*, 15 (4), 422-35.

Payne, John W., James R. Bettman, and M. Eric Johnson (1988), "Adaptive Strategy Selection in Decision Making," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 14, 534-52.

Payne, John W., James R. Bettman, and Mary Frances Luce (1996), "When Time Is Money: Decision Behavior under Opportunity-Cost Time Pressure," *Organizational Behavior and Human Decision Processes*, 66 (2), 131-52.

Perdue, Barbara C. and John O. Summers (1986), "Checking the Success of Manipulations in Marketing Experiments," *Journal of Marketing Research*, 23 (4), 317-26.

Pilling, Bruce K., Lawrence A. Crosby, and Donald W. Jackson Jr. (1994), "Relational Bonds in Industrial Exchange: An Experimental Test of the Transaction Cost Economic Framework," *Journal of Business Research*, 30 (3), 237-51.

Plank, Richard E. and Stephen J. Newell (2007), "The Effect of Social Conflict on Relationship Loyalty in Business Markets," *Industrial Marketing Management*, 36 (1), 59-67.

Prahinski, Carol and Ying Fan (2007), "Supplier Evaluations: The Role of Communication Quality," *Journal of Supply Chain Management: A Global Review of Purchasing and Supply*, 43 (3), 16-28.

Rastegary, Haleh and Frank Landy (1993), "The Interactions among Time Urgency, Uncertainty, and Time Pressure," in *Time Pressure and Stress in Human Judgement and Decision Making*, O. Svenson and A. John Maule, Eds. New York: Plenum Press.

Ratneshwar, S., Allan D. Shocker, June Cotte, and Rajendra K. Srivastava (1999), "Product, Person, and Purpose: Putting the Consumer Back into Theories of Dynamic Market Behavior," *Journal of Strategic Marketing*, 7 (3), 191-208.

Rich, Nick and Peter Hines (1997), "Supply Chain Management and Time Based Competition: The Role of the Supplier Association," *International Journal of Physical Distribution & Logistics Management*, 27 (3), 210-44.

Rinehart, Lloyd M., James A. Eckert, Robert B. Handfield, Thomas J. Page Jr., and Thomas Atkin (2004), "An Assessment of Supplier-Customer Relationships," *Journal of Business Logistics*, 25 (1), 25-62.

Scheer, Lisa K. and Louis W. Stern (1992), "The Effect of Influence Type and Performance Outcomes on Attitude toward the Influencer," *Journal of Marketing Research*, 29 (1), 128-42.

Slater, Stanley F. and John C. Narver (1995), "Market Orientation and the Learning Organization," *Journal of Marketing*, 59 (3), 63-75.

Smith, J. F., T. R. Mitchell, and L. R. Beach (1982), "A Cost-Benefit Mechanism for Selecting Problem Solving Strategies: Some Extensions and Empirical Tests," *Organizational Behavior and Human Performance*, 29, 370-96.

Stalk Jr., George (1988), "Time - the Next Source of Competitive Advantage," *Harvard Business Review*, 66 (4), 41-51.

Stalk Jr., George and Thomas M. Hout (1990), *Competing against Time*. New York: The Free Press.

Stalk Jr., George and Alan M. Webber (1993), "Japan's Darkside of Time," *Harvard Business Review*, 71 (4), 93-102.

Stern, Louis W. and Frederick D. Sturdivant (1987), "Customer-Driven Distribution Systems," *Harvard Business Review*, 65 (4), 34-39.

Stuhlmacher, Alice F., Trina L. Gillespie, and Matthew V. Champagne (1998), "The Impact of Time Pressure in Negotiation: A Meta-Analysis," *International Journal of Conflict Management*, 9 (2), 97-116.

Svenson, O. and A. Edland (1987), "Change of Preferences under Time Pressure: Choices and Judgements," *Scandinavian Journal of Psychology*, 28 (322-330).

Svenson, O., A. Edland, and P. Slovik (1990), "Choices and Judgements of Incompletely Described Decision Alternatives under Time Pressure," *Acta Psychologica*, 75, 153-69.

Svenson, O. and A. John Maule (1993), *Time Pressure and Stress in Human Judgement and Decision Making*. New York: Plenum.

Thibaut, J., Kelley, H. (1959), *The Social Psychology of Groups*. Wiley, NY.

Thomas, Rodney W. (2008), "Exploring Relational Aspects of Time-Based Competition," *International Journal of Physical Distribution & Logistics Management*.

Thorelli, Hans B. (1986), "Networks: Between Markets and Hierarchies," *Strategic Management Journal*, 7 (1), 37-51.

Vickery, Shawnee K., Cornelia Droge, Theodore P. Stank, Thomas J. Goldsby, and Robert E. Markland (2004), "The Performance Implications of Media Richness in a Business-to-Business Service Environment: Direct Versus Indirect Effects," *Management Science*, 50 (8), 1106-19.

Walters, David (2004), "New Economy - New Business Models - New Approaches," *International Journal of Physical Distribution & Logistics Management*, 34 (3), 219-29.

Webster, Jr. Frederick E. (1992), "The Changing Role of Marketing in the Corporation," *Journal of Marketing*, 56 (4), 1.

Whipple, Judith M., Robert Frankel, and Patricia J. Daugherty (2002), "Information Support for Alliances: Performance Implications," *Journal of Business Logistics*, 23 (2), 67-82.

Wright, Peter (1974), "The Harassed Decision Maker: Time Pressures, Distractions, and the Use of Evidence," *Journal of Applied Psychology*, 59 (5), 555-61.

Yukl, G. A., M. P. Malone, B. Hayslip, and T. A. Pamin (1976), "The Effects of Time Pressure and Issue Settlement Order on Integrative Bargaining," *Sociometry*, 39, 277-81.

Zakay, D. and S. Wooler (1984), "Time Pressure, Training, and Decision Effectiveness," *Ergonomics*, 27, 273-84.

BIBLIOGRAPHY

Ahituv, Niv, Magid Igbaria, and Aviem Sella (1998), "The Effects of Time Pressure and Completeness of Information on Decision Making," *Journal of Management Information Systems*, 15 (2), 153-72.

Alderman, C. Wayne and James W. Deitrick (1982), "Auditors' Perceptions of Time Budget Pressures and Premature Sign-Offs: A Replication and Extension," *Auditing*, 1 (2), 54-70.

Allen, Natalie J. and John P. Meyer (1990), "The Measurement and Antecedents of Affective, Continuance and Normative Commitment to the Organization," *Journal of Occupational Psychology*, 63 (1), 1-18.

Anderson, Erin and Barton Weitz (1992), "The Use of Pledges to Build and Sustain Commitment in Distribution Channels," *Journal of Marketing Research*, 29 (1), 18-34.

Anderson, James C. and James A. Narus (1990), "A Model of Distributor Firm and Manufacturer Firm Working Partnerships," *Journal of Marketing*, 54 (1), 42-58.

---- (1991), "Partnering as a Focused Market Strategy," *California Management Review*, 33 (3), 95.

Angulo, Andres, Heather Nachtmann, and Matthew A. Waller (2004), "Supply Chain Information Sharing in a Vendor Managed Inventory Partnership," *Journal of Business Logistics*, 25 (1), 101-20.

Antia, Kersi D., Mark E. Bergen, Shantanu Dutta, and Robert J. Fisher (2006), "How Does Enforcement Deter Gray Market Incidence?," *Journal of Marketing*, 70 (1), 92-106.

Arnold, Vicky, Steve G. Sutton, Stephen C. Hayne, and Charles A. P. Smith (2000), "Group Decision Making: The Impact of Opportunity-Cost Time Pressure and Group Support Systems," *Behavior Research in Accounting*, 12, 69-97.

Asanuma, B. (1989), "Manufacturer-Supplier Relationships in Japan and the Concept of Relation Specific Skill," *Journal of Japanese and International Economies*, 3, 1-30.

Barney, Jay, Mike Wright, and David J. Ketchen Jr. (2001), "The Resource-Based View of the Firm: Ten Years after 1991.," *Journal of Management*, 27 (6), 625-43.

Belk, Russell W. (1989), "Extended Self and Extending Paradigmatic Perspective," *Journal of Consumer Research*, 16 (1), 129-33.

---- (1975), "Situational Variables and Consumer Behavior," *Journal of Consumer Research*, 2, 157-68.

Ben Zur, H. and S. J. Breznitz (1981), "The Effect of Time Pressure on Risky Choice Behavior," *Acta Psychologica*, 47, 89-104.

Benbasat, I. and A.S. Dexter (1986), "An Investigation of the Effectiveness of Color and Graphical Information Presentation under Varying Time Constraints," *MIS Quarterly*, 10, 59-80.

Bennett, Rebekah and Sharyn Rundle-Thiele (2005), "The Brand Loyalty Life Cycle: Implications for Marketers," *Journal of Brand Management*, 12 (4), 250-63.

Blackburn, Joseph D. (1991), *Time-Based Competition: The Next Battleground in American Manufacturing*. Homewood, IL: Business One Irwin.

Bozarth, Cecil and Steve Chapman (1996), "A Contingency View of Time-Based Competition for Manufacturers," *International Journal of Operations and Production Management*, 16 (6), 56-67.

Brehmer, B. (1992), "Dynamic Decision Making: Human Control of Complex Systems," *Acta Psychologica*, 81, 211-41.

Brockman, Beverly K. and Robert M. Morgan (2003), "The Role of Existing Knowledge in New Product Innovativeness and Performance," *Decision Sciences*, 34 (2), 385-415.

