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AN EXPLORATION OF CONTEMPORARY KNOWLEDGE TRANSFER ISSUES IN

HIGH-TECH OUTSOURCING USING SOCIAL EXCHANGE THEORY

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ABSTRACT

Contemporary IS research in offshoring/outsourcing has shown contradictory outcomes in reporting outsourcing success, especially in IT work. While many trusted practitioner sources confirm that outsourcing is gaining popularity, many efforts to pursue outsourcing are reported to be problematic or, even, a failure. Among such failures and successes, most of the thriving firms have undergone a second attempt by paying intensive attention to the knowledge transfer process, which is at the heart of the knowledge management problem. Knowledge is recognized by firms as a critical source of power that is derived from its scarcity in its environment. Hence, as a critical determinant of its value and to maximize the productivity of the firm itself, knowledge could be completely kept confidential from certain entities such as employees, a firm's subsidiaries, and business partners, especially in knowledge intensive businesses. This leads to a dilemma in pursuing optimality in knowledge transfer in an outsourcing relationship: the competing goals of preventing the most critical business knowledge components from becoming visible to the partners while facilitating all subunits being able to successfully carry out a project. Since high-tech work is regarded as knowledge intensive activities, it is critical that a firm balance, cooperation and competition in terms of its knowledge assets.

Much attention has been paid to knowledge transfer among subunits in outsourcing schemes and has sought a method of minimizing the conflicting interests among subunits. However, the findings seem to be limited due to the theories traditionally adopted (i.e. knowledge-based theory, transaction-cost theory, agent-cost theory, game theory). Furthermore, many issues remain to be addressed, especially the dynamic interactions and exchange processes that facilitate knowledge transfer. This thesis explored the knowledge transfer issues with respect to facilitators and barriers among outsourcing subunits, the vender's and the client's, by adopting social exchange theory (SET). Although relatively new to IST literature, SET proved potentially useful for studying knowledge transfer. Moreover, the concept of reciprocity, balance, cohesion,

power, trust, and cultural sensitivity of SET have proven to be promising for theoretical applications in a very large array of knowledge management settings, especially in knowledge sharing and knowledge transfer because SET is applicable to any level of analysis (individual, group, organizational or societal).

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CHAPTER 1

INTRODUCTION

Contemporary literature in outsourcing has shown contradictory outcomes in reporting the success of outsourcing. In IT studies especially, while many trusted practitioner sources confirm that outsourcing is gaining in popularity (Beal, 2004; DiamondCluster, 2005), many efforts to pursue outsourcing have reported difficulties associated with outsourcing—even failures (Aaron and Singh, 2005; Cater, 2006; Hatch, 2005). Among the complaints are that product quality and service were initially poor, delivery was slow, and personnel issues, such as high supplier turnover, interfered with success. Among the failures and successes, however, researchers discovered that of the firms that had tried outsourcing a second time those that were thriving in this regard had focused their attention on knowledge transfer processes (Lacity and Rottman, 2008).

Knowledge transfer is at the heart of the knowledge management problem (Lacity and Rottman, 2008), as knowledge is recognized by firms as a critical source of power, the relative value of which is determined according to its scarcity in the environment (Hackney et al., 2005). Desouza and Vanapalli (2005) suggested that knowledge should be privately classified and used only to commercialize products and services available to and consumed by other entities. Potentially, in order to maximize the productivity of the firm itself, knowledge could be kept completely confidential, withheld from certain entities, such as employees, subsidiaries, and business partners, especially in knowledge-intensive businesses. Such an approach would mean attempting to pursue an optimum level of knowledge transfer while trying to meet the conflicting goals of preventing most critical business knowledge components from being visible to partners and facilitating all subunits to successfully carry out a project involving knowledge transfer. As high-tech work is knowledge-intensive, it is critical that a firm maintain a balance between cooperating and competing in terms of its knowledge assets. Thus, the most vexing questions in regard to outsourcing may

inhere in determining which contexts warrant competition and which warrant cooperation—and to what extent.

The phenomenon of cooperation in a competitive context is generally described in terms of coopetition, a mindset, a process, or as a phenomenon that combines cooperation and competition. It means cooperating to create a bigger business pie, while competing to divide it up (Brandenburger and Nalebuff, 1996). To a certain extent, coopetition responds to Lou's (2005) fundamental duality: whereas creating value is an inherently cooperative process, capturing value is inherently competitive. According to Lue (2005), to create value, parties or units cannot act in isolation; they have to recognize their interdependence (Lado et al., 1997). Within a multinational enterprise, inter-unit coopetition is concerned with cooperation and competition that simultaneously occur between two or more geographically dispersed units.

Under the cooperative–competitive condition in the outsourcing scheme, the vendor and client[1] cooperate in four areas: technological, operational, organizational, and financial. Technologically, they share knowledge regarding process innovation and product innovation in order to improve each other's competitive advantages in respective markets and to exploit economies of scope for their respective operations (Ghoshal and Bartlett, 1988; Zander and Kogut, 1995). Such knowledge can be manifested in numerous forms, including new inventions, secret know-how, research facilities, product development guidelines, complex machinery and equipment, production process blueprints, technology information systems, and program codes (Kogut and Zander, 1992; Tsai, 2001). When technological knowledge sharing or collaborative development is planned, arranged, and monitored by parent headquarters, cooperation can proceed through R&D consortia, technology transfer, equipment relocation, resource redeployment, and rotation of expatriates (engineers and scientists), all under the centralized coordination of headquarters Ghoshal and Nohria, 1989; Wolf and Egelhoff, 2002). When such activities are not planned and arranged

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[1] In offshore outsourcing contexts, partners are client and vendor firms. The client is a firm that outsources its jobs to an overseas firm; the vendor is a firm that provides service to the client firm.

by the head office, voluntary cooperation is often undertaken as if each involved subunit[2] were independent. This means that technology transfer, equipment relocation, or resource redeployment between subunits is conducted on a compensated basis as specified by contracts agreed upon on an inter-unit basis.

Many information sciences researchers have explored knowledge transfer among subunits in outsourcing schemes and sought a method to establish harmonious relationships among the subunits, such that the focus would no longer be on conflicting interests. However, the findings have been limited by reliance on traditional theories, i.e., knowledge-based, transaction-cost, agent-cost, and game theories. Furthermore, many areas remain to be addressed, especially the dynamic interactions and exchange processes that facilitate knowledge transfer (Doz, 1996; Nooteboom, 2000; Steensma and Lyles, 2000). This thesis explores knowledge transfer issues with respect to facilitators and barriers among outsourcing subunits, the vendor's and the client's, by adopting social exchange theory (SET).

By conducting research in the College of Information Sciences and Technology under the I-School paradigm, the author makes a contribution to the I-school discipline in regard to all three perspectives: information, technology, and people. First, knowledge transfer is primarily concerned with information and its mobility. Ideologically, knowledge is considered a well-constructed, meaningful form of *information*. Knowledge has political and economic qualities that are socially connected to *people* who simultaneously create, augment, and consume it. In turn, knowledge also has an economic and social impact on people. In a software-outsourcing context, information specifically refers to all kinds of knowledge and (human) skills. Skills and knowledge here refer to *technologies* that range from technical knowledge and processes and procedures to management strategies. Taken altogether, knowledge transfer in a software-outsourcing context manifestly connects all three components inasmuch as they are embedded in the phenomenon, IT outsourcing, studied herein.

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[2] Subunit operationally refers to vendor's and client's units that are functionally drawn together to achieve certain tasks.

This thesis contributes to information sciences theory and practice in two respects. First, it offers a review of a large collection of contemporary literature comprising studies that take information sciences theories as a theoretical framework for investigating outsourcing in high-tech industries. And, though these theories have proven useful for studying knowledge transfer, their scope is limited in that they tend to lack a knowledge transfer mechanism and the cultural perspective related to it. This leads to the second contribution: the author tests the robustness and viability of social exchange theory (SET) as applied in information sciences studies. Although relatively new to information sciences literature, SET is potentially useful for studying "resource" exchange, a culturally embedded feature of groups and individuals. Moreover, the inter-related concepts of trust, reciprocity, rewards and punishments, and cultural sensitivity inhering in SET are important considerations in a wide array of knowledge management applications at a variety of scales, especially in knowledge sharing and knowledge transfer.

CHAPTER 2

LITERATURE REVIEW

Studies of knowledge transfer in outsourcing are conducted in various disciplines and, thus, involve many theories and applications. Predominantly, such theories are utilized in political science, labor management, business administration, information science, psychology, philosophy, education, sociology, and mathematics. Table 2 shows related theories that have been used extensively in high-impact articles regarding knowledge transfer in software-development outsourcing. Each theory fundamentally facilitates constructing research for different levels of analysis with different basic assumptions and emphases. The following subsections provide detail on the theories that have been used in different studies.

Theory involved	Level of analysis	Basic assumption	Maintainable/focus	Key authors
Knowledge-based theory	Organizational	Socially complex, heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and superior corporate performance	Knowledge as a competitive advantage, large-scale intra- and inter-firm knowledge management	Grant (1996),Kogut (1992), Nonaka (1994)
Transaction-cost theory	Individual, Organizational	Limited rationality, opportunism	Transaction costs, production costs	Coase (1937), Williamson (1975; 1981,1985a,1985b)
Agency theory	Organizational	Asymmetry of information, differences in perceptions of risk, uncertainty	Agent costs, optimal contractual relationships	Jensen and Meckling (1976)
Game theory	Individual, Organizational,	Every player under the same conditions makes rational and intelligent decisions to maximize profit, incomplete information	Decisions under certain situations	Kreps et al. (1982); Nash (1953), Spence (1976), Fudenberg and Tirole (1990)
Social exchange theory	Individual, Organizational	Participation in exchange occurs with the assumption of rewards and obligation to return rewards	Exchange of activities, benefits/costs, reciprocity, balance, cohesion, and power in exchanges	Blau (1964), Emerson (1972), Homans (1961)

(Source: Created by author, modified from various sources)

Table 2 Theories Involved in Knowledge Studies

2.1 Knowledge-based Theory of the Firm

The knowledge-based theory of the firm views knowledge as the firm's most strategically significant resource. Grant (1996), Kogut (1992), and Nonaka (1994) pointed out that theories of knowledge-based resources are usually difficult to imitate and socially complex, and, therefore, the relative heterogeneous knowledge bases and capabilities of firms are the major determinants of sustained competitive advantage and superior corporate performance. Knowledge is embedded in and carried through multiple entities including organizational culture and identity, policies, routines, documents, systems, and employees. Originating from the strategic management literature, this perspective builds upon and extends the resource-based view of the firm initially promoted by Penrose (1959) and later expanded by Wernerfelt (1984), Barney (1991), and Conner (1991). According to this position, while the resource-based view of the firm recognizes the important role of knowledge in firms that achieve a competitive advantage, proponents of the knowledge-based view argue that the resource-based perspective is comprehensive enough. Specifically, the resource-based theory treats knowledge as a generic resource, rather than assigning it special characteristics. This view, therefore, does not distinguish between different types of knowledge-based capabilities. In addition, Alavi and Leidner (2001) noted that information technologies can play an important role in the knowledge-based view of the firm in that information systems can be used to synthesize, enhance, and expedite large-scale intra- and inter-firm knowledge management.

Organizational capabilities research has recently been revitalized by knowledge-based theories (Grant, 1996; Kogut and Zandar, 1992; Quinn et al, 1997). The knowledge-based theories argue that organizational knowledge, such as operational routines, skills, and know-how, are the most valuable resources and that a firm's strategic management ability is a key factor in a dynamic and rapidly changing environment; i.e., the knowledge-based perspective takes organizational capability as a key source of competitive advantage, with the concept of "knowledge link" viewed as one of the major organizational management capabilities for learning or acquiring needed knowledge from other organizations. In international business research, Asakawa (1995), Gupta and Govindarajan (1991), and Tsai (2001) have discussed conceptualization of the

multinational corporation as essentially a network of units with strategic mandates and thus access and transfer knowledge from different positions. Granovetter (1985) remarked that, although organizational network positions differ, the corporate embeddedness of organizational units in this network provides a basic social context common to all units. Most of the knowledge management literature concentrates on the knowledge-based view of the firm (Conner and Prahalad, 1996; Kogut and Zander, 1993), a view that envisions knowledge as a primary resource and social networks as facilitating knowledge sharing within an organization. However, Grant (1995) added that knowledge, as a resource, requires organizational capabilities in order for it to be absorbed and then exploited.

2.2 Transaction Cost Theory

Pioneered by Coase (1937) and then principally developed by Williamson (1975, 1985a), transaction cost theory is based on the assumption that human beings are utility maximizers and firms are profit maximizers. To achieve their respective goals of maximization, agents are bound to enact rational and sometimes opportunistic behaviors. The paradigmatic question of transaction cost theory is the "make-or-buy" decision: Should a firm carry out an economic activity in-house or should it be outsourced? Williamson (1985b) refers to these as modes of governance–organizational hierarchy and the market respectively. According to Gurbaxani and Whang (1991), in making this decision firms balance the savings made in production, since a supplier can provide the goods/services more cheaply, against the transaction costs that result from outsourcing. These costs include operational costs (search costs) and contractual costs (those of writing, monitoring and enforcing a contract). Douma and Schreuder (2002) noted that, if the savings in production costs exceed the transaction costs, it is worth outsourcing and vice versa.

In economics and related disciplines, Williamson (1993, p. 149) substantiated that a transaction cost is a cost incurred in making an economic exchange. A number of different kinds of transaction costs exist. Search and information costs are incurred in such activities as determining that the required good is available on the market and finding the items with the lowest price. Bargaining costs are those inhering in

reaching an agreement with the other party in making a transaction, drawing up an appropriate contract, etc. Policing and enforcement costs arise from ensuring that the other party fulfills the terms of the contract, and from taking appropriate action (often through the legal system) if this turns out not to be the case. Transaction costs are incurred in searching for the best supplier/partner/customer, establishing a supposedly "tamper-proof" contract, and monitoring and enforcing the implementation of the contract.

According to Williamson (1993), transaction-cost theorists assert that the total cost incurred by a firm can be grouped largely into two components—transaction costs and production costs. Transaction costs, often known as coordination costs, are well defined as the costs of all the information processing necessary to coordinate the work of people and machines in performing primary processes, whereas production costs include the costs incurred from the physical or other primary processes necessary to create and distribute the goods/services produced. Ouchi's (1980) and Thompson et al.'s (1991) studies on network organizations and Wenger's (1998) studies on communities of practice have demonstrated how nuanced the relationship between buyers and sellers can be. Nevertheless, Williamson (1989) rehearsed some of these forms and added that almost all the literature on transaction cost theory relates to manufacturing rather than to services and that for services the costs and relationships may turn out to be quite different.

Wang's (2002) work is one of the few exceptions, as he applied transaction cost theory specifically to customized software as applied to IT.. However, Ang and Straub (1998) were the first to compare the relative effects of production and transaction costs in regard to onshore outsourcing decisions in the IT context. Their study showed that information systems outsourcing in U.S. banks was strongly influenced by the production cost advantages offered by vendors. Transaction costs played an important role in the outsourcing decision, although they were much lower than the production costs. According to their model, the coefficient for production cost advantage is approximately six times larger than that of transaction costs. This suggests that the effect of production costs on the decision regarding whether to outsource is far greater than that of transaction costs, even though both are significant. However, their questionnaire simply asked their respondents to state whether production costs were more (or less) significant than transaction

costs. It gives only a qualitative feel for which is the more important. Nevertheless, the strong inference is that, when it comes to onshore outsourcing, transaction costs are relatively trivial in comparison to production costs.

