

Wearing Multiple Hats - Supply Managers' Roles and Strategic Supplier Relationships

ABSTRACT

Applying concepts from the behavioral complexity literature (Ashby, 1952; Denison, Hooijberg, and Quinn, 1995) we examine if supply managers' multiple roles and the ability to shift among these roles is related to their interpersonal relationship with their key contact within the strategic suppliers' organization and ultimately with the firm-to-firm relationship. Case studies identified four supply manager roles that are assumed when managing relationships with strategic suppliers: negotiator, facilitator, supplier's advocate, and educator. Survey data were gathered from 59 pairs of supply managers and their key contact in a strategic supplier's organization. Results show that a larger behavioral repertoire is positively related to interpersonal relationships but higher behavioral differentiation is negatively related to interpersonal relationships. Interpersonal relationships are positively related to firm-to-firm relationships. Limitations and opportunities for future research are discussed.

Key Words

Supply chain management, buyer-supplier relationships, behavioral complexity

1. Introduction

As companies strive to achieve seamless global supply chains that respond quickly to market changes, managing strategic supplier relationships will be critical to success. A growing body of research suggests that maintaining cooperative relationships with strategic suppliers can improve a buying organization's performance (van der Vaart and van Donk, 2008). Buyer-supplier relationships are influenced by the nature of the interpersonal relationships between supply managers and their key contacts within a supplier's organization (Golicic and Mentzer, 2005; Wu and Choi, 2005; Lian and Laing, 2007; Paulraj, Lado, and Chen, 2008). Thus, it is not surprising that senior procurement officers in Fortune 100 companies believe that supply managers' relational skills are one of their organizations' most critical assets (Giunipero, Handfield and Eltantawy, 2006). Relational skills become visible in sets of reoccurring behaviors or organizational roles (Ashforth and Mael; 1989; Gregersen and Black, 1992; Luo 2001; Quinn 1988; Zurcher, 1983) that are displayed during interpersonal interaction between the supply manager and individuals in the supplier's organization. However, only few supply chain researchers have examined the organizational roles of supply managers (e.g., Hallenbeck, Hautaluoma, and Bates, 1999; Knight and Harland 2005; Perrone, Zaheer, and McEvily, 2003). Only one study, by Perrone, Zaheer, and McEvily (2003) relates aspects of supply manager roles, specifically the degree of functional influence and reliance on a clan culture to the supplier's representative's trust of the supply manager.

In this research, applying concepts from the behavioral complexity literature (Ashby, 1952; Denison, Hooijberg, and Quinn, 1995; Hooijberg, 1996; Hooijberg, Hunt, and Dodge, 1997; Lawrence, Quinn and Lenk, 2003) we examine if supply managers' multiple roles and the ability to shift among these roles is related to their interpersonal relationship with their key

contact within the strategic suppliers' organization and ultimately with the firm-to-firm relationship. This study extends research on buyer-supplier relationships in several ways. First, we examine individual level mechanisms to explore their effect on strategic supplier relationships at the individual and organizational levels. Over the years scholars have called for integrated investigation of individual behavior and organizational processes (Bendoly, 2006; Hopp, 2004; Powell and Johnson, 1980). Many supply chain researchers have examined the dynamics between the buyer and supplier at the plant or firm level (e.g., Carr and Pearson, 1999; Cousins, Handfield, Lawson, and Petersen, 2006; Humphreys, Li, and Chan, 2004; Kannan and Tan, 2006; Kaufmann and Carter, 2006; Krause, Handfield and Tyler, 2006; Paulraj, Lado, and Chen, 2008; Prahinski and Benton, 2002). The impact of individual level factors on buyer-supplier relationships has received less attention (Golicic and Mentzer, 2005; Large, 2005; Lian and Liang, 2007; Perrone et al., 2003). For managers, the results of organization and plant level studies of relationships can provide guidance on issues such as supply management strategies, policies, and structures. Results of studies of behavior at the individual level can provide guidance for hiring, mentoring, training, and individual level performance measurement and review. As we consider the individuals' action and firms' relationship are at the same time, we get a richer understanding of the nature of firm-firm relationships dynamics because it allows us to interpret such dynamics based on the actions of the individual actors who create such relationships. As a result, such cross-level analysis offers managers insights as to how to change firm-firm relationships by changing the behavior of individual managers.

Supply managers assume multiple roles to build and maintain relationships within their own organizations and with suppliers' organizations (Adams, 1976; Hallenbeck et al., 1999; Knight and Harland, 2005; Perrone et al., 2003). The importance of supply managers' roles for

success in meeting the expectations of their own organizations and those of their suppliers has been acknowledged (Perrone et al., 2003). Researchers also have identified numerous roles that supply managers sometimes assume (Hallenbeck et al., 1999; Knight and Harland, 2005). However, the specific types of roles and role behaviors that build and maintain cooperative, committed relationships with strategic suppliers have not been empirically studied. Therefore a contribution of this research to the literature is to extend our understanding of supply manager's roles and role behaviors in the context of strategic supplier relationships.

