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THE VALUE OF RELATIONAL LEARNING IN GLOBAL BUYER-SUPPLIER EXCHANGES: A DYADIC PERSPECTIVE AND TEST OF THE PIE-SHARING PREMISE

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Research in collaborative interorganizational relationships has typically focused on the value of these relationships to a specific supply chain partner. Furthermore, the phenomenon has rarely been explored in a global setting. Using primary data from 126 cross-border dyads, we investigate the influence of relational learning on the relationship performance of both the buyer and the supplier, testing the contention that both members (1) benefit from relational learning efforts and (2) enjoy equal pieces of the benefits pie. We find that three specific types of relational learning (information sharing, joint sensemaking, and knowledge integration) influence relationship performance, and that these dimensions of relational learning affect supply chain partners in different ways. We draw conclusions regarding the relative value of relational learning for both buyers and suppliers. Copyright © 2011 John Wiley & Sons, Ltd.

INTRODUCTION

Numerous empirical studies have acknowledged the need to manage buyer-supplier relationships as strategic assets, and have investigated the benefits of these relationships to the achievement of superior results (Mesquita and Brush, 2006; Ulaga and Eggert, 2006; Jap, 2001). Traditionally, buyers and suppliers have been encouraged to see their relationships as 'pie-expansion' efforts, through the use of collaborative efforts across organizational boundaries and specialized investments (Jap, 1999). Recent theoretical works also argue that business partnerships can result in the *cocreation* of value that leads to an individual firm's competitive advantage (Vargo and Lusch, 2004). Benefits include optimal inventory levels, non-price benefits, sales and volume guarantees, and real-time market knowledge. In general, collaborative efforts have been credited with incrementally expanding the benefits 'pie' to give each partner a greater benefit that could not have existed without the idiosyncratic contributions of the specific partners together (Jap 1999).

While collaborative efforts can increase an organization's global competitiveness, they also bear certain risks (Hult, Ketchen, and Slater, 2004). Sharing of sensitive information, commitment to unique (and costly) investments, and creation of competitors through collaboration are all potential downsides to buyer-supplier collaborative relationships. Perhaps more specific is the problem of 'pie sharing' itself, and the issues associated with competing for revenue between partner firms. This is articulated in the following quote from a chemical industry manager:

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> Given the margin compression which has occurred in recent years, manufacturing companies believe there is a fundamental conflict of interest among companies along the supply chain. In the chemical industry, manufacturers who find themselves somewhere along the chain between Wal-Mart and OPEC are competing for a slice of an ever shrinking margin pie. Therefore, companies are more likely to view suppliers as competitors for margin rather than partners to improve efficiency. I hear a lot of rhetoric about 'partnership' but see very little in actual practice. . . . . I also think that knowledge sharing and true partnership in the supply chain are limited by traditional ways of working when supplier-customer relationships were more adversarial. I continue to see a lot of this sort of behavior in industry despite the fact that most managers realize more open relationships, properly constructed, would add more value (CEO, ICI—Uniqema BV, e-mail interview 21 October 2005)

It is this perspective, representing the 'dark side' of interfirm collaboration, which characterizes many buyer-supplier relationships (Anderson and Jap, 2005). Globally, these relationships can detrimentally affect strategic outcomes due to increased cultural disparity and a lack of goal congruence between partners who operate in different economies (Griffith and Myers, 2005).

Relative to our understanding of collaborative ventures, several critical questions remain unanswered. First, the value of particular types of collaboration, such as information sharing, knowledge sharing, or shared technologies, are widely assumed in the literature (Kalwani and Narayandas, 1995). Second, the majority of research focuses on economic value for buyers *or* for suppliers; few studies investigate how strategic orientations of buyers and suppliers affect the *relative* relationship performance for the individual dyad members. Value creation is regarded as the essential purpose for a buyer *and* a supplier to engage in a relationship (Wilson, 1995). Traditional perspectives that suppliers and buyers act as independent economic agents are being replaced with an understanding that these exchange partners are coproducers of value, and thus their performances are interlinked (Vargo and Lusch, 2004). To ensure survival, suppliers and customers need to understand how value can be cocreated and performance benefits shared with their partners. As such, it is important to explore the concept of relationship performance from *both* sides of the dyad.

Third, there has been little or no advancement in our understanding of the cross-national generalizability or validity of applicable theories relative to the value of global interfirm collaboration (Cheung, Myers, and Mentzer, 2010). There is a great need for more cross-functional, cross-cultural investigations to further our understanding of the value of dyadic collaboration in cross-border exchange that could help draw relevant conclusions and offer meaningful insights (Hillman, 2009) (see Table 1).

We define relational learning as a joint activity between a supplier and a buyer in which two parties share information, which is jointly interpreted and integrated into a shared relationship-domain-specific memory that changes the likelihood of potential relationship-specific behavior. These relationships vary in terms of their learning capabilities, and, thus, some relationships perform better because they have developed appropriate learning mechanisms (Selnes and Sallis, 2003). There remain a number of questions to be addressed. The complexity and dynamic nature of knowledge flows present great challenges for cross-border exchange partners to coordinate and translate that learning into firm-specific advantage. This warrants a micro-level multidimensional examination of relational learning phenomena. In this study, we extend the work of Cheung *et al*. (2010) and others and examine which specific dimensions of relational learning between cross-border buyers and suppliers positively affect relationship performance of the partners. Next, we determine if one partner benefits more from these relational learning activities, or do both buyer and supplier share a comparable 'piece of the pie' relative to benefits. Our study is notably different from previous research in several ways: (1) it explores the three distinct relational learning dimensions from *both* the perspectives of buyers and suppliers; (2) it examines relationship performance from *both* sides of the dyad independently to assess the pie-sharing effect; and (3) it represents an increasingly global business landscape in that the dyads come from a strictly *cross-border* setting. This perspective provides further insights into our understanding of the effects of the increasingly

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Table 1. Comparison of present study with previous related research

Problem studied	Exemplar studies	Dyadic?	Comparative/ international?	Relational context	Study type or knowledge measure
Value of knowledge transfer on supplier performance	Kotabe, Martin, and Domoto (2003)	No	Yes	Knowledge sharing	Effects of technology exchange and technology transfer on supplier performance
Intracorporate knowledge transfers with MNCs	Gupta and Govindarajan (2000)	No	Yes	Knowledge sharing	Knowledge flows to and from subsidiaries
Relationship learning, relationship trust, and relationship performance	Selnes and Sallis (2003)	Yes	No	Relational learning	First–order measure of knowledge flows (relationship learning)
Determinants of cross-national knowledge transfer	Kotabe *et al.* (2007)	No	Yes	Knowledge sharing	Effect of knowledge transfer on firm innovation
'Pie sharing' in a B2B context	Jap (1999, 2001)	Yes	No	Knowledge sharing	Investigation of equity and equality sharing principles on relational outcomes
Comparison of resource- based and relational perspectives within the context of vertical learning alliances	Mesquita, Anand, and Brush (2008)	No	No	Knowledge transfer and spillover	Relational performance as a function of suppliers acquiring know-how
The role of network knowledge resources in influencing firm performance	Dyer and Hatch (2006)	No	No	Knowledge sharing	The effect of knowledge sharing on learning rates within a suppliers' manufacturing operations devoted to a single customer (Toyota)
The value of multidimensional knowledge sharing to both buyers' and suppliers' market performance	Present study	Yes	Yes	Relational learning	Information sharing, joint sensemaking, and knowledge integration in the global dyads and its effect on performance

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globalized supply chains and cross-cultural disparities on firms' hesitancy to engage in relational learning with their exchange partners. From a theoretical standpoint, this research examines how strategic outcomes are achieved through interfirm relational learning by building from the relational views (Dyer and Hatch, 2006; Dyer and Singh, 1998; Mesquita, Anand, and Brush, 2008) as well as the organizational learning theories (Hult *et al*., 2000; Fiol and Lyles, 1985). We hypothesize that relationship performance is enhanced *via* interfirm relational learning among global buyers and suppliers. We review the literature on collaboration and relational learning and develop specific hypotheses regarding the value of relational learning on relationship performance, and the *relative* value of this activity vis-à-vis buyers versus suppliers. We then use extensive dyadic data that describes the relational learning activities of buyers and suppliers in cross-national exchange arrangements in Asia-Pacific, Europe, and the Americas to test our hypotheses.[1]

