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THE EFFECT OF RELATIVE POWER ON INTER-ORGANIZATIONAL KNOWLEDGE TRANSFER AND RELATIONSHIP QUALITY IN THE BUYER-SUPPLIER RELATIONSHIP: A BILATERAL PERSPECTIVE

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Abstract

Considerable attention has been paid to relative power that decides the type of buyer-supplier relationship. However, most prior studies have limitations as they have focused only on one focal firm's (buyer's or supplier's) perspective, failing to achieve a more balanced view from both sides of a buyer-supplier relationship. This study proposes a research framework by integrating both the buyer's and the supplier's perspectives and develops three hypotheses on the effects of relative power on inter-organizational knowledge transfer and relationship quality in the buyer-supplier relationship. The proposed framework and its hypotheses were tested using cluster analysis and ANOVA with data from the survey of 89 dyadic pairs of participants of the buyer-supplier relationship. The results showed four distinguished types of buyer-supplier relationship: (1) confident buyer and supplier, (2) diffident buyer and supplier, (3) arrogant buyer but diffident supplier, and (4) confident buyer but cowed supplier. In addition, we also found that buyers and suppliers have their own different perceptions on relative power, degrees of knowledge flow, and relationship quality. Interestingly, when a buyer and a supplier believe that the power is balanced between them, inter-organizational knowledge transfer activities and quality of relationship were improved. The results help sharpen our understanding of how relative power affects knowledge transfer and relationship quality in the buyer-supplier relationship, and enable us to explore the different standpoints between the buyer and the supplier. Such findings based on a bilateral view of relative power in the buyer-supplier relationship may be used as a stepping stone for further empirical research. It also offers valuable practical suggestions for managers who want to facilitate knowledge flow with their partners.

1   INTRODUCTION

Recently, as knowledge becomes the competitive resource and capital of an organization, firms across the world have aggressively implemented knowledge management (KM) initiatives (Lee & Choi 2003). In practice, organizations have been utilizing knowledge management systems (KMSs) and communities of practice (CoPs) to manage internal resources of explicit or tacit knowledge more effectively, which leads to the competitive advantage of organizations (Alavi & Leidner 2001). However, these approaches have been restricted to the *intra-organizational* level since they mainly put emphasis on the *internal* knowledge transfers within a single firm (Yang & Kim 2007). In today's highly-outsourced and network-driven global economy, a new KM initiative which transcends organizational boundaries is essential since no firm can retain or create all required knowledge within its formal boundary (Anand et al. 2002). Therefore, organizations have to rely on business partners such as suppliers, customers, outside experts, and even competitors to attain *external* knowledge through *inter-organizational knowledge transfer* (IOKT) and continually respond to changing environments.

The importance of acquiring external knowledge has grown as a way of achieving and sustaining organization's competitive advantage in relationships such as strategic alliances (Powell 1998), outsourcing (Lee 2001), cluster (Dyer & Nobeoka 2000), and supply chain relationships (Lincoln et al. 1998). This study focuses on the buyer-supplier relationship in a supply chain since the most prominent and frequent IOKTs occur in such relationships. It is also the fundamental relationship from which all other types of advanced relationships extend. A purchase-supply transaction in an early stage of buyer-supplier relationships, over time, tends to evolve from a mere money-material exchange into an exchange of critical information and knowledge as mutual trust between partners accumulates (Malhotra et al. 2005).

The buyer-supplier relationship type is determined by the degree of relative power, which refers to "the ability of an organization to influence another's decision making on a particular issue, a potential for influence on another firm's belief and behaviors" (El-Ansary & Stern 1972, p. 47). Although prior studies on relative power in the buyer-supplier relationship has demonstrated that flat and collaborative relationships outperform (e.g., Krause et al. 2000; Malhotra et al. 2005), they have merely focused on one focal firm (buyer or supplier) without considering that a focal firm's perception can be totally different from one of its partners. Therefore, we will measure perceived relative power from both parties in a dyadic buyer-supplier relationship and try to find out how relative power affects IOKT and relationship quality. More specifically, we will develop meaningful subgroups (clusters) using cluster analysis based on perceived relative power from both sides of a buyer-supplier relationship and examine if there are significant differences in the degree of IOKT and relationship quality between clusters conducting univariate analysis of variance (ANOVA).

The ability of firms to achieve superior performance in a supply chain is a function of the flow of valuable knowledge with their partners. To understand this function, it is essential to figure out the impact of relative power on knowledge flow between buyers and suppliers. This study can contribute to KM research by providing a deeper insight that helps reveal the role of relative power between parties in an inter-organizational relationship.

2   THEORETICAL BACKGROUND

2.1   Buyer-Supplier Relationship

The relationship between buyer and supplier is not only one of the oldest types of a traditional business-to-business (B2B) relationship, but it is also the fundamental relationship where all kinds of relationship evolve (Lincoln et al. 1998; Yang & Kim 2007). A myriad of studies on supply chain or network management (SCM or SNM) that have been conducted for the last a few decades are also

considered as kinds of extension of dyadic buyer-supplier relationships. However, there has been relatively little work on buyer-supplier relationships especially from a KM perspective rather than from the viewpoints of SCM or SNM. Moreover, most of the buyer-supplier relationship studies from a KM perspective have been conducted following conceptual or case study approaches (e.g., Badaracco 1991; Dyer & Nobeoka 2000; Powell 1998), whereas empirical studies are rare. Even a few empirical studies (e.g., Lee 2001; Tsai 2001) have been limited to the view from one focal firm (buyer or supplier), failing to achieve a more balanced view from both sides of a buyer-supplier relationship. In order to fill this gap, we will redefine IOKT (buyer-supplier knowledge transfer) into two types of knowledge transfer (KT) based on its direction in a supply chain, and examine the impacts of perceived relative power on each type of IOKT and relationship quality by analyzing data from both sides of the relationship.