Buchanan, Lauranne (1992), "Vertical Trade Relationships: The Role of Dependence and Symmetry in Attaining Organizational Goals," *Journal of Marketing Research*, 29 (1), 65-75.

Caballer, Amparo, Francisco Gracia, and José-María Peiró (2005), "Affective Responses to Work Process and Outcomes in Virtual Teams: Effects of Communication Media and Time Pressure," *Journal of Managerial Psychology*, 20 (3), 245-60.

Campbell, D. and D. Fisk (1959), "Convergent and Discriminant Validity by the Multitrait-Multimethod Matrix," *Psychological Bulletin*, 56, 81-105.

Cannon, Joseph P. and William D. Perreault Jr. (1999), "Buyer-Seller Relationships in Business Markets," *Journal of Marketing Research*, 36 (4), 439-60.

Carr, Amelia S. and John N. Pearson (2002), "The Impact of Purchasing and Supplier Involvement on Strategic Purchasing and Its Impact on Firm Performance," *International Journal of Operations and Production Management*, 22 (9), 1032-53.

Carter, Joseph R. and Lisa M. Ellram (1994), "The Impact of Interorganizational Alliances in Improving Supplier Quality," *International Journal of Physical Distribution & Logistics Management*, 24 (5), 15.

Chandy, Rajesh K., Jaideep C. Prabhu, and Kersi D. Antia (2003), "What Will the Future Bring? Dominance, Technology Expectations, and Radical Innovation," *Journal of Marketing*, 67 (3), 1-18.

Christensen-Szalanski, J. (1980), "A Further Examination of the Selection of Problem-Solving Strategies: The Effects of Deadlines and Analytic Aptitudes," *Organizational Behavior and Human Performance*, 25, 107-22.

Churchill, Gilbert A. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, 16 (1), 64-73.

Clark, K. B. and T. Fujimoto (1991), *Product Development Performance*. Boston: Harvard Business School Press.

Cooper, Martha C., Douglas M. Lambert, and Janus D. Pagh (1997), "Supply Chain Management: More Than a New Name for Logistics," *International Journal of Logistics Management*, 8 (1), 1-14.

Cooper, R.G. and E.J. Kleinschmidt (1995), "Benchmarking the Firm's Critical Success Factors in New Product Development," *Journal of Product Innovation Management*, 12 (5), 374-91.

D'Aveni, Richard (1994), *Hypercompetition: Managing the Dynamics of Strategic Maneuvering*. New York: The Free Press.

---- (1998), "Waking up to the New Era of Hypercompetition," *Washington Quarterly Winter*, 21 (1), 183-85.

Dabholkar, Pratibha A. (1994), "Incorporating Choice into an Attitudinal Framework: Analyzing Models of Mental Comparison Processes," *Journal of Consumer Research*, 21 (1), 100-18.

Dabholkar, Pratibha A. and Richard P. Bagozzi (2002), "An Attitudinal Model of Technology-Based Self-Service: Moderating Effects of Consumer Traits and Situational Factors," *Journal of the Academy of Marketing Sciences*, 30 (3), 184-201.

Dabholkar, Pratibha A. and James J. Kellaris (1992), "Toward Understanding Marketing Students' Ethical Judgment of Controversial Personal Selling Practices," *Journal of Business Research*, 24 (4), 313-29.

Davis, Beth and John T. Mentzer (2006), "Logistics Service Driven Loyalty: An Exploratory Study," *Journal of Business Logistics*, 27 (2), 53-73.

Day, George S. (2000), "Managing Market Relationships," *Journal of the Academy of Marketing Sciences*, 28, 24-30.

Day, George S. and Saul Klein (1987), "Cooperative Behavior in Vertical Markets: The Influence of Transaction Costs and Competitive Strategies," in *Review of Marketing*, Michael J. Houston, Ed. Chicago: American Marketing Association.

Day, George S. and Robin Wensley (1988), "Assessing Advantage: A Framework for Diagnosing Competitive Superiority," *Journal of Marketing*, 52 (2), 1-21.

De Toni, Alberto and Antonella Meneghetti (2000), "Traditional and Innovative Paths Towards Time-Based Competition," *International Journal of Production Economics*, 66 (3), 255-68.

Dibb, Sally (2001), "New Millennium, New Segments: Moving Towards the Segment of One?," *Journal of Strategic Marketing*, 9 (3), 193-213.

Dibrell, Clay, Peter Davis, and Paul Danskin (2005), "The Influence of Internationalization on Time-Based Competition," *Management International Review*, 45 (2), 173-95.

Dickson, Peter Reid (1992), "Toward a General Theory of Competitive Rationality," *Journal of Marketing*, 56 (1), 69-83.

Droge, Cornelia, Jayanth Jayaram, and Shawnee K. Vickery (2004), "The Effects of Internal Versus External Integration Practices on Time-Based Performance and Overall Firm Performance," *Journal of Operations Management*, 22 (6), 557-73.

Duffy, Rachel and Andrew Fearne (2004), "The Impact of Supply Chain Partnerships on Supplier Performance," *International Journal of Logistics Management*, 15 (1), 57-71.

Durham, Cathy C., Edwin A. Locke, June M. L. Poon, and Poppy L. McLeod (2000), "Effects of Group Goals and Time Pressure on Group Efficacy, Information-Seeking Strategy and Performance," *Human Performance*, 13 (2), 115-40.

Dwyer, F. Robert, Paul H. Schurr, and Sejo Oh (1987), "Developing Buyer-Seller Relationships," *Journal of Marketing*, 51 (2), 11-27.

Dyer, Jeffrey H. (1997), "Effective Interfirm Collaboration: How Firms Minimize Transaction Costs and Maximize Transaction Value," *Strategic Management Journal*, 18, 553-56.

---- (1996), "Specialized Supplier Networks as a Source of Competitive Advantage: Evidence from the Auto Industry," *Strategic Management Journal*, 17, 271-92.

Dyer, Jeffrey H. and Harbir Singh (1998), "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage," *Academy of Management Review*, 23 (4), 660-79.

Emerson, R.M. (1976), "Social Exchange Theory," *Annual Review of Sociology*, 2, 335-62.

Esper, Terry L. and Lisa R. Williams (2003), "The Value of Collaborative Transportation Management (Ctm): Its Relationship to Cpfr and Information Technology," *Transportation Journal*, 42 (4), 55-65.

Fisher, Robert J. (1993), "Social Desirability Bias and the Validity of Indirect Questioning," *Journal of Consumer Research*, 20 (2), 303-15.

Flint, Daniel J., Everth Larsson, Britta Gammelgaard, and John T. Mentzer (2005), "Logistics Innovation: A Customer Value Oriented Social Process," *Journal of Business Logistics*, 26 (1), 113-47.

Flint, Daniel J. and John T. Mentzer (2000), "Logisticians as Marketers: Their Role When Customer's Desired Value Changes," *Journal of Business Logistics*, 21 (2), 19-45.

Flint, Daniel J., Robert B. Woodruff, and Sarah Fisher Gardial (2002), "Exploring the Phenomenon of Customers' Desired Value Change in a Business-to-Business Context," *Journal of Marketing*, 66 (October), 102-17.

Fornell, Claes and David F Larcker (1981), "Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics," *Journal of Marketing Research*, 18 (3), 382-88.

Frazier, Gary L. (1983), "On the Measurement of Interfirm Power in Channels of Distribution," *Journal of Marketing Research*, 20 (2), 158-66.

Fugate, Brian, Funda Sahin, and John T. Mentzer (2006), "Supply Chain Management Coordination Mechanisms," *Journal of Business Logistics*, 27 (2), 129-61.

Ganesan, Shankar (1994), "Determinants of Long-Term Orientation in Buyer-Seller Relationships," *Journal of Marketing*, 58 (2), 1-19.

Garbarino, Ellen and Julie Edell (1997), "Cognitive Effort, Affect, and Choice," *Journal of Consumer Research*, 24, 147-58.

Garver, Michael S. and John T. Mentzer (1999), "Logistics Research Methods: Employing Structural Equations Modeling to Test for Construct Validity," *Journal of Business Logistics*, 20 (1), 33-57.

Gerbing, David W. and James C. Anderson (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment," *Journal of Marketing Research*, 25 (2), 186-92.

Gevers, Josette M.P., Wendelien Eerde, and Christel G. Rutte (2001), "Time Pressure, Potency, and Progress in Project Groups," *European Journal of Work & Organizational Psychology*, 10 (2), 205-21.

Geyskens, Inge, Jan-Benedict E. M. Steenkamp, Lisa K. Scheer, and Nirmalya Kumar (1996), "The Effects of Trust and Interdependence on Relationship Commitment: A Trans-Atlantic Study," *International Journal of Research in Marketing*, 13 (4), 303-17.

Glaser, Barney G. and Anselm L. Strauss (1967), *The Discovery of Grounded Theory*. Chicago: Aldine.

Golicic, Susan L., James H. Foggin, and John T. Mentzer (2003), "Relationship Magnitude and Its Role in Interorganizational Relationship Structure," *Journal of Business Logistics*, 24 (1), 57-75.

Golicic, Susan L. and John T. Mentzer (2006), "An Empirical Examination of Relationship Magnitude," *Journal of Business Logistics*, 27 (1), 81-108.

Gouldner, Alvin W. (1960), "The Norm of Reciprocity: A Preliminary Statement," *American Sociological Review*, 25 (2), 161-78.

Grant, R. (1996), "Prospering in Dynamically-Competitive Environments: Organizational Capability as Knowledge Integration," *Organization Science: A Journal of the Institute of Management Sciences*, 7, 375-87.