THEORETICAL BACKGROUND AND HYPOTHESES

In their work on the transnational organization, Bartlett and Ghoshal (1998) argue that three flows are the lifeblood of any organization: goods, resources, and information, the latter in the form of data, analyzed information, and accumulated knowledge. They state that perhaps the most difficult task of organizations is to coordinate the voluminous flow of strategic information required to operate across borders (Bartlett and Ghosal, 1998: 197). The diversity and dynamic nature of knowledge flows make it extremely difficult to coordinate through formalized learning systems, and the volume and complexity of information often overwhelms any efforts to centralize coordination efforts.[2] To manage this dilemma, organizations must share knowledge through coordinated exchange, or relational learning. Learning can be seen as both an organizational and interorganizational phenomenon, and through relational learning both buyers and suppliers identify ways to reduce redundant costs, improve quality and reliability, and increase speed and flexibility (Selnes and Sallis, 2003). In other words, relational learning can be the basis of competitive advantage for the entire supply chain.

Research in interorganizational exchange proposes that firms possess capabilities that allow them to excel in their markets and, through relational combinations (e.g., dyads), form distinctive and competitive advantages. Here, dyad relationships are defined as 'the **systematic, strategic coordination** of the traditional business functions and the tactics across these business functions within a particular company and across businesses... for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole' (Mentzer, Min, and Zacharia, 2000: 550, emphasis in original). Our definition of relationship performance differs from some studies (e.g., Mesquita *et al*., 2008), that look at performance of a specific partner relative to other partners the respondent may have in its portfolio. We instead see relationship performance more holistically in both efficiency

[1] Traditionally, scholars have studied two different modes of organizing vertical relationships: firms can either 'make' (procure from an internal supplying unit within the firm) or 'buy' (from an external supplier outside the firm) each component necessary to complete their chosen product mandates (Gulati, Lawrence, and Purnam, 2005; Williamson, 1985). There is, however, a trend toward expanding this dichotomous choice in order to focus on other 'hybrid' forms of organization that are intermediate between make and buy (Poppo and Zenger, 2002). In this study, we focus on *vertical alliances* (or 'ally'), a hybrid form that indicates a relationship characterized by continuity between two financially independent firms that operate at successive stages in a vertical supply chain of production, while both firms expect the interaction to continue into the future (Gulati *et al*., 2005). These vertical alliances are generally characterized by long time horizons or open-ended arrangements, as opposed to arm's-length exchanges, which tend to be on the open market, discrete, and short term (Gulati *et al*., 2005; Ring and Van de Ven, 1994). As independent buyers and suppliers, dyad partners share neither ownership nor equity, however, the selling and purchasing units retain autonomy in decision making and rights over residual returns. Similar to Gulati *et al*. (2005), our unit of analysis for this study is the vertical relationship that firms undertake for the sale or procurement of a component. While firms may differ in the channel functions they perform, symmetry is expected in the nature and pattern of causation of the behavioral constructs that underlie their relationship (Jap, 1999). Thus, our conceptual model represents identical processes for both buyer and supplier.

[2] The literature draws clear distinctions between information (often defined as codifiable) and knowledge (often captured as more subtle and tacit). We agree with these perspectives and find them most useful in the development of our framework. In our research, we find that firms often discuss knowledge and information exchanges simultaneously, in that these activities continuously occur over time within partnerships. In turn, we use these terms simultaneously, not interchangeably, and argue that key distinctions must be made when considering their influence on performance outcomes, such as in the present research regarding information (exchange) and knowledge (integration).

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and effectiveness dimensions and in absolute terms. A well-performing relationship exists if both [dyad members] are satisfied with the relationship's effectiveness (i.e., doing the right things) and efficiency (i.e., doing things the right way) (Selnes and Sallis, 2003: 83). Effectiveness in global buyer-supplier exchanges includes developing new products, enhancing product quality, and other factors enhancing innovation and competitiveness. Efficiencies include cost reductions, increased on-time deliveries and shorter lead times.

Research related to relational learning between organizations has found strong links to both business performance and competitive advantage (Chung and Yeaple, 2008). In global markets, where knowledge of both demand and supply conditions across borders is considered critical to a successful supply chain strategy, relational learning is likely to foster products and processes that provide more value and superior problem-solving abilities for their users (von Hippel, 1998). Powell, Koput, and Smith-Doerr (1996: 116) argue that 'when the knowledge base of an industry is both complex and expanding and the sources of expertise are widely dispersed, the locus of innovation will be found in networks of learning, rather than in individual firms.' Complex, expanding, and widely dispersed scenarios characterize global business relationships, where firms operate in multiple markets with widely divergent economic profiles on both the supply and demand sides of the exchange (Griffith and Myers, 2005). Given this, relationship performance 'exists if both [the supplier and the buyer] are satisfied with the relationship's effectiveness (and efficiency (Selnes and Sallis, 2003: 83). This can best be achieved by working toward specific relational learning activities consistent with each partner's needs.

Selnes and Sallis (2003) conceptualize relational learning as a joint activity in which two parties strive to create more value together than they would create individually or with other partners. It is believed that the capability of a relationship to learn is closely connected to how it is managed and the context in which it is embodied. Our conceptualization of relational learning is consistent with the interaction perspective of Håkansson and Snehota (1995), which suggests that two firms affect and are affected by each other in relatively enduring ways. Like Selnes and Sallis' (2003) perspective, we consider relational learning to be similar to, but conceptually different from, the more general construct of organizational learning. Specifically, we see relational learning as a multidimensional construct consisting of information sharing, joint sensemaking, and knowledge integration. These three dimensions closely follow Bartlett and Ghoshal's (1998) highly influential model of multinational corporation (MNC) strategy, which argues that MNCs must seek *local responsiveness* for adaptability to diverse locations (accomplished *via* information sharing in the dyad), *worldwide learning* to exploit innovations developed around the globe (through joint sensemaking with partner firms), and *global integration* for efficiency (here *via* knowledge integration across partners). Similar to Mesquita *et al*. (2008), we believe that the relational view provides the necessary perspective to explain how these dimensions influence relationship performance. Each of these dimensions and its hypothesized relationships are discussed below.

Information sharing

Information sharing constitutes the exchange of information between buyer and supplier regarding end-user needs and preferences, market structures and acquisitions, technologies of products, strategies and finances of partners, and unexpected problems (Selnes and Sallis, 2003). Recent research on knowledge transfer mechanisms (e.g., De Luca and Atuahene-Gima, 2007) indicates that information about the market environment, customer, and competitors is a driver of a market-oriented strategy, and while this may seem intuitive, the research is juxtaposed relative to the value of this information sharing from the perspective of the buyer, as opposed to the supplier. Operational efficiencies are achieved through the exchange of information (Cannon and Perreault, 1999), and this can benefit both members of the cross-national dyad. For example, cycle time reduction, a common benefit of information sharing (see Hult, Ferrell, and Hurley, 2002), benefits inventory levels for both buyers and suppliers. In particular, relational learning with regard to information, resources, markets, and technologies, with subsequent advantages from learning, scale, and scope economies, allows buyers *and* suppliers to achieve strategic objectives, such as sharing risks and outsourcing value-chain stages and organizational functions (cf. Gulati, Nohria, and Zaheer, 2000).