Due to the existence of *directionality* of knowledge flow, there must be a source and a recipient when IOKT occurs (Joshi et al. 2005). Therefore, IOKT can be classified into two types in our study: (1) *buyer-to-supplier knowledge transfer* (B2SKT) and (2) *supplier-to-buyer knowledge transfer* (S2BKT). Since we attempt to examine IOKT from both sides of a dyadic relationship, the participants can be both a source and a recipient (i.e., a buyer, in B2SKT, can be a source, while it can be a recipient in S2BKT). A buyer can achieve its competitive advantage by acquiring external knowledge from suppliers. Besides, it also sustains its competitiveness by contributing its own knowledge to suppliers through the improvement of relationship quality and key supply-chain components (Krause et al. 2000; Yang & Kim 2007). As in the case of Toyota's knowledge-sharing network (Dyer & Nobeoka 2000), when a buyer has a solid interest in its suppliers' performance improvement, it may be willing to contribute its own knowledge to its key suppliers in order to realize long-term gains.

On the other hand, relationship quality in a buyer-supplier relationship can be used as an important indicator of measuring the outcome of IOKT (Yang & Kim 2007). Since one buyer, in general, can order supply-chain components from multiple suppliers and one supplier can sell diverse products to multiple buyers, it is sometimes extremely hard to decide whether or not some improvement of supply chain performance is the result of IOKT in a specific, designated buyer-supplier relationship. Thus, not a few studies have examined relationship quality as a process-oriented supply chain performance, rather than measuring outcome-oriented supply chain performance (i.e., the improvement of actual performance regarding related supply-chain components or firms) (e.g., Lee & Kim 1999; Lee 2001). Since the focus of this study is on perceived relative power and its impact on performance through IOKT, it is critical that supply chain performance should also be considered in the process of building more effective relationships in the long term.

2.2   Relative Power

As opposed to absolute power, relative power is the perceived amount of power one person or one organization has in relation to her/his partner. Relative power in the context of buyer-supplier relationship refers to the degree to which an organization (buyer or supplier) believes how much relative influence it has on its partner's decision making, beliefs, or behaviors in a dyadic relationship (Bacharach & Lawler 1980). According to Yan and Gray (1994), such relative power is determined by both *context-based* and *resource-based* sources. Context-based relative power derives from the availability of alternative partners that can substitute the current relationship. For instance, an organization that can access more alternative relationship partners has more relative power than its counterpart with few options (Kim et al. 1999). On the other hand, resource-based relative power comes from the possession or control of critical resources required for collaboration. The more resources an organization has, the more relative power it has to dominate the dyadic relationship.

The type of buyer-supplier relationship may be determined by the degree of relative power, ranging from one-sided vertical (or hierarchical) relationship to mutually equal horizontal (or egalitarian) relationship (Krause et al. 2000). Prior studies on relative power in the buyer-supplier relationship have proved that maintaining an egalitarian relationship with balanced power (Krause et al. 2000) or a

collaborative type, as opposed to coercive type, of relationship (Malhotra et al. 2005) creates more valuable knowledge, which in turn leads to better performance or innovation of the supply chain. However, they have mainly focused on either buyer's or supplier's side only and given relatively little attention to the dyadic relationship between them, integrating both views from each side. Since, in a buyer-supplier relationship, each side may perceive its relative power differently, a balanced view including both a buyer's and a supplier's perception is necessary to assure more integrated, holistic, and accurate diagnosis. In fact, Kim et al. (1999) revealed that there is a considerable perception gap in the buyer-supplier relationship, and it has a strong effect on the quality of partnership and trust, which leads to worse performance of a supply chain. Therefore, we will measure perceived relative power from both parties in a dyadic buyer-supplier relationship and try to find out how relative power affects IOKT and relationship quality by comparing as well as combining those two perceptions.

3 RESEARCH FRAMEWORK AND HYPOTHESES DEVELOPMENT

3.1 Research Framework

The following *Figure 1* presents the research framework of the study. The facts that relative power plays a crucial enabling role in IOKT and relationship quality acts as a critical consequent for IOKT in the context of buyer-supplier relationship were proved by previous studies (e.g., Lee & Kim 1999; Son et al. 2005; Yang & Kim 2007). However, they were explored merely from either a buyer's or a supplier's perspective, not guaranteeing a balanced view considering both sides of a dyad. Therefore, the purpose of our study is to cluster buyer-supplier relationships into a few subgroups based on perceptions on buyer's relative power from a bilateral perspective, and examine if there are significant differences in the degrees of two types of IOKT as well as relationship quality among subgroups. To be more specific, we will investigate how the *extent* of perceptions on buyer's relative power affects the degree and type of IOKT and relationship quality, using cluster analysis and ANOVA.
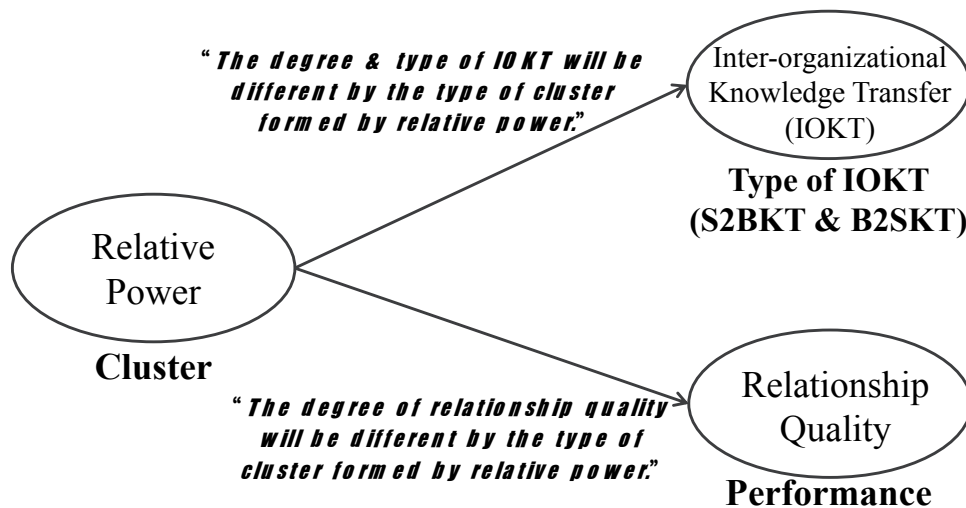
Figure 1. Research framework