A third contribution of this research is that data were gathered from buyers and one of their key strategic suppliers. Van der Vaart and Van Donk (2008) recommend for a better understanding of buyer-supplier relationships data should be gathered from individuals within both organizations. One of the reasons to build and maintain relationships with suppliers is to foster cooperation and collaboration that can improve performance (Johnson, McCutcheon, Stuart, and Kerwood, 2004; Cousins et al., 2006; Van der Varrt and Van Donk, 2008). Therefore it is important to understand and measure the nature of the relationship as perceived by the *supplier's* organization since the supplier must be willing to be cooperative. Because it is difficult to gather data from buyer-supplier dyads, many empirical studies gather data either from the buyer (e.g., Carr and Pearson, 1999; Humphreys et al., 2004; Lange, 2005; Cousins et al., 2006; Krause et al., 2006; Paulraj et al., 2008) or the supplier (Prahinski and Benton, 2002). Only a few supply chain studies have gathered survey data from both buyers and their suppliers (e.g. Forker, Rush, and Hershauer, 1999; Perrone et al., 2003; Johnson et al., 2004).

In the next section of the paper, the literature on supply management roles and behavioral complexity is reviewed and used to develop three research hypotheses. Then, the survey research method used to gather the data to test the hypotheses is described. The methods for

analysis and results are presented. The results are discussed along with implications for managers, limitations of the study, and opportunities for future research are presented.

2. Conceptual Foundation and Hypotheses

Existing studies of organizational roles primarily focus on leadership (Quinn, 1984, 1988; Hart and Quinn, 1993; Denison et al., 1995; Hooijberg, 1996; Hooijberg et al., 1997). For example, Quinn (1984, 1988) identified eight leadership roles: innovator, broker, producer, director, coordinator, monitor, facilitator, and mentor. Studies have conceptualized the roles of boundary spanners in the inter-firm relationship management (Williams, 2002). For supply managers, roles are influenced by the expectations of individuals within their own organization and expectations of suppliers' representatives (Perrone et al., 2003.) Building on the literature, Hallenbeck et al. (1999) conclude that purchasing managers have six externally-oriented boundary spanning roles. Three of these roles are specifically related to information management and include information gathering, filtering and transmitting (Hallenbeck et al., 1999). The other roles include transacting which encompasses negotiation, being proactive by representing the organization to and building relationships with suppliers, and protecting the buying organization's interests (Hallenbeck et al., 1999). Based on a survey of purchasing managers, Hallenbeck, Hautaluoma, and Bates (1999) concluded that frequent engagement in the roles is related to higher perceived social benefits on the job.

Stanley and Wisner (2001) suggest that supply chain management has increased the breadth of roles assumed by supply managers to include understanding external customers as well as internal customers and suppliers. Taking a broad view of roles, Knight and Harland (2005) identify six roles that were used to manage supply networks by supply managers in the public sector. These roles are: innovation facilitator, coordinator of interorganizational activities,

supply policy maker, advisor to a range of constituents, information broker, and network structuring agent (Knight and Harland, 2005).

Thus, while not agreeing on a specific set of roles, researchers agree that supply managers assume multiple roles in carrying out their job responsibilities. The literature does not provide guidance on how roles can be used effectively to build and maintain relationships with strategic suppliers. To begin to address this gap, we apply the concept of behavioral complexity. Denison, Hooijberg, and Quinn (1995) define behavioral complexity as the ability to assume multiple and potentially contradictory roles when needed to address a wide variety of situations. They refer to the set of multiple roles as the “behavioral repertoire” and suggest that organizational leaders who have a broad behavioral repertoire are more effective. Knight and Harland (2005) conclude that supply managers face demands that are difficult and often conflicting because they must work with a wide range of individuals with differing objectives. Extending the concept of behavioral complexity to supply managers, we expect that a broad behavioral repertoire will allow them to be more effective in working with suppliers, internal customers, and external customers.

Through the different perspectives of roles, a supply manager can empathize with individuals in these distinct groups and understand their concerns and competing priorities. For example, when addressing a supplier quality problem, a supply manager has to protect its own organization’s interests while at the same time collaborate with the supplier to solve the problem. As supply managers listen to multiple stakeholders, they are likely to make more equitable decisions and thus build rapport with individual managers across organizational boundary (Hatfield, Utne and Traupmann, 1979; Walster, Walster and Berscheid, 1978). These individual managers in turn will reciprocate and provide support to the supply manager.

A supply manager with a narrow behavioral repertoire would not employ all requisite roles when interacting with different constituent groups. For instance, a supply manager operating as a traditional buyer with such procedural tasks as managing contracts and expediting delivery may not assume the non-transactional roles suggested by Knight and Harland (2005) such as innovation facilitator and coordinator of inter-organizational activities. If fewer roles are assumed, the supply manager may work in functional silos instead of taking initiatives to find optimal solutions for both the buyer and suppliers. Trust of the supply manager is lower when supplier representatives perceive that the manager is being influenced too strongly by the functional perspectives of internal customers (Perrone, et al., 2003).