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Vargo and Lusch (2004) argue that the primary flow between organizations is information. It is this information that enables the coproduction of products that meet market demands from the standpoint of quality, delivery, and costs. Evans and Wurster (1997: 72) state that 'the value chain also includes all the information that flows within a company and between a company and its suppliers, its distributors, and its existing or potential customers. Supplier relationships, brand identity, process coordination, customer loyalty, employee loyalty, and switching costs all depend on various kinds of information.' In cross-border exchange relationships, both suppliers and buyers experience enhanced pressures for flexibility, pressures from a liability of foreignness, and often deal with great distances between points of supply and points of sale, where 'information shadows,' or a lack of information needed to make quick demand or supply-oriented decisions exist. This can detrimentally affect the performance of both members of the dyad. Information sharing positively influences both firms' ability to provide customers with needed products, reduce cycle times (and costs) and increase on-time deliveries, for example, by buyers communicating forecasted demand levels to suppliers and suppliers informing buyers of capacity constraints and quality issues. An increase in demand visibility within the distribution network has been shown to increase on-time deliveries dramatically (Swanton and Hofman, 2004). Simultaneously, the greater the ability to exchange information relative to end-user needs, market structure, focal product technologies, and unexpected market shifts, the greater the ability of both buyer and supplier to benefit. Hence:

Hypothesis 1: The greater the information sharing in the cross-national buyer-supplier relationship, the greater the relationship performance of the individual firms within the dyad.

Joint sensemaking

Joint sensemaking is defined as the development of insight, knowledge, and associations between past actions, the effectiveness of those actions, and future actions (Fiol and Lyles, 1985). Management of joint sensemaking activities has become increasingly important given its increased role in new product development and knowledge management in the multinational firm (Gibson and Zellmer-Bruhn, 2002). Organizations vary in the ways they make sense of the same information, and thus there are differences in the mechanisms involved in the sensemaking process. These mechanisms include information sharing forums, meetings, and cross-functional teams, and are designed to create learning arenas between organizations (Selnes and Sallis, 2003; McQuarrie, 1993). Studies taking the relational view, for example, find that teams and implants help firms implement *kaizan* routines, redesign work stations, and reorganize process flows (MacDuffie and Helper, 1997; Mesquita *et al*., 2008). This, in turn, helps increase on-time deliveries and product quality, and decrease costs. 'Scholars adopting a relational approach to knowledge sharing have mainly focused on the characteristics of established informal relations that facilitate or impede the sharing of knowledge. . .' (Hansen, Mors, and Lovas, 2005: 777). As a result, research has focused on informal relations within teams and organizational subunits (e.g., Levin and Cross, 2004), on teams' and individuals' external informal relations (Cummings, 2004), or on relations between subunits *within* an organization (Gupta and Govindarajan, 2000). While this latter study did utilize the dyad in its analysis, what remains unknown is the value of joint sensemaking activities across *independent* entities in cross-border exchange, not simply from the standpoint of a focal firm, but from that of the buyers and suppliers within the dyad.

Examining how cross-border dyads conduct joint sensemaking activities is particularly important since the multinational context adds variety, heterogeneity, and complexity nonexistent in domestic exchange. To address such heterogeneity, dyads develop structures in which organizational members operate in a knowledge-exchange system, and learn from worldwide experiences (Bartlett and Ghoshal, 1988), and firms recognize that innovations may develop in many portions of the supply chain, but particularly through direct partnerships (see Zellmer-Bruhn and Gibson, 2006). An important aspect of knowledge management designed to facilitate learning from one organizational node to another is through cross-organizational teams. It is the acquisition of tacit, team-based knowledge that helps firms accrue advantages in imperfect markets (Mesquita *et al*. 2008). Through teams, strategies and goals for both buyers and suppliers are articulated and managed for the good of each member

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of the dyad. The use of joint sensemaking activities assists in performance-related outcomes by enhancing new product outputs (effectively meeting customer needs) and new process innovations as well (enhancing efficiencies for both buyers and suppliers). Thus:

Hypothesis 2: The greater the joint sensemaking in the cross-national buyer-supplier relationship, the greater the relationship performance of the individual firms within the dyad.

Knowledge integration

Integration is the quality of the state of collaboration that exists among departments that are required to achieve unity of effort by the demands of the environment (Lawrence and Lorsch, 1967). Generally, this definition is applied to departments *within* a firm, yet the notion of integration can also be used to understand relationships between organizational units from different firms, where integration consists of alignment of interests (cooperation) as well as alignment of actions (coordination) (Gulati *et al*., 2005) and how this benefits relationship performance (Mesquita *et al*., 2008). Knowledge integration occurs when organizations develop relationship-specific memories whereby knowledge specific to that relationship is stored in organizations' collective cognitions, beliefs, and values, and idiosyncratic routines are developed in the form of encoded formal and informal procedures for how the parties interact. Relationships act as repositories for information and assist in problem solving for both individual firms and the dyad as a whole. According to Håkansson and Johanson (1988) and Selnes and Sallis (2003: 84) 'more than two-thirds of all technical development collaboration is done through informal interpersonal networks.'

Firms that focus on global integration promote a holistic view of global operations and explicitly coordinate interdependent processes across organizations (Zellmer-Bruhn and Gibson, 2006). Different methods of integration affect the quality of knowledge flows across functional specialties. Cross functional knowledge integration is characterized by frequent updating and evaluating of markets, processes, databases, and communication techniques across partners. Buyer-supplier relationships involve ongoing mutual adjustment between partners, and this entails small scale adjustments of technical information. 'In simple technical exchanges, the scope of each knowledge transfer is narrow. Under these circumstances, relation-specific assets need not be at their most useful' (Kotabe, Martin, and Domoto, 2003: 298). Embedded or integrated relationships, however, facilitate the continuous exchange of detailed information, which in turn benefits a firm's ability to anticipate unforeseen market changes and react accordingly. For instance, integrative tools such as centralized databases relative to products, services, methods, and markets help facilitate knowledge transfer (Moore and Birkenshaw, 1998). Relationship-specific memories reduce times needed to order and deliver products, thus increasing on-time deliveries and reducing costs. The development of these memories also reduces costs associated with doing business with each other, as the effort (and personnel) needed to cooperate and coordinate is reduced as techniques are streamlined. Finally, and extrapolating from the work of Kotabe *et al*. (2007), we argue that knowledge integration specific to the relationship improves the ability of both supplier and buyer to more readily meet the needs for their partners by better understanding technological demands related to techniques, methods, and product design applications of the partner firm. Thus:

Hypothesis 3: The greater the knowledge integration in the cross-national buyer-supplier relationship, the greater the relationship performance of the individual firms within the dyad.

The moderating effect of cultural distance

Extensions of culturally based research contend that culturally founded norm expectations are embedded in bilaterally established relational strategies (Griffith and Myers, 2005). While intercultural exchange scenarios are determined jointly by dyad partners, they are embedded with national cultural elements of each party in the exchange. Intercultural communication research posits that the communication environment created through intercultural interactions creates a hybridization of communication protocols within the relationship (Casrnir, 1999). Previous research on intercultural encounters in the functioning of multinational business organizations has suggested that cultural distance between the countries representing exchange partners can influence managerial

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decision making in a global business environment (Kogut and Singh, 1988). Behavioral norms and work related values that are influenced by cultural differences also cause disparity in the levels of both commitment to exchange partners and perceived satisfaction with exchange relationships (Markoczy, 2000). Relational norm governance mechanisms, including the exchange of knowledge and information between partners (Zhang, Cavusgil, and Roath, 2003), are specific to each exchange partner and differ significantly depending on culturally established expectations. For example, managers who operate from individualistic, small power distance, short-term cultural perspectives, view knowledge sharing as a potential for partners to behave opportunistically, which would create a threat to a firm's competitive position (Griffith and Myers, 2005). These managers tend not to share knowledge at the same level as their counterparts from more collectivistic, large power distance, long-term oriented cultures.