3.2 Hypotheses Development

Based on the research framework presented above, three detailed research hypotheses are developed. Buyer's relative power in the study can be explained by the degree to which either a buyer or a supplier believes how much relative influence a buyer has on a supplier's decision making, beliefs, or behaviors in a dyadic relationship. According to the socio-political view (El-Anasary & Stern 1972; Ke and Wei 2007), when a focal company has more power in a dyadic relationship, it tends to

dominate the process or outcome of negotiation and places its own interest above that of its counterpart's (Jiang et al. 2009). Consequently, in a buyer-supplier relationship, as the extent of perceived buyer's relative power increases, it seems to have a chance of a greater knowledge flow from a supplier to a buyer (S2BKT) (Yang & Kim 2007). This leads us to the hypothesis 1. However, in the case of B2SKT, an opposite direction of S2BKT, as the extent of perceived buyer's relative power increases, the outcome of knowledge flow from a buyer to a supplier may decrease. If the extent of perceived buyer's relative power increases, a buyer is inclined to exercise power to protect its own interest rather than to invest huge amount of money and efforts in maintaining specific relationships. The incentives of a buyer to exercise its power may reduce the degree of B2SKT to maximize the benefits from the relationship. Therefore, in the paper, we posit that there is a negative relationship between buyer's relative power and B2SKT.

Meanwhile, relationship quality in a buyer-supplier relationship can be defined as how well the outcome of a delivered relationship meets the participants' (a buyer and/or a supplier's) expectations (Lee & Kim 1999). Such quality of relationship between buyer and supplier improves when power is evenly distributed through more frequent and relevant knowledge exchanges (Lam 1997). In other words, in the situation of power imbalance where one party (e.g., a buyer) has dominating power, the counterpart (e.g., a supplier) may opportunistically react, possibly causing the gradual decline in relationship quality (Benton & Maloni 2005). Thus, the following hypotheses are proposed:

H1: *The extent of buyer's relative power will be positively related to the degree of S2BKT.*

H2: *The extent of buyer's relative power will be negatively related to the degree of B2SKT.*

H3: *The extent of buyer's relative power will be negatively related to the degree of relationship quality.*

4 RESEARCH METHODOLOGY

4.1 Measurement

Separate questionnaires were used for both buyers and suppliers. In developing the measurement instruments, we employed a multiple-item method based on a five-point Likert scale ranging from "strongly disagree" to "strongly agree." The measurement items were either adopted from the existing literature or developed drawing upon the definition of the construct. More specifically, in order to measure the two types of IOKT (i.e., S2BKT and B2SKT), we adopted the seven items from Lee's (2001) and created two separate constructs so that they can represent the bi-directional feature of knowledge flow in a buyer-supplier relationship. In addition, instruments measuring relationship quality were adopted from Lee and Kim's (1999) who identified the five sub-dimensions of partnership quality: trust, business understanding, benefit and risk sharing, reduced conflict, and commitment. Finally, for the items measuring buyer's relative power, we self-developed new scale items based on prior studies on power (El-Ansary & Stern 1972; Yan & Gray 1994) by converting the definition of power into a questionnaire format suitable for the context of a buyer-supplier relationship. The measure developed in the study includes items that capture both context-based and resource-based dimensions of power: two items for the context-based and three for the resource-based power. To ensure the content validity of the measure, personal interviews with five experts in academia and industry were conducted. The scale was further pilot-tested with one of the largest mobile phone manufacturers in Korea and its ten key suppliers for the dyadic relationship, which is the unit of analysis in this paper. The refined questionnaire items and some statistics, including the values for Cronbach's alpha, mean, and standard deviation of responses from both sides of a dyad are shown in *Table 1*.

4.2 Data Collection

Using separate questionnaires, we collected data from both buyers and suppliers in selected dyadic relationships. First, we made a list of 87 organizations (buyers) that have enrolled their employees in KM education programs at a prominent business school in Korea. Then, we contacted the executives or mangers of the KM teams to make sure whether they have interest and willingness to participate in the survey or not, suggesting that the organizations participating in the survey would receive a KM benchmark and analysis report tailored to each firm. Among the companies contacted, 44 organizations (buyers) showed their willingness to receive the survey questionnaire, providing a list of more than five key suppliers and names with contact information of managers directly responsible for each supplier relation, respectively.