Griffin, Mitch, Barry J. Babin, and Jill S. Attaway (1996), "Anticipation of Injurious Consumption Outcomes and Its Impact on Consumer Attributions of Blame," *Journal of the Academy of Marketing Sciences*, 24 (4), 314-28.

Griffith, David A., Michael G. Harvey, and Robert F. Lusch (2006), "Social Exchange in Supply Chain Relationships: The Resulting Benefits of Procedural and Distributive Justice," *Journal of Operations Management*, 24 (2), 85-98.

Gundlach, Gregory T., Ravi S. Achrol, and John T. Mentzer (1995), "The Structure of Commitment in Exchange," *Journal of Marketing*, 59 (1), 78-92.

Hair, Joseph F. Jr., Rolph E. Anderson, Ronald L. Tatham, and William C. Black (1998), *Multivariate Data Analysis*. Upper Saddle River, NJ: Prentice Hall.

Hamel, G. (1991), "Competition for Competence and Inter-Partner Learning within International Strategic Alliances," *Strategic Management Journal*, 12, 83-104.

Hattie, J. (1985), "Methodology Review: Assessing Unidimensionality of Tests and Items," *Applied Psychological Measurement*, 9, 139-64.

Hayes, R.H., S.C. Wheelwright, and K. B. Clark (1998), *Dynamic Manufacturing*. New York: Free Press.

Heide, Jan B. and George John (1992), "Do Norms Matter in Marketing Relationships?," *Journal of Marketing*, 56 (2), 32.

---- (1988), "The Role of Dependence Balancing in Safeguarding Transaction-Specific Assets in Conventional Channels," *Journal of Marketing*, 52 (1), 20-35.

Herrington, J. Duncan and Louis M. Capella (1995), "Shopper Reactions to Perceived Time Pressure," *International Journal of Retail & Distribution Management*, 23 (12), 13-21.

Hirschman, Elizabeth C. (1986), "Humanistic Inquiry in Marketing Research: Philosophy, Method, and Criteria," *Journal of Marketing Research*, 23 (August), 237-49.

Hise, Richard (1995), "The Implications of Time-Based Competition on International Logistics Strategies," *Business Horizons*, 38 (5), 39-46.

Hult, G. Tomas M., David J. Ketchen Jr., and Ernest L. Nichols Jr. (2002), "An Examination of Cultural Competitiveness and Order Fulfillment Cycle Time within Supply Chains," *Academy of Management Journal*, 45 (3), 577-86.

Hum, Sin-Hoom and Hoon-Hong Sim (1996), "Time-Based Competition: Literature Review and Implications for Modelling," *International Journal of Operations and Production Management*, 16 (1), 75-90.

Hwang, M.I. (1994), "Decision Making under Time Pressure: A Model for Information Systems Research," *Information and Management*, 27, 197-203.

Iyer, Easwar S. (1989), "Unplanned Purchasing: Knowledge of Shopping Environment and Time Pressure," *Journal of Retailing*, 65 (1), 40-58.

Jacobson, Robert (1992), "The "Austrian" School of Strategy," *Academy of Management Review*, 17 (4), 782-807.

Jayaram, Jayanth, Shawnee K. Vickery, and Cornelia Droge (1999), "An Empirical Study of Time-Based Competition in the North American Automotive Supplier Industry," *International Journal of Operations and Production Management*, 19 (10), 1010-32.

Joshi, Ashwin W. and Stephen J. Arnold (1998), "How Relational Norms Affect Compliance in Industrial Buying," *Journal of Business Research*, 41 (2), 105-14.

Kandampully, Jay (1998), "Service Quality to Service Loyalty: A Relationship Which Goes Beyond Customer Services," *Total Quality Management*, 9 (6), 431-43.

Keinan, G., N. Friedland, and Y. Ben-Porath (1987), "Decision Making under Stress: Scanning of Alternatives under Physical Threat," *Acta Psychologica*, 64, 219-28.

Kelley, Tim and Loren Margheim (1990), "The Impact of Time Budget Pressure, Personality, and Leadership Variables on Dysfunctional Auditor Behavior," *Auditing*, 9 (2), 21-42.

Kelly, Janice, Jay Jackson, and Sarah Hutson-Comeaux (1997), "The Effects of Time Pressure and Task Differences on Influence Modes and Accuracy in Decision-Making Groups," *Personality & Social Psychology Bulletin*, 23 (1).

Kerlinger, Fred N. and Howard B. Lee (2000), *Foundations of Behavioral Research*. United States: Thomson Learning.

Kerstholt, Jose H. (1994), "The Effect of Time Pressure on Decision-Making Behavior in a Dynamic Task Environment," *Acta Psychologica*, 86 (1), 89-104.

Kim, Keysuk and Gary L. Frazier (1997), "On Distributor Commitment in Industrial Channels of Distribution: A Multicomponent," *Psychology & Marketing*, 14 (8), 847-77.

Kumar, Nirmalya, Lisa K. Scheer, and Jan-Benedict Steenkamp (1995), "The Effects of Perceived Interdependence on Dealer Attitudes," *Journal of Marketing Research*, 32 (3), 348-57.

Lambert, Douglas M., Margaret A. Emmelhainz, and John T. Gardner (1999), "Building Successful Logistics Partnerships," *Journal of Business Logistics*, 20 (1), 165-81.

---- (1996), "Developing and Implementing Supply Chain Partnerships," *International Journal of Logistics Management*, 7 (2), 1-17.

Lincoln, Yvonna S. and Egon G. Guba (1985), "Establishing Trustworthiness," in *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

Lindell, Michael K. and David J. Whitney (2001), "Accounting for Common Method Variance in Cross-Selectional Research Designs," *Journal of Applied Psychology*, 86 (1), 114-21.

Louviere, J., D. A. Hensler, and J. D. Swait (2000), *Stated Choice Methods: Analysis and Application*. Cambridge, UK: Cambridge University Press.

Lusch, Robert F. and James R. Brown (1996), "Interdependency, Contracting, and Relational Behavior in Marketing Channels," *Journal of Marketing*, 60 (4), 19-38.

Macneil, Ian R. (1980), "Power, Contract, and the Economic Model," *Journal of Economic Issues*, 14 (4), 909.

Margheim, Loren and Kurt Pany (1986), "Quality Control, Premature Signoff, and Underreporting of Time: Some Empirical Findings," *Auditing*, 5 (2), 50-64.

Maule, A. John and Robert J. Hockey (1993), "State, Stress, and Time Pressure," in *Time Pressure and Stress in Human Judgement and Decision Making*, O. Svenson and A. John Maule, Eds. New York: Plenum.

Maule, A. John, Robert J. Hockey, and L. Bdzola (2000), "Effects of Time Pressure on Decision Making under Uncertainty: Changes in Affective State and Information Processing Strategy," *Acta Psychologica*, 104 (3), 283-301.

Maule, A. John and P. Mackie (1990), "A Componential Investigation of the Effects of Deadlines on Individual Decision Making," in *Contemporary Issues in Decision Making*, K. Borcherding, Ed. Amsterdam: North-Holland.

Maxwell, Joseph Alex (1996), *Qualitative Research Design: An Iterative Approach*. Thousand Oaks, CA: Sage Publications.

Maybert, V.A., J.F. Muth, and R.W. Schmenner (1992), "Collapsing New Product Development Times: Six Case Studies," *Journal of Product Innovation Management*, 9, 200-12.

McCracken, Grant (1988), *The Long Interview*. Beverly Hills, CA: Sage Publications.

McDaniel, Linda S. (1990), "The Effects of Time Pressure and Audit Program Structure on Audit Performance," *Journal of Accounting Research*, 28 (2), 267-85.

McDonald, Gerald W. (1981), "Structural Exchange and Marital Interaction," *Journal of Marriage and the Family* (November), 825-39.

Mentzer, John T., William DeWitt, James S. Keebler, Min Soonhoong, Nancy W. Nix, Carlo D. Smith, and Zach G. Zacharia (2001), "Defining Supply Chain Management," *Journal of Business Logistics*, 22 (2), 1-25.

Mentzer, John T., James H. Foggin, and Susan L. Golicic (2000), "Collaboration: The Enablers, Impediments, and Benefits," *Supply Chain Management Review*, 4 (4), 52-59.

Mentzer, John T., Soonhong Min, and Zach G. Zacharia (2000), "The Nature of Interfirm Partnering in Supply Chain Management," *Journal of Retailing*, 76 (4), 549.

Mentzer, John T., Matthew B. Myers, and Theodore P. Stank (2007), *Handbook of Global Supply Chain Management*. Thousand Oaks: Sage Publications.

Mentzer, John T., Theodore P. Stank, and Terry L. Esper (2008), "Supply Chain Management and Its Relationship to Logistics, Marketing, Production, and Operations Management," *Journal of Business Logistics*, 29 (1), 31-45.

Miller, J. G. (1960), "Information Input Overload and Psychopathy," *American Journal of Psychiatry*, 116, 695-704.