2.3 Agent-Cost Theory

According to Jensen and Meckling (1976), the basic assumptions of agency theory are that asymmetric information exists, principal and agent have different perceptions of risk, and that both the principal and agent are uncertain. The basic argument is that the principal transfers decision rights to the agent. To make sure that the agent behaves in the principal's best interest, the latter offers incentives. In calculating the magnitude of these incentives, the principal considers the anticipated costs of controlling the agent. The total cost is the sum of monitoring and bonding, including issues such as residual loss. This "positive agency theory" can be distinguished from normative principal–agent theory, which tries to determine optimal contractual relationships based on mathematical models that build on restrictive assumptions like perfect information.

According to Eisenhardt (1998), the principal–agent problem treats the difficulties that arise under conditions of incomplete and asymmetric information when a principal hires an agent. Various mechanisms can be used to try to align the interests of the agent with those of the principal, such as piece rates/commissions, profit sharing, efficiency wages, posting of a bond by the agent, or inculcating a fear of being fired. The principal–agent problem is found in most employer–employee relationships, for example, when stockholders hire top executives. Later, Chalos and Chung (1998) applied agency theory to constructing a mathematical model that views outsourcing as a means by which to improve managerial incentives. When managers have multiple tasks to oversee, marginal returns on managerial effort are maximized if that effort is focused on a core competency. Since one of the benefits of outsourcing is that it allows managers to focus on the firm's core competencies, the return on the manager's efforts is likely to improve. Managerial incentives can then be restructured to emphasize the firm's core activities. The gains

from outsourcing, however, are partially offset by increased coordination costs. The model is based on the argument that incentive intensity is the primary motivation for outsourcing. Other important assumptions are these: all activities are independent, there are no information asymmetries between external and internal suppliers, and the supplier market is perfectly competitive.

Sharma (1997) offered an interesting application of agency theory by posing a question as to how to restrain the potential opportunism of professional agents (outsourcers) especially in regard to knowledge asymmetry in the agency exchange. The response is that the vendor is less likely to behave opportunistically when the customer demonstrates some level of trust in the vendor and when the customer is actively involved in the coproduction of the outsourced services (vendor self-control). In addition, the vendor is less likely to behave opportunistically when to take advantage of the customer would be likely to harm the vendor's reputation (community control). Further, vendors that have an appropriate organizational control structure in place (bureaucratic control) are also less likely to behave opportunistically. The vendor is less likely to behave opportunistically when knowledge asymmetries are minimal, the competitive and institutional context permits client firms to require asset-specific investments from the vendor, or the possibility of repeat or expanded business exists.

In his review of strategic outsourcing, Quinn (1999) took the concept a step further by arguing for the outsourcing of knowledge-based activities and services in terms of outsourcing functional specialties (e.g., accounting), integrating and outsourcing similar, complementary, or duplicate activities across divisions (e.g., telecommunications, desktop support, or web site design functions), and outsourcing activities requiring a highly diverse set of skills (e.g., acquiring or developing a new product or service). Quinn further suggested a set of management techniques for better outsourcing, many of which have also been recommended by other researchers: ensure goal and value congruence; enhance relationship management skills; enhance performance-monitoring capabilities; consider all costs, including often-overlooked opportunity and coordination costs; share knowledge and innovations both ways in the relationship; and develop customer–vendor contact points at multiple levels throughout the relationship.

2.4 Game Theory

Game theory is a branch of applied mathematics that uses models to study interactions with formalized incentive structures, encompassing decisions that are made in an environment wherein various players interact strategically. In other words, game theory studies optimal behavior choices when the costs and benefits of each option are not fixed, but depend on the choices of other individuals. Game theory has applications in a variety of fields, including economics, international relations, evolutionary biology, political science, and military strategy. Game theorists study the predicted and actual behaviors of individuals in games, as well as optimal strategies. Seemingly different situations can have similar incentive structures, thus they can all be explored using one model.

Kreps et al. (1982), Nash (1953), and Spence (1976) employed game theory in an effort to explain the strategic behavior of players or actors (e.g., companies) in particular game situations. These situations are characterized by specific assumptions concerning the production function of a company, the environment, and informational structures. It is assumed that all players work under the same conditions and make rational and intelligent decisions to maximize their profits. Fudenberg and Tirole (1990) took the position that the only determinants for these decisions are the players' expectations of the actions of their antagonists (e.g., other players). In general, it is possible to have 2-player games or n-player games; in addition, newer dynamic game theory, as opposed to traditional mathematical game theory, incorporates the assumption of incomplete information into its analytical models.

Elitzur and Wensley (1997) used game theory, which involves the study of the strategic interactions between individuals and/or organizations, to examine and explain certain characteristics of IT outsourcing, including asset transfer, risk sharing, technology upgrading, contract duration, relationship management, and fee determination. They focused on the role of incentives and fees as tools to help shape the structure of outsourcing arrangements. These aspects can be analyzed using strategies and payoffs, which allow the modeling of complex outsourcing arrangements. In the context of game theory, the term "strategic" refers

to the fact that the actions of players potentially influence the actions of other players. McMillan (1992, p. 6) stated that "game theory is the study of rational behavior in situations involving interdependence." He further noted that "[b]y interdependence, we mean that any player in the game is affected by what the others do; and in turn that player's actions affect the others. The outcome depends on everyone's decisions; no one individual has full control over what happens" (McMillan, 1992, p. 6).

2.5 Introducing Social Exchange Theory

Most of the conventional information systems / sciences literature on knowledge transfer is based on knowledge-based/resource-based theory, the mechanism of transferring knowledge, embedding knowledge, and knowledge transfer capabilities. Their findings show that most of the recent knowledge transfer studies focus on the intra-firm context, so knowledge is generally considered to be an economically passive body or resource. According to the resource-based theory, knowledge-based theory is an extended resource-based view of the firm, and therefore, knowledge is being treated as a generic resource. In this regard, knowledge-based theory may be less applicable to the IT outsourcing context.

On the other hand, transaction cost theory treats knowledge as an economic asset used to increase productivity among business partners by achieving common goals under pressure in the larger economic system of the market. However, the nature of the theory is managerial and focuses on hard negotiation instead of on locating an optimal point for negotiation. Similarly, agency theory is primarily interested in the managerial perspective of the socially, politically, and economically asymmetric stakeholders competing to maximize returns with imperfect information. One important point to emerge from agency theory, though, is the notion that one particular partner, regardless of its size or technological advancement, could not be better than the others when one does not know what it did not know. According to this notion, all stakeholders would make "cautious" moves guided by a vaguely political hierarchical protocol in regard to negotiating with one another.

Cautious strategies similar to those posited by agency theory are also important in game theory. However, the key differences between these two theories are that game theory is far more highly strategic than agency theory, and that in the game theory all the players are politically leveled. Moreover, knowledge in the game theory framework is played down, perceived as a relatively insignificant asset, as the theory more highly values the players' cautious strategic moves. If knowledge-based theory, transaction cost theory, agency theory, and game theory were combined, they could provide a very powerful framework for deepening understanding of knowledge transfer in IT outsourcing. Certainly, such a framework would cover all the aspects of knowledge transfer related to outsourcing in terms of scope and scale. Yet a crucial overarching factor would still be missing, that of cultural perspective.

On the other hand, social exchange captures all the potential factors and perspectives necessary for investing in knowledge transfer (transfer as one of the exchange modes) in an outsourcing setting. The theory addresses social exchange attributes (reciprocity, balance, cohesion, and power), covers social, political, economical, and psychological perspectives on societal and individual levels of analysis, and focuses on the activities and the all-inclusive circumstances in which the exchange takes place. Moreover, the theory itself is sensitive to socio-cultural context, and it is highly applicable to settings in which culture is perceived as either an incubatory or prohibitory catalyst.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Objective

This thesis focuses on social exchange theory and how information sciences researchers have adopted social exchange for investigating knowledge transfer issues between consumers (clients) and producers (vendors) in cooperative–competitive environments, such as IT outsourcing. Note that the cooperative environment in this thesis refers to IT outsourcing; it is not limited to offshore outsourcing only. Since the author wanted to cover as much literature as possible, the idea of the cooperative–competitive environment was extended in scope from offshore outsourcing to outsourcing in general.

In addition, high-tech work in this context refers to (a) software development, (b) IT-related work (e.g., call centers, technical support, system administrators, and operators), and (c) high-tech (e.g., electronic assembling and automotive part manufacturing). This thesis employs the qualitative method, specifically by using a content-analysis technique and an interpretive lens. Almost all the documents used came from the digital library and inter-library loan services provided by Penn State's Libraries.[3] The author consulted approximately 400 papers from the academic arena and practitioners' outlets, and subsequently drew on 16 papers for the analysis as displayed in Table 3.1.

At the end, discussion over how information sciences literatures could be fitted in the SET's four constructs. The author displayed the idea of how information sciences research could make SET more accommodating for information sciences researchers to pursue knowledge transfer studies under cooperative competitive context. In this regard, a recommendation, if necessary, on theory modification on SET was also offered in the discussion.

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[3] The complete list of the digital library database is at http://www.libraries.psu.edu/eres/PSU_azlist.html#azlist.
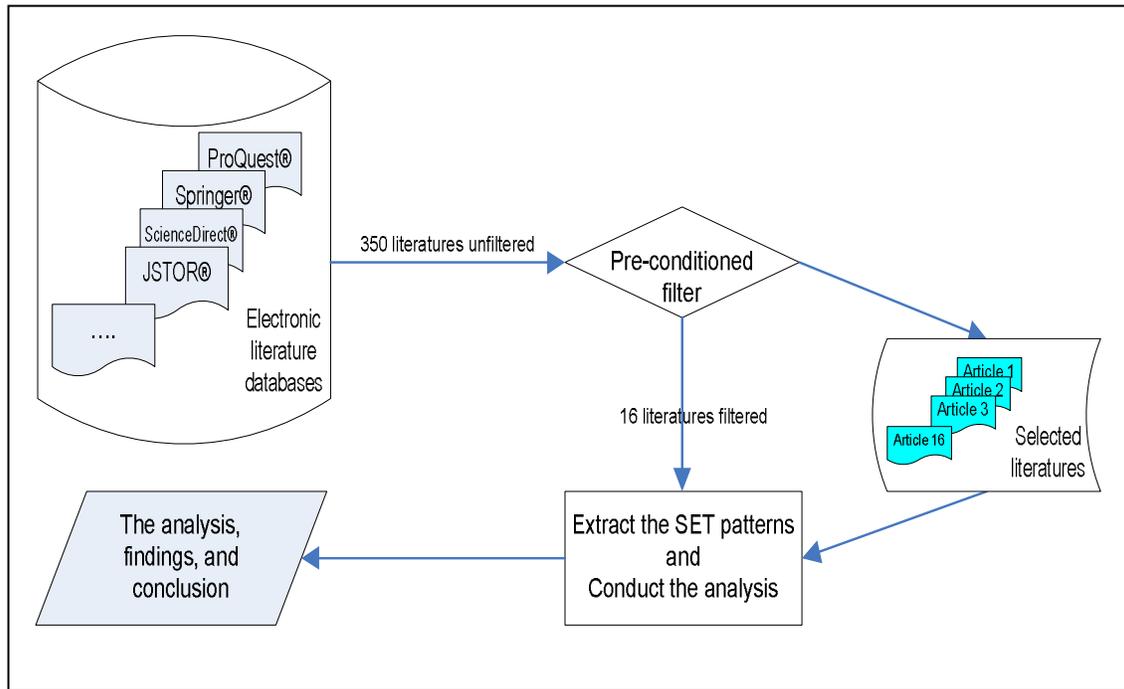
Figure 3.1 Research Methodology Overview Diagram

3.2 Interpretive Epistemology

This thesis uses an interpretive lens of inquiry and analysis, a mode of research that relies on the basic assumption that human knowledge is acquired by means of social constructions comprising cultural artifacts such as language, consciousness, shared meanings, and documents (Klein and Myers, 2001). The underlying assumption is that meanings are created as people interact with one another in their respective contexts.

According to Klein and Myers (2001), the objective of interpretive research is to construct social theories based on social phenomena. Walsham (1995a, 1995b) elaborated that underlying contextual conditions are vital for interpretive researchers to pursue in-depth investigations. Certain problems in information sciences research agendas involving interactions between human actors and IT artifacts cannot be resolved by

simply collecting the data and analyzing it in terms of statistics. Rather, such problems must be investigated at the critical level of the dynamics and mechanism of the interplay and the relationships among human actors, IT artifacts, and specific settings.

Taking on this concept, interpretive research methods generally allude to interpretive experiments, language analysis, in-depth case studies, ethnographies, action research, and grounded theory. In this thesis, the author uses content-analysis as an interpretive research method in order to access the phenomenon of knowledge transfer in the context of high-tech outsourcing. The outcomes of practicing outsourcing are quite contradictory, though, and statistics alone are insufficient to account for them. However, the figures can be made meaningful by understanding the qualitative findings through interpretive analysis.

3.3 Content Analysis

Content analysis is a systematic research method for analyzing textual information in a standardized way that allows evaluators to make inferences about the information (Krippendorff, 1980, pp. 21−27; Weber, 1990, pp. 9−12;). Another definition is that, "the many words of text are classified into much fewer content categories" (Weber, 1990, p. 12). Holsti (1969) offered a broad definition of content analysis as "any technique for making inferences by objectively and systematically identifying specified characteristics of messages." Neuendorf's (2002) six-part definition includes this fairly comprehensive statement: "Content analysis is an analysis using quantitative or qualitative techniques of messages using a scientific method (including attention to objectivity–intersubjectivity, a priori design, reliability, validity, generalizability, replicability, and hypothesis testing) and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented. (p. unknown.)" Content analysis not only helps summarize written material, but also describes the attitudes or perceptions of the author of that material.

In content analysis, evaluators classify the key idea in a written communication. To classify a document's key ideas, the evaluators identify its themes, issues, topic, etc. (Orwin, 1994). To illustrate: a poorly written

document may lead a coder to make ambiguous decisions, or ambiguity in the judgment process may set the stage for coder bias. In addition, there is the potential for straightforward coder error. According to the GOA (1996), coder error is usefully divided into two categories. First, inter-coder reliability refers to inconsistency generated by different coders using the same codes assigned to segments of the text. This can generate misleading data. In many circumstances, evaluators can make a numerical estimate of inter-coder reliability and use the results to judge the readiness of coders to proceed from training to actual coding. Second, systematic error occurs when coders as a group make the same errors in assigning category codes to segments of the text. This type of error is far more difficult to find. In fact, no one knows what the "true" code errors may be or the extent of them; however, evaluators may be able to detect systematic errors during training and then redefine the variables' categories and so modify the coding manual.

Content analysis seeks to analyze the operationalization of the fundamental constructs of social exchange theory and their implications and to identify the dynamic interactions and constructs found in the literature selected. Drawing from the findings and the conclusion, the author offers analysis of information sciences studies related to social exchange to investigate knowledge transfer issues between consumers (clients) and producers (vendors) in the cooperative–competitive environment of IT outsourcing.

3.4 Sampling

The sample data was collected from a large body of literature, from both academic venues and practitioners' outlets, all of which were to a certain extent relevant to knowledge transfer in outsourcing high-tech work. Academic journal databases, such as Springer®, ProQuest®, ScienceDirect®, JSTOR®, and CSA, constituted the primary data source used in the data-collecting process. An initial scan of this literature showed that as many as four hundred articles might be relevant to the study at hand. However, only sixteen articles were considered relevant enough to be used as case studies. As depict in the Table 3.4, the sixteen selected studies were (1) those from case studies relating to the knowledge transfer phenomenon among firms in outsourcing schemes for high-tech work, and (2) those with frameworks or methodology

related to social exchange theory (or closely related theories).[4] Regarding the articles related to social exchange theory, each had either a theoretical framework, findings, and/or conclusion with certain components to some extent comparable to the contemporary construct of social exchange theory: reciprocity, balance, cohesion, and power. (See the next section for details.)