Constructs	Items for a buyer (Items for a supplier)	Statistics	
		Buyer	Supplier
Buyer's Relative Power (RP)[a]	1. We can easily find the substitute for this supplier (buyer). 2. We only provide the best components, services, or technologies with this supplier (buyer). 3. We have more authority compared to this supplier (buyer) in the process of joint business. 4. We have more influence to make decisions in the process of joint business with this supplier (buyer). 5. We have and control more primary resources in the process of joint business with this supplier (buyer).	Alpha[b] = 0.692 Mean = 3.268 SD[c] = 0.721	Alpha = 0.794 Mean = 3.667 SD = 0.628
Inter-organizational (Buyer-Supplier) Knowledge Transfer	***Supplier-to-Buyer Knowledge Transfer (S2BKT)*** This supplier transfers (We transfer) …… to us (to this buyer). 1. business proposals and reports 2. business manuals, models, and methodologies 3. success and failure stories 4. business knowledge obtained from newspapers, magazines, journals, television, and internet etc. 5. know-how and experience from work 6. know-where and know-whom 7. expertise obtained from education and training	Alpha = 0.920 Mean = 3.193 SD = 0.697	Alpha = 0.878 Mean = 3.161 SD = 0.733
	Buyer-to-Supplier Knowledge Transfer (B2SKT) We transfer (This buyer transfers) …… to this supplier (to us). 1. business proposals and reports 2. business manuals, models, and methodologies 3. success and failure stories 4. business knowledge obtained from newspapers, magazines, journals, television, and internet etc. 5. know-how and experience from work 6. know-where and know-whom 7. expertise obtained from education and training	Alpha = 0.922 Mean = 3.135 SD = 0.615	Alpha = 0.892 Mean = 2.846 SD = 0.856
Buyer-Supplier Relationship Quality (RQ)	1. We and this supplier (buyer) make beneficial decisions under any circumstances. 2. We and this supplier (buyer) understand each other's business objective and process each other. 3. We and this supplier (buyer) share the benefits and risks that can be occurred in the process of business. 4. We and this supplier (buyer) have compatible culture and policies in the process of business. 5. We and this supplier (buyer) perform pre-specified agreements and promises very well.	Alpha = 0.874 Mean = 3.921 SD = 0.520	Alpha = 0.898 Mean = 3.975 SD = 0.730

[a] Scores collected from suppliers were reversed to represent buyer's relative power from a supplier's point-of-view.
[b] Cronbach's Alpha; [c] Standard Deviation

Table 1.   Questionnaire items and statistics

The managers-in-charge were asked to respond to all questions regarding each recommended supplier relation. For the supplier-side survey, on the other hand, we contacted the recommended suppliers with a cover letter expressing the buyer's recommendation and sponsorship of our study. To avoid response bias, however, all the surveys were returned directly to us with a notification that not a single data item would be handed over to the related buyer. As suggested by Kotabe et al. (2003), we limited the condition of key suppliers to meet the following requirements: first-tier, domestic, no equity-

related, and with more than two years of relationship duration. After several times of follow-up phone calls and emails, a total of 103 pairs of data regarding buyer-supplier relationships were returned, but 14 pairs of data sample were excluded due to incomplete responses. Consequently, 89 pairs of responses from both sides of buyer-supplier relationships were included in our final analysis. There was no significant evidence of non-response bias. The descriptive profiles of respondent firms and their relationships are presented in *Table 2*.

(a) Industry type

Industry Type	Buyer		Supplier	
	# of Firms	Percent	# of Firms	Percent
Automotive	2	13.3%	23	25.8%
Chemical/Pharmaceutical	1	6.7%	9	10.1%
Electricity/Gas	2	13.3%	16	18.0%
Electronic	3	20.0%	13	14.6%
Food	2	13.3%	14	15.7%
Metal Processing	1	6.7%	4	4.5%
Others	4	26.7%	10	11.2%
Total	**15**	**100%**	**89**	**100%**

(b) Firm size (Number of employees)

# of Employees	Buyer		Supplier	
	# of Firms	Percent	# of Firms	Percent
Less than 50	0	0%	30	33.7%
51 - 100	0	0%	18	20.2%
101 – 500	2	13.3%	30	33.7%
501 – 1000	3	20.0%	6	6.7%
1001 - 5000	7	46.7%	2	2.2%
5001 and above	3	20.0%	3	3.4%
Total	**15**	**100%**	**89**	**100%**

(c) Total sales revenue

Total Sales Revenue (Annual)	Buyer		Supplier	
	# of Firms	Percent	# of Firms	Percent
Less than $ 10 million	0	0%	34	38.2%
$10 - $50 million	0	0%	28	31.5%
$50 - $100 million	2	13.3%	13	14.6%
$100 - $500 million	3	20.0%	8	9.0%
$0.5 - $1 billion	2	13.3%	1	1.1%
$1 - $5 billion	3	20.0%	2	2.2%
$5 - $10 billion	1	6.7%	0	0%
$10 billion and above	4	26.7%	3	3.4%
Total	**15**	**100%**	**89**	**100%**

(d) Relationship duration (Year)

Relationship Duration (Year)	# of Relationship	Percent
Less than 2	0	0 %
2 – 5	21	23.6 %
5 – 10	16	18.0 %
10 – 15	16	18.0 %
15 – 20	20	22.5 %
20 – 25	6	6.7 %
25 – 30	7	7.9 %
30 and above	3	3.4 %
Total	**89**	**100 %**

Table 2.   Profiles of companies surveyed

5   ANALYSIS AND RESULTS

5.1   Cluster Analysis

In order to validate our hypotheses, we first built a scatter plot of buyer's relative power with 89 pairs of data sample by placing responses from buyers' perspectives in x-axis and those from suppliers' in y-axis (see Figure 2). Using IBM SPSS Statistics version 20, we then performed cluster analysis following a two-stage procedure as recommended by Ketchen and Shook (1996).