From this research, we hypothesize that the effects of relational learning on cross-national relationship performance of the dyad are negatively influenced by cultural distance between exchange partners. When supply chain partners have similar cultural norm expectations, the relational norms established to govern knowledge exchange are consistent and performance benefits. Conversely, cultural disparities result in diverse expectations from relational learning activities and detrimentally affect performance outcomes. Thus:

> *Hypothesis 4: Cultural distance has a negative influence on the relationships between the relational learning dimensions and relationship performance.*

A test of the pie-sharing premise

Gulati and Gardiulo (1999) and Dyer and Singh (1998) argue that interfirm relational learning routines are possible sources of 'relational rents' or supernormal profits generated by an exchange relationship that are unattainable by either firm in isolation. Unfortunately, we have assumed that any advantages gained were shared equally by exchange partners, despite parallel, related *intra*firm studies showing disparities in outcomes across organizational 'nodes' (e.g., Gupta and Govindarajan, 2000). Gulati *et al*. (2000: 212) state 'Firms that are in the same clique or are structurally equivalent may behave similarly and enjoy similar returns,' and this has been the predominant view throughout the literature. However, we see the effects of the sharing of knowledge resources on buyer and supplier performance as significantly disparate, and base our arguments on the differential value of knowledge flows between exchange partners when they compete in international markets.

Recent research (Vargo and Lusch, 2004) has taken the perspective that the customer is a coproducer along with the supplier, and that the customer is the primary operant resource. This follows the philosophy of Normann and Ramirez (1993: 65–66) who state that value should not be considered in terms of a value-added notion, but rather in terms of the value created through *coproduction* with suppliers, business partners, and customers. In reality, this *coproduction* should lead to the examination of *co-performance*. Geography, whether physical or cultural or informational, limits competition since it creates cost-advantaged relationships between suppliers and buyers (Leamer, 2007). This said, the literature remains conflicted as to which dyad member stands the most to gain from cross-border relationships. It is still unclear whether buyers or suppliers benefit more from collaborative learning efforts.

Research oriented toward operational outcomes has focused on the effects of collaboration on suppliers' efficiencies or financial outcomes. For example, Hult *et al*. (2004) determined that knowledge acquisition and information distribution activities helped reduce cycle times for transportation firms operating worldwide. Similarly, Kotabe *et al*. (2003) argue that supplier operational performance benefits when relational assets are developed between buyers and suppliers. These perspectives are based on the premise that supply chain nodes farthest away from the final point of sale suffer from information asymmetries that contribute to inventory problems (out of stocks or overstocks), cycle time extensions, and other inefficiencies, and that collaboration *via* shared knowledge reduces these effects. Conversely, the marketing literature consistently postulates that customers benefit from relational learning collaboration due to faster product development routines, lower input costs, and higher end-product quality; and that customers should establish high involvement relationships with suppliers whereby ongoing knowledge exchanges can facilitate these benefits

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(Womack, Jones, and Roos, 1990; Kotabe *et al*., 2003). In the cases of both buyers and suppliers, collaborative efforts are seen to result in routines, or relationship-specific assets. Unfortunately, the research has tended to look at the beneficiaries *in isolation*, without determining the performance implications in a simultaneous, dyadic, and comparative manner.

While the above perspectives are theoretically and intuitively appealing, they leave a significant gap in our understanding of interfirm relational learning. However, the literature on interfirm knowledge flows (Gupta and Govindarajan, 2000, among others) contends that the greater the value of the knowledge stock shared by one partner, the greater the benefit to the other. This idea is broadly consistent with the concept of 'relative advantage' in the value of knowledge flows outlined by Gupta and Govindarajan (2000). In global exchanges, buyers and suppliers face different levels of uncertainty with respect to market demands, and often it is the buyer who must address demand fluctuations and life cycle compression in volatile markets. As global supply chains become less supply oriented and more demand oriented, these networks focus on understanding customer needs and creating value chains based on actual and forecasted demand levels. This permits a higher level of service to customers in the form of on-time deliveries and reduced costs, which, in turn, leads to increased levels of customer loyalty. Relational learning enables buyers to better cope with, or compete in, competitive markets for those customers. It also enables buyers to decrease inventory stocks, increase on-time deliveries, reduce out-of-stock situations, and better react to changes in market preferences. While it is true that uncertainty increases the farther from the final point of sale the supply chain member resides in the chain (Lee, So, and Tang, 2000; Yao and Dresner, 2008), it is the partner closest to the point of sale that must react to global market changes more quickly, this due to fluctuation in exchange rates (and prices), market regulation adjustments, and other factors that influence dispirit demand cycles in multiple markets. Thus, the critical production and inventory-related knowledge stock of the supplier has relatively greater benefits for buyers than demand-side information has for suppliers. Should a lack of information exchange result in shortages by the supplier, the result of lost customers due to out of stocks at the *buyer* level could be significantly higher. Simultaneously, the resource-based view (RBV) and dynamic capabilities perspectives posit that buyers can enhance their competitive positions by taking advantage of their network center hub location and, *via* knowledge transfer efforts with suppliers, teach suppliers how to better serve their needs in diverse markets (see Kotabe *et al*., 2003). Finally, given the dependence of suppliers on increasingly larger buyers and retailers for volume sales, buyers' formal and informal arrangements relative to collaborative learning are expected to emphasize the needs of the buyer (Thomas and Wilkenson, 2006). We hypothesize that, while both parties can benefit, the three relational learning dimensions significantly benefit the relationship performance outcomes for buyers relative to suppliers. More formally:

> *Hypothesis 5: The effects of buyer and supplier (a) information sharing, (b) joint sensemaking, and (c) knowledge integration each significantly benefit buyers more relative to suppliers in the cross-national dyad.*

METHOD

Sample

Similar to Gulati *et al*. (2005), our unit of analysis for this study is the vertical relationship that firms undertake for the sale or procurement of a component. 'While firms may differ in the channel functions they perform, symmetry is expected in the nature and pattern of causation of the behavioral constructs that underlie their relationship' (Jap, 1999: 462). Thus, our model represents identical processes for both buyer and supplier. We studied the global procurement/marketing relationships between five manufacturing companies (the buyers) and their overseas suppliers (the suppliers), and the unit of analysis was the individual cross-border vertical dyad. Three of the five companies were participants in a United States university's supply chain forum and customer value forum. The other two had professional associations with the research team members. Each firm was represented by multiple respondents from independent buying functions within the organization.[3] Buyers in the

[3] In order to increase the external validity of the study, we included respondents from four different industries. We acknowledge that industrial characteristics might have an influence on

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Table 2. Summary of sample characteristics

Buyers' industry	Suppliers' industry between dyads	Products/services exchanged
Apparel	Aluminum products	Capital equipment
Consumer durable	Electronics & electrical	Sub assemblies
Industrial chemicals	Fashion accessories	Components
Industrial packaging	Glass	Maintenance and repair
	Industrial chemicals	Raw materials
	Leather products	
	Machinery	
	Paper and cardboard	
	Plastics	
	Steel products	
	Textile	
Buyers' locations:	Argentina, Australia, Brazil, China, India, Italy, Korea, Mexico, Poland, South Africa, the United States	
Suppliers' locations:	Australia, Brazil, Chile, China, Czech Republic, Germany, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, Singapore, South Africa, Taiwan, the United States	

The dyads	Relationship length (years)	Yearly interfirm transactions (US$ million)
Min.	5.0	200
Max.	20.0	800
Mean	12.1	400
S.D.	4.1	101

The informants' experience (years)	In the field	Within firm	With the focal relationship
Buyers			
Min.	5.0	4.0	3.0
Max.	28.0	27.0	10.0
Mean	10.0	8.8	5.0
S.D.	5.6	4.6	1.3
Suppliers			
Min.	5.0	4.0	3.0
Max.	30.0	28.0	10.0
Mean	12.0	9.0	5.0
S.D.	7.1	5.0	1.3

study represented four different industries: industrial packaging (10%), apparel (13%), consumer durable (23%), and industrial chemical (54%). Their operations were located in Argentina, Australia, Brazil, China, India, Italy, Korea, Mexico, Poland, South Africa, and the United States (see Table 2). Participating firms were requested to submit a prequalified participant list consisting of the e-mail contacts of their global procurement executives, as well as their corresponding overseas suppliers, to form a cross-border dyadic sample. We conducted extensive telephone interviews with informants from these firms to fully understand their exchange contexts, the nature of their tasks, and the relevance of the measures to their industrial experience. Altogether, the five participating firms provided a list consisting of 284 contacts (142 vertical dyads), that is,, their procurement executives, and the marketing/sales executives from their overseas suppliers (for the supplier study) who came from 16 countries (Australia, Brazil, Chile, China, Czech Republic, Germany, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, Singapore, South Africa, Taiwan, and the United States). We prescreened the participant lists for only executives

firms' relational learning activities and outcomes. As such, we conducted a t-test to examine whether there was any statistical difference from responses across the four industries. The results indicated that the differences were not statistically significant.

who act as local managers in the country where he or she works. This procedure created an initial sample frame of 136 cross-border buyer-supplier dyads. While completing their respective surveys, each pair of buyers and suppliers used the other as a reference point for the dyadic constructs. We offered each participating firm an executive summary and customized analyses in return for its participation. All participants were assured of complete confidentiality.