Thus we propose:

Hypothesis 1: A larger behavioral repertoire of the supply manager is positively related to the interpersonal relationship between the supply manager and the key contact at the supplier's firm.

Hooijberg (1996) suggests that behavioral repertoire is only one dimension of behavioral complexity. He defines a second dimension, behavioral differentiation, the ability to switch from role to role at appropriate times as needed to handle the variety of contradictory situations encountered on the job. He argues that a behaviorally complex individual must play the requisite roles when a situation calls for them and not to when the situation does not call for them. This dimension emphasizes the ability to *switch* roles as the situation changes. Researchers point out that, while roles often contradict one another, behaviorally complex individuals maintain integrity and direction as they move among these roles and enact them (Denison et al., 1995).

Effective supply managers not only need to play a portfolio of roles, they also need to be able to vary these roles when the relational contexts change. In a clock-speed supply chain environment, time puts pressure on the supply managers as they shuffle these roles and deal with competing parties. Further, differing interests and perceived inequity in business exchange can instigate intense confrontation among individuals from the buying and supplier firms. Supply managers must resolve inter-organizational issues in a way that attains both short and long term organizational objectives. To make matter worse, a supply manager is often the “fall guy” for supply related problems. Under such circumstances, navigating the competing roles requires the supply manager to handle paradoxical situations without cognitive distress. An effective supply manager need to be able effectively switch among roles or “wear different hats” when required.

Thus we propose:

Hypothesis 2: A higher behavioral differentiation of the supply manager is positively related to the interpersonal relationship between the supply manager and the key contact at the supplier’s firm.

Interpersonal and inter-firm relationships are intertwined (Klein, Palmer and Conn, 2000). Organizations are made of people and inter-organizational relationships in essence are the aggregated relationships among individuals in these firms. We posit that the interpersonal relationships between supply managers and suppliers’ representatives will influence the buyer-supplier relationship at the firm level. Among the network of interpersonal relationships across organizational boundaries, the relationships supply managers have a stronger influence on the buyer-supplier relationship than those of other functional managers in the buying firm.

Typically, a supply manager creates the buyer-supplier relationship in the first place. They also oversee and maintain the supplier on behalf of their internal customers.

A supply manager's personal interactions with key contacts can either facilitate or hinder the buyer-supplier relationships at the firm level. Large (2005) showed that interpersonal communication between supply managers and suppliers is related to the supplier's trust and cooperation. A trusting relationship between a supply manager and his counterpart in the supplier firm will facilitate learning and communication at time of crisis (Nishiguchi and Beaudet, 1998). As a form of social capital, the inter-personal relationships also reduce the transactional costs for the buyer. When the supply manager has an adversarial relationship with the key contact in the supplier firm, such negative sentiments will influence interactions with the supplier's representative (Wu and Choi 2005). The supply manager may choose to terminate the purchasing contract with the supplier or caution senior managers and internal customers against establishing a strategic alliance with the supplier. Even when a buyer-supplier strategic partnership is in place, the supply manager and counterpart who interact routinely may undercut this relationship by withholding information and resources if one side considers the other not trustworthy or the relationship inequitable.

Thus we propose :

Hypothesis 3: The interpersonal relationship between the supply manager and key contact of the supplier's firm relationship is positively related to the firm-to-firm relationship.

3. Research Method

We carried out the study in two stages. The first stage is a pilot study with a series of interviews to understand the different roles of supply managers when working with suppliers.

The second stage of the study is a survey to test the proposed theory using empirical data from a matched sample including supply managers and the corresponding key contacts at suppliers' firms.

3.1 Case Studies to Identify Supply Manager's Roles

The studies of supply managers' roles are limited and did not specifically address the roles related to building and maintaining supplier relationships (e.g. Hallenbeck et al., 1999, Knight and Harland, 2005). Based on their study, Knight and Harland (2005) suggested that roles may be different depending upon the specific context. Because our study focuses on the roles of supply managers who manage strategic supplier relationships we conducted case studies to confirm the specific roles that should be included in the follow-up survey. The case study results enable us to identify and classify the roles of supply managers so that the measures will fully tap the conceptual domain (Boyer, Bozarth and McDermott 2000; McKinney 1966; Wacker, 2004).

We carried out in-depth interviews with 11 supply managers in eight U.S. companies who are responsible for managing strategic supply relationships. We selected these eight companies to include a wide range of industries. The sample includes five companies in manufacturing operations (aerospace machining and avionics, metal machining and stamping, pharmaceuticals, plastics injection-molding, and packaging) and three in services operations (insurance, logistics and distribution, and scientific and technical services).