The search for relevant studies began with a broad look at the subject of knowledge transfer in the *Journal of Information Technology (JIT),* which offered a variety of topics in knowledge management and offshore outsourcing. Therefore, the "seed" articles were selected from the *JIT* literature pool. After this broad search was finished, the next step was to pursue a deeper search. First, the bibliographies of the articles selected were analyzed, and the relevant entries assessed to determine that they related to knowledge transfer under outsourcing schemes in high-tech work. As a result, approximately 400 articles were preliminarily qualified to for the next filtering step. Second, a structural analysis of the 400 articles, based on the four SET constructs, was conducted. In this phase, each article was analyzed for evidence of reciprocity, balance, cohesion, and power. The articles that met this filtering criteria had to have at least two identifiable theoretical elements from SET.

In regard to high-tech work, the author refers to three categories of outsourcing business: software development, IT-related work (e.g., call centers, technical support, system administrators, and operators), and high-tech industries (e.g., electronic assembling and automotive part manufacturing). Using social exchange theory as an analytical framework, the author synthesized the coding scheme and then used it as an instrument to encode and analyze those contemporary studies.

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[4] Social exchange can be found in many forms. For example, one of the forms is social capital theory. According to Coleman (1997), social capital theory is functionally defined as "a variety of entities with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions of actors...within the structure" (p. S98). To simplify, social capital, taking on Coleman's theorization is actionable assets that facilitates individual or collective action, generated by networks of relationships, reciprocity, trust, and social norms. In Coleman's conception, social capital is a neutral resource that facilitates any manner of action, but the outcome ultimately depends entirely on the individual operationalization (Foley and Edwards, 1997). In this regard, social capital theory and SET are partly compatible due to reciprocity, trust, and social norms.

Author	Title	Epistemology	Methodology	Findings
Gregory, Beck, and Prifling (2009)	Breaching the Knowledge Transfer Blockade in IT Offshore Outsourcing Projects–A Case from the Financial Services Industry	Interpretivist	Qualitative interviews, grounded theory development	Client firms cannot rely solely on the capabilities of IT service providers and must actively involve themselves in the transfer, accumulation, and use of business knowledge, process knowledge, and functional knowledge in the client-vendor relationship.
Datta and Saad (2008)	Social Capital and University–Industry–Government Networks in Offshore Outsourcing–The case of India	Interpretivist	Content analysis	India has enjoyed in the domain of outsourcing of services can be explained through the triple helix paradigm of university–industry–government network. Leveraging personal and social ties mitigate managing uncertainty, resulting in increasing social capital of firms engaged in such economic exchanges.
Lee, Huynh, and Hirschheim (2008)	An Integrative Model of Trust on IT Outsourcing: Examining a Bilateral Perspective	Positivist	Survey, PLS regression analysis	The results show that mutual trust between the service receiver and provider is very important for knowledge sharing and outsourcing success. The initial trust is considered a significant factor in the perception of mutual trust from the service receiver's perspective, but not from the service provider's viewpoint.
Muthusamy and White (2008)	Learning and Knowledge Transfer in Strategic Alliances: A Social Exchange View	Positivist	Survey, linear regression	Social exchanges such as reciprocal commitment, trust, and mutual influence between partners are positively related to learning and knowledge transfer in strategic alliances.
Rottman (2008)	Successful Knowledge Transfer within Offshore Supplier Networks: A Case Study Exploring Social Capital in Strategic Alliances	Interpretivist	Content analysis, qualitative interview	Strategic alliances illustrate salient social capital dimensions and the conditions and practices that facilitate knowledge transfer, enabling US manufacturing to improve knowledge transfer, decrease development costs, shorten cycle time, increase the quality of developed deliverables, quickly respond to changes in the regulatory environment, and, most importantly, build strong, strategic relationships with its suppliers.

Table 3.4 Summary of 16 Studies Selected for Analysis

Author	Title	Epistemology	Methodology	Findings
Tiwana and Keil (2007)	Does Peripheral Knowledge Complement Control? An Empirical Test in Technology Outsourcing Alliances	Positivist	Survey, three-step hierarchical regression	Peripheral knowledge complements outcomes-based formal control but not process-based control. Outsourcing firms may sometimes need knowledge outside their core domain because such knowledge facilitates effective alliance governance.
Weeks and Davis (2007)	Technology and Knowledge Transfer within Outsourcing Relationships: The Development of a Model of Inter-organizational Innovation	Interpretivist	Content analysis, comparative case-study, a model development of inter-organizational innovation	The model addresses the necessity of overlap in knowledge domains for effective innovation and technology transfer in inter-organizational settings. Relationship interdependencies critically impact innovation outcomes.
Miesing, Kriger, and Slough (2007)	Towards a Model of Effective Knowledge Transfer within Transnationals: The Case of Chinese Foreign-invested Enterprises	Interpretivist	Case study	An effective intra-organizational transfer of knowledge and best practice requires diverse perspectives, greater levels of trust, the building of tighter interpersonal bonds, development of active networks, receptivity to learning, and shared norms of reciprocity.
Inkpen and Tsang (2005)	Social Capital Networks and Knowledge Transfer	Interpretivist	Content analysis, a model development of social capital framework	The framework examines the linkages between knowledge transfer and social capital for three network types: intra-corporate networks, strategic alliances, and industrial districts, relating to trust, knowledge transfer, social capital, cross-cultural issues, and geographically dispersed units.
Haghirian (2003)	Does Culture Really Matter? Cultural Influences on the Knowledge Transfer Process within Multinational Corporations	Interpretivist	Content analysis	The study offers an initial framework of propositions that synthesize and build on the extant and still developing literature on global learning organizations.
Zineldin and Bredenlow (2003)	Strategic Alliances: Synergies and Challenges: A Case of Strategic Outsourcing Relationship "SOUR"	Interpretivist	Case study	The development of a long-term strategic outsourcing relationship requires moral, ethical standards, trust, and a willingness not to try to exploit the new relationship at the expense of long-term cooperation.
Koka and Prescott (2002)	Strategic Alliances as Social Capital: A Multidimensional View	Interpretivist	Content analysis, structural equation modeling	The study establishes the construct validity of our proposed three-dimensional conceptualization of social capital. The information dimensions have differential effects on firm performance, which in turn depends on the firm's context.

Table 3.4 Summary of 16 Studies Selected for Analysis (cont.)

Author	Title	Epistemology	Methodology	Findings
Bresman, Birkinshaw, and Nobel (1999)	Knowledge Transfer in International Acquisitions	Interpretivist	Survey, case study, linear regression	In the early stages, knowledge transfer was mostly one-way from the acquiring to the acquired unit, and typically imposed. In the later stages, knowledge transfer was in both directions and reciprocal transfer was more frequent. The acquisition context is not seen under other modes of governance, which appear to be strategic alliances, in which approaches to knowledge sharing changes as the alliance evolves.
Lam (1997)	Embedded Firms, Embedded Knowledge: Problems of Collaboration and Knowledge Transfer in Global Cooperative Ventures	Interpretivist	Case study	Points of friction in knowledge transfer are influenced by how the dominant form of knowledge held in organizations, its degree of tacitness, and the way in which it is structured, utilized and transmitted varied between firms. Differences between the partner firms in these regards contribute to project failures, weaken the technological relationship between the partner firms, and lead to asymmetry in knowledge transfer.
Mowery, Oxley, and Silverman (1996)	Strategic Alliances and Inter-firm Knowledge Transfer	Interpretivist	Content analysis retrieved from the Cooperative Agreements and Technology Indicators (CATI) database	Received wisdom (knowledge transfer gained) promotes greater knowledge transfer. As alliance activity promotes increased specialization, the capabilities of partner firms become more divergent in a substantial subset of alliances.
Gulati (1995)	Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances	Interpretivist	Content analysis retrieved from the Cooperative Agreements and Technology Indicators (CATI) database, public industry databases, and linear regression analysis	Contracts chosen in alliances depend not only on the activities included within the partnership and their associated transaction costs, but also the trust that emerges between organizations over time through repeated ties.

Table 3.4 Summary of 16 Studies Selected for Analysis (cont.)

CHAPTER 4

EVOLUTION OF SOCIAL EXCHANGE THEORY

This chapter provides an in-depth review of social exchange theory, covering the theory's evolution and history, its contemporary definition and associated concepts, and its application in information sciences knowledge management studies. Finally, some of the information sciences studies pertaining to knowledge are analyzed by adopting Emerson's view of social exchange in four respects: reciprocity, balance, cohesion, and power.

Traced back to the 1920s (Malinowski, 1922; Mauss, 1925), social exchange theory grew out of the intersection of economics, psychology, and sociology, bridging anthropology (Firth, 1967; Sahlins, 1972), social psychology, (Gouldner, 1960; Homans, 1958; Thibault and Kelley, 1959), and sociology (Blau, 1964). According to Homans (1958), the initiator of the theory, SET was developed to understand the social behavior of humans in economic undertakings. The fundamental difference between economic exchange and social exchange theory is in the way actors are viewed. Exchange theory "views actors (person or firm) as dealing not with another actor but with a market" (Emerson,1987, p. 11), responding to various market characteristics; while social exchange theory views the exchange relationship between specific actors as "actions contingent on rewarding reactions from others" (Blau, 1964, p. 91). Social exchange theory exists in many forms, but all of them are driven by the same central concept wherein actors exchange resources via a social exchange relationship in which social exchange is the voluntary transfer of resources between multiple actors (Cook, 1977). The theory evolved from a dyadic model to a network model (Cook, 1977) with market properties (Emerson, 1962). The crux of the theory is still best captured by Homans:

Social behavior is an exchange of goods, material goods but also non-material ones, such as the symbols of approval or prestige. Persons that give much to others try to get much from them, and persons that get much from others are under pressure to give much to them. This process of influence tends to work out at equilibrium to a balance in the exchanges. For a person in an exchange, what he gives may be a cost to him, just as what he gets may be a reward, and his behavior changes less as the difference of the two, profit, tends to a maximum. (1958, p. 606)

Interaction between two actors results in various contingencies, whereby the actors modify their resources to each other's expectations. However, Blau (1964) elaborates that social exchange theory is based on the concept of "trust," which explains the exchange relationships among participants. Inhering in some definitions of social exchange theory is the notion that firms believe that other firms will perform actions that they expect will result in positive outcomes, and will not take unexpected actions that they expect to result in negative outcomes (Gulati, 1995). Trust plays a critical role in the development of a long-term relationship and in facilitating an exchange relationship. Therefore, trust is a basic concept in separating the relationship type into a transactional-style or partnership-style relationship, and it evolves through mutually satisfying interactions and increasing confidence in the relationship.

Blau (1964, as cited in Dibbern et al., 2004, p. 19) defined social exchange as the "volunteer actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others." Emerson (1972, as cited in Dibbern et al., 2004, p. 19) stressed that there are social exchange attributes highly applicable to outsourcing scenarios in which clients and vendors are the entities involved in social exchange: Reciprocity: A mutual exchange as a result of the need to reciprocate the benefits received; Balance: There is an equilibrium or equality in the distribution of dependence between each of the actors in an exchange; Cohesion: When one or both actors in the exchange run into a conflict involving the exchange; and Power: The extent of the monetary influence one can exercise over the other.

While reciprocity, balance, and cohesion may be easily observed and translated, power is quite difficult to discern. Power is the mechanics that can explain the relationship of the actors (Emerson, 1962; Blau, 1964). According to Emerson (1962), power is the property of a relationship and not of an actor, because it "resides implicitly in the other's dependency" (p. 32). That is, social exchange theory is best understood as a framework for explaining the movement of resources, in imperfect market conditions, between dyads or in a network via a social process (Emerson, 1987).

Hui et al. (2008) argued that the level of a team's collaborative activity can socially affect the establishment of trust among the entities. They observed that poor project performance and poor relationships with IT vendors contributed to firms bringing interdependent IT activities, such as applications development, back in house. This supports Whitten and Leidner's (2006) findings that, in other words, the structuring of activities across organizational boundaries is at least as critical a decision in other settings with ready access to advance IT as it is in the capital construction setting. In fact, as firms outsource increasingly critical and interdependent activities, and as offshoring captures more and more attention, a better understanding of the repercussions of dividing activities across organizational boundaries is a more, rather than less, relevant problem than ever. Hui et al.'s (2008) findings are consistent with observations of onshoring and the lack of offshoring for activities that involve a tremendous amount of coordination, such as programming and design services (Arora and Forman, 2007; Carmel and Abbott, 2007). While advanced IT may help facilitate communication across organizational or even national boundaries, coordination and control of activities can still be hampered by subtle social, cultural, and institutional differences. In complex outsourcing projects with highly interdependent activities, technology may not be helpful at all without appropriately structured work. A useful direction for future research could be to explore the connections between outsourcing structures and development of outsourcing practices.

4.1 The Genesis of Social Exchange theory

It is not at all unusual for interdisciplinary fields to involve theories that originated in different areas. Considering the nature of information sciences, information sciences scientists have explored and employed theories originally generated in diverse domains in their research. This section comprehensively discusses the applicability of social exchange theory as developed from a branch of economics to information sciences research; as such, this section investigates SET's potential as a framework for exploring the mechanics of knowledge sharing in IT outsourcing contexts. First, a summary of how SET has been formulated and used is presented. Then, SET as a contemporary theory is illustrated. Finally, examples of studies in information science that can be allied with social exchange theory inasmuch as they relate exchange theories to knowledge sharing are discussed.

One of the most influential theoretical conceptions in contemporary sociology is exchange theory (Alexander, 1990; Cook, 2000)—a theory that derives from economics' rational choice theory and the study of relationships and exchanges. Perhaps, one of the most primitive and basic assumptions inhering in exchange theory is that individuals assess different courses of actions in order to maximize the outcome at the smallest transaction cost. As illustrated in Table 4.1.1, exchange theory exists in several forms; however, all forms share common basic assumptions.

Basically, social exchange theory has been introduced to sociology, psychology (Emerson 1962; Homans 1961; Thibaut and Kelley, 1959), economics (Blau, 1964), and anthropology (Goodfellow, 1939). Human behavior is essentially the central focus of exchanges, specifically the behaviors driven by rewards or economically valued resources (Blau, 1964, p. 91; Cook, 2000; Homans, 1961, p. 12–13; Stolte et al., 2001). Transactions establish the foundation of social life in terms of its processes and relationships on multiple levels, including group processes and intergroup relationships that through cooperation produce shared outcomes or rewards (Coleman, 1990, p. 37; Homans, 1961, p. 317). That is, an exchange is a social transaction featuring reciprocity as a mutual stimulus factored by dependence, power, and cohesion

(Emerson, 1969, p. 387–389). Molm (2001) offered this view: "the philosophical roots of social exchange begin with the assumptions of utilitarian economics, broaden to include the cultural and structural forces emphasized by classical anthropologists, and enter sociology after further input and modification from behavioral psychology" (p. 262). In other words, the goal of social exchange theory is functionally an examination of reciprocity in which individuals engage in and extract from social transactions the unguaranteed expectation that they will be sustained and benefit from the exchange relationship.

