

Global Journal of Business Management ISSN 6731-4538 Vol. 8 (4), pp. 001-008, April, 2014. Available online at www.internationalscholarsjournals.org © International Scholars Journals

Author(s) retain the copyright of this article.

Full Length Research Paper

# Managing effective knowledge acquisition in outsourcing alliances: A supplier's perspective

Wei-Li Wu<sup>1</sup>\* and Ryh-Song Yeh<sup>2</sup>

<sup>1</sup>Department of International Business, Ching Yun University, Taiwan. <sup>2</sup>Department of International Business, Yuan Ze University, Taiwan.

Accepted 13 November, 2013

Knowledge acquisition through international outsourcing alliances often plays a key in increasing a firm's technology capability. However, knowledge acquisition is not an easy process, as it relates to the firm's learning ability, the quality of the partnership, cross-national communication, and knowledge ambiguity, etc. Few studies discuss knowledge acquisition from the perspective of suppliers in newly industrialized economies, and often overlook the usefulness of information technology in the learning process. As a result, there are still some research gaps on this topic. Therefore, this study adopts the supplier point of view to explore the differences between suppliers with more or less effective knowledge acquisition. Using a sample of 204 cases of international outsourcing alliances, this study shows that learner characteristics, partnerships, and the use of information technology are the primary factors affecting supplier knowledge acquisition. This study also investigates the different learning patterns of tacit knowledge acquisition and explicit knowledge acquisition.

Key words: suppliers, international outsourcing alliance, knowledge acquisition, learner characteristics, partnership, informational technology.

## INTRODUCTION

Nowadays, knowledge is one of the most important assets for firms (Alipour et al., 2010). In general, there are two ways for firms to increase their assets of knowledge. First, firms can develop new knowledge through internal activities. Second, firms can gain new knowledge by learning from external sources like alliance partners. The second way of increasing knowledge is what we mean for knowledge acquisition (KA) in this study. Firms involved in alliances with other firms have more opportunities to observe and imitate their partners' knowledge. As a result, they are more likely to acquire new knowledge from their partners. In other words, alliances have become a very important platform of learning for firms that are eager to seek new techniques and knowledge (Hamel, 1991). Previous studies thoroughly examine the key determinants of KA in alliances (e.g. Hamel, 1991; Mowery et al., 1996; Inkpen,

2000; Kale et al., 2000; Simonin, 2004). These studies show that learner characteristics, partnerships, teacher characteristics, and the nature of transferred knowledge are all very important KA determinants.

Although researchers have developed the topic of KA determinants, the literature review in this study shows that extant research still exhibits some shortcomings. First, few studies discuss the topic of KA in international outsourcing alliances, and particularly from the perspective of suppliers in newly industrialized economies (NIEs). Joining international outsourcing alliances is a fast way for NIE suppliers to acquire advanced knowledge. In international outsourcing alliances, most buyers (e.g., Western firms and Japanese firms) have a higher level of knowledge than their suppliers have (Mesquita et al., 2008). Therefore, suppliers that cooperate in outsourcing alliances have greater opportunities for KA. Therefore, researches must discuss the relationships between KA and its determinants in international outsourcing alliances to reveal the reason why some suppliers perform KA more effectively than others.

<sup>\*</sup>Corresponding author. E-mail: wuweili0709@yahoo.com.tw. Tel: 886-3-4581196 ext.4622. Fax: 886-3-4683292.

Second, previous research often ignores the important role of information technology. Since buyers and suppliers in international outsourcing alliances are in different countries, distance can create problems in their communication and coordination that negatively influence KA. The use of information technology might reduce the negative effects of the distance between partners. Also, it is important for suppliers to manage the acquisition of external knowledge effectively. The use of information technology might help suppliers effectively integrate external knowledge into internal knowledge pool, and thus foster the KA process. However, previous literature on international outsourcing alliances contains few studies that explore the influence of information technology on KA.

Finally, although tacit and explicit knowledge are not the same, most previous studies ignore this difference when discussing the issue of KA (e.g., Lyles and Salk, 1996; Mowery et al., 1996; Simonin, 2004). Explicit knowledge can be clearly defined and demonstrated; however, tacit knowledge is embedded in firms' daily routines and difficult to express. Determining what types of knowledge (tacit/explicit knowledge) are acquired in the KA process is an interesting topic (Dhanaraj et al., 2004). Therefore, research on the issue of KA should account for the nature of different kinds of KA. Tacit KA and explicit KA might have different transfer patterns.