Using a structured interview instrument (see Appendix A), we asked each supply manager to describe a recent situation where they worked with both an internal customer and a key supplier to solve a challenging problem. We asked about the details of the situation, the supply manager's interaction with different stakeholders and the overall relationship between the

two companies. Each interview lasted between 50 and 90 minutes. Follow-up questions were raised and answered through emails and archival information provided by the interviewees. All interviews were transcribed, coded and analyzed independently by all three researchers (Miles and Huberman, 1984). Each researcher came up with a classification of the supply manager's roles. Then members of the research team discussed differences and similarities of the roles that emerged from the analysis. Difference in data interpretation and classification was resolved through further discussion.

Based on the analysis of the interview transcripts, we classified the roles of supply managers into four types – *a negotiator* for the buyer, *a facilitator* between the buyer and supplier, *an advocate* for the supplier and *an educator* of internal customers. The first role, the buyer's negotiator, prescribes the essential job function of a supply manager. A supply manager negotiates contracts, and manages contract fulfillment to safeguard the business interests of the buyer. This role is similar to the *transacting role* that identified by Hallenbeck et al. (1999). The second role, a facilitator, portrays the supply manager as a middleman between the buyer and supplier similar to the *coordinator* role identified by Knight and Harland (2005). As the interviewees described, the supply manager *brokers, coordinates, arbitrates and mediates* to resolve conflicts and operations issues arising in daily operations. The third role is a supplier's advocate. In this case the supply manager represents the interests of the supplier and communicates the supplier's needs to the buyer. This is similar to the *proactive* role described by Hallenbeck et al. (1999).

The last role, the educator, is similar to the *advisor* role suggested by Knight and Harland (2005) and the information transmitting role described by Hallenbeck et al. (1999). Several interviewees suggested that educating internal customers is an important part of their work

routine. Here, education is more than keeping the internal customers informed of what is going on with suppliers. The focus of the educator role is to keep the internal customers up to date of the relational dynamics between the two companies. Supply managers position the relational dynamics in the context of relationship history and the buyer's strategy. Such effort helps them build consensus with the internal customers so that there would be “no surprises” when they implement a supply management strategy and enacts the other roles. We note that, while specific relational activities of the educator role may overlap with those of the other roles, such activities are usually not directly concerned with immediate operations issues involving the suppliers. Rather, the educator role is a long term lobbying effort by the supply manager with the internal customer.

3.2 Survey Measures

The second phase of the research was to gather empirical data using a survey instrument. The empirical data were to be used to test the research hypotheses. We used existing scales whenever possible. The sources and associated psychometric properties of the scales are indicated in Appendix B. The measures for each construct are described below.

Behavioral repertoire is the portfolio of roles a supply manager enacts (Denison et al., 1995). In our study, the four supply manager roles were those identified in the case studies. New five-item scales were developed to measure each of the four roles. Feedback and comments on the scales from 6 supply chain researchers and minor wording changes were made. The survey was also pre-tested with a sample of 14 supply managers. The revised scales were reviewed and discussed with 20 supply management professionals at a dinner meeting of a local affiliate of the Institute for Supply Management.

Following Hooijberg's (1996) approach to assessing behavioral repertoire first the average of the questions reflecting each role was computed. Then an average of the four average scores was computed to measure behavioral repertoire. Thus, the measure of behavioral repertoire is the overall mean of the four individual role scores, with a higher overall average score representing a broader behavioral repertoire and a lower overall average score representing a more narrow repertoire.

Behavioral differentiation is the ability of a supply manager to navigate across roles. Previous research measured behavioral differentiation of a manager as the variance of different points of view from multiple respondents (c.f. Hooijberg, 1996). In our study, we developed a new five-item scale to measure behavioral differentiation. This allowed us to assess specifically the supply manager's navigation across roles in general.

Interpersonal relationship performance was measured as the composite average of two constructs, level of trust and satisfaction between the supply manager and the key contact in the supplier's firm. This accommodates our conceptualization of relational performance and is consistent with the statistical perspective that if correlation coefficients between two factors is high ($> .70$) then the respondents may be viewing the concepts as a higher order factor (Garver and Mentzer, 1999). The correlation coefficient between trust and satisfaction in our sample is 0.82.

We adapted existing measures from business-to-business channel relationship studies (Kaufman, Jayachandran, and Rose, 2006; Morgan and Hunt, 1994; Prahinski and Benton, 2004). These studies have reported strong psychometric quality of these measures. We assessed the relational performance between the two firms by examining the commitment and cooperation in the buyer-supplier relationship (Prahinski and Benton 2004). We adapted a five

item commitment scale from Morgan and Hunt (1994), and a seven item cooperation scale from Prahinski and Benton (2004).