- Millson, M.R., S.P. Raj, and D. Wilemon (1992), "A Survey of Major Approaches for Accelerating New Product Development," *Journal of Product Innovation Management*, 9, 53-69.
- Modi, Sachin B. and Vincent A. Mabert (2007), "Supplier Development: Improving Supplier Performance through Knowledge Transfer," *Journal of Operations Management*, 25 (1), 42-64.
- Mohr, Jakki J. and Ravipreet S. Sohi (1995), "Communication Flows in Distribution Channels: Impact on Assessment of Communication Quality and Satisfaction," *Journal of Retailing*, 71 (4).
- Mohr, Jakki and Robert Spekman (1994), "Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques," *Strategic Management Journal*, 15 (2), 135-52.
- Monga, Ashwani and Rui Zhu (2005), "Buyers Versus Sellers: How They Differ in Their Responses to Framed Outcomes," *Journal of Consumer Psychology*, 15 (4), 325-33.
- Monroe, Kent B. (1990), *Pricing: Making Profitable Decisions*. New York, NY: McGraw-Hill Publishing Company.
- Moorman, Christine, Rohit Deshpande, and Gerald Zaltman (1993), "Factors Affecting Trust in Market Research Relationships," *Journal of Marketing*, 57 (1), 81.
- Moorman, Christine, Gerald Zaltman, and Rohit Deshpande (1992), "Relationships between Providers and Users of Market Research: The Dynamics of Trust within and between Organizations," *Journal of Marketing Research*, 29 (August), 314-29.
- Morgan, Robert M. and Shelby D. Hunt (1994), "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, 58 (3), 20.
- Novack, Robert A., C. John Langley, and Lloyd M. Rinehart (1995), *Creating Logistics Value: Themes for the Future*. Oak Brook, IL: Council of Logistics Management.
- Nunnally, Jun (1978), *Psychometric Theory*. New York: McGraw-Hill.
- Nunnally, Jun C. and Ira H. Bernstein (1994), *Psychometric Theory* (3rd ed.). New York: McGraw-Hill.
- Ordonez, Lisa and Lehman Benson III (1997), "Decisions under Time Pressure: How Time Constraint Affects Risky Decision Making," *Organizational Behavior and Human Decision Processes*, 71 (2), 121-40.
- Park, C. Whan, Easwar S. Iyer, and Daniel C. Smith (1989), "The Effects of Situational Factors on in-Store Grocery Shopping Behavior: The Role of Store Environment and Time Available for Shopping," *Journal of Consumer Research*, 15 (4), 422-35.

Payne, John W., James R. Bettman, and M. Eric Johnson (1988), "Adaptive Strategy Selection in Decision Making," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 14, 534-52.

Payne, John W., James R. Bettman, and Mary Frances Luce (1996), "When Time Is Money: Decision Behavior under Opportunity-Cost Time Pressure," *Organizational Behavior and Human Decision Processes*, 66 (2), 131-52.

Perdue, Barbara C. and John O. Summers (1986), "Checking the Success of Manipulations in Marketing Experiments," *Journal of Marketing Research*, 23 (4), 317-26.

Pfeffer, Jeffrey and Gerald R. Salancik (1978), *The External Control of Organizations: A Resource Dependence Approach*. New York: Harper & Row.

Pilling, Bruce K., Lawrence A. Crosby, and Donald W. Jackson Jr. (1994), "Relational Bonds in Industrial Exchange: An Experimental Test of the Transaction Cost Economic Framework," *Journal of Business Research*, 30 (3), 237-51.

Plank, Richard E. and Stephen J. Newell (2007), "The Effect of Social Conflict on Relationship Loyalty in Business Markets," *Industrial Marketing Management*, 36 (1), 59-67.

Podsakoff, Philip M., Scott B. MacKenzie, Jeong-Yeon Lee, and Nathan P. Podsakoff (2003), "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology*, 88 (5), 879-903.

Porter, Michael E. (2008), "The Five Competitive Forces That Shape Strategy," *Harvard Business Review*, 86 (1), 78-93.

Prahinski, Carol and Ying Fan (2007), "Supplier Evaluations: The Role of Communication Quality," *Journal of Supply Chain Management: A Global Review of Purchasing and Supply*, 43 (3), 16-28.

Rastegary, Haleh and Frank Landy (1993), "The Interactions among Time Urgency, Uncertainty, and Time Pressure," in *Time Pressure and Stress in Human Judgement and Decision Making*, O. Svenson and A. John Maule, Eds. New York: Plenum Press.

Ratneshwar, S., Allan D. Shocker, June Cotte, and Rajendra K. Srivastava (1999), "Product, Person, and Purpose: Putting the Consumer Back into Theories of Dynamic Market Behavior," *Journal of Strategic Marketing*, 7 (3), 191-208.

Rich, Nick and Peter Hines (1997), "Supply Chain Management and Time Based Competition: The Role of the Supplier Association," *International Journal of Physical Distribution & Logistics Management*, 27 (3), 210-44.

Rinehart, Lloyd M., James A. Eckert, Robert B. Handfield, Thomas J. Page Jr., and Thomas Atkin (2004), "An Assessment of Supplier-Customer Relationships," *Journal of Business Logistics*, 25 (1), 25-62.

Sarter, Nadine and Beth Schroeder (2001), "Supporting Decision Making and Action Selection under Time Pressure and Uncertainty: The Case of in-Flight Icing," *Human Factors*, 43 (4).

Scheer, Lisa K. and Louis W. Stern (1992), "The Effect of Influence Type and Performance Outcomes on Attitude toward the Influencer," *Journal of Marketing Research*, 29 (1), 128-42.

Sherman, Richard J. (1998), "Collaborative Planning, Forecasting, and Replenishment (Cpfr): Realizing the Promise of Efficient Consumer Response through Collaborative Technology," *Marketing Theory and Practice*, 6 (4).

Slater, Stanley F. and John C. Narver (1995), "Market Orientation and the Learning Organization," *Journal of Marketing*, 59 (3), 63-75.

Smith, J. F., T. R. Mitchell, and L. R. Beach (1982), "A Cost-Benefit Mechanism for Selecting Problem Solving Strategies: Some Extensions and Empirical Tests," *Organizational Behavior and Human Performance*, 29, 370-96.

Spilker, Brian C. and Douglas F. Prawitt (1997), "Adaptive Responses to Time Pressure: The Effects of Experience of Tax Information Search Behavior," *Behavior Research in Accounting*, 9, 172-99.

Spradley, J.P. (1979), *The Ethnographic Interview*. New York: Holt, Rinehart, & Winston.

Srivastava, Rajendra K., Tasadduq A. Shervani, and Liam Fahey (1999), "Marketing, Business Processes, and Shareholder Value: An Organizationally Embedded View of Marketing Activities and the Discipline of Marketing," *Journal of Marketing*, 63 (4), 168-79.

Stalk Jr., George (1988), "Time - the Next Source of Competitive Advantage," *Harvard Business Review*, 66 (4), 41-51.

Stalk Jr., George and Thomas M. Hout (1990), *Competing against Time*. New York: The Free Press.

Stalk Jr., George and Alan M. Webber (1993), "Japan's Darkside of Time," *Harvard Business Review*, 71 (4), 93-102.

Stern, Louis W. and Frederick D. Sturdivant (1987), "Customer-Driven Distribution Systems," *Harvard Business Review*, 65 (4), 34-39.

Stern, Phyllis N. (1980), "Grounded Theory Methodology: Its Uses and Processes," *Image*, Volume 12 (Number 1), 20-23.

Strauss, Anselm L. and Juliet Corbin (1998), *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks: Sage Publications.

Strauss, Anselm L. (1987), *Qualitative Analysis for Social Scientists*. Cambridge: Cambridge University Press.

Strauss, Anselm L. and Juliet Corbin (1990), *Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage Publications.

Stuhlmacher, Alice F., Trina L. Gillespie, and Matthew V. Champagne (1998), "The Impact of Time Pressure in Negotiation: A Meta-Analysis," *International Journal of Conflict Management*, 9 (2), 97-116.

Sullivan, Jeremiah, Richard B. Peterson, and Justin Shimada (1982), "The Relationship between Conflict Resolution Approaches and Trust - a Cross Cultural Study," *International Executive*, 24 (2), 8-11.

Svenson, O. and A. Edland (1987), "Change of Preferences under Time Pressure: Choices and Judgements," *Scandinavian Journal of Psychology*, 28 (322-330).

Svenson, O., A. Edland, and P. Slovik (1990), "Choices and Judgements of Incompletely Described Decision Alternatives under Time Pressure," *Acta Psychologica*, 75, 153-69.

Svenson, O. and A. John Maule (1993), *Time Pressure and Stress in Human Judgement and Decision Making*. New York: Plenum.

Teece, David J., Gary Pisano, and Amy Shuen (1997), "Dynamic Capabilities and Strategic Management," *Strategic Management Journal*, 18 (7), 509-33.

Thayer, R. E. (1989), *The Biopsychology of Mood and Arousal*. New York: Oxford University Press.

Thibaut, J., Kelley, H. (1959), *The Social Psychology of Groups*. Wiley, NY.

Thomas, Rodney W. (2008), "Exploring Relational Aspects of Time-Based Competition," *International Journal of Physical Distribution & Logistics Management*.

Thorelli, Hans B. (1986), "Networks: Between Markets and Hierarchies," *Strategic Management Journal*, 7 (1), 37-51.

Tucker, R.B. (1991), *Managing the Future: Ten Driving Forces of Change for the 90's*. New York: Putnam.

Vickery, Shawnee K., Cornelia Droge, Theodore P. Stank, Thomas J. Goldsby, and Robert E. Markland (2004), "The Performance Implications of Media Richness in a Business-to-Business Service Environment: Direct Versus Indirect Effects," *Management Science*, 50 (8), 1106-19.

Waller, Matt, M. Eric Johnson, and Tom Davis (1999), "Vendor-Managed Inventory in the Retail Supply Chain," *Journal of Business Logistics*, 20 (1), 183-203.