Although many previous studies have discussed the KA process, there are still some research gaps. Therefore, this study attempts to identify why some suppliers achieve better KA performance than others do. The following analysis assumes that suppliers with more effective KA have some attributes that differ from those with less effective KA. Previous studies put a lot of effort into exploring and studying these determinants, as they could be important determinants of KA. Based on previous research on KA determinants, this study discusses which supplier attributes lead to different levels of KA performance. This study adopts the perspective of suppliers in international outsourcing alliances to contribute to the KA theory from a different angle. As a result, we expect that this study would have three contributions to the issue of KA. First, according to the perspective of suppliers, this study will re-explore the relationships between learner characteristics, partnerships and KA in the context of international outsourcing alliances. Second, this study will recognize the important role of information technology in KA process. Finally, this study expects to reveal the different transfer patterns between explicit and tacit KA.

## Literature review

This section discusses the important attributes of suppliers with effective KA. This study uses learner characteristics, partnerships, and use of information

technology as KA determinants for two reasons. First, learner characteristics and partnerships have received the most research attention in recent years. Therefore, using these two types of KA determinants makes it possible to compare the results of this study with previous studies. Second, previous studies tend to ignore the effectiveness of using information technology in international alliances. By adopting this determinant, this study hopes to advance our understanding of the role of information technology in KA incross-national alliances. Finally, this section discusses the differences between tacit KA and explicit KA.

# Learner characteristics

# Learning intent and capacity

Previous studies subdivide learner characteristics into two categories: learning intent and capacity (Hamel, 1991; Mowery et al., 1996; Simonin, 2004). High learning intent can avoid the negative effects of the "Not-Invented-Here" syndrome and facilitate the learning process. More importantly, when firms have a high intent to learn, they will energetically engage in KA activities. Therefore, it is safe to assume that suppliers with high learning intent reduce the resistance of introducing external knowledge and actively seize learning opportunities. On the other hand, learning capacity also has a positive effect on KA (e.g., Hamel, 1991; Lyles and Salk, 1996; Mowery et al., 1996; Simonin, 2004). Simonin (2004) argued that learning capacity includes resource-based, incentivecognitive-based based. and learning capacities. Resource-based learning capacity represents the deployment of human resources and other physical assets in learning activities. Incentive-based learning capacity represents the use of reward systems and learning agendas for KA. Finally, cognitive-based learning capacity emphasizes the establishment of general attitudes and beliefs towards learning.

Suppliers in international outsourcing alliances sometimes only act like a manufacturer, and put no extra effort into the organizational goals of training their employees. These suppliers only want to follow the rules given by their buyers, and perform their assigned tasks by the book. In this situation, suppliers devote little effort to developing their human capital. On the other hand, some suppliers look for long-term growth. They understand that human capital is one of the most important capitals for their success. Therefore, these suppliers put a lot of effort in developing their human capital, and often implement well-developed training programs for their employees. Since people are the main conveyors of external knowledge, people with advanced professional skills could learn more than people with poor working skills will. Researchers agree about human capital is playing a more and more important role in international KA (Oddou

et al., 2009; Noorderhaven and Harzing, 2009). Therefore, any discussion on the learner characteristics of suppliers in international outsourcing alliances should consider the suppliers' mechanisms of developing human capital. In this study, employee training programs that develop professional skills represent a mechanism for developing human capital.

## Professional skill development

Human capital is one of the components of intellect capital. Human capital represents the brainpower of a company. Previous studies indicate that training programs can promote employees' professional skill (Minbaeva et al., 2003). Since learning is a pathdependent process, employees with a good basic professional knowledge are more likely to observe, absorb, and use external resources and knowledge (Cohen and Levinthal, 1990). Therefore, if suppliers value and care about developing human capital, their employees will likely have a higher level of professional skill. These employees will be more effective in acquiring buyers' knowledge. Employees with more professional skill will also be more likely to acquire external tacit knowledge containing a lot of ambiguous information. Based on the descriptions of learner characteristics above, this study infers that there are differences between more effective KA suppliers and less effective KA suppliers in terms of learning intent, learning capacity, and professional skill development.

H<sub>1</sub>: Suppliers with more effective KA exhibit greater learning intent than suppliers with less effective KA do. H<sub>2</sub>: Suppliers with more effective KA exhibit greater learning capacity than suppliers with less effective KA do. H<sub>3</sub>: Suppliers with more effective KA exhibit greater professional skill development than suppliers with less effective KA do.

# Partnerships

This study uses two dimensions to present the concept of partnerships: relational capital and long-term orientation. Relational capital represents the long-term interaction between two partners in an alliance based on mutual trust, respect, and friendship (Kale et al., 2000). Therefore, high relational capital in alliances indicates intensive communications and mutual trust between learning firms and teaching firms. According to previous studies (e.g., Gupta and Govindarajan, 2000; Dhanaraj et al., 2004), intensive communications and mutual trust both lead to a high level of KA. Therefore, suppliers that have high relational capital with their buyers are more likely to facilitate KA. Relational capital represents the quality and results of partner relationships from the past

to the present. This study also discusses how future partnerships can affect current KA.