3.3 Data collection

Our study's design requires a matched-sample of supply managers and corresponding key contacts in strategic suppliers' firms with whom the supply manager works the most often. The participants were not randomly selected but are from a set of manufacturing companies who are active participants in either of two supply management organizations – the Supply Chain Management Institute at one of the researcher's university and the Center for Advanced Purchasing Studies, the research arm of the Institute of Supply Management. Using this approach to obtain respondents offered three benefits. First, it is difficult to collect paired buyer-supplier data because information concerning strategic suppliers is typically considered proprietary and in some cases is covered by non-disclosure agreements. Working directly with a set of buyers enabled us to explain the research objectives to top-level supply management executives to gain their support of the study. Second, it was important to ensure that participating supply managers were responsible for personally managing strategic supplier relationships and interacting with the supplier frequently. Knowing that a variety of individuals use the job title of “supply manager,” we needed the assistance of the buying firm to identify the appropriate survey respondents and screen out supply managers who did not manage strategic relationships. Finally, by focusing on selected companies and working with senior-level executives, we hoped to improve the survey response rate. The identified buying companies cover a wide range of manufacturing sectors including pharmaceutical, oil refinery, packaging, industrial equipment, automotive, and agricultural equipment.

We approached senior level supply management executives in these companies and asked that they identify supply managers within their organization who manage strategic supply relationships. Five companies declined to participate in the study either because they had non-disclosure agreements with suppliers or did not have sufficient resources to help with the survey given the timing our survey. In the end, 16 buying companies agreed to participate in the study.

Firms who agreed to participate in the survey were emailed a letter of invitation with a link to the on-line survey directly to the identified supply managers. We then followed up with the supply managers with reminder emails following Dillman's (2000) recommended procedures. Two supply managers choose to reply to the survey by fax. In the supply manager survey, we asked the supply managers to identify one key supplier that they work most often and their key contact within the supplier's organization. The survey questionnaire asked supply managers about their roles and behavioral differentiation based on their interactions with the identified key supplier contacts. The survey also asked for the contact information of the key supplier contacts. Once we received the on-line survey from the supply manager, we emailed the key contacts invitation letters to reply to an on-line survey about their inter-personal relationships with the supply managers and the relationships between the buyer and supplier companies. The key contacts were informed that their name was provided by the buyer, and that no individual-level information would be revealed to the supply managers. By collecting behavioral complexity and relationship information from different sources we eliminate common method bias concerns. Both buyer and supplier data were collected between June and December of 2007.

We were able to collect data from 61 pairs of supply managers and their key contacts. The response rate from the suppliers is 75%. The job titles of the supply managers in our sample

included global commodity managers, supply management specialists, and senior buyers. The titles of the key contacts at the supplier's firm included senior account managers, vice presidents of sales, general managers, and directors. Twenty-one of our supply manager respondents came from one large company. No other company had more than seven supply manager respondents. One concern is that there might be significant differences in our variables of interest between the 21 respondents from one company and the remaining sample. After a series of mean-comparisons, we found no differences between 21 respondents from one company and the rest of the sample; hence, the sample was combined.

Supply managers in our sample worked for an average of about 10 years with their current employers and the key contacts in the supplier firms had an average of 14 years with their company. The average duration of the buyer-supplier relationship is 11.5 years. Of the products purchased, 56% are production parts made to the buyer's specification, followed by raw materials (15%), standard production parts and components (10%), and MRO supplies (6.7%). Only one respondent listed services as their primary purchase. The remaining spend across the sample consisted of packaging materials, capital equipment, shipping and other goods.

4. Results

4.1 Validity Testing

Before testing the hypotheses, internal consistency for each scale was evaluated. The Cronbach's (1951) alpha value for each construct exceed 0.70 (see Appendix B), the suggested cut-off value. An exploratory factor analysis (EFA) was done for the new scales. The item loadings and factors are illustrated in Table 1. Three of the 25 items did not load highly on any factor with factor loadings below 0.5 (Hair et al. 1998), thus these items were removed from

subsequent data analysis. All the remaining items loaded on the respective factors. Table 2 summarizes the measurement statistics.

 Insert Table 1 about here

 Insert Table 2 about here

4.2 Results of Hypothesis Testing

We used regression analysis to test our hypotheses. We first examined three basic residual assumptions underlying linear regression models. Violation of the assumptions would raise concerns as to whether the estimates of regression coefficient and their standard error are correct (Cohen, Cohen, West and Aiken, 2003). We checked our data for any outliers, and found two data point with undue influence. We could not detect any assignable causes that might have created the outliers. Following Chatterjee and Wiseman's suggestion (1983), we removed the outliers in subsequent data analysis, resulting in a final sample of 59 pairs of supply managers and corresponding suppliers.

With regression analysis, we examined the influence of behavioral repertoire and behavioral differentiation on the interpersonal relational performance between the supply manager and key contact at the supplier's firm. We found overall the model is significant ($F = 3.30, p \leq .05$). As hypothesized in Hypothesis 1, behavioral repertoire is positively related with interpersonal relationships (trust and satisfaction) with the key contact at the supplier's firm ($F = 4.40, p \leq .05, \beta = .303$).