Concept	Assumptions
Exchange actors	Individuals or corporate groups such as a company Can be particular people—for example, a named friend Can be an interchangeable holder of a structural position—for example, the chief knowledge officer of a company Can be grouped into exchange categories
Exchange network	Two or more connected dyadic exchange relations (a connection exists where the frequency and value of exchange in one relation affects the frequency and value in another) Contains positive connections, where exchange in one relation increases exchange in another Contains negative connections, where exchange in one relation decreases exchange in another Contains mixed connections, where both positively and negatively connected relations exist Relations are conceived as longitudinal
Exchange resources	The currency of exchange May be tangible (such as money) or intangible (such as social obligation) May be perceived as gifts When given to another, the exchange resource is known as a cost When received, or produced as a result, the exchange resource is known as an outcome Are attributes of relations, rather than actors, in that their value is determined by those setting up the exchange
Exchange structures	Dependent relationships that support the exchange (social capital)
Exchange processes	Interactions required to conduct an exchange Comprise exchange opportunities followed up by exchange transactions (negotiated or reciprocal) May lead to an exchange relation when there is a series of exchanges between parties

Sources: Coleman (1990); Cook (1982, p. 179); Mauss (1925, 1990); Molm (1997, p. 15; 2001, pp. 260–262).

Table 4.1.1 Analytical Concepts and Assumptions of Exchange Theories

As stated, the information sciences have adopted theories generated and derived from diverse disciplines such as sociology, microeconomics, behavioral psychology, and anthropology, each of which have evolved to determine a particular emphasis and exchange structure (Molm, 2001, p. 261), as depicted in Table 4.1.2 Further, social exchange theory was modified and extended throughout the 20th century. In fact, Malinowski (1922) theorized and invented the economic concept of the "gift economy" to describe the exchange economy in precious objects of Papua New Guinea's trading markets. Later, Mauss (1925)

conducted a comprehensive investigation in order to understand the mechanism of the gift economy. According to Parry (1998, p. 143), the gift economy was traditionally accompanied by certain protocols that potentially shaped the relationship between giver and receiver, rendering an interdependency between the parties. In this regard, the gift economy encouraged and sustained reciprocity (Kollock, 1999, p. 221), therefore, establishing an ongoing emotional relationship between the parties (Kollock, 1999, p. 221).

As depicted in table 4.1.2, SET has been modified over time. One of the most explicit illustrations of theory modification is that the theory has recently been used to focus on multiple parties in a large-scale network structure, instead of being limited to looking at the social transaction between two parties (Molm, 2001, p. 260). Moreover, Molm (1997, p. 27) observed that interest in the relationships among the parties in a network has shifted from a concern with reciprocity to a concern with hard negotiation, and the theme of power originated by Blau (1964) has become more predominant in social sciences since the 1970s.

Year	Anthropology	Dominant themes	Sociology	Behavioral psychology	Dominant themes
Early 20th century	Malinowski Mauss	Gift giving as a moral obligation	-	-	-
1950s	-	-	Humans	Thibaut and Kelley	Exchange is ubiquitous Trust generates exchange and trust
1960s	Levi-Strauss	Shared with sociologists	Homans Blau	-	Exchanges are nonnegotiable, reciprocal, and sequential Focus on actions by individuals in dyadic relations
1970s	Ekeh	Social cohesion is achieved through social exchange	Emerson Granovetter Heath	-	Power Focus on relations Social network analysis Heath Rewards Rewards and punishment
1980s	Cheal	Gift giving for reproducing social relationships	Cook Emerson	-	Power and power processes
Current	Godelier Godbout	Relevance of gift giving in modern societies (e.g., the nature of what is exchanged; charitable donations as a form of gift giving; power of marginalized participants in gift economies; wealth, patterns of gift giving and gift consumption as indicators of social position and power; universality of the general logic of exchange and reciprocity)	Molm Lawler Yoon Uzzi	-	Coercive power Bargaining Quality of Exchanges

Sources: Cheal (1988), Ekeh (1974), Emerson (1976, p. 335); Galunic and Moran (2000, p. 2), Godbout (1988), Godelier (1999), Gudeman (1998, p. xi), Molm (1997, 2001), Parry (1998); Scott (n.d.), Sjostrand (2001), Xrefer (n.d.).

Table 4.1.2 Development of Social Exchange Theory: Timelines across Disciplines

4.2 Contemporary Social Exchange Theory

Although SET has experienced several modifications over time, the dominant themes from the 1970s to the first decade of the 21st century define what we consider to be contemporary permutations of the theory. Sabatelli and Shehan (1993) conducted an analysis of SET and concluded that contemporary SET contained an assumption that a focus on the nature of individuals and the nature of relationships is the foundation of the modern theory.

1. Seeking rewards and avoiding punishments are the influencing behavior stimuli on which humans act.

2. Individuals seek to maximize their benefits and minimize their costs when they interact with others. Although rewards and costs derived from a social interaction may not be explicit before the actual transaction takes place, individuals negotiate their behavior in accord with their assessment of the expected rewards and costs.

3. With the given limited information at hand, individuals rationally anticipate rewards and costs and evaluate alternatives before taking an action.

4. The evaluative standards involved in calculating rewards and costs are varied and depend on personal judgment.

To articulate the benefits of exchange in social relationships, exchange theories borrow concepts of rewards and costs from behavioral psychology and concepts of resources from economics. Foa and Foa (1980) defined resources as commodities, material or symbolic. In Emerson's view (1976), the resources can be transferred through interpersonal behavior and give one person the capacity to reward another. Thibauth and Kelly (1959) defined rewards as pleasures, satisfactions, and gratifications that a person could perceive and absorb from participating in a relationship, while Blau (1964) defined costs as involving experience, energy invested in a relationship, and/or rewards foregone as a result of engaging in one behavior or course of action rather than another.

Satisfaction with an exchange relationship and its associated social transactions correlates to the outcomes evaluated against expectations that individuals bring to their relationships (Nye 1979; Sabatelli, 1984; Thibaut and Kelley 1959). Satisfaction, in fact, could be regarded as an evaluation of the outcomes: the rewards obtained from a relationship minus the costs incurred. Basically, though, there is no guarantee that a higher level of available outcomes will deliver greater satisfaction. In short, satisfaction is a net assessment of outcomes against the comparison level of expectations.

Thibaut and Kelley (1959) posited the concept of the comparison level (CL) to explain the contributions of previous experiences and expectations to individual satisfaction with a relationship. Basically, individuals

bring their awareness of societal norms and records of personal experiences into a relationship. These factors influence CL and, as a consequence, determine individuals' feelings regarding a relationship, that is, what they feel they deserve, what they expect, and what they consider to be realistic. In this regard, the relationship will become stronger when the outcomes derived from it surpass its CL (Nye, 1979; Sabatelli, 1984; Thibaut and Kelley, 1959).

In addition, another dimension of CL, relationship stability, combines alternatives, dependence, and barriers. Thibaut and Kelley (1959) defined the comparison level of alternatives (CLalt) as the lowest level of outcome an individual will tolerate in a relationship when taking into account available alternatives. That is, individuals tend to leave a relationship, if they find that outcomes available in alternative relationships exceed those available in the current relationship. Therefore, staying in or leaving a relationship does not depend solely on how rewarding that relationship is, but also on the availability of better alternatives. Furthermore, Thibaut and Kelley (1959) showed that unsatisfactory relationships can remain stable for lack of a better choice. As an example of such non-voluntary relationships, Gelles (1976) suggested that some individuals may stay in violent relationships because they do not have better options.

The CLalt is also related to the experience of dependence, which is defined as the degree to which a person believes that he or she is subject to or reliant on the other for certain valued outcomes. The degree of dependence evidenced is determined by the degree to which the outcomes derived from a relationship exceed the outcomes perceived to be available from existing alternatives. Dependence may be experienced as one of the costs of participating in a relationship, but this is probably determined in part by the level of satisfaction experienced with the relationship. Dependence is tolerated in highly rewarding relationships and further influenced by the barriers that increase the costs of dissolving an existing relationship (Levinger, 1982). Levinger proposed that two types of barriers—internal and external—discourage an individual from leaving a relationship by fostering dependence even if attraction is low. Internal barriers are the feelings of obligation and indebtedness to the partner that contribute to dependence by increasing the psychological costs of terminating the relationship. Internal constraints might involve the moral belief

that a marriage, for example, is forever or that children should be raised in a home with both parents present. External barriers are considerations like community pressures, legal pressures, and material or economic limitations that promote dependence by increasing the social and economic costs of terminating a relationship.

Exchange relationships are regulated by norms, by both normative and cognitive exchange orientations that delineate acceptable and appropriate behavior. Normative orientations refer to dominant societal views of acceptable and appropriate behavior in relationships. Such norms refer to the broader consensus that exists within a culture about how exchange relationships should be structured. The assumptions about the nature of exchange relationships are as follows:

1. Social exchanges are characterized by inter-dependence; that is, the ability to obtain profits in a relationship is contingent on the ability to provide others with rewards.

2. Social exchanges are regulated by norms like reciprocity, justice, and fairness.

3. Trust and commitment result from the emergent experiences of individuals within relationships and help to stabilize relationships over the longer term.

4. The dynamics of interaction with relationships and the stability of relationships over time result from contrasting levels of attraction and dependence experienced by the participants in the relationship.

Many contemporary studies have augmented and extensively applied social exchange theory to a larger scope across domains. For example, Nooteboom (1996) used social exchange theory to investigate commitment, trust, and affective ties in social relationships. Keller and Dansereau (1995) and Westphal and Azajac (1997) examined the complex relationships of power in corporate governance in the workplace. Recently, there has been interest in applying social exchange theory concepts to understanding outsourcing decisions and outcomes (Hui and Beath, 2002; Kern, 1997; Kern and Willcocks, 1996; Steensma and Corley, 2000; Teng, et al., 1995). The explanatory power of the theory has been perceived in certain areas such as social power (Molm et al., 1999), networks (Brass et al., 2004; Cook et al., 1993), board

independence (Estphal and Zajac, 1997), organizational justice (Konovsky, 2000), psychological contracts (Rousseau, 1995), and leadership (Linden et al., 1997).

4.3 Social Exchange Theory in Information Literature

Many studies adopted the ideas of social exchange theory and linked them to the processes of knowledge sharing. Yet, many have made implicit use of social exchange theory in their discussions of knowledge transfer, knowledge exchange, and knowledge sharing, using terminology from social exchange as illustrated in Table 4.3 Certain fields, such as management, organizational studies, and information systems, are paying increasing attention to knowledge management with explicit reference to social exchange theory. Davenport and Prusak (1998, p. 25–52), for instance, constructed the framework that relates social exchange theory to knowledge management in a knowledge market populated by a network of actors pursuing resource trading on a supportive platform.

From the point of view of organizational studies, Nahapiet and Ghoshal (1998) argued that exchange is one of two approaches that result in the creation of all-new resources. In this regard, the other process is that of combination, for which exchange is a prerequisite. However, they also suggested that certain fundamental conditions must be fulfilled in order to nurture the exchange and enable the combination to take place. That is, "the opportunity exists to make the combination or exchange" (paragraph 3), in which "those parties must expect such deployment to create value" (paragraph 38), and "those involved must feel that their engagement in the knowledge exchange and combination will be worth their while" (paragraph 39). In accordance with Nahapiet and Ghoshal's argument (1998), Thomson and Heron (2002) studied new product development in high-technology firms and concluded that a high level of knowledge-sharing activity effects a high production of knowledge, which is highly desirable for and supportive of organizational citizenship behavior (OCB).

Author	Modification and application of SET for knowledge management
Huberman and Hogg (1994)	Inventing collaborative performance enhancement model with direct reference to informal networks supported by incentive schemes as facilitators of learning and problem solving enhanced by exchanging information
Huang, Newell, and Galliers (2002) Lerner and Tirole (2001) Scott and Kaindl (2000, p. 119)	Knowledge sharing as exchange described in the context of studies of collaborative software development
Gray and Meister (2001	Knowledge sharing as exchange described in the context of studies of economic self-interest in electronic discussion groups
Hendriks (1999) Newell, Scarbrough, and Swan (2001)	Knowledge sharing as exchange described in the context of studies of intranets as tools for knowledge transfer
Faraj and Wasko (2001)	Creating models of knowledge transactions in computer-mediated networks of practice from a social capital perspective
Jacoby, Petersen, and Poulfelt (2002)	Developing a knowledge-sharing typology based on empirical research with management consultancy firms in Denmark
Pedersen and Larsen (2001)	Investigating decision support systems in health care administration in the United States set against the context of distributed knowledge management acknowledging the concepts of exchange

Table 4.3 Development of Social Exchange Theory: Timelines across Disciplines

In addition, more evidence in regard to using and empirically testing SET is the IBM Institute for Knowledge-based Organizations, for example, which has already conducted rigorous studies on the creation and benefits of social capital informed by existing social exchange theory frameworks. The institute found that a network's ability to create and share knowledge is highly correlated with individuals' meta-knowledge (members' expertise), ease of access to such expertise, willingness of members to actively engage in problem solving, and level of comfort with forming relationships among members (Cross, Parker, and Prusak, 2000).

It should be noted too that strategic alliances have become a vital strategy for many corporations seeking to achieve a competitive advantage by gaining market access, achieving economies of scale, and effecting competence building through collaborations (Dyer and Singh, 1998; Gulati et al., 2000; Yoshino and Rangan, 1995). Strategic alliances are considered an organizational learning imperative because organizationally embedded knowledge cannot be easily conveyed or exchanged through market transactions (Doz, 1996; Inkpen, 1998). Nevertheless, the actual performance of alliances seems disappointing (Ariño and Doz, 2000). Specifically, many alliances have been reported to be unstable, ineffective, and poorly performing (Bleeke and Ernst, 1993; Geringer and Hebert, 1991). Potential conflicts of interest among alliance partners persist mainly because there is a possibility that either party will

opportunistically use the alliance to learn the other's business or technological secrets (Doz, 1996; Khanna et al., 1998). Since the competitive nature of the process of learning and knowledge transfer among firms poses fundamental challenges for academics and practitioners, a new stream of research on how organizations learn from their partners and develop new competencies has emerged.

Recently, several pioneering empirical studies, however, have explored the role of relational processes such as trust and conflict management in enhancing interfirm learning (Ariño and de la Torre, 1998; Lazaric, 1998) and how collaborative know-how, collaborative experience, and learning capacity affect the knowledge transfer in alliances (Lane and Lubatkin, 1998; Simonin, 1997). As most of the problems in alliances are attributable to the inability of the partner firms to learn from each other how to improve their operations in cooperative ways (Hagedoorn and Schakenraad, 1994), there is a need to understand how firms can enhance learning through their alliances and also determine what can be done to reduce the conflicts and improve alliance success (Ariño and de la Torre, 1998).

Emerson (1972, as cited in Dibbern et al., 2004, p. 19) stressed that there are social exchange attributes highly applicable to outsourcing scenarios in which clients and vendors are the entities involved in social exchange: Reciprocity: A mutual exchange as a result of the need to reciprocate the benefits received; Balance: An equilibrium or equality in the distribution of dependence between each of the actors in an exchange; Cohesion: When one or both actors in the exchange run into a conflict involving the exchange; Power: The extent of the monetary influence that one can exercise over the other.