As a first stage process, we inspected the dendrogram for hierarchical cluster analysis using Ward's method to determine the optimal number of clusters. After examining the incremental changes in the agglomeration coefficient, we found that four clusters were appropriate since a sudden jump occurred at this step (Hair et al. 1998). Next, we further conducted a non-hierarchical clustering procedure using K-means clustering method to develop meaningful subgroups (Hair et al. 1998). Since both Ward's hierarchical and K-means non-hierarchical methods require relatively small sample size (Gong & Richman 1995; Malhotra et al. 2005), we adopted these two methods in our cluster analysis. The identified clusters using K-means clustering methods are shown in *Figure 2*, while the statistics, characteristics, and names of four identified clusters are described in *Table 3*.
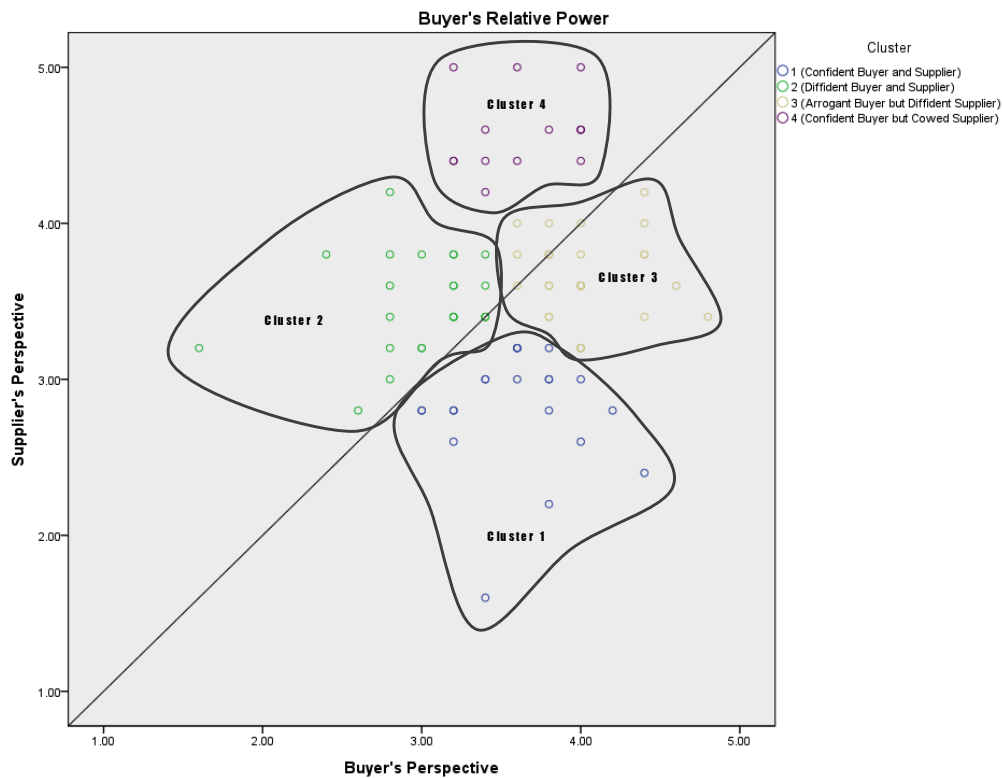

Figure 2.   The result of cluster analysis (N=4)

Cluster (N=89)	Mean of perceived buyer's relative power (Buyer's perspective)	Mean of perceived buyer's relative power (Supplier's perspective)	Characteristics	Name
Cluster 1 (N=21)	3.61	2.81[a]	Both a buyer and a supplier believe that its own organization's relative power is comparatively stronger in the buyer-supplier relationship.	Confident buyer and supplier
Cluster 2 (N=24)	2.99	3.49	While a buyer believes that its relative power is equal to that of a supplier, a supplier believes that its relative power is comparatively weaker.	Diffident buyer and supplier
Cluster 3 (N=30)	4.02	3.64	Both a buyer and a supplier believe that buyer's relative power is substantially stronger than that of a supplier. But, a buyer believes it is much stronger.	Arrogant buyer but diffident supplier
Cluster 4 (N=14)	3.63	4.59	Both a buyer and a supplier believe that buyer's relative power is substantially stronger. But, a supplier believes it is much stronger.	Confident buyer but cowed supplier

[a] The mean of perceived "supplier's relative power" from supplier's point-of-view in the Cluster 1 is 3.19 (= 6 – 2.81).

Table 3.   Characteristics and names of identified clusters

First, Cluster 1 is named as "confident buyer and supplier" since both a buyer and a supplier believe that their own power is relatively stronger, respectively. As shown in *Table 3*, the mean of supplier's perception on buyer's relative power is below 3 (i.e., 2.81 < 3), which represents a supplier believes its own power is a bit stronger than a buyer. In addition, it is quite low compared with other clusters. Second, in the case of Cluster 2, while a supplier perceives that a buyer is comparatively stronger, a buyer believes that power is equally distributed in the buyer-supplier relationship. That is, compared with other clusters, mean value for perceived buyer's relative power from buyer's perspective is relatively low. We, therefore, give a name to this subgroup as "diffident buyer and supplier." Third, Cluster 3 is named as "arrogant buyer but diffident supplier." Even though both a buyer and a supplier believe that buyer's relative power is substantially stronger than that of a supplier, buyers in this cluster evaluate their relative power with more confidence than those in other clusters do. Lastly, in Cluster 4, like Cluster 3, both participants believe that buyer's relative power is substantially stronger. However, the extent of perception on buyer's relative power of a supplier is much stronger than that of a buyer. Therefore, we name Cluster 4 as "confident buyer but cowed supplier". The differences in perceptions of IOKT and relationship quality across these four subgroups are analyzed in the next section.

5.2   Analysis Results

IBM SPSS Statistics version 20 was used for ANOVA to determine the differences in two types of IOKT and relationship quality across clusters in terms of buyer's relative power from a bilateral perspective. Moreover, we also subsequently applied Duncan's post-hoc analysis to reveal significant differences among cultures (Kim et al. 1999). The results of ANOVA and Duncan test are shown in *Table 4*.