Walters, David (2004), "New Economy - New Business Models - New Approaches," *International Journal of Physical Distribution & Logistics Management*, 34 (3), 219-29.

Ward, S. and T. S. Robertson (1973), "Consumer Behavior Research: Promise and Prospects," in *Consumer Behavior: Theoretical Sources*, S. Ward and T. S. Robertson, Eds. Englewood Cliffs: Prentice-Hall.

Webster, Jr. Frederick E. (1992), "The Changing Role of Marketing in the Corporation," *Journal of Marketing*, 56 (4), 1.

Whipple, Judith M., Robert Frankel, and Patricia J. Daugherty (2002), "Information Support for Alliances: Performance Implications," *Journal of Business Logistics*, 23 (2), 67-82.

Wiggins, Robert R. and Timothy W. Ruefli (2002), "Sustained Competitive Advantage: Temporal Dynamics and the Incidence and Persistence of Superior Economic Performance," *Organization Science*, 13 (1), 82-105.

Williamson, Oliver E. (1985), *The Economic Institutions of Capitalism*. New York: The Free Press.

---- (1981), "The Modern Corporation: Origins, Evolution, Attributes," *Journal of Economic Literature*, 19 (4), 1537-68.

---- (1979), "Transaction-Cost Economics: The Governance of Contractual Relations," *Journal of Law & Economics*, 22 (2), 233-61.

Williamson, Oliver E., Michael L. Wachter, and Jeffrey E. Harris (1975), "Understanding the Employment Relation: The Analysis of Idiosyncratic Exchange," *Bell Journal of Economics*, 6 (1), 250-78.

Wright, Peter (1974), "The Harassed Decision Maker: Time Pressures, Distractions, and the Use of Evidence," *Journal of Applied Psychology*, 59 (5), 555-61.

Yukl, G. A., M. P. Malone, B. Hayslip, and T. A. Pamin (1976), "The Effects of Time Pressure and Issue Settlement Order on Integrative Bargaining," *Sociometry*, 39, 277-81.

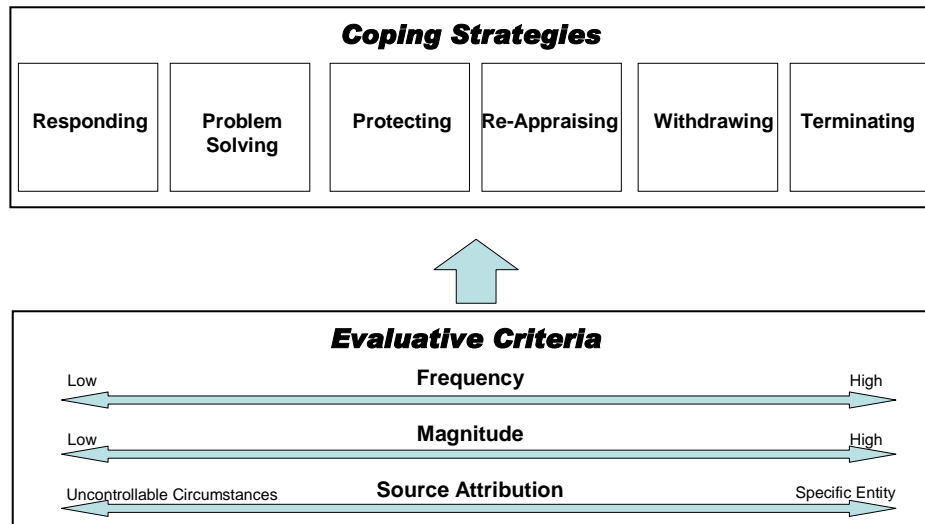
Zakay, D. and S. Wooler (1984), "Time Pressure, Training, and Decision Effectiveness," *Ergonomics*, 27, 273-84.

APPENDICES

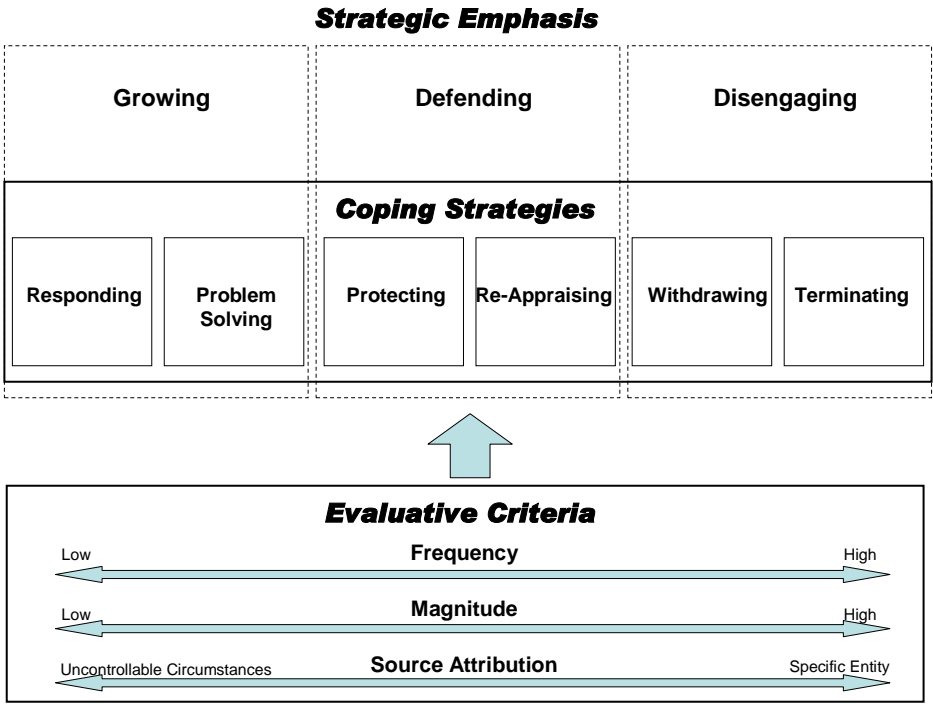
APPENDIX 1 – 2 x 3 Experimental Design

		Time Pressure		
		None	Low	High
Relationship Magnitude	High			
	Low			

APPENDIX 2 - Time Pressure Coping Strategies Model



APPENDIX 3 - Time Pressure Coping Strategies Model with Strategic Emphasis



APPENDIX 4 - Directions and Scenarios

Directions:

Imagine that the Rocky Top Company (RTC) is a manufacturer that supplies products to a specific retailer. The business interactions of RTC and the retailer are described below. Assume all scenario descriptions are accurate and trustworthy. After reading the scenario, please answer each question. As you answer each question, predict how RTC would work with the retailer in this type of situation. Please do not base your answers on how you think RTC *should* work with the retailer, but rather on how they actually *would* work with the retailer.

Relationship Magnitude Scenario Manipulations:

High Relationship Magnitude

RTC and the retailer are fairly reliable and honest with each other. They usually follow through on their verbal commitments. If they have a problem, they tend to contact each other to discuss the issue and resolve the crisis in a somewhat mutually beneficial manner. These two companies are typically willing to make some short-term sacrifices in order to gain longer-term benefits from their relationship. RTC and the retailer have been working together for multiple years and the relationship is reasonably stable and valuable. The companies provide goods and services to each other that are needed in their business operations. Obtaining these goods and services from another company would be somewhat difficult.

Low Relationship Magnitude

RTC and the retailer are not always completely reliable or honest with each other. There have been a few instances where they did not follow through on their verbal commitments. If they have a problem, they sometimes try to avoid contact with each other and resolve the crisis in their own best interests. These two companies are sometimes not willing to make short-term sacrifices in order to gain longer-term benefits from their relationship. RTC and the retailer have been working together for a few years, but the relationship is not completely stable or valuable. The companies provide commodity goods and services to each other that are used in their business operations. Obtaining these goods and services from another company would not be very difficult.

Time Pressure Scenario Manipulations:

High Time Pressure

Over the last several months, business interactions between RTC and the retailer have dramatically changed. The retailer is now frequently imposing extremely tight deadlines on RTC. These deadlines are very difficult to meet and place considerable strain on RTC. The retailer is now demanding that RTC significantly reduce the amount of time it takes to complete many business functions. There are now a number of instances where RTC doesn't believe they have enough time to complete basic tasks for the retailer. For example, the retailer often calls at the last minute and demands unrealistically short delivery times on their orders. The retailer has also demanded that new product development timelines need to be drastically shortened. These

demands are creating significant stress throughout the RTC organization. RTC has been trying to cope with these severe time constraints because they perceive that there could be potential negative consequences for missing a deadline with the retailer. This recent focus on substantially shorter timelines is not an industry standard and it is not a normal part of doing business in this industry.

Low Time Pressure

Over the last several months, business interactions between RTC and the retailer have slightly changed. The retailer is now occasionally placing some deadlines on RTC. These deadlines are achievable and place only a mild strain on RTC. The retailer is now asking RTC to reduce the amount of time it takes to complete some business functions. There have been some instances where RTC believes that the time to complete basic tasks for the retailer is somewhat limited. For example, the retailer sometimes calls and requests a shorter delivery time on an order. The retailer has also requested that new product development timelines are slightly shortened. These kinds of requests can occasionally create some minor stress within the RTC organization. RTC has been coping with these shorter timelines because they perceive that there could be some potential costs for missing a deadline with the retailer. This recent focus on shorter timelines is not an industry standard and it is not a normal part of doing business in this industry.