4.3.1 Reciprocity

Reciprocity in an exchange manifests in the form of a moral obligation as opposed to a concern for individual gratification (Blau, 1964; Homans, 1961). This happens because, unlike an economic exchange, a social exchange lacks strict accounting (Blau, 1964)—the partners are never certain about how much in debt they are to each other, and, therefore, strong feelings of moral obligation to repay are continually

being generated and reinforced. A partner can fulfill this obligation in at least two ways. The first way is to increase the level of input into the relationship in terms of the kind of input already being given. This may increase the feeling in the other partners that they are being out-given, are receiving more than they are giving, or receiving more than they think they deserve (Homans, 1961). The second way is to demonstrate reciprocal gratitude by committing additional resources that would constitute a reward to the party that is over-giving. Such reciprocal behaviors expand the range of resources being exchanged and result in partners acquiring new information, skills, and expertise. Browning et al. (1995) captured these behaviors in their case study on the unconditional contributions by Texas Instruments and Intel, both of which allocated research talent to other firms and enlarged both their own ventures and those of the receiving firms by doing so. Committing time, resources, personnel, and physical assets can foster more active involvement between managers at various levels of the organization and their counterparts in the alliance, thus resulting in more learning. Reciprocal commitments in terms of personnel and assets enhance the knowledge connections between partners, which, in turn, facilitate the sharing of firm-specific knowledge with partners for the creation of new knowledge to benefit the alliance (Inkpen, 1998).

4.3.2 Balance

There is an equilibrium or equality in the distribution of dependence between each of the actors in an exchange; after all, social behavior is an exchange of goods, both material goods and non-material ones, such as the symbols of approval or prestige. People who give much to others try to get much from them, and people who get much from others are under pressure to give much in return. This process of influence tends to work out equilibrium in terms of a balance of exchanges. For a person in an exchange, what he gives may be a cost to him, just as what he gets may be a reward, and his behavior changes less as the difference of the two, profit, tends to a maximum.

A lack of balance in an exchange relation is typically reflected in differences in initiation probabilities, and it is defined as differences in the relative dependencies of the actors. The concept of balance is important in

Emerson's original formulation, as it sets the stage for understanding the "balancing operations" he developed to explain changes in exchange relationships and networks. Subsequently, Yamagishi and Cook (1992) developed the notion of equi-dependence to describe the point at which two actors are "equally" dependent upon the relationship, whereby a condition of "power-balance" is created. However, as Emerson made clear, since actors are motivated to maintain or increase their power in exchange relations so as to increase their benefits and minimize their losses. Power conditions are, therefore, rarely stable, and change is likely to occur even when actors are initially power equals. Today, the concept of power-balance is used primarily to refer to power equality in exchange relations. It is not used as much as a "motivating" factor. Even though the concept was generally used as a cognitive concept when Emerson developed his theory of exchange (based on Heiderian balance theory), Emerson used the concept in a different sense to refer to structural "tension" or pressures at the system or network level for change stimulated by actors' efforts to gain power or to protect a power advantage.

4.3.3 Cohesion

Cohesion represents the "strength" of the exchange relation as well as the propensity of the relationship to survive conflict or the costs of what Emerson called external events. Relational cohesion is the average dependence of the two actors in the relationship: the higher the average mutual dependence, the higher the relational cohesion. Subsequently, Molm (1985) and others (e.g., Lawler, Ford, and Blegen, 1988) referred to this concept as average total power (or simply total power). The concept represents how much is at stake in the relation (not, the relative power of each actor within the exchange relation, which is treated separately in further developments of the theory). Both Molm and Lawler have examined the impact of total power, as well as relative power, on exchange relations.

Recently, Lawler and colleagues (e.g., Lawler and Yoon, 1993, 1996, 1998) and Molm and colleagues (e.g., Molm, Takahashi, and Peterson, 2000) explored the nature of commitment between exchange partners in greater depth. In his theory of relational cohesion, Lawler built on the notion of cohesion

derived from Emerson's early work (1962, 1972a, b). Defining cohesion as the total mutual dependence of both partners in an exchange relationship, he concluded that the stronger the mutual dependence, the more cohesive the relationship. He also investigated the emotional processes derived from positive and successful exchange that form the basis for affective commitment. He remarked that contemporary research extends Emerson's original formulation by emphasizing the exchange relationship, rather than the transaction, as the focus of analysis.

In addition, as much as cohesion and balance are closely related, they are different in term of the intensity of the mutual dependency. Balance refers to the equilibrium of the dependency between actors. It is intended to minimize loss and to increase the benefits resulting from the relationship. For balance, both parties are invested in the relationship. In contrast, cohesion alludes to one's survival and dependency in the presence of power relations. For example, when one has high dependency on certain resources of the other, one becomes exposed to vulnerability to losing access to those resources, which can result in an economical cost to an organizations' sustainability.

4.3.4 Power

Power is a primary dimension of inequality in society and an important determinant of life chances, such that it enables one to exercise power and influence over the other. For Blau (1964/1986), as for Emerson (1972), there is a clear connection between power and social exchange. The fact that some actors often control more highly valued resources than others can lead to inequality in exchange as social debts are incurred, which Blau (1964) argued are more easily discharged by acts of subordination. These actions of subjugation by the less powerful or domination by the more powerful often become self-perpetuating, forming the foundation of power inequalities in relations of exchange. Inequality and power differentiation were thus viewed by Blau as emergent properties of social exchange processes. Differences in the nature of valued resources among actors result in interdependence and thus the need for exchange. They also serve as

the basis for emerging inequalities in exchange outcomes as well as power differentials between actors linked by exchange (see Cook and Rice, 2003).

Emerson's (1962, 1964) power differentials derive from the relative dependency of actors on one another for the resources of value obtained through social exchange. His 1962 paper entitled, "Power–Dependence Relations," now a citation classic, formed the foundation for an extensive literature on power relations within social psychology and sociology more broadly. It also formed the primary basis for the analysis of power in exchange networks, the direction his work took in subsequent publications (1972a, b; 1976). According to Emerson (1972a, p. 39), his initial reason for beginning the work set forth in the two chapters written in 1967 and eventually published in 1972 was "to formulate a more encompassing (and hopefully enriching) framework around previous work on power–dependence relations." Power and exchange are closely interconnected in all the subsequent work on social exchange.

4.4 Literature Analysis

Earlier research in knowledge transfer and social exchange theory primarily aimed to establish a practical platform for investigating the features of knowledge embeddedness, such as absorptive capacity, network capabilities, and collaborative know-how, in international strategic alliances between firms and their multinational counterparts (Neilsen, 2001). And, recent studies continue this interest, showing a salient trajectory theme of reciprocity encapsulated in the term "alliance." The following is empirical evidence of reciprocity in the form of strategic alliances in knowledge transfer studies in cooperative–competitive environments in IT-sourcing businesses as recorded in selected studies by key authors. Although all support the use of strategic alliances in outsourcing relationships, their emphases are different in terms of subtle strategic details pertaining to implementation.

(1) Gregory, Beck, and Prifling (2009): Breaching the Knowledge Transfer Blockade in IT Offshore

Outsourcing Projects: A Case from the Financial Services Industry

Reciprocity

Positive attitudes towards knowledge sharing and collaboration contribute to successful knowledge transfer. In this regard, procedural coordination is especially important in offshore outsourcing projects that are typically labor-intensive and frequent client–vendor interaction is the rule for enabling procedural coordination and the effective communication and transfer of client-specific knowledge; this refers to the capability of individual project members to broker and mediate the relationship between client and vendor by ensuring that accurate and pertinent information and knowledge is shared between team members.

Balance

To sustain the exchange of information, client firms cannot rely solely on the vendor's capacity for transfer capacity; they must also proactively absorb the necessary knowledge, such as business knowledge and functional knowledge, and so make knowledge transfer explicit using both formal and informal mechanisms to transfer such knowledge.

Cohesion

A major barrier to knowledge transfer is a fear of losing control or ownership of knowledge. However, another factor is the uncertainty that adequate rewards will accrue from sharing knowledge, and this can present a significant psychological impediment to transfer. Together, these contribute to reluctance to devote time and resources to the transfer of knowledge. The project manager is the key to fostering cooperation in sharing knowledge between client and vendor; likewise, this position is important to creating a supportive environment in which positive intrinsic and extrinsic motivational forces can grow and simultaneously serve to lessen the impact of negative forces. Moreover, vendors must involve themselves in the transfer, accumulation, and use of business knowledge, process knowledge, and functional knowledge in the client–vendor relationship.

Power

Gregory and his colleagues offered the inference that power in this context is the power to breach the knowledge transfer blockade. The management mechanisms pertaining to motivational, formal, and

informal factors that give managers precise recommendations regarding how to manage the knowledge transfer processes must be used more proactively and effectively as the fundamental power underlying communications between client and vendor at the organization, group, and individual levels.

(2) Datta and Saad (2008): Social capital and university–industry–government networks in offshore outsourcing: The case of India

Reciprocity

Leveraging personal and social ties is the way to manage uncertainty in reciprocal relationships among partners. Social ties, then, constitute social capital for firms engaged in such exchanges. In this regard, the role of social capital could be further specified by suggesting that this resource is particularly useful in identifying potential exchange partners in offshore outsourcing. The buyer often searched for potential partners through existing social ties, and existing social ties among potential exchange partners were regarded as the social capital of both the partners. This is the key to reducing uncertainties in such exchanges and facilitating technology transfer.

Balance

Datta and Saad noted that three different institutions, university, government, and industry, collaborated intensely on knowledge, so that transfer developed in a rapid and sustainable fashion. This was the seed of co-evolution that Datta and Sadd called the "triple helix. The co-evolution started to gradual blur the boundaries of the three institutions, and such boundaries as remained became quite permeable. As a result, actors within each sphere cooperatively join in the production of new forms of knowledge, innovation.

Cohesion

Since offshore outsourcing pursuits are perceived as high risk, Datta and Sadd suggested that the only way to strengthen ties between partners is to leverage personal and social ties fundamental to establishing the social capital of firms engaged in an exchange relationship. To a certain extent, the social capital of a firm is in fact constituted by the collective social capital of all the individuals working within the firm. Therefore, the creation of a sustainable institutional social tie depends fundamentally on leveraging personal ties.

Power

The role of social capital was identified as a critical resource for assessing potential exchange partners. These ties were of great significance, as they were the source on which the initial trust was founded. Therefore, trust is considered an essential ingredient in offshore outsourcing because it helps to lessen the sense of uncertainty and to create a trustworthy environment in which to pursue economic and knowledge exchange. Explicitly, the level of social capital affects a firm's identifying potential exchange partners in offshore outsourcing partners.

(3) Lee, Huynh, and Hirschheim (2008): An integrative Model of Trust on IT Outsourcing: Examining a Bilateral Perspective

Reciprocity

Lee, Huynh, and Hirschheim proposed a trust-based relationship research model to assess perceived IT outsourcing success in terms of (1) mutual trust with its temporal dimension of initial trust and initial distrust, and (2) knowledge sharing with the moderating effect of mutual dependency. In other words, reciprocity is a function of trust. Knowledge transfer is a form of trust consequences.

Balance

Balance is implicitly perceived as a consequence of pursuing a shared vision and achieving a common goal. Both the service provider and the service receiver would feel more committed, therefore, if they were to empower each other with more knowledge so as to best serve their mutual interest. In addition, knowledge overlapping at a later stage of knowledge sharing is considered a catalyst that expedites the transfer of knowledge.

Cohesion

Lee, Huynh, and Hirschheim implicitly articulated cohesion in terms of mutual dependency, itself an influence on both mutual trust and knowledge sharing. The degree of mutual dependency affects the quality of outsourcing relationships; however, in their study, Lee and colleagues did not find that mutual dependency has a significant effect on knowledge sharing. So, they concluded that when the outsourcing service receiver and provider had developed mutual trust, they were more likely to perceive that their

knowledge sharing is not driven by the degree of mutual dependency but rather by the level of trust with one another. That is, the existence of mutual dependency is more prevalent in a situation of potential double moral hazard, in which the relationship is asymmetric and the knowledge is transferred rather than shared. However, in a tightly coupled relationship, the feeling of mutual trust among the parties involved is much stronger and more prevalent than that of mutual dependency.

Power

The concept of power was absent from Lee et al.'s study.

Trust

Lee and colleagues asserted that trust is at the heart of successful IT outsourcing. They identified mutual trust as a key factor contributing to alliance success as well as alliance performance. Mutual trust in an outsourcing relationship is similar to that in other relationships because it involves interactions between a customer and a service provider. These interactions often go beyond the rules, agreements, and exceptions specified in a legal contract, because quite often partners commit themselves and make contributions to the relationship that exceed the specifications of the contract. Lee and colleagues emphasized that mutual trust plays an important role; however, the trust-related elements are intangible and not easily captured in a contract. For Lee and colleagues, mutual trust is a necessary but not a sufficient condition for outsourcing success, especially in a knowledge-rich phenomenon such as IT outsourcing. The existence of a trust-based relationship, therefore, does not necessarily lead to successful outsourcing.

(4) Muthusamy and White (2008): Learning and Knowledge Transfer in Strategic Alliances: A Social Exchange View

Reciprocity

Muthusamy and White stated that reciprocity inheres in a sense of duty to a given venture and the other partner; it forms the basis on which problems are addressed and solved. Mutuality of commitment reduces the uncertainty for the parties and enhances the scope for mutual adjustments in the relationship. This provides a basis for meaningful communication between partners for joint decision-making, resulting in a

high degree of information exchange. Once the commitment takes place, partners learn about each other and create new skills and competencies to complement the resources and information.

Balance

Balance implicitly co-exists with cohesion and power. In this regard, balance is perceived as a function of ongoing relation-and-time, power, and cohesion. Defined by a symmetric power in the relationship, balance is achieved when partners have the same capability to affect the decisions of the other. In this context, balance depends heavily on marketing strategy, R&D, technology, and finance-related matters.

Cohesion

Muthusamy and White defined cohesion as a symmetric power relationship. In this context, power in inter-organizational relationships refers to the extent of one party's influence over the other in terms of determining decision variables that are significant for achieving the objectives of the alliance. Power relationships could be symmetric (or balanced), where both parties have the same capability to affect the decisions of the other; but when the power relations are asymmetric (or unbalanced), a stronger party has greater control or influence than the weaker party. The nature of mutual influence and control is determined by the balance of power in the relationship.

Power

Muthusamy and White specifically defined power as coercive. In essence, if the power demands are too severe, relinquishing the benefits of dependence may be preferable to yielding to the demands of the stronger party. Asymmetric power in an alliance relationship interferes with joint problem-solving, because the weaker partner may perceive itself as being unduly exploited and may guard against it. Such a defensive mind-set severely taxes the ability of partners to exchange knowledge in unbalanced power contexts. In general, all unbalanced relationships are inherently unstable. The restricted use of power may be a fundamental shift in the policies of a firm entering a long-term strategic alliance relationships

Trust

Muthusamy and White argued that the conceptualization of trust in an inter-organizational relational context is influenced by two major concepts: (1) reliance and (2) risk. Reliance is conditionally defined by one's confidence in or the predictability of another's behavior, and confidence in another's fairness or

goodwill, whereas risk is an uncertainty that a party in an alliance will experience negative outcomes from untrustworthy behaviors of the other party. Such collaborative behaviors in the form of self-disclosures, information exchange, and cooperative problem-solving positively contribute to strengthening trust.

(5) Tiwana and Keil (2007): Does Peripheral Knowledge Complement Control? An Empirical Test in Technology Outsourcing Alliances

Reciprocity

Tiwana and Keil heavily stressed that the topmost priority for incubating reciprocity is that partners in the network restructure organizational management parameters. These parameters are a CIO function: partnership management, architectural planning, emerging technologies, and continuous training system. Outsourcing firms sometimes need knowledge outside their core domain because such knowledge facilitates effective alliance governance and also peripheral knowledge complements the core knowledge transfer. In this regard, strategic alliances allow outsourcing firms to specialize more deeply in their respective domains of core competence without being distracted by non-core activities. The motivation for forming outsourcing alliances is that of accessing specialized knowledge that is so removed from the outsourcer's core activities that it might not even exist in the outsourcing firm.