Behavioral differentiation also significantly influences the interpersonal relationship ($F = 5.35, p \leq .05, \beta = -.334$). However, interestingly, the effect is not in the predicted direction.

Behavioral differentiation is negatively related to the interpersonal relationship. Thus, Hypothesis 2 is not supported

We continued our analysis to examine the effects of the relationship between the interpersonal relationship (between the supply manager and key contact at the supplier's firm) on the buyer-supplier relationship. Because data on these two constructs were collected from the key supplier's contact, we assessed if common method bias is present using a factor analysis with all of the items (Harmon, 1967). According to the Harmon (1967) test, if common method bias is present, all of the items should load on a single factor or one general factor accounting for most of the variance in the data will exist. The factor analysis results show that the items did not load on a single factor; further, the first factor explains only 38 percent of the common variance in the data. We can reasonably conclude that the common method bias is not an issue in the data.

Using a GLM multivariate analysis procedure, we tested the impact of interpersonal relational performance on two dependent variables: commitment and cooperation between the two firms. The model was significant overall (Wilks' Lambda = .553, $F = 22.62$, $p \leq .001$). The results indicated that the interpersonal relationship is positively related to both firm-to-firm commitment ($F = 9.86$, $p \leq .01$, $\beta = .298$) and firm-to-firm cooperation ($F = 46.02$, $p \leq .001$, $\beta = .632$). Thus, Hypothesis 3 is supported. Table 3 summarizes our results.

Insert Table 3 about here

5. Discussion

In this study, we examined if a supply manager's multiple roles and the ability to shift among these roles are related to their interpersonal relationship with a key contact in a strategic supplier. Four roles that supply managers assume when working with strategic suppliers were identified based on the literature and case studies. These roles are: negotiator, facilitator, supplier's advocate, and educator. Then, building on behavioral psychology research, we applied the concept of behavioral complexity to supply managers and hypothesized that a behaviorally complex supply manager can manage the conflicts inherent in these roles and interpersonal relationships effectively with different constituents across organizational boundaries. Specifically, we examined the two underlying dimensions of behavioral complexity, behavioral repertoire and behavioral differentiation, and their impact on interpersonal relationships between supply managers and their key supplier contacts. We hypothesized that these interpersonal relationships would be related to the firm-to-firm relationships between the buyer and supplier.

The research results show that a supply manager's behavioral repertoire encompassing negotiator, facilitator, supplier's advocate, and educator, has a positive association with a supply manager's interpersonal relationship as measured by trust and satisfaction with the supply manager reported by the key contact in the supply firm (H1). We also ascertain a positive relationship between the interpersonal relationship and firm-to-firm relationship (H3). That is, when the key contact in the supplier firm has a good rapport with the supply manager, the key contact tends to have a favorable opinion on the relationship between his firm and the buying firm.

Contrary to our hypothesis (H2) which proposed a positive relationship between the supply manager's behavioral differentiation and the interpersonal relationship with the supplier's key contact, the results show a statistically significant but negative relationship. Juxtaposing the findings of behavioral repertoire and behavioral differentiation, it is seemingly paradoxical that, while the key contacts at the supplier firm have a trusting relationship with a high level of satisfaction with the supply managers who play multiple roles, they do not have a favorable opinion of supply managers who report higher levels of navigation among the roles. Hooijberg's leadership study (1996) also had mixed results concerning the effect of behavioral differentiation. He found that behavioral differentiation has a positive impact on the perceptions of effectiveness by the leader's superiors, but a negative impact on the perceptions of the effectiveness by the subordinates. It appears that the effects of behavioral differentiation may vary with the relational context and the role-set of the members in the organizations. Individuals depending upon their organizational position may perceive role-changing behavior differently. As supply managers switch among the four roles, the key supplier contacts may question the supply manager's sincerity and doubt whether the supply managers really care about the supplier's business interests. As we will discuss later, this finding raises a practical question as to how a supply manager should enact the requisite roles.

This study contributes to buyer-supplier relationship management studies in three ways. First of all, we applied the concept of behavioral complexity to understand the roles of supply managers and their effectiveness in terms of interpersonal and inter-firm relationship performance with strategic suppliers. Our research demonstrates the potential of examining individual behavior in understanding buyer-supplier relationships and focuses on multi-level relationship dynamics. As Schneider (1987) remarked, people make the place. Ring and Van

De Ven (1994) suggested that inter-organizational relationships “only emerge, evolve, grow and dissolve over time as a consequence of individual activities.” Our research provides further support that buyer-supplier relationships are an aggregation of multiple interpersonal relationships across organizational boundaries. The results show that supply manager roles and role behaviors can have a significant impact on the inter-firm relationship.