Survey instrument, pretest, and data collection procedure

Scales were developed using the technique recommended by Anderson and Gerbing (1991). This resulted in the identification of constructs that would assist in the measurement of the related phenomena and model estimation. The questionnaire was reviewed by a team of academic experts before it was sent to six potential survey respondents of different nationalities to determine readability, item clarity and comprehension, ease of use, and time necessary to complete the survey. Modifications to the questionnaire were made according to the recommendations. We developed two versions of the questionnaire to suit the specific position of the respondents (buyers and suppliers) in the dyad. The questionnaires were sent out for a pretest with 30 marketing executives and 30 purchasing/procurement executives who attended a United States-based college executive education program. Participants were asked to complete identically worded, multiple-item Likert-type scales designed to tap aspects of the dyadic relationship between the buyers and suppliers. The measures reflected each respondent's perception of the shared activities and outcomes between the two organizations.

Once the scales were deemed appropriate, we tested the hypothesized model with our sample dyads *via* a Web survey methodology recommended by Dillman (2000). Invitation emails were sent to individual respondents, with the Web link containing the survey instrument embedded in the message. Using a multiple-contact strategy, the survey plan was launched and completed within a five-week period. As opposed to the traditional way of collecting cross-national data, we did not send pre-translated surveys to respondents in specific areas. Instead, we constructed the original questionnaire in English, with the proviso that the questionnaire would be translated into the respondent's native language upon request. Brannen (2004) notes that organizational networks regularly seek a semantic fit between network nodes. Kankaanranta (2006) also notes that English is increasingly the *lingua franca* of cross-national business and internal business communications, largely due to an increasingly multinational cross-border workforce. Despite our offer of the translation option, *all* respondents chose to complete the English version.

In the buyer study, we received 128 responses out of the 136 surveys sent. Two were not usable due to incomplete responses. The final number of usable surveys was 126, for an effective response rate of 93 percent for the buyer study. For the supplier study, 126 were completed and returned, providing us with 126 matched pairs of dyadic data (93 percent response rate overall).

Measure development

As mentioned earlier, we followed the conceptualization of the study by Selnes and Sallis (2003) for the three dimensions of relational learning: information sharing, joint sensemaking, and knowledge integration. The 17-item scale was developed through a review of relevant organizational learning literature and through 26 in-depth interviews with informants from both sides of 13 customer-supplier dyads from a variety of industries. Each construct taps the different intensity and scope in relational learning.

The first dimension, information sharing, is a starting point and a necessary element in interfirm relational learning, and it is perceived as a central element of working relationships to achieve operational efficiency (Anderson and Narus, 1990; Cannon and Perreault, 1999; Selnes and Sallis, 2003). It is believed that 'dialogue within the relationship constitutes a relationship-specific element of interpretation or sense making [sic] (i.e., knowledge development) of the shared information' (Selnes and Sallis, 2003: 83). We agree with the contention in the organizational learning literature that organizations vary in the ways they make sense of the same information, and there likely are differences in the mechanism involved in making sense of the available information, probably due to a lack of ability or knowledge (Fiol and Lyles, 1985). Organizations, thus, introduce specific arenas with the sole purpose to learn more effectively (Huber 1996). Selnes and Sallis's field interviews revealed

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that most interactions between buyers and suppliers were related to solving certain types of operational problems through joint-team activities and face-to-face communication as the 'mechanism for creating learning arenas. . .. Knowledge integration captures the idea that relationships develop idiosyncratic routines in the form of encoded formal and informal procedures and scripts for how the parties have learned to do things' in this specific relationship (Selnes and Sallis, 2003: 84). This is how organizations develop relationship-specific memories into which acquired knowledge through relational learning is integrated. Memories include 'organizational beliefs, behavioral routines, and physical artifacts' (Selnes and Sallis, 2003: 84), such as documents and electronic databases, which can be shared throughout the organization. Another aspect of knowledge integration is that social networks across organizational boundaries represent a 'repository for specialized memories' (Selnes and Sallis, 2003: 84) and are an effective way of problem solving for organizations (Selnes and Sallis, 2003; Håkansson and Johanson, 1988).

As for relationship performance, instead of the traditional single dimensional measures, we followed the argument by Diamantopoulos (1999) and deemed it more appropriate to operationalize performance as a construct with multidimensional formative indicators that involved the construction of an index rather than a scale. The four indicators capture how the relationship with the supplier/buyer has helped improve product quality, on-time delivery of orders, the ability to develop successful new products for the marketplace, and reduce costs. We followed the argument in the strategic management literature that there may be a conflict among specific performance indicators (e.g., Donaldson, 1984). Firms often have to make trade-offs between product quality and cost control. Thus, the correlation among the four indicators may not necessarily always be high and/or positive.

In formative measurement models, 'the indicators of the same construct can have positive, negative, or no correlation' with one another (Bollen and Lennox, 1991: 307). Thus, traditional validity assessments such as the tests of reliability (i.e., international consistency) and construct validity (i.e., convergent and discriminant validity) are not meaningful when a formative mode is employed (Bollen, 1989; Bagozzi and Yi, 1994). Rossiter (2002) suggests that the examination of the validity of formative indicators should use theoretic rationale and expert opinion.

We employed multiple measures to ensure acceptable content validity (Bollen and Lennox, 1991). The scales were carefully reviewed by academics and consulting experts in the areas of industrial relationship marketing, interorganizational learning, and research methodology. The scales were further reviewed by executives working in the specific industries that were surveyed to determine face validity, readability, item clarity and comprehension, ease of use, and time needed to complete the survey. All of the 17-item relational learning indicators and four-item relationship performance indicators (see Appendix) were deemed appropriate for this dyadic study. Table 3 provides the correlations and summary statistics for our measure.

Model evaluation and hypotheses testing

We took several procedural measures to control for common method bias (see Podsakoff *et al*., 2003) before testing the hypotheses.[4] First, we reduced item social desirability effect and evaluation apprehension by assuring respondents complete confidentiality and anonymity in data collection and the reporting of findings, and emphasizing to respondents that they should answer questions as honestly as possible, as there was no right or wrong answer. Second, we improved scale items by providing verbal labels for each point of scales as suggested by Tourangeau, Rips, and Rasinski (2000), and controlling item ambiguity by conducting a pretest and having items reviewed by both academic and industrial experts familiar with the theme of the study. Third, questionnaire items were mixed in terms of layout order, thus respondents were not able to isolate specific items that impact specific factors. Besides taking procedural controls, we examined the presence of common

[4] We acknowledge Podsakoff *et al*.'s (2003) conclusion that statistical control procedures used on formative scales will not partial the effect of method bias out of the estimated relationship between the formative measures and the construct (see Podsakoff *et al*., 2003: 900). The effects of method bias on formative scales should be modeled at the construct level rather than the item level. Unfortunately, such a model is not identified. As such, Padsokoff and his colleagues suggest that when formative-indicator constructs are involved, procedural controls such as those used in our study, are likely to be the most effective way to control common method biases.