Balance

The construct of balance was not included in Tiwana and Keil's study.

Cohesion

Cohesion was absent from Tiwana and Keil's study.

Power

Effectively controlling outsourcing alliances using outcome-based controls appears to actually require peripheral knowledge of outsourced activities. In this regard, peripheral knowledge is considered the source of power to take control over outsourcing alliances. Control in this context refers to the process and rules governing actions by the outsource firm in a way that promotes desirable outsourcing, and is implemented by the outsourcer firm (the controller) through a variety of control mechanisms that attempt to influence outsourcees to behave in ways consistent with achieving the outsourcer's alliance objectives.

(6) Weeks and Davis (2007): Technology and Knowledge Transfer within Outsourcing Relationships—

The Development of a Model of Inter-organizational Innovation

Reciprocity

Weeks and Davis stressed that client and supplier must fully engage the relation component and proactively develop and maintain independent absorptive capacity. By pursuing this recommendation, the client and supplier will not only accelerate knowledge transfer, but also create a knowledge overlap that could in turn enhance their own knowledge, hence innovation. Weeks and Davis proposed a four-component model of inter-organizational innovation that focused on the three components (the client, the supplier, and the relationship). They, however, treated the fourth component, innovation outcomes, as a result from the interrelationships of the three components.

Balance

Balance was absent from Weeks and Davis's study.

Cohesion

The links between the client and supplier organizational structures are a critical dependency that could impact knowledge transfer process and innovation outcomes. Client and supplier had to develop compatible absorptive capacity and an organizational control structure to order to enjoy knowledge transfer and forge an innovation by using the relationship component as an operational platform.

Power

It seemed as though power was absent from Weeks and Davis's study. However, they did remark that power could be an issue if one firm were significantly larger than the other.

(7) Miesing, Kriger, and Slough (2007): Towards a Model of Effective Knowledge Transfer within Transnationals: The Case of Chinese Foreign Invested Enterprises

Reciprocity

Miesing and his colleagues highlighted that effective intra-organizational knowledge depends on the creation of social capital between members in a collective transnational strategy. Moreover, this also requires bi-directional knowledge flows to and from parent and subsidiaries and throughout the rest of the

organization's system. This requires high levels of trust, the building of tighter interpersonal bonds, the development of active networks, a receptivity to learning, and shared norms of reciprocity. This could be achieved by crafting HR policies to facilitate norms of reciprocity by rewarding business units committed to developing intra-organizational relationships, and by cultivating collaboration designed to pay off in term of an organizational culture focused on creating, sharing, and using knowledge throughout the firm over extended periods of time.

Balance

Balance was absent from Miesing et al.'s study.

Cohesion

A necessary condition for effective knowledge transfer is thus the willingness and ability of the organization's units to adapt and apply new knowledge even if it come from outside the organization's or unit's boundaries. An organization's capacity to use new knowledge depends on its receptivity. As suggested by Miesing and his colleagues above, HR's policies are very important to amplifying social interactions and communication that in turn facilitates learning culture.

Power

Power was absent from Miesing et al.'s study.

(8) Rottman (2008): Successful Knowledge Transfer within Offshore Supplier networks—A Case Study Exploring Social Capital in Strategic Alliances

Reciprocity

Based on Inkpen and Tsang's (2005) model, Rottman re-asserted that strategic alliance better demonstrates salient social capital dimensions and the conditions and practices that facilitate knowledge transfer. It was proved to improve knowledge transfer and productivity in terms of manufacturing and quality control development. Furthermore, strategic alliance practice greatly helped to build strong, strategic relationships with its suppliers.

Balance

Balance was absent from Rottman's study.

Cohesion

Rottman articulated a good practice that can strengthen partnerships in term of a collective practice series of network ties and configurations, shared goals and culture, and trust. The amplification of these qualities (in 8 dimensions) would result in an increasingly stable network, reduce cultural barriers, encourage the sharing and understanding of common goals, and strengthen network ties, thus facilitating effective knowledge transfer.

Power

Power was absent from Rottman's study.

(9) Inkpen and Tsang (2005): Social Capital Networks and Knowledge Transfer

Reciprocity

Inkpen and Tsang defined a strategic alliance as a group of firms entering into voluntary arrangements that involve exchange, sharing or co-development of products, technologies, or services. Building on the work of Nahapiet and Ghoshal (1998), Inkpen and Tsang proposed a cognitive dimension framework that encompasses the idea of shared cultural goals and vision, suggesting that shared goals represent the degree to which network members share a common understanding and approach the achievement of network tasks and outcomes. Within a strategic alliance, achieving a cultural understanding is the key to successful knowledge transfer

Balance

Balance was absent from Inkpen and Tsang's study.

Cohesion

From a strategic alliance view, goal clarity reduces inter-partner conflict by facilitating the negotiation and establishment of shared goals. Once partners clarify and share understanding of their goals, a foundation of common understanding meant to achieve the collaborative purpose can be established among the partners.

Power

Power was absent from Inkpen and Tsang's study.

(10) Haghirian (2003): Does Culture Really Matter? Cultural Influences on the Knowledge Transfer

Process within Multinational Corporations

Reciprocity

Haghirian emphasized that four influences affect the successfulness of knowledge transfer: knowledge-specific influences (tacit knowledge, knowledge ambiguity); organization-specific influences (structural organization, corporate culture); and person-specific influences (organizational routines, power status). However, Haghirian underscored that understanding cultural influences is the most important factor for establishing a strong relationship, increasing acceptance and trust, and finally facilitating knowledge transfer among subunits.

Balance

Balance was absent from Haghirian's study.

Cohesion

Haghirian emphasized the significance of cultural aspects of cooperation in knowledge transfer, organizational structure culturally defined protocols in connections, and communications between individuals both within and across these boundaries. The values and views rooted in a company influence attitudes and behavior, such that certain norms come to be taken for granted. But people can also become more conscious of these values and views. Therefore, it is necessary to invent methods of knowledge transfer that are compatible with the culture of an organization; this is critical because a culture that promotes change and innovative behavior per force tends to encourage active exchange of ideas and increased knowledge transfer.

Power

Power was absent from Haghirian's study.

(11) Zineldin and Bredenlow (2003): Strategic Alliances: Synergies and Challenges. A case of strategic

outsourcing relationship "SOUR"

Reciprocity

Zineldin and Bredenlow broadly viewed strategic alliances as agreements among firms to work together to attain some strategic objective. Cooperation could take the form of research and development partnerships, since outsourcing is a typical form of strategic alliance. Partner developing of a long-term strategic outsourcing reciprocity requires moral, ethical standards, trust, and a willingness not to exploit the new relationship at the expense of long-term cooperation.

Balance

Balance was absent from Zineldin and Bredenlow's study.

Cohesion

Strategic outsourcing relationships need a specific management strategy whereby companies re-organize their management style in accordance with their partners since the management strategy contributes to equilibrium. In the big picture, Zineldin (1998, cited in Zineldin and Bredenlow, 2003) identified certain criteria needed to achieve mutual interdependence of all the partners: individual willingness, motivation, strategic fit; interdependence, cultural fit; organizational arrangements, and institutionalization, integration and integrity. However, they accepted that their mode entails a patience-payoff that takes some time to make visible the strong-tie relationship derived from the partners' mutual commitment.

Power

Retaining power and yet becoming dependent on a partner's resources could be viewed as being in conflict. This conflict contributes to an alliance's failure to meet expectations. Lack of recognition of the close interplay between the overall strategy of the company and the role of a strategic alliance could lead a firm to such failure.

(12) Koka and Prescott (2002): Strategic Alliances as Social Capital: A Multidimensional View

Reciprocity

Firms acquire strategic alliances to access capabilities necessary for competitive advantage. Koka and Prescott drew the conclusion that the level of cooperation depends on the social capital a firm can offer to a partner. In this respect, there are three distinctly different kinds of information benefits in the form of information volume, information diversity, and information richness.

Balance

Balance was absent from Koka and Prescott's study.

Cohesion

The key to integrating and reconciling the seemingly different measures and operationalizations of social capital lies in the fact that this study focuses on understanding the differential information benefits available to firms through their alliances. Firms vary in their levels of social capital, not just on their structural position in an alliance network, but also in the dynamics that underlie alliance formation and maintenance. The different dimensions of social capital provide differential benefits. Although the construct of social capital itself has found widespread acceptance, the meaning, measures, and effects are confusing and unclear, and this idea is in accordance with Portes and Landolt (1996). Being able to access the available social capital, in terms of information benefits available to a firm is necessary if competitive advantage is to accrue. However, Koka and Prescott did not explore the qualities of social capital, nor did they investigate how it could be operationalized for all the partners.

Power

The available social capital, in term of information benefits available to a firm, mean that an access capability is necessary for competitive advantage. However, Koka and Prescott did not state how social capital could be operationalized for all the partners.

(13) Bresman, Birkinshaw, and Nobel (1999): Knowledge Transfer in International Acquisitions

Reciprocity

Through being in alliances, joint ventures could be motivated by an organizational learning imperative and be used for the transfer of organizationally embedded knowledge that cannot be easily blueprinted or packaged through licensing or market transactions. In the early stages, knowledge transfer is mostly one-way; that is, it is delivered from the acquiring to the acquired unit, and typically imposed. In the later stages, knowledge transfer moves in both directions and reciprocal transfer is more frequent.

Balance

Balance is implicitly represented in a function of ongoing relation-and-time, power, and cohesion. At the beginning, the balance is less evident since the knowledge transfer is carried out in a one-way direction. However, in later stages, the transfer becomes more bi-directional, and this creates a balance in term of power between two partners.

Cohesion

In this regard, the level of communication including the number and quality of visits and meetings are regarded as significant predictors of the success of knowledge transfer; this tie is seen as capable of holding the alliances together and strengthening the partnership. Henrik and his colleagues found that among the modes of governance, alliances, joint ventures, and licensing arrangements displayed very strong reciprocal ties that in turn fostered cooperation in knowledge transfer.

Power

Although knowledge transfer increased over time, the quantity, quality, and type of transfer created an imbalance of power in the early stages of knowledge transfer, as knowledge transfer is mostly one-way at the very beginning—from the acquiring to the acquired unit. However, in the later stages, once knowledge transfer has become more directional and reciprocal, the power seems to accrue more to one party, hence the power imbalance

(14) Lam (1997): Embedded Firms, Embedded Knowledge: Problems of Collaboration and Knowledge Transfer in Global Cooperative Ventures

Reciprocity

Lam highlighted the human-network-based communication as the key factor in establishing a convenient environment for individuals and teams in alliances to intensively, socially, and technologically collaborate across functions. Interactions throughout the product development cycle help disseminate and use certain tacit knowledge required for overall project achievement. In this regard, tacit knowledge is stored "organically" in team relationships and transactional routines, and the only way to extract such knowledge is through human-network-based communication taking place in a structurally supportive climate.

Balance

Balance was absent from Lam's study.

Cohesion

Lam found that partners with compatible governance and well-structured task designs are satisfied with knowledge transfer outcomes, and this in turn boosts the level of cooperation and communication. On the other hand, differences in the organization of knowledge and work between firms in different societal settings can seriously inhibit collaborative work and impede effective knowledge transfer across national boundaries. Interestingly, Lam suggested cross-cultural management as an influential factor driving the successfulness of cross-border collaborative work and knowledge transfer.

Power

The embedded nature of knowledge and organization systems acts as a socially constructed facilitator or impediment in terms of the relative success of a collaboration and, thus, the effectiveness of knowledge transfer. The degrees of tacitness of knowledge between the partner firms can cause difficulties in knowledge sharing, effecting an asymmetry in its transfer. In other words, incompatibility in knowledge structures and work systems between partner firms can generate multiple difficulties and conflicts in joint work. Therefore, a firm with better governance forms and task structures would be better served by gaining knowledge from its partners.

(15) Mowery, Oxley, and. Silverman (1996): Strategic Alliances and Inter-firm Knowledge Transfer

Reciprocity

Alliances in the form of equity joint ventures yield effective conduits for the transfer of complex capabilities that are contract-based, such as licensing agreements. In addition, the strength of the partnerships among the alliance partners depends on the pre-alliance relationships among the partners' portfolios, and this affects the level of reciprocity that contributes to successfulness in inter-firm knowledge transfer.

Balance

Balance is implicitly more evenly distributed when partners in an alliance overlap more in terms of technological capabilities. In this regard, balance is a function of the ongoing connections between relation-and-time, power, and cohesion.

Cohesion

At the very beginning, the quality of the pre-alliances affects the way that a firm visualizes the portfolios of its partners. Mowery and colleagues recommended that a firm could improve its portfolio by locating its own firm-specific capability. This would help the firm's partners to measure the capacity, the knowledge structure, and their own system the firm, through which to facilitate the process of knowledge transfer.

Power

The power belongs to firms with more diverse technological portfolios in term of patents and technological advancement. Thus, larger firms with more technology tend to have more power in the alliance. However, smaller firms with smaller technological portfolios acquired technological knowledge from larger firms with better portfolios over time, as a smaller firm gains an opportunity to avail itself of higher levels of technological overlap, which increases the similarity between the firms' technology portfolios, and so results in higher absorptive capacity for the smaller firm.

(16) Gulati (1995): Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances

Reciprocity

Gulati (1995) argued that organizational members of partner firms in alliances work together directly from their own organizational confines. Alliances include unidirectional agreements, such as licensing, second-sourcing, and distribution agreements, and bidirectional agreements, such as joint contracts and technology exchange agreements. Firms develop reciprocity through alliances based on R&D activities and the existence and closeness of prior ties with a given partner.

Balance

Balance was absent from Gulati's study.

Cohesion

Although cohesion is absent from this study, Gulati broadly articulated cohesion as a function of time, power and, especially, trust. In this regard, the strength of an alliance relation between partners is greatly interchangeably influenced by the perception of the levels of trust found in the relationship.

Power

Gulati implicitly articulated power in terms of the partners' size, technological sophistication, resource constraints, and prior experiences with alliances. These qualities could contribute to opportunistic behavior. A partner with greater resources thus has the power to negotiate. This idea is in accordance with Osborn and Baughn's (1990) position that the respective size of the partners is an important determinant of the governance structure of alliances.

Trust

The idea that trust emerges from prior contact is based on the premise that through ongoing interaction, firms learn about each other and develop trust around norms of equity. Trust counteracts fear of opportunistic behavior and as a result, is likely to limit the transaction costs associated with an exchange and this is so whether the firms are connected with one another directly or indirectly. Within such a dense social network, reputational considerations play an important role in each firm's potential for future alliances. Another benefit of trust is that it reduces the costs associated with identifying and seeking new alliances with trustworthy partners; this is an important point given that considerable effort and expense can be devoted to these processes.