No Time Pressure

Over the last several months, business interactions between RTC and the retailer have remained normal. The retailer does not place tight deadlines on RTC. Any timelines are achievable and do not place any strain on RTC. The retailer is not asking RTC to change the amount of time it takes to complete basic business functions. RTC believes that they have ample time to complete basic tasks for the retailer. For example, the retailer always provides plenty of delivery time on RTC orders. The retailer also provides plenty of time for new product development efforts. There is no stress associated with meeting this retailer's timeline requests. RTC does not need to cope with shorter timelines and does not worry about missing a deadline with the retailer. The current timelines are consistent with industry standards and normal business practices in this industry.

APPENDIX 5 - Measurement of Dependent and Manipulation Check Variables

Information Exchange (Lusch and Brown 1996)

Cronbach's Alpha = .918

RTC would share information with this retailer about changes that may affect them.

RTC would share information that might be helpful to this retailer.

RTC would share information with this retailer frequently and informally, and not only according to a prespecified agreement.

Relationship Value (Golicic and Mentzer 2006)

Cronbach's Alpha = .896

RTC receives a great deal of benefits from the relationship with the retailer.

The benefits to RTC in their relationship with the retailer justify the costs of the relationship.

RTC gets a lot of value from the relationship with the retailer.

Operational Knowledge Transfer (Modi and Mabert 2007)

Cronbach's Alpha = .907

RTC personnel would visit the retailer's premises to help them improve performance.

RTC would invite the retailer's personnel to RTC sites to increase the retailer's awareness of how their product is made.

RTC would conduct development and education programs for the retailer's personnel.

Communication Quality (Mohr and Sohi 1995)

Cronbach's Alpha = .968

RTC would insure that their communication with this retailer was accurate.

RTC would insure that their communication with this retailer was adequate.

RTC would insure that their communication with this retailer was complete.

RTC would insure that their communication with this retailer was credible.

Shared Interpretation (Brockman and Morgan 2003)

Cronbach's Alpha = .892

The retailer and RTC would be very likely to agree on how to use potentially useful information.

The retailer and RTC would be very likely to share a similar understanding about potentially useful information.

The retailer and RTC would be very receptive to each other's opinions about potentially useful information.

The retailer and RTC would be very likely to respectfully challenge each other's opinions regarding the meaning of potentially useful information.

Relationship Loyalty (Plank and Newell 2007)

Cronbach's Alpha = .783

RTC would think they have a strong relationship with the retailer.

RTC would be willing to maintain their relationship with the retailer.

RTC would recommend the retailer to others.

Time Pressure (Herrington and Capella 1995)

Cronbach's Alpha = .941

RTC is pressured to quickly complete business functions for the retailer.

RTC must hurry to meet the retailer's deadlines.

RTC does not have enough time to complete functions for the retailer.

*How much time pressure is placed on RTC in their relationship with the retailer?

Relationship Magnitude – Trust (Golicic and Mentzer 2006)

Cronbach's Alpha = .972

The retailer has high integrity.

The retailer can be counted on to do what is right.

The retailer is sincere in their promises.

Relationship Magnitude – Commitment (Golicic and Mentzer 2006)

Cronbach's Alpha = .884

The relationship RTC has with the retailer is something RTC is very committed to.

The relationship RTC has with the retailer is something RTC intends to maintain indefinitely.

The relationship RTC has with the retailer deserves RTC's maximum effort to maintain.

The relationship RTC has with the retailer is something RTC cares a great deal about long-term.

Relationship Magnitude – Dependence (Golicic and Mentzer 2006)

Cronbach's Alpha = .901

RTC could not easily replace the retailer.

RTC is dependent upon the retailer.

RTC believes the retailer is crucial to RTC's success.

Realism Checks (Dabholkar 1994)

Cronbach's Alpha = .831

The situation described in the scenario was realistic.

I can imagine myself in the described situation

APPENDIX 6 - Confirmatory Factor Analysis Loadings

CFI = 0.933; RMSEA = 0.069; CMIN/df = 1.995

INFO	RV	OPKT	CQ	SI	RL	TP	RMT	RMD	RMC
.819 .966 .887									
	.865 .822 .905								
		.837 .890 .904							
			.940 .898 .951 .952						
				.921 .877 .865 .642					
					.437 .886 .710				
						.972 .964 .776 .830			
							.951 .970 .958		
								.825 .903 .883	
									.888 .756 .706 .894

INFO = Information Exchange

RV = Relationship Value

OPKT = Operational Knowledge Transfer

CQ = Communication Quality

SI = Shared Interpretation

RL = Relationship Loyalty

TP = Time Pressure

RMT = Relationship Magnitude – Trust

RMD = Relationship Magnitude – Depend

RMC = Relationship Magnitude - Commit

APPENDIX 7 - Summary of Outcomes for the Hypotheses Tested

Hypothesis #	Hypothesis	Outcome
H1a	Relationship magnitude is positively related to information exchange.	Supported***
H1b	Relationship magnitude is positively related to communication quality.	Supported***
H1c	Relationship magnitude is positively related to operational knowledge transfer.	Supported***
H1d	Relationship magnitude is positively related to shared interpretation.	Supported***
H1e	Relationship magnitude is positively related to relationship value.	Supported***
H1f	Relationship magnitude is positively related to relationship loyalty.	Supported***
H2a	Time pressure is negatively related to information exchange.	Supported***
H2b	Time pressure is negatively related to communication quality.	Not Supported
H2c	Time pressure is negatively related to operational knowledge transfer.	Not Supported
H2d	Time pressure is negatively related to shared interpretation.	Supported***
H2e	Time pressure is negatively related to relationship value.	Supported***
H2f	Time pressure is negatively related to relationship loyalty.	Supported***
H3a	Time pressure will have a stronger negative impact on information exchange in higher magnitude relationships than in lower magnitude relationships.	Supported*
H3b	Time pressure will have a stronger negative impact on communication quality in higher magnitude relationships than in lower magnitude relationships.	Not Supported
H3c	Time pressure will have a stronger negative impact on operational knowledge transfer in higher magnitude relationships than in lower magnitude relationships.	Not Supported
H3d	Time pressure will have a stronger negative impact on shared interpretation in higher magnitude relationships than in lower magnitude relationships.	Supported*
H3e	Time pressure will have a stronger negative impact on relationship value in higher magnitude relationships than in lower magnitude relationships.	Supported*
H3f	Time pressure will have a stronger negative impact on relationship loyalty in higher magnitude relationships than in lower magnitude relationships.	Not Supported

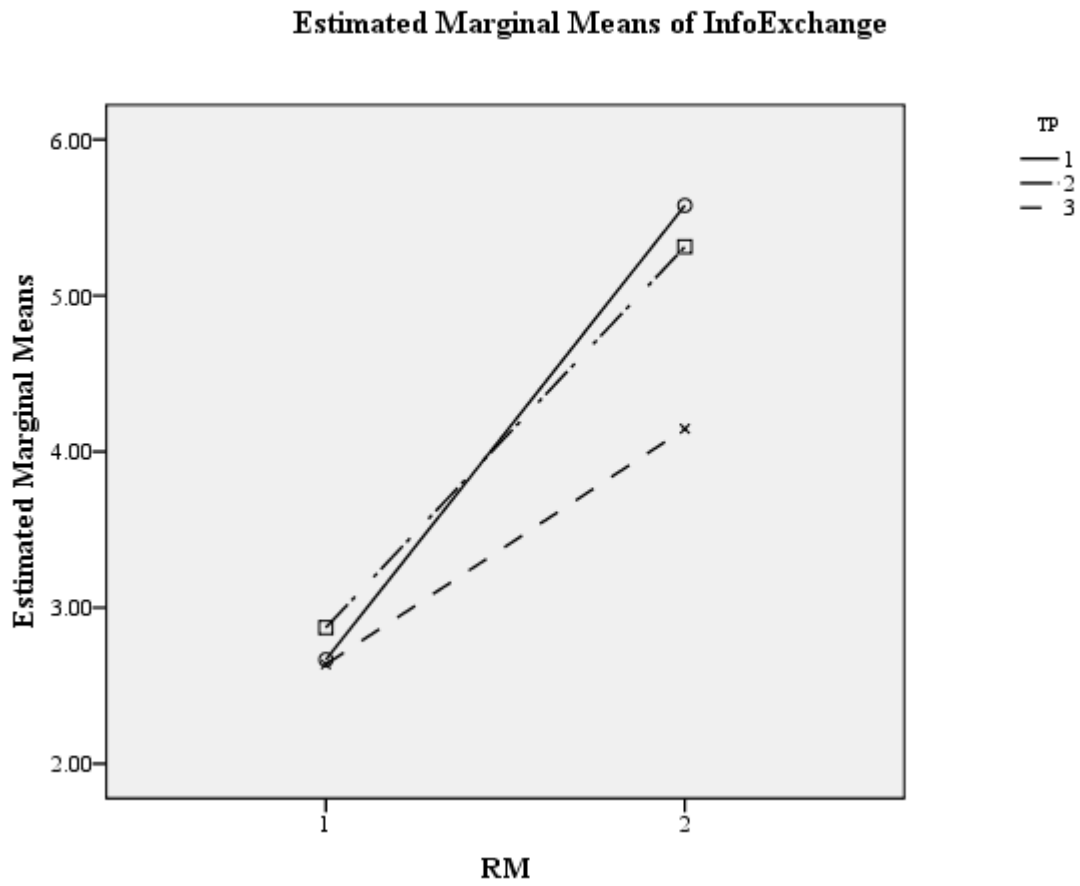
*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