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Table 3. Means, standard deviations, and correlation of the constructs

Buyer study

	Mean	Std. deviation	IS	JS	KI	PERF
Information sharing (IS)	4.7562	1.4940	1			
Joint sensemaking (JS)	3.9385	1.3242	0.556	1		
Knowledge integration (KI)	3.7209	1.2216	0.480	0.460	1	
Relationship performance (PERF)	4.5853	1.5941	0.531	0.379	0.420	1
Supplier study						
Information sharing (IS)	4.7778	1.4265	1			
Joint sensemaking (JS)	4.2302	1.4257	0.567	1		
Knowledge integration (KI)	3.9669	1.2882	0.481	0.550	1	
Relationship performance (PERF)	4.8313	1.4798	0.677	0.598	0.527	1

All correlations are significant at the 0.01 level (two-tailed test).

method variance via Harman's one-factor test by performing a factor analysis on all items. In both the buyer and supplier studies, four factors with eigenvalues greater than one were extracted. We did not find any general factor in the unrotated factor structure. A marker variable (a construct that theoretically should not be related to at least one other variable in the study) was used to test for common method bias (Lindell and Whitney, 2001). In this instance, firm size was employed as the marker variable and it was not significantly related to any of the variables in the model. These *post hoc* tests suggest that common method variance did not pose a significant threat to the study.

Potential problems with self-reports of performance dictate addressing this issue in our research. Self-reports of socially desirable behaviors (e.g., performance) can be enhanced under certain conditions (Bauman and Dent, 1982). For example, self-appraisals obtained under conditions with a high expectation of validation are often more accurate than those obtained under conditions with low expectation of validation (Farh and Werbel, 1986). We take the perspective of Mabe and West (1982) in that self-report bias is minimal for several reasons. First, in our survey there was no expectation that the self-evaluation would be compared with other criterion measures. Second, complete anonymity was guaranteed to the respondent. Third, this precluded any comparison of the responses regarding performance to others. Fourth, our outcome variable was relationship performance, as opposed to operational or financial performance, and, in effect, the respondents were being asked to evaluate their partners' or partnership's performance rather than their own performance over time. Thus, we feel any problems with self-reports of our performance measure would be minimal.

In assessing the formative measurement models, we determined the significance of the estimated indicator weights by means of bootstrapping (cf. Davison and Hinkley, 2003; Chin, 1998). The indicator weights are reported in the Appendix. All weights are significant at <0.05. Three items (IS03, JS02, KI05) showed lower weighting in relation to the other weights comprising their respective constructs. However, we maintained the items in the model because removing them may substantially change the content of the formative index (Jarvis, MacKenzie, and Podsakoff, 2003).

In order to evaluate the measures test our hypotheses, we took a two-stage approach for our analysis (see Jap, 1999). First, we tested the buyer and supplier samples separately (hence results for both a buyer model and a supplier model are reported), testing the effects of buyers' and suppliers' relational learning activities on their independent performance outcomes, while simultaneously testing for the moderating effect of cultural distance. Second, we tested the relative impact of *each* group's individual relational learning activity on the performance of both buyer and supplier to determine whether disproportionate benefits existed.

In terms of statistical analysis, we chose partial least square (PLS) analysis (see Lohmöller, 1989). The choice was based upon the fact that the primary concern of the study is with the prediction of a dependent endogenous variable (see Chin, 1998).

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Table 4. PLS evaluation results

DV = Relationship performance	Buyer model	Results	Supplier model	Results
Independent variables	Path coeff. (t-value)		Path coeff. (t-value)	
H1: Information sharing	0.332 (3.6579)	Supported	0.423 (6.1482)	Supported
H2: Joint sensemaking	0.134 (1.4023)	n.s.	0.221 (3.2709)	Supported
H3: Knowledge Integration	0.211 (2.4511)	Supported	0.172 (2.1362)	Supported
R^2 for Relationship performance	0.372		0.579	
n.s. = nonsignificant at 5% level (two-tailed test)				

Table 5. Multiple-group analysis results: moderating effect of cultural distance

	Buyer model					**Supplier model**				
	High CD n = 73		Low CD m = 53			High CD n = 73		Low CD m = 53		
Paths	Path coeff.	S.E.	Path coeff.	S.E.	t-test	Path coeff.	S.E.	Path coeff.	S.E.	t-test
IS—PERF	0.5032	0.110	0.169	0.229	1.44 n.s.	0.611	0.072	0.1174	0.21	2.53 n.s.
JS—PERF	0.0810	0.100	−0.010	0.2106	0.429 n.s.	0.242	0.070	0.3519	0.218	0.55 n.s.
KI—PERF	0.3160	0.083	0.2589	0.309	0.206 n.s.	0.207	0.071	0.1461	0.216	0.30 n.s.
H4: Not supported										

IS = information sharing, JS = joint sensemaking, KI = knowledge integration.
PERF = relationship performance.
n.s. = nonsignificant at 1% level (two-tailed test).

PLS is also well suited to estimate a structural equation model when the model involves formative indicators. The analysis was aided by the software PLS-GRAPH v.3.00.

Table 4 reports the PLS path coefficients and *t*-values for both models, along with the R^2 for the endogenous construct. A bootstrapping method with 1,000 runs was used to ascertain the stability and significance of the parameter estimates. Results indicate that information sharing is significantly related to firm performance in both the buyer study and the supplier study (buyer: t = 3.65, supplier: t = 6.14). Thus, Hypothesis 1 is supported. Joint sensemaking (Hypothesis 2) was found to be significant in the supplier study, but not in the buyer study (buyer: t = 1.40; supplier: t = 3.27), Thus, Hypothesis 2 is supported only in the supplier study. Knowledge integration was found to be significant in both the buyer and supplier studies (buyer: t = 2.45; supplier: t = 2.13), supporting Hypothesis 3.[5]

The moderating effect of cultural distance

We conducted multiple-group analyses to examine whether the effects of information sharing, joint sensemaking, and knowledge integration on relationship performance are moderated by cultural distance (Table 5). Following Kogut and Singh (1988: 422),[6] we used Hofstede's cultural indices to form a composite index for cultural distance (CD) based upon the deviation along each of the four cultural dimensions (i.e., power distance, uncertainty avoidance, masculinity/femininity, and individualism) between the two countries in which the buyer and supplier's facilities were located. The fifth dimension (long/short-term orientation) could not be used as 41 percent of the countries

[5] Readers may be familiar with the work of Kotabe *et al*. (2007), who postulate that relationship duration between partners influences the effect of knowledge transfer on firm innovation. We found no theoretical basis for a similar hypothesis within the context of our study. However, given the findings of Kotabe *et al*., we considered it prudent to control for relationship duration in our analysis, and found no significant effects.

[6] $CD_{bs} = \sum_{i=1}^{4} \left\{ (I_{ib} - I_{is})^2 \Big/ V_i \right\} \Big/ 4$ where I_i stands for the index for the i[th] cultural dimension, and b indicates the buyer country, V_i is the variance of the index of the i[th] dimension, s indicates the supplier country, and CD_{bs} is the cultural distance between the buyer country and the supplier country.

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within this study have not been assigned an index on this particular dimension in Hofstede's most recent study (2001). We then dichotomized the data by grouping CD scores (ranging from 0 to 5) into two categories—low CD (0 to 2) and high CD (3 to 5).[7] Next, the parameters of interest (i.e., the paths from information sharing, joint sensemaking and knowledge integration to relationship performance) were tested via PLS-GRAPH v.3.00. The path coefficients between the high CD and low CD groups were tested for significant differences *via* a *t*-test. In both the buyer study and the supplier study, the *t*-values are not statistically significant ($p > 0.01$). Therefore, we conclude that the effects of relational learning on dyad performance are not moderated by cultural distance. Thus, Hypothesis 4 was not supported.