Author	Reciprocity	Balance	Cohesion	Power
Gregory, Beck, and Prifling (2009)	Intensity and frequency of client–vendor interaction; capability of individual project members to broker and mediate the relationship between client and vendor	Transfer capacity	Fear of losing control or ownership of knowledge	Power to breach knowledge transfer blockade through managerial mechanisms
Datta and Saad (2008)	Leverage personal and social to manage uncertainty in reciprocal relationships among partners; role of social capital could be further specified by suggesting that this resource is particularly useful in identifying potential exchange	Co-evolution to blur the firms' institutional boundaries	Creation of a sustainable institutional social tie through personal ties	Critical resource for accessing potential exchange partners
Lee, Huynh, and Hirschheim (2008)	Mutually dependent trust-based relationship	Knowledge overlap	Degree of mutual dependency	N/A
Muthusamy and White (2008)	Sense of duty to a given venture and the other partner	Balance implicitly co-exists with cohesion and power; balance is perceived as a function of ongoing relation-and-time, power, and cohesion	Symmetric power relationship: both parties have the same ability to affect the decisions of the other; nature of mutual influence and control is determined by balance of power in the relationship	Coercive asymmetric power in an alliance relationship interferes with joint problem-solving, because the weaker partner may perceive itself as being unduly exploited and may guard against it; such a defensive mind-set severely taxes the ability of partners to exchange knowledge in unbalanced power contexts
Rottman (2008)	Salient social capital dimensions and conditions and practices that facilitate knowledge transfer can improve knowledge transfer and productivity in terms of manufacturing and quality control; strategic alliance practice can build strong strategic relationships suppliers	N/A	Collective practice series of network ties and configurations, shared goals and culture, and trust; amplification of these qualities results in an increasingly stable network	N/A

Table 4.4 Summary of 16 Studies Analyzed According to Contemporary SET Constructs

Author	Reciprocity	Balance	Cohesion	Power
Tiwana and Keil (2007)	Network partners restructure organizational management parameters; strategic alliances help outsourcing firms access specialized knowledge removed from the outsourcer's core activities	N/A	N/A	Peripheral knowledge used to control outsourcing alliances, that is, the processes and rules governing the outsource firm's promotion of desirable outsourcing, and the mechanisms by which it influences outsourcees' behavior to meet alliance objectives
Weeks and Davis (2007)	Client and supplier must fully engage in the relationship and also develop and maintain independent absorptive capacity; this can accelerate knowledge transfer and create a knowledge overlap with possibility of promoting innovation	N/A	Compatibility in absorptive capacity, organizational control structure, and operational platform	The firm's technological capacity and size.
Miesing, Kriger, and Slough (2007)	Creation of social capital between members in a collective transnational strategy; this requires high levels of trust, the tight interpersonal bonds, active networks, receptivity to learning, and shared norms of reciprocity	N/A	Adaptability, willingness, and application of new knowledge even if it comes from outside the organization's or unit's boundaries; HR policies amplify social interactions and communication	N/A
Inkpen and Tsang (2005)	Cognitive dimension framework that encompasses shared cultural goals and vision for achieving cultural understanding	N/A	Goal clarity reduces inter-partner conflict and facilitates the negotiation and establishment of shared goals	N/A
Haghirian (2003)	Cultural implications for acceptance and trust	N/A	Cultural aspects of cooperation in knowledge transfer, organizational structure culturally defined protocols in connections, and communications between individuals within and across these boundaries	N/A

Table 4.4 Summary of 16 Studies Analyzed According to Contemporary SET Constructs (cont.)

Author	Reciprocity	Balance	Cohesion	Power
Zineldin and Bredenlow (2003)	Strategic alliances as agreements through moral, ethical standards, trust, and a willingness not to exploit new relationship at expense of long-term cooperation	N/A	Mutual interdependence of partners: individual willingness, motivation, strategic fit; interdependence, cultural fit, organizational arrangements, institutionalization, integration, and integrity	Dependency on the partner's resources
Koka and Prescott (2002)	Firms acquire strategic alliances to access capabilities necessary for competitive advantage through social capital	N/A	Operationalization of social capital	Available social capital
Bresman, Birkinshaw, and Nobel (1999)	Through alliances, joint ventures obtain knowledge packaged through licensing or market transactions; in early stages, knowledge transfer is mostly one way	Function of ongoing relation-and-time, power, and cohesion; initially, balance is less evident since knowledge transfer is one way direction; later, transfer becomes bi-directional to create balance of power	Capacity to hold alliances together and strengthen partnership through different modes of governance, alliances, joint ventures, and licensing arrangements	Quantity, quality, and type of transfer creates imbalance of technological knowledge in early stages of knowledge transfer, as knowledge transfer is mostly one way at first
Lam (1997)	Human-network-based communication is key factor in establishing a convenient environment for individuals and teams in alliances	N/A	Compatible governance, well-structured task design, and differences in the organization of knowledge and work between firms in different societal settings are important in determining the collaboration's success	Firm with better governance forms and task structures is better at exchanging knowledge from and to its partners.
Gulati (1995)	Alliances through unidirectional agreements, such as licensing, second-sourcing, and distribution agreements, and bidirectional agreements, such as joint contracts and technology exchange agreements; alliances based on R&D activities and existence and closeness of prior ties	N/A	Function of time, power and, especially, trust; strength of relationship is influenced by the perception of trust levels in the relationship	Partners' size, technological sophistication, resource constraints, and prior experiences with alliances; the partner with greater resources has more power to negotiate

Table 4.4 Summary of 16 Studies Analyzed According to Contemporary SET Constructs (cont.)

Author	Reciprocity	Balance	Cohesion	Power
Mowery, Oxley, and Silverman (1996)	Equity joint ventures of partner's complex capabilities; strength of partnership depends on pre-alliance relationships among the partners' portfolios.	Technological capabilities overlap	Initial quality of pre-alliances affects the way firms visualize the portfolios of partners; firms measure its partner's capacity and knowledge structure	Larger firms with more technology tend to have more power in an alliance

Table 4.4 Summary of 16 Studies Analyzed According to Contemporary SET Constructs (cont.)

CHAPTER 5

DISCUSSION

5.1 Summary of the Social Exchange Theory's Construct

As evidenced by the findings, this study established that the information sciences research pertaining to knowledge transfer in cooperative–competitive environments makes some good use of contemporary social exchange theory constructs, explicitly and implicitly. Most of the studies analyzed in this thesis were relevant to all four constructs of the contemporary social exchange theory proposed by Dibbern (2004). Whereas all the articles selected related to "reciprocity" and "cohesion," several do not address "balance." In addition, still others explored neither the "balance" nor the "power" construct. Nevertheless, as a whole the articles evinced some common trends in terms of the applications of contemporary SET concepts to information sciences research.

In general, all the articles relating to knowledge transfer in cooperative–competitive environments identified reciprocity and cohesion constructs because the articles themselves are characterized by an interest in maintaining cooperation (and competition). In fact, reciprocity and cohesion were seen as epistemologically interconnected in a particular way. That is, the studies tended to define cohesion as a strength of the exchange relation that worked in a cyclical way to iteratively reproduce reciprocity and thus cohesion itself. Thus, it can be stated that reciprocity coexists with cohesion in social exchange transaction.

Almost all the selected articles paid only slight attention to the balance construct, and it may be that it is problematic to separate this construct from cohesion and, especially, from power. From a theoretically structural analysis, balance, power, and cohesion are perceived as fluid, and the balance appears naturally formulated as a function of an ongoing connection between relation-and-time, power, and cohesion. The finding of the coexistence of power and balance is compatible with Yamagishi and Cook's (1992) idea that

the point at which two actors are "equally" dependent upon the relationship is the point at which a "power-balance" is created. In addition, the finding of the coexistence of power and cohesion is also compatible with Molm (1985) and Lawler's and Ford and Blegen's (1988) concept of average total power. In this regard, it would not be theoretically surprising to see power and balance disappear altogether from the contexts of the articles selected.

Broadly speaking, contemporary social exchange theory in information sciences can be understood in the context of knowledge transfer issues in cooperative–competitive settings in the following ways:

1. Reciprocity is carried out through strategic alliance concepts that are presently considered one of the salient themes in this thesis.

2. Balance appears to co-exist with cohesion and power. Most of the time, balance served theoretical analysis as a function of the ongoing relation-and-time, power, and cohesion. Interestingly, balance has not at any time been a dominant theme in any discipline from the early 20th century onwards.

3. Cohesion appears to co-operationalize with reciprocity due its mechanically inter-dependent and cyclical function in which both are reproduced. In addition, communication and pre-alliance relations are considered a predominant theme that can be fitted into the cohesion construction.

4. Power resides in the form of information asymmetry through which the holder attempts to exert influence over the other in order to achieve certain objectives, such as exploiting certain organizational research.

5. *Trust*, an additional construct that arose occasionally in the articles, is usually encapsulated in reciprocity, balance, and cohesion as a motivation for partners to stay committed to the relationship.

Interestingly, trust is not included as a construct of SET, but the findings do show that certain authors explicitly treat trust as a construct. In addition, trust appears to become increasingly significant when the transfer environment is hostile and vulnerable to opportunistic behavior by the partners in the alliance. In fact, trust deserves recognition as a promising relational construct (Dirks and Ferrin, 2002), and it is also considered an important predictor of favorable social exchange as an outcome (Blau, 1964; Holmes, 1981). Many empirical studies in organizational behavior have shown that the levels of trust perceived on both individual and collective levels contribute to organizational performance and productivity (Avoilio, 1999; Aryee, et al., 2002; Bass, 1998; Konovsky and Pugh, 1994; Pillai et al., 1999). Unfortunately, trust is still underrepresented in term of SET applications (Cropanzano and Mitchell, 2005).

5.2 Assessment of Social Exchange Theory in Information Literature

As concluded in the previous section, this thesis has shown that SET is robust in terms of its use in information sciences research. Basically, certain SET constructs have already been used to advance understanding in the information sciences literature, particularly in the areas of knowledge transfer in cooperative–competitive environments, which was previously dominated by knowledge-based theory, transaction cost theory, agency theory, and game theory. In this regard, SET deserves recognition as a viable theory for incorporation into information sciences studies. In addition, another way to make extensive use of SET is to pursue theory modification. For example, some of the knowledge transfer literature found that the aspect of trust has important implications; therefore, information sciences researchers should capture this emerging construct in order to investigate the psychological aspects of certain contemporary knowledge transfer issues.

In this regard, SET deserves recognition as a viable theory for incorporating into information sciences studies. However, more work on theory modification must be done in order to make SET more precise for and useful to information sciences researchers pursuing knowledge transfer studies with reference to a variety of underlying contexts.

In order to make extensive use of SET, it is necessary to modify the theory that constitutes it. As the findings show, two considerations are of particular interest in determining modifications to the theory: the notion of balance may need more research attention and the emerging concept of trust may also be significant enough to warrant extending SET.

First, the construct of balance was missing from most of the selected articles—an omission that gives rise to two pressing questions: (i) Have researchers paid sufficient attention to identify issues inherent in the construct of balance to warrant its omission from their studies, or have they simply overlooked this construct? (ii) Is the construct of balance not fitted to knowledge transfer studies, such that its exclusion is legitimate? Regarding the findings, if the researchers were to include the construct of balance, it may well serve the SET framework as an auxiliary construct. Balance is likely to co-exist with cohesion and power, and balance could be considered a function of ongoing processes relating to relation-and-time, power, and cohesion. In this regard, balance could be a relatively dependent construct rather than a core construct. However, this idea may only be applicable to knowledge transfer under cooperative–competitive settings.

Second, at first glance, trust, in certain selected articles, seems to be an important independent construct. However, trust is functionally different from the four constructs. Reciprocity, balance, cohesion, and power lay out behavioral actionable patterns (guidance) for facilitating social transactional exchanges and, in turn, for strengthening the relation between partners. In other words, they are not merely a group of discrete constructs; instead, they constitute an actionable and quantifiable template that guides individuals to advance and strengthen in an ongoing way the relationships between partners. Trust, though, describes a

quality of the relationships, is important in constructing and maintaining relationships, but should not serve as an additional SET construct.

Based on this limited collection of articles, it may be too early to comment on the likely future trends of information science research and SET for investigating knowledge transfer issues in cooperative–competition environments. Nevertheless, the findings do suggest that SET has great potential in information sciences research. Theoretically, the challenge for the information science researcher is that of developing SET frameworks to suit interdisciplinary research paradigms, like that of the I-School.

5.3 Critique of SET

SET is aimed at being a unifying and integrating theoretical paradigm for social science and social psychology (Zafirovski, 2005). Ever since Homans introduced SET to social science disciplines in the late 1950s, SET has been receiving substantial response from social scientists across the disciplines. One of the strongest contemporary critiques has come from Miller's work (2005). According to Miller (2005), SET seems to play down the role of human interaction in favor of and purely operationalizing rational economic theory. He further argues that the constructs of the theory are too open, which renders difficulties in interpreting the SET constructs. In addition, the theory conceptualizes the relationships as a linear structure while the relationships in the real world involve a variety of parameters and uncertainty that might not be that simple.

As much as Homans and Blau asserted that SET was a sociological paradigm exemplifying human's social interaction, Mitchell (1978) argued that their view just overlooked the interpersonal and inter-group transaction that were carried out through the rational operation of economic and psychological means. This, in turn, defined the role of social behavior in gaining access to rewards while avoiding punishment. Later, Cook (2000) examined Mitchell's (1978, p. 168) argument and agreed that the relations operationalized in SET were actually formed and generated by the economic exchange.

According to Zafirovski (2005), SET seems to mould itself to economic concepts whose foci were heavily placed on self-interest toward maximizing utilities and profitability, leading to the implication of economic power. In this regard, Homans argued that power was directly collated to the centrality of actors' network positions in term of the economic assets and resources (Bonacich, 1987). The counterargument was that the diffusion of power could be taken for granted since it could actually be derived from a promising proposition (Markovsky et al., 1990, p. 300) a concession (Cook and Yamaguchi, 1990, p. 297), or the perception of power on other different standards (Burge, 1997). However, according to Willer et al. (1989), most of the social scientists subscribed to the notion of power which was implicitly defined as resources within network structures.

5.4 Future Research

According to the present study's findings, SET is useful for knowledge transfer studies in cooperative–competitive environments given that numerous information sciences researchers have made both explicit and implicit use of SET in their work. In addition, SET also has theoretical implication for understanding and negotiating the cultural perspectives embedded in social transactions governing exchange mechanisms, thus helping to articulate the complicated process of knowledge transfer in settings where culture is regarded as a potentially powerful facilitator/barrier. Through this lens, SET enables researchers to unfold why some knowledge transfer pursuits in certain settings are successful while others are not.

Future research opportunities lie in indentifying an outcome from interactions among each factor in contemporary SET's constructs. However, the selected studies seemed to showcase empirical evidence regarding the extent to which certain strategic alliances have proven viable in constructing and sustaining knowledge-transfer transactions among firms in a network. Although SET has contributed to our understanding of trading-type relationships in several disciplines, there is considerable opportunity to apply SET to problems in information science, and this is markedly so in cooperative–competitive environments such as IT-outsourcing businesses. There are opportunities for information scientists to build on earlier

work in economics, sociology, and anthropology, particularly to explore knowledge transfer between individuals and groups of individuals and the roles of knowledge brokers in these transactions. The results of such research have the potential to satisfy both intellectual curiosity and deliver business benefit. Studies that draw on SET to make sense of knowledge-sharing relationships in distributed working environments may generate results that point to an appropriate balance of rewards, conditions, and infrastructure for effective knowledge exchange.

A case in point is the PFI knowledge-transfer effort taking place along the I-99 corridor. In this ongoing NSF-funded multiyear project, the Penn State faculty team has encountered problems communicating with business owners. The different emphases of the two groups are quite clear in this context: the researchers evince a scientific emphasis (theory, rigor); the business owners evince a more practical emphasis (praxis, relevance) toward science and knowledge. Therefore, knowledge heterogeneity and knowledge contextuality create difficulties in communications between the University (faculties, researchers) and the local SMEs (business owners). In addition, the University and the local SMEs can be considered different ethnic groups, each with its own culture. To communicate well then, researchers have to understand the barrier that can potentially impede transferring knowledge from the University to the SMEs. In this regard, SET can help researchers to understand culturally sensitive factors involving in this in the transfer in order to facilitate and successfully carry out the ongoing action research on knowledge transfer.