Dependent Variable		Cluster 1 (N=21)	Cluster 2 (N=24)	Cluster 3 (N=30)	Cluster 4 (N=14)
S2BKT (Integrated perspective)[a]	Mean	3.3095	2.8983	3.2453	3.3071
	SD	0.4852	0.5361	0.4803	0.4227
	ANOVA	*F(3,85) = 3.637 (p=0.016)***			
	Duncan	*Cluster 2 < Cluster 3 = Cluster 4 = Cluster 1 (p<0.05)*			
B2SKT (Integrated perspective)	Mean	3.2276	2.7712	3.0620	2.8571
	SD	0.5728	0.4731	0.5174	0.5291
	ANOVA	*F(3,85) = 3.355 (p=0.023)***			
	Duncan	*Cluster 2 = Cluster 4 < Cluster 1 (p<0.05)*			
Relationship Quality (Integrated perspective)	Mean	4.1143	3.9167	3.9000	3.8571
	SD	0.4442	0.4869	0.4102	0.5996
	ANOVA	F(3,85) = 1.179 (p=0.323)			
	Duncan	Cluster 4 = Cluster 3 = Cluster 2 = Cluster 1 (p>0.05)			

[a] Values from an integrated perspective were measured using the average values of both a buyer's and a supplier's perspectives.

* < 0.05; ** <0.01

Table 4.   Results of ANOVA and Duncan test from the integrated perspective

Based on the results of ANOVA and Duncan test in *Table 4*, we validated our hypotheses. First, clusters having higher perceived buyer's relative power (i.e., Cluster 3 and Cluster 4) show higher degree of S2BKT than other cluster (i.e., Cluster 2), as we expected. However, the result also reveals that Cluster 1 that has lower degree of perceived buyer's relative power shows higher degree of S2BKT than Cluster 2. Hence, hypothesis 1 is partially supported. In the case of B2SKT, a cluster with lower degree of perceived buyer's relative power (i.e., Cluster 1) shows higher degree of B2SKT than other clusters (i.e., Cluster 2 and Cluster 4). However, contrary to our expectation, Cluster 3 that has higher degree of perceived buyer's relative power also shows higher degree of B2SKT than Cluster 2 and Cluster 4. Thus, hypothesis 2 is also partially supported. Finally, hypothesis 3 which deals with relationship between perceived buyer's relative power and relationship quality is not supported since there are no significant differences across clusters.

We perform ANOVA and Duncan test with data from buyers only to get further understanding on the relationship between perceived buyer's power and knowledge transfer/relationship quality. *Table 5* shows the results of ANOVA and Duncan test from the buyer's perspective. Similar to the analysis results of an integrated perspective, Cluster 1, Cluster 3, and Cluster 4 show higher degree of S2BKT than Cluster 2, and thus hypothesis 1 is partially supported. However, unlike the results from the integrated perspective, hypotheses 2 and 3 are not supported.

Dependent Variable		Cluster 1 (N=21)	Cluster 2 (N=24)	Cluster 3 (N=30)	Cluster 4 (N=14)
S2BKT (Buyer's perspective)	Mean	3.4024	2.7733	3.3240	3.3164
	SD	0.6480	0.6859	0.7012	0.5114
	ANOVA	*F(3,85) = 4.514 (p=0.005)****			
	Duncan	*Cluster 2 < Cluster 4 = Cluster 3 = Cluster 1 (p<0.05)*			
B2SKT (Buyer's perspective)	Mean	3.1300	2.8979	3.2477	3.3071
	SD	0.6026	0.6900	0.6056	0.4171
	ANOVA	F(3,85) = 1.954 (p=0.127)			
	Duncan	Cluster 2 = Cluster 1 = Cluster 3 = Cluster 4 (p>0.05)			
Relationship Quality (Buyer's perspective)	Mean	3.9143	3.7667	3.9733	4.0857
	SD	0.5747	0.6479	0.3704	0.4418
	ANOVA	F(3,85) = 1.287 (p=0.284)			
	Duncan	Cluster 2 = Cluster 1 = Cluster 4 = Cluster 3 (p>0.05)			

* < 0.05; ** <0.01

Table 5.   Results of ANOVA and Duncan test from the buyer's perspective

In the same way, ANOVA and Duncan test with data from suppliers only are performed to investigate the relationship between perceived buyer's power and knowledge transfer/relationship quality from the supplier's perspective. *Table 6* shows the results of ANOVA and Duncan test. In the case of S2BKT, there is no significant difference across clusters, thus hypothesis 1 is not supported. However, Cluster 1 shows higher degree of B2SKT than Cluster 2, Cluster 3, and Cluster 4, which means hypothesis 2 is partially supported. As perceived buyer's relative power increases, the relationship quality decrease, and thus hypothesis 3 is also partially supported.

Dependent Variable		Cluster 1 (N=21)	Cluster 2 (N=24)	Cluster 3 (N=30)	Cluster 4 (N=14)
S2BKT (Supplier's perspective)	Mean	3.2181	3.0242	3.1667	3.2957
	SD	0.7589	0.7846	0.6854	0.7423
	ANOVA	F(3,85) = 0.471 (*p*=0.703)			
	Duncan	Cluster 2 = Cluster 3 = Cluster 1 = Cluster 4 (*p*>0.05)			
B2SKT (Supplier's perspective)	Mean	3.3271	2.6429	2.8753	2.4086
	SD	0.9852	0.7762	0.6755	0.8494
	ANOVA	*F(3,85) = 4.338 (p=0.007)**			
	Duncan	*Cluster 4 = Cluster 2 < Cluster 1 (p<0.05)*			
Relationship Quality (Supplier's perspective)	Mean	4.3143	4.0667	3.8267	3.6286
	SD	0.5570	0.6204	0.7002	0.9887
	ANOVA	*F(3,85) = 3.347 (p=0.023)*			
	Duncan	*Cluster 4 = Cluster 3 < Cluster 1 (p<0.05)*			

* < 0.05; ** <0.01

Table 6.   Results of ANOVA and Duncan test from the supplier's perspective

In sum, hypothesis 1 is partially supported from the integrated and the buyer's perspective but it is not supported from the supplier's perspective. Hypothesis 2 is partially supported from the integrated and the supplier's perspective. However, it is not supported from the buyer's perspective. Hypothesis 3 is not supported from the integrated and the buyer's perspective, but partially supported from the supplier's perspective. *Table 7* shows the summary of hypotheses test results.