APPENDIX 8 - Dependent Variable Cell Means

Dependent Variable	Relationship Magnitude	Time Pressure	Mean	Std. Deviation	Std. Error
Information Exchange	High	None	5.578	1.23	0.217
		Low	5.314	1.11	0.217
		High	4.147 ^a	1.28	0.217
	Low	None	2.667	1.53	0.217
		Low	2.873	1.31	0.217
		High	2.637	1.05	0.217
Relationship Value	High	None	5.608	0.94	0.211
		Low	5.520	0.89	0.21
		High	4.255 ^a	1.06	0.211
	Low	None	3.618	1.55	0.211
		Low	3.686	1.25	0.211
		High	3.382	1.49	0.211
Operational Knowledge Transfer	High	None	4.294	1.37	0.232
		Low	5.078 ^a	1.28	0.232
		High	4.235	1.33	0.232
	Low	None	2.265	1.17	0.232
		Low	2.686	1.65	0.232
		High	2.529	1.25	0.232
Communication Quality	High	None	5.566 ^{ab}	1.01	0.234
		Low	5.978 ^a	0.93	0.234
		High	4.926 ^b	1.44	0.234
	Low	None	3.074	1.63	0.234
		Low	3.669	1.67	0.234
		High	3.132	1.31	0.234
Shared Interpretation	High	None	4.956	0.94	0.189
		Low	4.846	0.92	0.189
		High	3.478 ^a	1.12	0.189
	Low	None	2.801	1.23	0.189
		Low	3.066	1.3	0.189
		High	2.434	1.01	0.189
Relationship Loyalty	High	None	5.245 ^a	0.82	0.177
		Low	4.608 ^b	0.81	0.177
		High	3.618 ^c	1.31	0.177
	Low	None	3.853 ^b	1.29	0.177
		Low	3.412 ^{ab}	1.23	0.177
		High	3.010 ^a	1.17	0.18

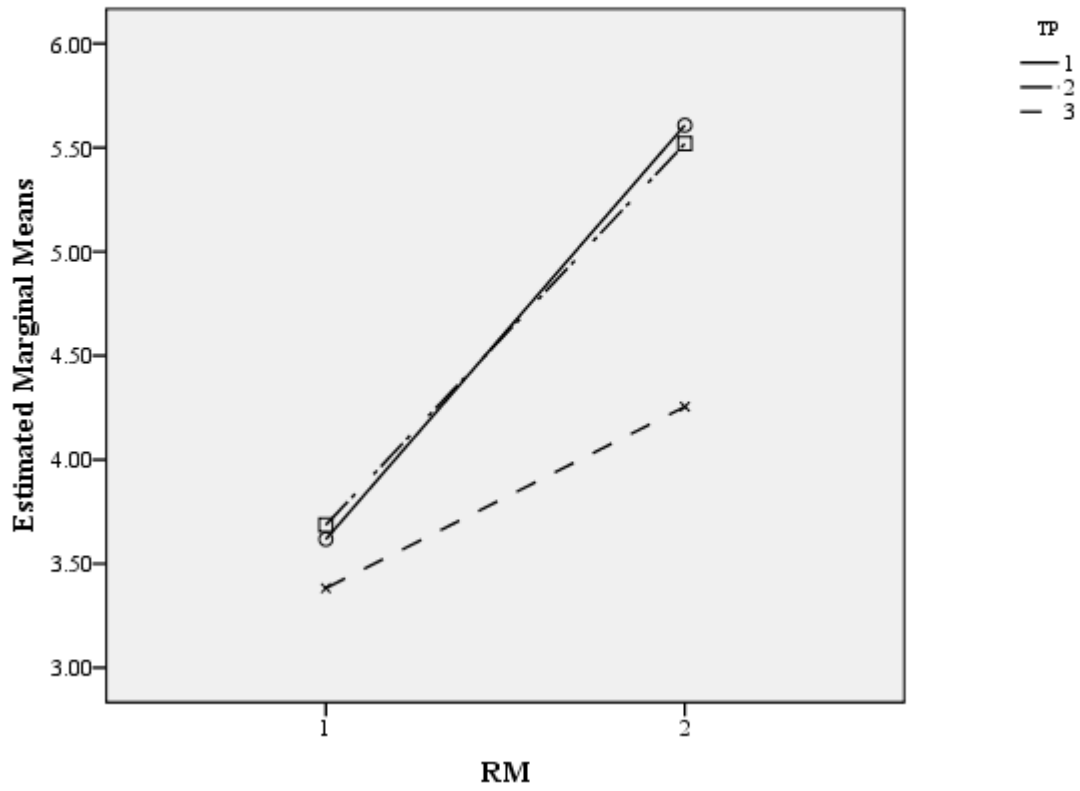
*For each type of relationship with each dependent variable, means with different subscripts are significantly different using Tukey's post hoc analysis at the $p < 0.05$ level.

APPENDIX 9 – Information Exchange Graph



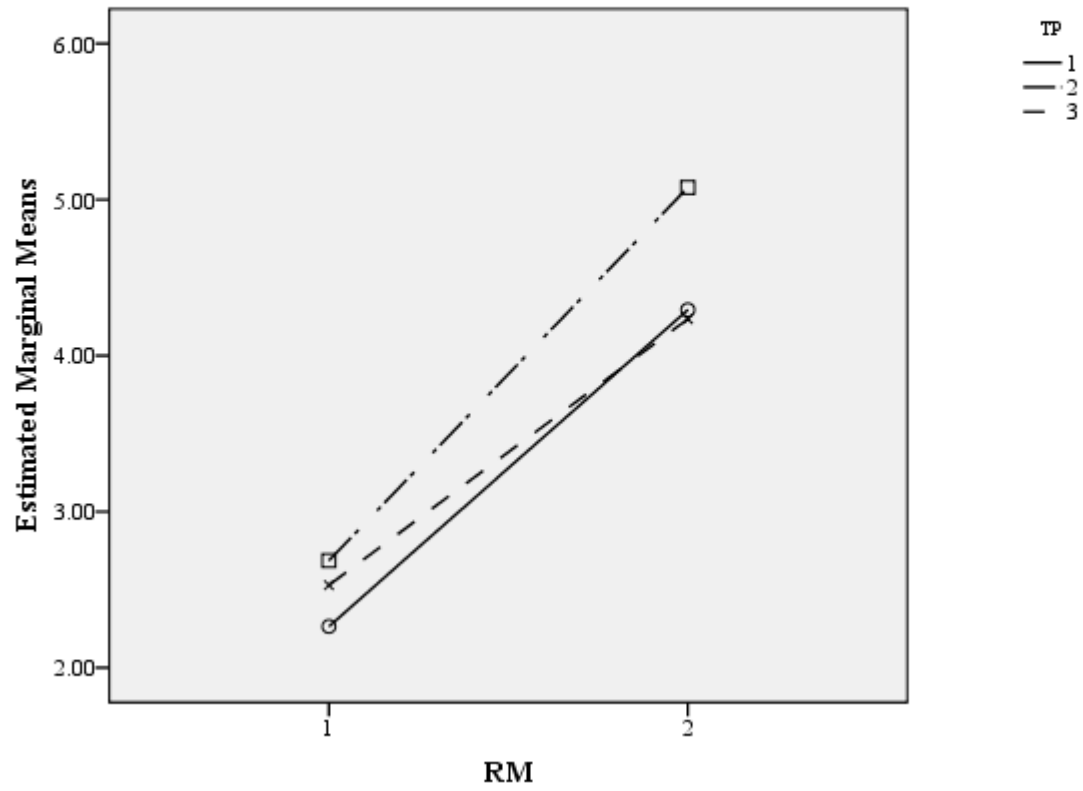
APPENDIX 10 – Relationship Value Graph

Estimated Marginal Means of RelationValue



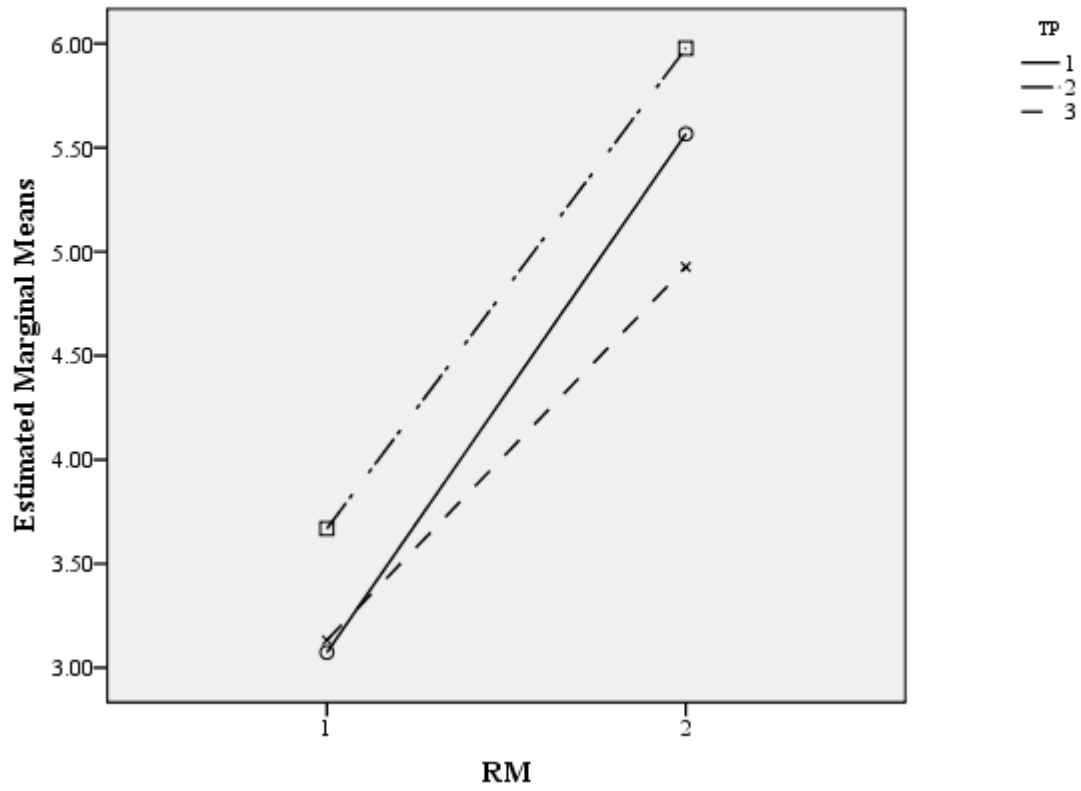
APPENDIX 11 – Operational Knowledge Transfer Graph