In addition, I also intend to use contemporary SET to conduct research on my dissertation which is to identify barriers to knowledge transfer from a client to a vendor in outsourced software development projects in the banking/financial industry. It is believed that the client and the vendor, to certain extent, exchange, and, transfer their knowledge on certain areas such as technology, business, and management knowledge in order to successfully carry out the outsourced software development project. However, there is also a contention at the knowledge transfer from the client to the vendor basically because client's certain embedded knowledge is regarded as a key competitive advantage which is confidential and sensitive to the (client) firm. This phenomenon refers to knowledge transfer in "competitive-cooperative" environment

which is quite common in outsourcing relations. I plan to collect data by using a qualitative interview method. I plan to recruit 20 pairs of outsourcing relations in Bangkok Thailand during May – August (November if necessary), 2010. In this regard, SET serves as the theoretical lens guiding the development of interview questions, data analysis techniques, and the interpretation of findings.

CHAPTER 6

CONCLUSION

The contribution of this thesis is twofold. First, the thesis explored contemporary information sciences topics in knowledge transfer in outsourcing schemes by using SET, a theory that has great potential in information sciences , but which has traditionally received little attention from this quarter. Second, the thesis tested the robustness and the viability of SET as applied in information sciences studies, proving that SET is a viable theoretical foundation for studying dynamic interactions and exchange processes that affect knowledge transfer. This finding indicates that reciprocity, in strategic alliance vocabulary, economically helps sustain knowledge transfer transactions among firms in a network. To a certain extent, being in an alliance positively influences the belief on the part of individuals that their partners will not exploit them: when relationships conform to the norms of reciprocity and when the pattern of exchange is perceived as being fair, individuals are more likely to come to believe that they will be treated fairly. Moreover, reciprocity allows individuals to be less calculative and to see longer-term outcomes, as they are likely to expect fairness and justice in the long-term. This expectation leads to commitment that builds stability into relationships by increasing the partners' dependence on their relationships—in part because the emergence of commitment is thought to be accompanied by reduced interest in alternative relationships. Therefore, the sense of competition is lessened, while the willingness to cooperate increases.

This analysis of the sixteen selected articles has proven that knowledge transfer is not merely a process for transferring knowledge from one firm to another, but is actually a process of techno–economic exchange between two firms. In this regard, the transfer is a special mode of (social) exchange whereby the knowledge giver and the knowledge receiver actively facilitate the exchange by creating a supportive environment to successfully carry on the process of transferring knowledge. The knowledge receiver is not passively waiting for a signal to retrieve the knowledge from the knowledge giver; instead, the knowledge receiver establishes a socio-economic environment to ensure its own competence to capture the transferred

knowledge. In addition, at a certain point, the giver expects to receive socio-economic contributions from the receiver. All these processes will be successfully carried out when a minimal facilitating infrastructure (constructs) has been created and is perceived as being sufficient by both the giver and the receiver. As suggested in the SET, reciprocity, balance, cohesion, and power comprise a multidimensional infrastructure necessary for success in knowledge transfer. However, as-yet hidden underlying factors may emerge from interactions among each element in the infrastructure. Further research is necessary to clarify and address this complication.

It is clear that the trajectory of the theme of contemporary SET has predominantly moved toward the notion of power since the 1970s in the social sciences. However, this thesis is a living testimony that SET itself is also potentially useful especially in information sciences studies to examine knowledge transfer issues in cooperative–competitive environments. Although many social scientists have shown that SET is applicable to knowledge transfer studies, more work on theoretical frameworks in the information sciences domain may need to be done. Given the usability and usefulness of SET, the constructs of the theory have been open to interpretation and operationalization ever since Homans introduced it in the 1950s. Before the advent of the contemporary concept of SET, theorists elaborated, amended, augmented, and re-interpreted the theory through various disciplines in social sciences. The core of the theory is quite settled; however, the interpretation of the contemporary constructs (reciprocity, balance, cohesion, and power) varies among the disciplines, differing in economics, psychology, sociology, etc. In addition, it is thought that interactions among the contemporary constructs reinforce and influence one another; therefore, it is certainly possible that by-product factors result from interactions among the main constructs. In this regard, more theoretical development is needed before we can fully exploit the theoretical power of SET.

Surmounting knowledge transfer issues in cooperative competitive environments is, of course, considered one of the main issues in contemporary IT-sourcing research agendas. Before achieving this ambitious goal, information sciences researchers, however, need to develop a more flexible, suitable theoretical framework. The major steps ahead not only include working out the theory, they also comprise articulating

how to cope with knowledge transfer issues that will emerge in the future, what future agendas might look like, what aspects workplaces of the future will positively or negatively affect alliances, and exactly what features a more subtle and complete framework will need in order to contribute theoretical knowledge to the real-world practice of communities at large.

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Appendix: Operationalization of SET Constructs in the Selected Articles

Author	Operationalizing SET Constructs	Findings	Conclusion
Gregory, Beck, and Prifling (2009)	**Reciprocity**: The intensity and frequency client–vendor interaction **Balance**: The transfer capacity **Cohesion**: A fear of losing control or ownership of knowledge **Power**: The power to breach the knowledge transfer blockade through managerial mechanisms	Due to imbalance of partners' knowledge, fearing of losing knowledge (as power) affected reciprocity in exchanging and transferring knowledge. However, by client increasing communication, vendor firms became more convinced that there was the balance in the transfer due to the communication transactions.	Client firms cannot rely solely on the capabilities of IT service providers and must actively involve themselves in the transfer, accumulation, and use of business knowledge, process knowledge, and functional knowledge in the client-vendor relationship.
Datta and Saad (2008)	**Reciprocity**: The intensity and frequency client–vendor interaction **Balance**: The co-evolution to blur the firms' boundaries of the institutions **Cohesion**: The creation of a sustainable institutional social tie through personal ties **Power**: Critical resource for accessing potential exchange partners	Offshore outsourcing relationship was considered uncertainty which prevent an entity to access certain critical resources of the other. Therefore, strong social tie–which co-reinforce among entities–is a necessary cohesion and then to establish sustainable social ties in institutional and personal levels, that which in reduces uncertainty in the offshore outsourcing relation.	India has enjoyed in the domain of outsourcing of services can be explained through the triple helix paradigm of university–industry–government network. Leveraging personal and social ties mitigate managing uncertainty, resulting in increasing social capital of firms engaged in such economic exchanges.
Lee, Huynh, and Hirschheim (2008)	**Reciprocity**: Trust-based relationship on mutual dependency **Balance**: Knowledge overlapping **Cohesion**: The degree of mutual dependency	Reciprocity was greatly influenced by initial trust–or a firm's image. Trust was also considered as determinants of knowledge sharing success. The degree of mutual appreciation in the relation on the technologies and knowledge influenced their mutual performance.	Mutual trust between the service receiver and provider is very important for knowledge sharing and outsourcing success. The initial trust is considered a significant factor in the perception of mutual trust from the service receiver's perspective, but not from the service provider's viewpoint.
Muthusamy and White (2008)	**Reciprocity**: A sense of duty to a given venture and the other partner **Balance**: A function of ongoing relation-and-time, power, and cohesion **Cohesion**: A symmetric power relationship and the nature of mutual influence and control **Power**: Coercive asymmetric power to tax transfer transaction on weaker partners	Firms advanced in reciprocity by committing to bilaterally mutual moral obligation. Also, reciprocal commitments increased balance and cohesion over them while prevented a firm from exercising power over its partners and from opportunistically taking advantages of the others, so they could undergo the transfer and enhance inter-firm collaborative capabilities overtime.	Social exchanges such as reciprocal commitment, trust, and mutual influence between partners are positively related to learning and knowledge transfer in strategic alliances.
Rottman (2008)	**Reciprocity**: Multidimensional social capital carried through forming strategic alliance **Cohesion**: A collective practice series of network ties and configurations, shared goals and culture, and trust resulting in an increasingly stable network.	Firms built up cohesion by making an understanding toward collective practice series of network ties and configurations, shared goals and culture, and trust established the cohesion and strengthened the partnership. In this regard, forming strategic alliances was fundamentally considered a reciprocal platform for firms to further interact and have an access to partners' social capital.	Strategic alliances illustrate salient social capital dimensions and the conditions and practices that facilitate knowledge transfer, enabling US manufacturing to improve knowledge transfer, decrease development costs, shorten cycle time, increase the quality of developed deliverables, quickly respond to changes in the regulatory environment, and, most importantly, build strong, strategic relationships with its suppliers.

Author	Operationalizing SET Constructs	Findings	Conclusion
Tiwana and Keil (2007)	**Reciprocity**: Structure of organizational management parameters yielding an access to specialized knowledge **Power**: Asymmetry on peripheral knowledge as the source of power to take control over outsourcing alliances	Client firms aligned themselves with vendors to access specialized knowledge removed from clients' core activities. However, this peripheral knowledge helped the clients to gain control and govern the vendors and their activities. In this regard, reciprocity was a means to gain the power.	Peripheral knowledge complements outcomes-based formal control but not process-based control. Outsourcing firms may sometimes need knowledge outside their core domain because such knowledge facilitates effective alliance governance.
Weeks and Davis (2007)	**Reciprocity**: Interrelationships of the client, the supplier, and the relationship resulting in innovation **Cohesion**: Compatibility in absorptive capacity, organizational control structure, and operational platform	Client and supplier reciprocally forged innovation by leveraging the overlapped knowledge. In this regard, the interdependencies (cohesion) between them were critical since it could impact the innovation after all.	The model addresses the necessity of overlap in knowledge domains for effective innovation and technology transfer in inter-organizational settings. Relationship interdependencies critically impact innovation outcomes.
Miesing, Kriger, and Slough (2007)	**Reciprocity**: The creation of social capital between members in a collective transnational strategy **Cohesion**: Adaptability and willingness to apply new knowledge even if it come from outside the organization's or unit's boundaries	Effective knowledge transfer practice required partners to reciprocally develop social capital and absorptive capacity sin the same direction in collective manner. By doing so, the partners tended to created strong commitment and align their HR policies to achieve in the transfer, hence cohesion.	An effective intra-organizational transfer of knowledge and best practice requires diverse perspectives, greater levels of trust, the building of tighter interpersonal bonds, development of active networks, receptivity to learning, and shared norms of reciprocity.
Inkpen and Tsang (2005)	**Reciprocity**: A cognitive dimension that encompasses the idea of shared cultural goals and vision for achieving a cultural understanding **Cohesion**: Goal clarity resulting in minimizing inter-partner conflict for facilitating the negotiation and establishment of shared goals	Reciprocity was reflected as cultural understanding as firms entered voluntary arrangements that involved exchange, sharing or co-development of products, technologies, or services. As a result, partners perceived the shared goal and committed to the relationship, rendering cohesion.	The framework examines the linkages between knowledge transfer and social capital for three network types: intra-corporate networks, strategic alliances, and industrial districts, relating to trust, knowledge transfer, social capital, cross-cultural issues, and geographically dispersed units.
Haghirian (2003)	**Reciprocity**: Understanding cultural implication leading to acceptance and trust. **Cohesion**: Cultural aspects of cooperation in knowledge transfer, organizational structure culturally defined protocols in connections, and communications between individuals both within and across these boundaries	Reciprocity was reflected as firm recognized its partner's cultural influences and implication which resulted in having an insight toward partner's knowledge codification. In this regard, culturally understanding organizational configuration and communication protocol was the key holding the cohesion among firms.	The study offers an initial framework of propositions that synthesize and build on the extant and still developing literature on global learning organizations.
Zineldin and Bredenlow (2003)	**Reciprocity**: Strategic alliances as agreements through moral, ethical standards, trust, and a willingness not to exploit the new relationship at the expense of long-term cooperation. **Cohesion**: Mutual interdependence of the partners: individual willingness, motivation, strategic fit; interdependence, cultural fit; organizational arrangements, and institutionalization, integration and integrity **Power**: Dependency on the partner's resources	Firms entered strategic alliances by moralistically committing to the agreement not to opportunistically exploit the relation. All the partners in the alliances reviewed and assessed the relations among one another periodically. However, while interdependence on moral central mentality of the alliances reflected cohesion in the alliances, dependency on the partner's resources generated asymmetrical power-relation among the giver and the receiver.	The development of a long-term strategic outsourcing relationship requires moral, ethical standards, trust, and a willingness not to try to exploit the new relationship at the expense of long-term cooperation.

(Appendix, cont.)

Author	Operationalizing SET Constructs	Findings	Conclusion
Koka and Prescott (2002)	**Reciprocity**: Firms acquire strategic alliances to access capabilities necessary for competitive advantage through social capital **Cohesion**: Firm's different dimensions of social capital providing differential benefits **Power**: Firm's social capital	Reciprocity was implemented as firms were forming strategic alliances placing on social capital of the partners. Different dimensions of social capital complemented the need of the firms in the alliances, that which reflected the cohesion in the relation. In this regard, unique social capital of a firm could create power on dependency toward the others.	The study establishes the construct validity of the three-dimensional conceptualization of social capital. The information dimensions have differential effects on firm performance, which in turn depends on the firm's context.
Lam (1997)	**Reciprocity**: The human-network-based communication as the key factor in establishing a convenient environment for individuals and teams in alliances **Cohesion**: Different societal settings driving the successfulness collaboration **Power**: Firm's governance forms and task structures	Establishing cooperative environment among alliances in inter-personal and inter-firm were to key to archive reciprocity across the firms with different governance forms. In turn, making sense of the difference yielding an access to tacit knowledge leading successful collaboration on knowledge transfer. Firm's different governance forms created imbalance of the transfer power and contributed to serious operational difficulties in cross-border collaborative work and to asymmetry in knowledge transfer.	Points of friction in knowledge transfer are influenced by how the dominant form of knowledge held in organizations, its degree of tacitness, and the way in which it is structured, utilized and transmitted varied between firms. Differences between the partners firms in these regards contribute to project failures weaken the technological relationship between the partner firms, and lead to asymmetry in knowledge transfer.
Mowery, Oxley, and Silverman (1996)	**Reciprocity**: Pre-alliance relationships among the partners contributing to the strength of the partnership **Balance:** The overlap of technological capabilities. **Cohesion**: Pre-alliance and anticipated return regarding the partner's portfolios **Power**: A (larger) firm's size and its technology capacity.	Being pre-alliance, served as cohesion in the relationship, among partners was considered the key to strengthen the relationship, and then develop healthy reciprocity. Firm recognized their common knowledge by the technologies overlapping; however, they later developed specialized knowledge which all the partners benefits from it. In most cases, the larger firm with more assets and resource held the power to take control over the transfer.	Received wisdom (knowledge transfer gained) promotes greater knowledge transfer. As alliance activity promotes increased specialization, the capabilities of partner firms become more divergent in a substantial subset of alliances.
Gulati (1995)	**Reciprocity**: Unidirectional and bidirectional agreements whose alliance was based on R&D activities and the existence and closeness **Cohesion**: A function of ongoing relation-and-time, power, and cohesion **Power**: A partner with greater resources resulting in power to negotiate	No matter firm governance modes, partners in an alliance could develop reciprocity through hand-on R&D activities. However, the larger firm with more assets and resource held the power to take control over the the knowledge transferred in the course of collaboration on the R&D activities.	Contracts chosen in alliances depend not only on the activities included within the partnership and their associated transaction costs, but also the trust that emerges between organizations over time through repeated ties.

(Appendix, cont.)