Hypothesis	Perspective	Results of Hypothesis Test	Conclusion
H1: Stronger buyer's relative power → increased S2BKT	Integrated	*Cluster 2 < Cluster 3= Cluster 4= Cluster 1*	Partially Supported
	Buyer's	*Cluster 2 < Cluster 4= Cluster 3= Cluster 1*	Partially Supported
	Supplier's	Cluster 2 = Cluster 3 = Cluster 1 = Cluster 4	Not Supported
H2: Stronger buyer's relative power → decreased B2SKT	Integrated	*Cluster 2=Cluster 4< Cluster 1*	Partially Supported
	Buyer's	Cluster 2 = Cluster 1 = Cluster 3 = Cluster 4	Not Supported
	Supplier's	*Cluster 4= Cluster 2< Cluster 1*	Partially Supported
H3: Stronger buyer's relative power → decreased relationship quality	Integrated	Cluster 4 = Cluster 3 = Cluster 2 = Cluster 1	Not Supported
	Buyer's	Cluster 2 = Cluster 1 = Cluster 4 = Cluster 3	Not Supported
	Supplier's	*Cluster 4=Cluster 3 < Cluster 1*	Partially Supported

Table 7.   Summary of hypotheses testing

5.3   Discussion and Implications

Figure 3 is the comparison of means for S2KBT by cluster from the integrated, buyer's, and supplier's perspective respectively. From all perspectives, the mean value of Cluster 2 is considerably lower than that of other clusters. In particular, the mean value of Cluster 2 from the buyer's perspective shows dramatically lower than the mean value of Cluster 2 from the supplier's perspective. This implies that buyers having lower perception of their power to dominate the process or outcome of negotiation and to protect their own interest are reluctant to force suppliers to transfer knowledge to them. Cluster 1 and Cluster 4 do not show any significant difference for S2BKT even though they have significantly different mean value for perceived buyer's relative power from the supplier's perspective but similar

mean values for it from the buyer's perspective. It implies that buyer's perception on their own power is critical to facilitate S2BKT.
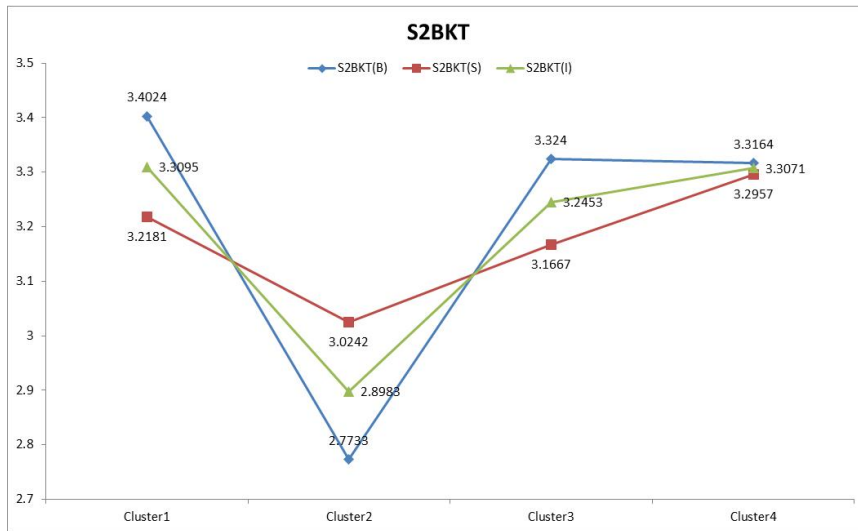

Figure 3.   *Means of S2BKT by clusters. B: buyer's perspective; S: supplier's perspective; I: integrated perspective.*

Figure 4 shows the comparison of means for B2SKT by cluster. While there are no significant differences in B2SKT across clusters from the buyer's perspectives, a significant difference is found from the supplier's perspective. That is, Cluster 1 that has the lowest perception of buyer's relative power shows the highest value of B2SKT regardless of the extent of perceived buyer's power from the buyer's perspective. Suppliers attempt to acquire more knowledge from buyers when they believe power is equally distributed in the buyer-supplier relationship. It implies supplier's perception on relative power is critical to increase knowledge flow from buyer to supplier.
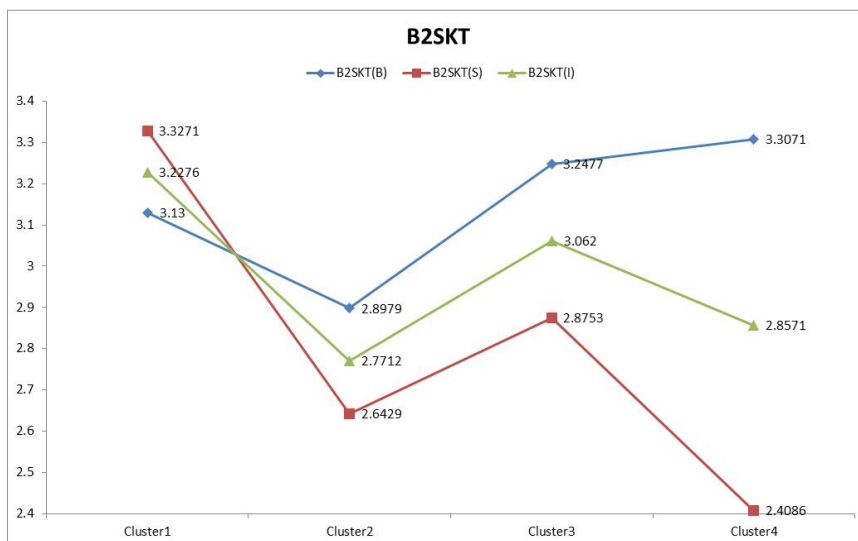