Test of the pie-sharing hypothesis

In order to test Hypothesis 5 and determine the relative value of relational learning to the members of the dyad, that is, which partner, if either, benefited more from the shared efforts of specific forms of relational learning, we conducted a multivariate analysis of variance (MANOVA) of the full set of dyadic relationships. Given that the purpose of the study was to measure the buyers and suppliers as independent informants in the dyad, we did not presume consensus across the partnership. Similar to Jap (1999), our analytical approach explicitly accounts for this possibility by enabling both dyad members to articulate their opinions relative to the same relationship, while at the same time providing the desired insights relative to the constructs. It was, however, inappropriate to incorporate pooled responses of both participants without losing the discriminant perspectives of the individual managers. Particularly in cross-national research, perceptual differences between groups can be common, due to the complex, social aspects of business relationships. Because the data cannot be pooled into a common model, our analytical approach is modified to determine the differences in relationships between the different relational learning dimensions and the performance of each dyad member, to determine whether relationships between constructs are consistent across members. 'It is important to remember that the issue at this point is the pooling of the two views in a single. . .model and not the measures themselves, which appear to be tapping their intended latent factors for both buyers and suppliers' (Jap, 1999: 469n).

Table 6 shows the results of the MANOVA testing using buyer and supplier relationship performance as dependent variables and each of the relational learning dimensions for *both* buyers and suppliers as antecedents. Differences in scores were assessed using Lavene's test for homogeneity of variances of the dependent variables. For buyer information sharing (Wilk's $\lambda = 0.40$, F = 2.03, difference: $p < 0.01$), supplier information sharing (Wilk's $\lambda = 0.28$, F = 2.77, difference: $p < 0.01$), supplier joint sensemaking (Wilk's $\lambda = 0.46$, F = 2.15, difference: $p < 0.01$) buyer knowledge integration (Wilk's $\lambda = 0.52$, F = 1.97, difference: $p < 0.01$), and supplier knowledge integration (Wilk's $\lambda = 0.37$, F = 2.16, difference: $p < 0.01$), the results indicate significantly greater benefits for the buying firms. For the buyers' joint sensemaking activities, results indicated that neither buyer nor supplier enjoyed disproportional performance outcomes (Wilk's $\lambda = 0.62$, F = 1.28, difference: $p > 0.1$). Thus, we conclude that when either buyers or suppliers conduct information sharing or knowledge integration activities, buyers reap the greatest benefit. However, given the nonsignificant findings in the PLS testing for joint sensemaking in the buyer data while the suppliers benefit when performing these activities, we can only conclude that suppliers benefit in an absolute fashion from this dimension of relational learning.

DISCUSSION

Research on the value of collaborative learning in buyer-supplier relationships has shown both benefits and detriments to performance-based outcomes. Our study addresses this anomaly by determining

[7] We ran a similar test using groups dichotomized by a median split. There were no significant differences in results. We followed Chin's (1998:) approach:

$$t = \frac{Path_{sample\_1} - Path_{sample\_2}}{\left[\sqrt{\frac{(m-1)^2}{(m+n-2)} \times S.E._{sample1}^{2} + \frac{(n-1)^2}{(m+n-2)} \times S.E._{sample2}^{2}}\right] \times \left[\sqrt{\frac{1}{m} + \frac{1}{n}}\right]}$$

which follows a t-distribution with m + n − 2 degrees of freedom.

Table 6. MANOVA results across performance outcome means: buyers and suppliers

Variable	Effect size	Relationship performance (Buyer)	Relationship performance (Supplier)	Wilk's λ	F (d.f.)	Difference
Buyer IS	0.37	5.28	4.10	0.40	2.03 (27,125)	$p < 0.01$
Supplier IS	0.44	5.82	5.42	0.28	2.77 (30,125)	$p < 0.01$
Buyer JS	0.19	4.52	3.18	0.61	1.28 (22,125)	n.s.
Supplier JS	0.29	6.32	5.59	0.46	2.15 (22,125)	$p < 0.01$
Buyer KI	0.24	5.34	3.97	0.52	1.97 (20,125)	$p < 0.01$
Supplier KI	0.38	5.74	4.42	0.37	2.16 (28,125)	$p < 0.01$

IS = information sharing, JS = joint sensemaking, KI = knowledge integration.
n.s. = nonsignificant at 1% level (two-tailed test).
All effect sizes are sig. at $p < 0.01$, with the exception of Buyer JS, which was not significant.

the value of relational learning for both members of the buyer-supplier dyad. While Jap (2001) stated that little systematic attention has been given to the collaboration process in interorganizational exchange, this is particularly true about relational learning in a cross-border context. Our results indicate that for both buyers and suppliers, certain dimensions of relational learning are critical, strategic components leading to enhanced performance outcomes. Simultaneously, buyers enjoy disproportionate outcomes, or larger pieces of the benefits pie, when either member of the cross-national dyad participates in relational learning activities.

In testing Hypotheses 1–3, we set out to determine the value of relational learning activities to the buyers and suppliers in absolute terms, or how each set of firms benefits from their participation in information sharing, joint sensemaking, and knowledge integration. Both buyers and suppliers in this study acknowledged that information sharing enhances relationship performance. This supports the contention of Cannon and Perreault (1999), among others, that effectiveness and efficiencies are achieved through information sharing. 'In particular, we highlight the idea that strategic information sharing potentially provides a firm with access to information, resources, markets, and technologies; with advantages from learning, scale, and scope economies; and allows firms to achieve strategic objectives (Gulati *et al*., 2000: 203).[8]

Results for joint sensemaking showed different values placed on this dimension between buyers and suppliers; a positive relationship between joint sensemaking and relationship performance for suppliers, but no influence for buyers. From the buyers' perspective, establishing joint teams to solve operational problems offers little to the firm, since this kind of intense level of relational learning generally takes significant time and resources. From the suppliers' perspective, however, these activities enhance the relationship's value. The discrepancy between these outcomes may reflect buyers' skepticism about the relative usefulness of this type of interaction. Suppliers, on the other hand, see these activities and the shared learning as valuable. This supports the contention that suppliers are willing to dedicate time and resources to attain a knowledge base 'closer to the market,' thus reducing problems associated with knowledge gaps farther up the supply chain (e.g., forecasting, inventory, etc.).

Similar to the findings on information sharing, knowledge integration had positive effects for both suppliers and buyers. The current trend in managerial thinking is to promote global integration of systems, databases, information of end-user needs, routines, and processes (Zellmer-Bruhn and Gibson, 2006), and our study shows that this sort of knowledge integration between buyers and suppliers benefits both partners relative to the value

[8] As an anonymous reviewer correctly points out, the temporal sequence of relational learning activities could influence outcomes in relatively different ways. In our study, we did not propose a temporal sequence for our relational learning dimensions for two reasons. First, the literature is mixed relative to whether information sharing, joint sensemaking, and knowledge sharing would be conducted simultaneously or sequentially. Second, we felt the only proper point to capture any sequential nature of tasks would be at the relationship's inception, which in turn would restrict the ability to effectively capture outcomes for the dyad. Future research relative to sequence and weighted importance of relational learning/knowledge flows would help in extending our work, the work of Kotabe *et al*. (2003), Mesquita *et al*. (2008), and others.

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of their relationships. These integrated relationships help both partners manage issues such as product development, quality, and cost efficiencies. Also, knowledge integration activities facilitate the establishment of information repositories that lead to technical developments for both partners. Thus, as a general rule, relational learning positively influences both buyers and sellers in the dyad. When looking at the partners' performance in isolation, we extend our understanding of Huber's (1991) organizational learning theory (where through learning the range of a firm's potential behaviors is changed) to include a focus on how firms can improve future behavior in the relationship.

Along with these general effects of relational learning, we predicted that cultural differences between buyer and supplier markets would have significant moderating effects on the influence of relational learning on relationship performance for either buyers or suppliers. Our findings do not support this perspective, since cultural differences did not influence the effects of relational learning activities on relationship performance for either dyadic partner. Traditionally, research endeavors have sought to identify culture as either a direct or interactive influence on performance and strategic outcomes. However, in business-to-business settings, we are seeing a decrease in the influence of culture as traditionally perceived (Bowman, Farley, and Schmittlein, 2000) and an increase in 'cultural overlaps' as human resource elements within the firm become more diverse and the firms themselves operate in more markets (Bolton and Myers, 2003). One of the major effects of globalization is the creation of a new identifiable class of managers who describe themselves as bicultural or multicultural (see Hofstede, 2001). Increasingly, MNCs are managed by multi-cultural expatriates who are adept at modifying their behavior to accommodate different norms in cross-cultural scenarios (Molinsky, 2007).