Estimated Marginal Means of OpsKnowTransfer



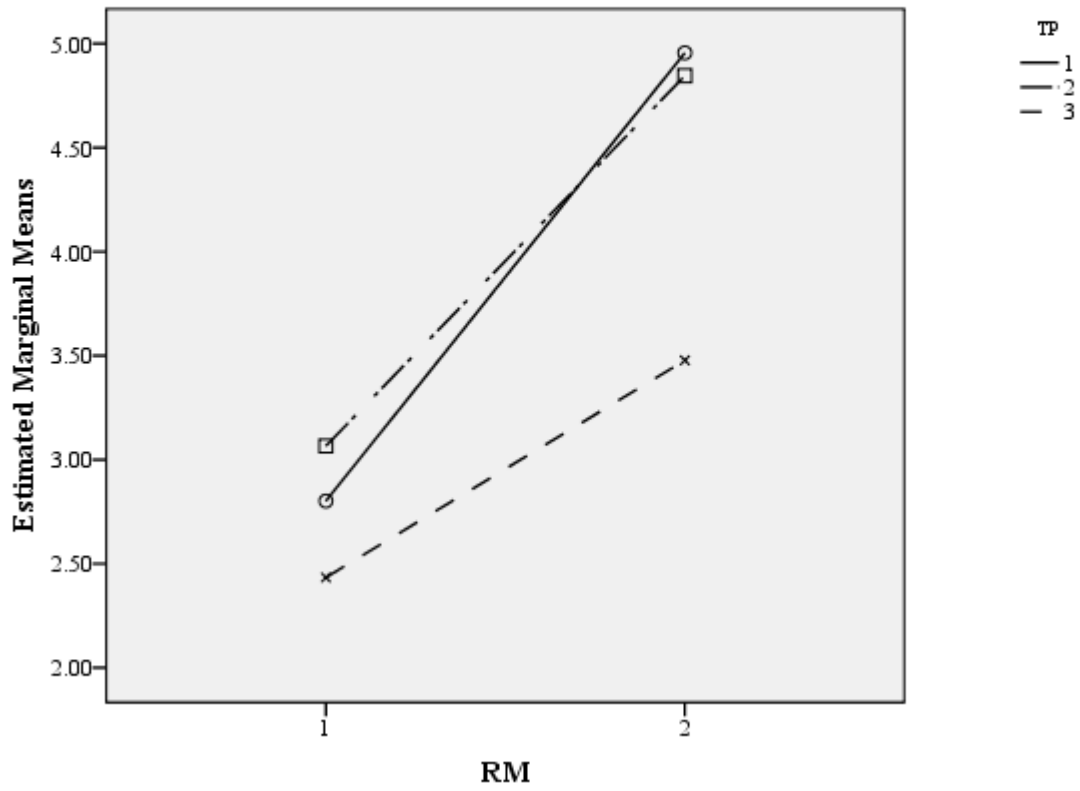
APPENDIX 12 – Communication Quality Graph

Estimated Marginal Means of CommQual



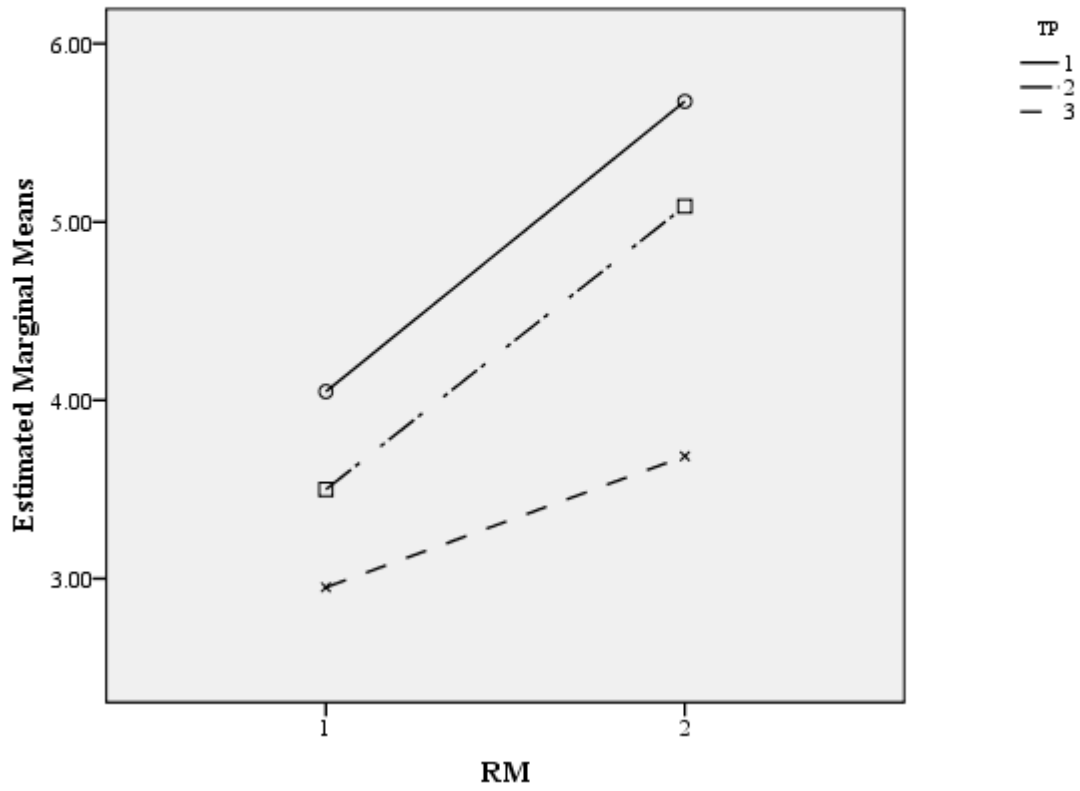
APPENDIX 13 – Shared Interpretation Graph

Estimated Marginal Means of ShareInterpret



APPENDIX 14 – Relationship Loyalty Graph

Estimated Marginal Means of RelationLoyalty



APPENDIX 15 – Average Variance Extracted

	INFO	RV	OPKT	CQ	SI	RL	TP	TRUST	DEP	COMM
INFO	0.7974									
RV	0.4058	0.7476								
OPKT	0.5944	0.2663	0.7846							
CQ	0.5822	0.3411	0.6006	0.8752						
SI	0.5837	0.3819	0.5565	0.5580	0.6978					
RL	0.4277	0.6022	0.2401	0.2981	0.5055	0.6233				
TP	0.0046	0.0159	0.0180	0.0052	0.0299	0.1253	0.7932			
TRUST	0.3869	0.3758	0.3306	0.3982	0.3636	0.3709	0.0169	0.9217		
DEP	0.1429	0.3125	0.1656	0.1858	0.1318	0.1673	0.0445	0.2190	0.7580	
COMM	0.3226	0.3795	0.3588	0.4238	0.3446	0.2798	0.0286	0.5170	0.6162	0.6644

Diagonal = AVE

Lower Matrix = R²

VITA

Rodney W. Thomas holds a Bachelor of Science in Mathematics from Greensboro College in Greensboro, NC; a Master of Education in Leadership and Administration from Lynchburg College in Lynchburg, VA; and a Master in Business Administration in Logistics from the University of Tennessee in Knoxville, TN. Prior to returning to graduate school, Rod held multiple positions with Lowe's Home Improvement Company including Director of Logistics, Merchandise Buyer, Logistics Manager, and Logistics Specialist. He also has previous work experiences with IBM as a Supply Planner and Michelin Tire Company as a Marketing Analyst and a Marketing and Sales Manager.

Rod's research interests focus on the strategic role, characteristics, and effectiveness of supply chain relationships. Rod has been actively involved as an assistant director of the Supply Chain Strategy Forums at the University of Tennessee. His work has appeared in conference proceedings at the Council of Supply Chain Management Professionals, the Academy of Marketing Science, and the Society for Marketing Advances, and Decision Sciences Institute. He has published in the International Journal of Physical Distribution and Logistics Management and presented research at the Council of Supply Chain Management Professionals, the Society for Marketing Advances, the University of Tennessee Supply Chain Strategy Forum, and the Supply Chain Management and Industrial Distribution Symposium.

In December 2008, Rod completed the requirements for the Ph.D. in Business Administration with a major in Logistics and a minor in Marketing at the University of Tennessee.

He is presently employed as an Assistant Professor of Marketing and Logistics at Georgia Southern University in Statesboro, GA.