Figure 4.   *Means of B2SKT by clusters. B: buyer's perspective; S: supplier's perspective; I: integrated perspective.*

The comparison of means for relationship quality is presented in *Figure 5*. While the perceived buyer's relative power from the buyer's perspective is not important, the perceived buyer's power

from the supplier's perspective is quite critical to evaluate the quality of relationship. It implies that relationship quality can be improved by making suppliers feel that power is reasonably distributed between buyers and suppliers.
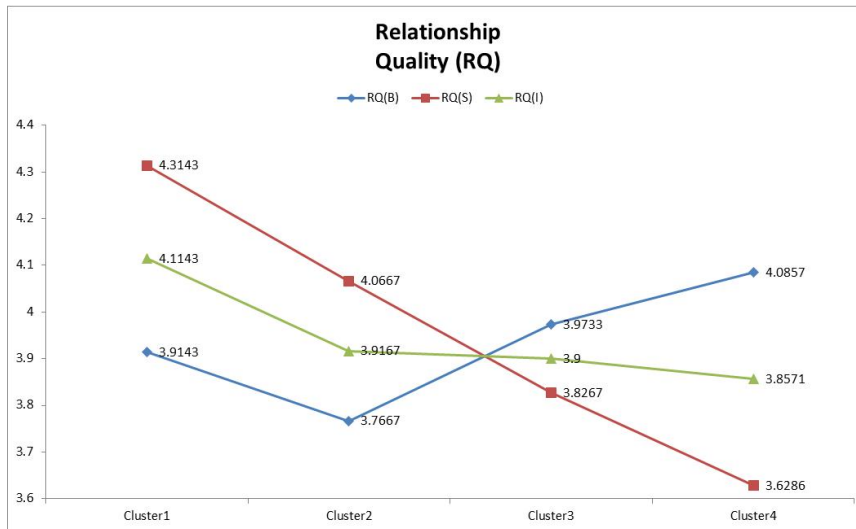

Figure 5.   Means of relationship quality by clusters. B: buyer's perspective; S: supplier's perspective; I: integrated perspective.

Our results suggest an interesting difference between the buyer and the supplier's perspectives. If a buyer considers its power is relatively low, the buyer neither provides knowledge to suppliers nor acquires knowledge from suppliers. The buyer's perception on the quality of relationship is also low in such condition. On the other hand, B2SKT and relationship quality are negatively related to its perception on buyer's relative power. That is, if the supplier perceives the buyer's relative power is low, the supplier actively acquires knowledge from the buyer and satisfies the relationship with it. However, S2BKT does not show any specific pattern related to supplier's perception on buyer's relative power.

The integrated perspective provides very interesting patterns across clusters for S2BKT, B2SKT, and relationship quality although there are no significant differences among clusters. Cluster 1 that both the buyer and the supplier are confident with their relative power shows better S2BKT, B2SKT, and relationship quality than other clusters. In other words, when perceived relative power from the buyer's perspective and the supplier's perspective equals, more IOKT activities will be found, which in turn will lead to better relationship quality. It suggests power balancing is one of the most critical factors to understand the buyer-supplier relationships.

The results have several implications in terms of academic and practical importance. Academically, the study provides a bilateral view of relative power in the buyer-supplier relationship. The findings of this research imply that mixed results on the buyer-supplier relationship can be resolved by considering not only the buyer's perspective but also the supplier's perspective. Second, the results shed light on the study of relative power in various contexts of inter-organizational relationships (e.g., outsourcing, strategic alliance, online partnership), leading to widen the understanding of IOKT phenomenon. Finally, the results confirm the impact of buyer's relative power on IOKT and relationship quality. Even though the buyer-supplier relationship type is determined by the degree of relative power, very few studies have attempted to conceptualize and validated the importance of it from a bilateral perspective. This study also provides valuable implications for managers who are in charge of organizational knowledge management. As revealed in the study, IOKT activities have been hampered when a company has less confidence in its relative power. For example, the extent of S2BKT is the lowest when a buyer perceives its lower relative power, while the degree of B2SKT is

the lowest when a supplier perceives its lower relative power in the buyer-supplier relationship. Thus, managers who want to facilitate knowledge flow with their partners should be confident with their own power, and also strike the right balance between their own power and partners' power. In addition, relationship quality has negatively related to perceived buyer's relative power from the supplier's perspective. Fostering an environment that lessens such perceptions is critical for the improvement of relationship quality.

6   CONCLUSION

The empirical results of this study can be summarized as following four statements. First, in the buyer-supplier relationship, the extent of knowledge transfer from supplier to buyer is lower when a buyer believes its power is comparatively low (Cluster 2). Second, relationship quality is better when a supplier believes that power is equally distributed (Cluster 1). Third, the degrees of IOKT and relationship quality are the highest in Cluster 1 where both a buyer and a supplier have confidence in their own relative power. Fourth, both a buyer and a supplier have their own perceptions on the degrees of relative power, IOKT, and relationship quality. That is, a focal firm's perception on the same relationship can be totally different from one of its partners.

This study has some limitations of undergoing a strict empirical analysis due to small number of samples (N=89). It is difficult to generalize the result of this study. Therefore, in the future, analyzing more data from the pairs of buyer-supplier relationship is of necessity. In addition, as the data are collected through survey, the subjective opinion of the representative may be reflected. Although responses were taken from representatives who are in charge of the buyer-supplier relationships, limitation still exists. In measuring relative power, IOKT, and relationship quality variables, it is needed to use objective indicators in future research.

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