Hence, one major effect of globalization is the creation of a new idenitifiable class of managers who belong to an *emergent global culture* (Bird and Stevens, 2003). Briley and Aaker (2006) reported similar findings regarding consumers. As membership in this new global culture rises, many critics find a distinct threat to sustaining national cultures. Recent evolutions in cross-national theory support the contention that culture, as traditionally defined, makes fallacious assumptions about cultural homogeneity within nations as well as erroneous assumptions of cultural stability over time (Tung, 2008). These evolutions also call into question the extent to which socio-cultural influences, rather than business ideology influences, drive the creation of a society's value system and its duration over time (Ralston 2008). Research does not confirm a convergence of cultures, but trends clearly imply a 'crossvergence' where societal values and economic ideology combine to produce a value system significantly disparate from traditional national cultures (Witt 2008). Thus, globalization leads to significant cultural cross-pollination (Tung, 2008; Bird and Stevens, 2003) and global managers tend to hold values that are more aligned with other global managers than with those of their own countries of origin. Communication asymmetries have been linked to *cultural* asymmetries, and these cultural differences have largely been based on country, as opposed to individual, measures. Hence, we cannot predict that country differences will impact the relational learning influence on performance outcomes. Future cross-national dyadic research efforts should strive to identify organizational differences that influence strategic outcomes instead of using traditional cultural difference measures that are becoming antiquated.

Our test of the pie-sharing hypothesis reveals important findings for global business partnerships. First, our findings support the contention that partners closest to the final point of sale benefit more from information sharing and knowledge sharing than their upstream partners, helping buyers capture efficiencies that otherwise would be unrecognized. For both dyad partners, there is no guarantee there will be parity of benefits or that relational learning is even mutually beneficial. In fact, given the disparity of organizational goals so prevalent between, for example, manufacturers and retailers, specific benefits of relational learning identified in the literature (better cost efficiencies, higher value delivery) may be dichotomous. As Diamantopoulos (1999) notes, typical performance outcomes in cross-border scenarios are often juxtaposed. Thus, while relational learning may produce greater performance benefits for buyers, supply chain partners should recognize that specific partners benefit not only in an absolute manner but also relative to their dyad collaborator. Here we see the divergence of organizational learning and relational learning theories. The former is based on Huber's

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(1991: 89) conception that, 'an organization learns if through its processing of information, the range of its potential behaviors has changed.' The latter focuses on relational learning as a process to *improve* future behavior in an interfirm relationship. If firms believe relational learning benefits are lacking compared to their partner's, it is questionable whether this would result in improved relationships, despite absolute benefits to both partners. Future research should address the potential relationship effects from these disproportionate outcomes.

Our results indicate that certain types of relational learning participation by buyers, namely those represented in joint sensemaking, fail to benefit the buying organization, yet do increase the performance outcomes of the suppliers. For this reason, buyers need to determine which activities are necessary for the continuation of the relationship and whether the resources dedicated to integration and joint teams are justified by the questionable outcomes they produce.

One limitation of our study, however, is the possibility that certain actions may take place between the relational learning of a firm and the perceived enhancement (or depreciation) of relationship performance. Future research should also seek to determine whether more complex models of relational learning exist across the dyad, and to what degree relationship performance influences the bottom line of the firm. A second potential limitation is the focus on five buying and 126 supplying firms. Although we examined 126 distinct dyads and their relational learning practices, the potential for confounds or organizational culture overlap may exist. Future research should focus on a wider array of industries at both the buying and supplying levels.

CONCLUSIONS

The complexity of interfirm arrangements means that buyers and suppliers may use different mechanisms to facilitate information sharing. They may also make different 'sense' out of specific information, and thus disparities between partners' values on knowledge resources (and sharing of those resources) can develop. 'The process of creating strategic advantages requires the sharing of sensitive cost and process information and creating unique investments to support the dyad's efforts. This can reduce bargaining power and increase exposure to opportunism' (Jap, 1999: 461–462). Certainly, future research should investigate whether disproportional gains by one partner over another lead to bargaining or opportunistic behavior. RBV maintains that differential firm performance is due to accumulation of resources and capabilities that are valuable, rare, inimitable, and have no direct substitutes (Barney, 1991). RBV also takes a 'creator of the positive' versus an 'avoider of the negative' perspective (Jap, 1999: 462). However, the value of knowledge resource bundles in which organizations invest differs depending on the exchange partner, and negative aspects of relational learning activities do exist in terms of sharing collaboration benefits.

As supply chains grow more global and managers continue to search for new markets and consumers, the issue of collaboration and benefit sharing will become more prevalent in the literature. This, in turn, calls for a greater emphasis on cross-functional research and a willingness to integrate theoretical domains in order to address meaningful business problems. Recent perspectives that firms can compete only if their networks are competitive raises more questions regarding competition within the supply chain itself, and how customers and suppliers handle disparities. In this study, we have shown how suppliers and buyers benefit from collaborative relational learning in a cross-border setting, and how buyers benefit in a disproportional manner. From this, both managers and researchers can work to extend our understanding of relational learning and develop methods for better practice and competitive efforts.

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APPENDIX: MEASUREMENT SCALES

Relational learning—adapted from Selnes and Sallis (2003)

(Likert scales: 1 = strongly disagree, 7 = strongly agree)

—Information sharing

IS01. Our two firms exchange information on successful and unsuccessful experiences with products exchanged in the relationship. (0.12; 0.14)[9]

IS02. Our two firms exchange information related to changes in end-user needs, preferences, and behavior. (0.08; 0.07)

IS03. Our two firms exchange information related to changes in market structure, such as mergers, acquisitions, or partnering. (0.18; 0.17)

IS04. Our two firms exchange information related to changes in the technology of the focal products. (0.13; 0.17)

IS05. Our two firms exchange information as soon as any unexpected problems arise. (0.13; 0.17)

IS06. Our two firms exchange information related to changes in the two organizations' strategies and policies. (0.11; 0.15)

IS07. Our two firms exchange information that is sensitive for both parties, such as financial performance and company know-how. (0.17; 0.12)

—Joint sensemaking

JS01. It is common to establish joint teams to solve operational problems in the relationship. (0.33; 0.34)

JS02. It is common to establish joint teams to analyze and discuss strategic issues (0.23; 0.33)

JS03. The atmosphere in the relationship stimulates productive discussion that encompasses a variety of opinions. (0.17; 0.13)

JS04. We have a lot of face-to-face communication in this relationship. (0.37; 0.32)

—Knowledge integration

KI01. We frequently adjust our common understanding of end-user needs and behavior. (0.18; 0.19)

KI02. We frequently adjust our common understanding of trends in technology related to our business. (0.19; 0.20)

KI03. We frequently evaluate and, if needed, adjust our routines in order-delivery processes. (0.20; 0.18)

KI04. We frequently evaluate and, if needed, update the formal contracts in our relationship. (0.18; 0.19)

KI05. We frequently meet face-to-face to refresh the personal network in this relationship. (0.09; 0.11)

KI06. We frequently evaluate and, if needed, update information about the relationship stored in our electronic databases. (0.18; 0.19)

Relationship performance

RP01. Our relationship with this supplier/buyer has helped improve our product quality (0.21; 0.23)

RP02. Our relationship with this supplier/buyer has resulted in improved on-time delivery of the orders we place with them/of their orders. (0.19; 0.18)

RP03. Our relationship with this supplier/buyer has a positive effect on our ability to develop successful new products for our markets (0.19; 0.18)

RP04. Our relationship with this supplier/buyer has helped us reduce our costs. (0.19;. 017)

[9] We reported the outer model weights for each indicator. All estimates are significant at the five percent level. Results for buyer study listed first, followed by supplier study.