Finally, we empirically specified a taxonomy of supply manager roles used to operationalize behavioral repertoire. We also created and validated a measurement scale of behavioral differentiation. These tools can be used by researchers to further explore the relational skills of supply managers in future research. The research findings also provide insights to supply management professionals. It attests to the assertion that relational skills are critical assets for supply management organizations in strategic supply management (Giunipero et al., 2006). The research findings suggest that effective supply managers must be capable of playing multiple and competing roles. In the meantime, supply managers should be aware that their role switching behavior may be perceived differently by the supplier’s representative and if excessive, can have a negative impact on the interpersonal relationship. Indeed, relationship management is both a professional skill and an art. Supply managers need to be aware that their ability to perform the requisite roles can have a significant consequence on their job performance. Understanding roles and role behaviors should be included in supply management training and education programs.

6. Limitations and Future Research

Limitations in this study point to future research opportunities. A random sample was not used but instead data were obtained from a convenience sample of buying firms. These firms are primarily large manufacturing firms and are actively involved in the supply management

profession. Thus, the results, especially concerning the levels of behavioral repertoire and behavioral differentiation observed may not apply to other samples such as smaller organizations or organizations in the service industry. The study also focuses only on strategic supplier relationships which represent only a part, although an important one, of a buying organization's portfolio of supplier relationships (Bensaou, 1999). In this study, most of the strategic relationships are for production materials. The findings may not apply to other types of supplier relationships and for other types of purchases.

Another issue concerns the self-reporting of roles and role behaviors by the supply managers. An alternative that has been used in other studies (Hooijberg, 1996) is to measure the perceptions of roles from other individuals. For instance, in the context of our study, one may ask the key contacts about the supply managers' performance of negotiator and facilitator roles and ask internal customers within the supplier manager's firm about performance of educator and supplier's advocate roles. Scholars debate the merits of each method. While Paulhus and Martin (1987) argue that self-report is the assessment of choice, Hooijberg and colleagues (1997) suggest that one should not rely solely on self-assessment should because behavioral complexity is demonstrated rather than being a self-perceived capability. Future research needs to consider incorporating both self-reported assessment and perception from those who interact with role performers (Kumar, Stern and Anderson, 1993).

The fact that the supplier's were selected by the buyer, and the supplier's key contact was informed of this fact may have resulted in a positive bias. For example, when selecting the key supplier, the supply manager may have chosen one that was perceived to have positive relationship. Although the suppliers were assured of confidentiality of their responses and they were contacted by the researchers, their rating of the interpersonal and firm-to-firm relationships

may have been artificially high. Indeed, the means of the interpersonal (mean = 6.23) and inter-firm relationships (6.34) were high considering the seven-point scale. Future research should strive to gather data about supplier relationships that are not as cooperative or committed to confirm the findings.

An opportunity for future research is to develop a more comprehensive theory of behavioral complexity of supply managers. A more thorough analysis of supply managers' behavioral complexity needs to examine supply manager's relationships with both the key contacts in the supplier firm and with the internal customers within their own organization. Furthermore, future research should also explore how such relationships affect job performance of individual supply managers and firms' operations performance.

As this study suggests, the multi-level analysis offers both a new lens to examine buyer-supplier relationship. Organizational science researchers have theorized how interpersonal relationships interact with interorganizational relationships as a result of different contextual factors such as situation ambiguity, tight coupling of organizational linkages, cultural fit, and organizational life cycle (House, Rousseau and Thomas-Hunt 1995; Klein, Palmer and Conn, 2000). In the case of our study, given the buyers and suppliers in our samples are largely involved in traditional manufacturing and have a long relational history, we can attribute the positive association between inter-firm and inter-personal relationships to great cohesion of these relationships at two levels. As researcher set out to explore buyer-supplier relationship in a dynamic business environment, they need to consider different mechanism and processes as to how such micro and macro relationships interact with each other. Such endeavor would offer rich understanding of the impact of individuals on supply chain activities.

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TABLE 1: Exploratory factor analysis results

	Negotiator	Facilitator	Supplier's Advocate	Educator	Behavioral Differentiation
Neg1	.682				
Neg2	.839				
Neg3	.496				
Neg4	.859				
Neg5	.862				
Fac1		.747			
Fac2		.856			
Fac3		.869			
Fac4		.807			
Fac5		.837			
SA1			.103		
SA2			.838		
SA3			.776		
SA4			.613		
SA5			.469		
ED1				.859	
ED2				.836	
ED3				.743	
ED4				.744	
ED5				.776	
BD1					.661
BD2					.720
BD3					.714
BD4					.544
BD5					.839

Note: Items in bold were deleted due to weak loadings.

TABLE 2: Measurement statistics

Measure	Mean	Standard Deviation	1	2	3	4	5
1. Behavioral Repertoire	5.63	.60	(-)				
2. Behavioral Differentiation	6.08	.68	.48	(.83)			
3. Interpersonal Relational Performance	6.25	.84	.14	-.19	(.90)		
4. Firm-to-Firm Cooperation	6.09	.79	.14	-.21	.67	(.87)	
5. Firm-to-Firm Commitment	6.62	.65	.24	.06	.38	.56	(.90)

Correlations greater than .30 are significant at $p < .01$

Notes: The coefficient alpha for the multi-item scale is listed on the diagonal, and the intercorrelations between measures are given on the off-diagonal.

TABLE 3: Results of analysis

Regression Analysis			
Dependent variable: Supply Manager-Key Contact Interpersonal Relationship			
Independent Variables	F-value	Significance, p	Parameter Estimates
Behavioral Repertoire (H_1)	4.40	.040	.303
Behavioral Differentiation (H_2)	5.35	.024	-.334
Model $R^2 = .11$ F = 3.30, $p \leq .05$, n = 59 pairs			
GLM Multivariate Analysis			
Dependent variables: Firm-to-Firm Commitment and Cooperation			
Independent Variable → Dependent Variables	F-value	Significance, p	Parameter Estimates
Interpersonal Relationship → Firm-to-Firm Commitment (H_3)	9.86	.003	.298
Interpersonal Relationship → Firm-to-Firm Cooperation (H_3)	46.02	.001	.632
Wilks' Lambda = .553, F = 22.62, $p \leq .001$ Model 1 $R^2 = .15$, Model 2 $R^2 = .45$, n = 59 pairs			

APPENDIX A: PILOT STUDY INTERVIEW PROTOCOL

Describe a situation when you (the supply manager) resolved an issue between the buyer and supplier that placed you in a difficult situation.

Describe how the issues were resolved and the roles that you played to resolve the issue.

How does this incident change any of your internal relationships with those in the buyer and supplier firms?

Provide background information about this supplier and relationship history at personal and firm levels.

Describe the job in general of a supply manager.

How do you perceive your role as a supply manager? What kinds of roles do you play on a daily basis?

APPENDIX B: MEASURES

All measures used a 7-point scale, 1 = strongly disagree and 7 = strongly agree

Behavioral Repertoire: (new scales, data collected from supply manager)

Negotiator ($\alpha = .87$)

1. Pursue negotiations as a way to achieve my company's goals first and foremost.
2. Negotiate to make sure the interests of my company are met above all other interests.
3. Take actions so that my company came out ahead.
4. Take a strong stance about my company's needs.

Facilitator ($\alpha = .91$)

1. Facilitate two-way communication among all internal and external parties involved.
2. Act as a mediator to solve disagreements.
3. Help my internal parties and this supplier reach agreement.
4. Active in guiding discussion among the parties.
5. Work to provide both parties the opportunity to share their opinions.

Supplier's Advocate ($\alpha = .81$)

1. Advocate on behalf of this supplier
2. Make sure the supplier's needs and concerns are heard.
3. Be sure that my internal customer understands the supplier's point of view.

Educator ($\alpha = .87$)

1. Keep my primary internal customer informed about this supplier.
2. Alert my primary internal customer to any changes with this supplier.
3. Spend time educating my primary internal customer to better understand this supplier.
4. Explain to my primary internal customer about this supplier's business goals.

5. Inform my primary internal customer about situations that come up with this supplier.

Behavioral Differentiation: (new scale; $\alpha = .83$; data collected from supply manager)

1. Adapt my behavior to work effectively with different people.
2. Adjust my approach to relate to different individuals.
3. Play different roles, such as a negotiator, a facilitator and a supplier's advocate.
4. May go from negotiating with this supplier to speaking on their behalf to my primary internal customer in my company.
5. When working with different people, I often play different roles.

Supply Manager-Key Contact Interpersonal Relationship (composite $\alpha = .90$; data collected from key contact at supplier's firm)

Trust (adapted from Kaufman, Jayachandran, and Rose 2006; $\alpha = .89$)

1. Is honest in dealing with me.
2. Seems to be concerned with my needs.
3. Is open in dealing with me.
4. Is trustworthy.

Satisfaction (adapted from Kaufman, Jayachandran, and Rose 2006; $\alpha = .95$)

1. I am happy with my overall relationship with this primary internal customer.
2. I wish more people in my company were like this internal customer.
3. I enjoy working with this internal customer.

Firm-to-firm Relationship (composite $\alpha = .72$; data collected from key contact at supplier's firm)

Cooperation (adapted from Prahinski and Benton 2004; $\alpha = .87$)

1. We are concerned about this supplier's success.
2. We will not take advantage of a strong bargaining position.
3. Our companies must work together to achieve mutual goals.
4. Our relationship is better described as cooperative rather than adversarial.
5. When our firm has a problem, this supplier helps us solve it.
6. This supplier is prompt when responding to our requests.
7. When we are solving problems jointly, the supplier is flexible in resolving them.

Commitment (adapted from Morgan and Hunt 1994; $\alpha = .90$)

1. Is loyal to this supplier.
2. Expects to use this supplier for a long time.
3. Sees this relationship as a long-term partnership.
4. Is committed to this supplier.
5. Has invested in resources dedicated to this supplier.