International outsourcing alliances could be a long-term cooperation with strategic goals. The resource-based theory suggests that one of the main reasons why buyers join international outsourcing alliances is to gain the suppliers' complementary resources (e.g., cost advantage) to strengthen the competitive advantage of their own products in the market. To exploit suppliers' cost advantage, buyers must first help their partners reach a basic technical level. The higher the level those suppliers can achieve, the more it helps buyers establish a stronger position in the market (Ernst, 2000). Therefore, buyers would be more likely to share their knowledge to teach suppliers in long-term orientated relationships. The high level of transparency and openness that prevails in this type of alliance helps suppliers increase KA effectiveness (Hamel, 1991; Inkpen, 2000). Based on the discussion above, this study presents the following two hypotheses:

H<sub>4</sub>: Suppliers with more effective KA exhibit greater relational capital than suppliers with less effective KA do. H<sub>5</sub>: Suppliers with more effective KA exhibit greater long-term orientation than suppliers with less effective KA do.

# Information technology

Knowledge management literature indicates that the use of information technology may be beneficial to the activities of knowledge transfer. When firms are learning in a cross-national setting, information technology can effectively reduce the negative effect of distance (Gupta and Govindarajan, 2000). However, it is not yet clear how information technology helps suppliers learn in international outsourcing alliances. This study discusses the usefulness of using information technology for KA. The use of information technology includes two factors: communication usage and integrated database usage. Adopting the perspective of communication theory, Gupta and Govindarajan (2000) argued that KA is simply a process of communication between teaching firms and learning firms, and knowledge is the content of communication. Information technology can enhance the richness of information during the knowledge communicating process.

Therefore, using information technology in communication helps alliance partners share information and knowledge, allowing suppliers to communicate with buyers the moment they encounter problems. In other words, the communication usage of information technology enables instant feedback and strengthens KA through instant interaction and joint problem solving. Regarding the second factor of information technology, integrated database usage, suppliers can utilize information technology to code and store externally acquired knowledge, and then gradually integrate that external knowledge into an internal knowledge database. This process quickly and widely distributes newly acquired external knowledge in learning firms. As a result, suppliers could more effectively acquire external knowledge and reach a higher level of KA. Given the above, this study presents the two following hypotheses:

 $H_6$ : Suppliers with more effective KA exhibit greater communication usage than suppliers with less effective KA do.

H<sub>7</sub>: Suppliers with more effective KA exhibit greater integrated database usage than suppliers with less effective KA do.

## **Tacit and explicit KA**

Similar to Dhanaraj et al. (2004), this study classifies KA as tacit KA and explicit KA. Explicit knowledge can be clearly defined, demonstrated, and integrated into standard operating procedures (Kogut and Zander, 1992). Suppliers can simply follow standard rules and procedures to learn explicit KA. On the other hand, tacit knowledge is embedded in firms' daily routines (Makhija and Ganesh, 1997). If a learning firm is not involved in the teaching firm's daily operations, it will be much more difficult to acquire tacit knowledge than explicit knowledge.

explicit knowledge learned in international The outsourcing alliances usually includes techniques of standardized products. Since these products are already standardized, most of these techniques are also standardized. Therefore, some of the attributes of effective KA, like learner characteristics, partnerships, and information technology, might be not be required for effective explicit KA. Tacit knowledge, on the other hand, is ambiguous, making it harder for suppliers to acquire tacit knowledge from buyers. Therefore, a recipient firm that wants to acquire buyers' tacit knowledge should spend more time observing and interacting with outsourcing firms (Nonaka and Takeuchi, 1995). As a result, some of the attributes of effective KA described above might be more important for tacit KA than explicit KA. Due to the differences between tacit and explicit knowledge, suppliers with effective tacit KA and effective explicit KA likely possess different characteristics. Thus, this study presents the following hypothesis:

H<sub>8</sub>: Tacit KA suppliers and explicit KA suppliers possess different characteristics.

## METHODS

Taiwan provides a good context to test our hypotheses. Depending on learning in international outsourcing alliances, some of the suppliers in Taiwan have grown into big international companies, like ACER in computer industry and Giant in bicycle industry. The followings would first explain the empirical sample of this study, and then the measurement scales.

#### Samples

The research samples were chosen from companies listed on the Taiwan stock market or ranked as the top 1000 companies in the years 2004 to 2007 by the China Investigation Company. Through various efforts and interpersonal contacts, 204 effective cases of international outsourcing alliance were collected. Respondents were those in charge of international outsourcing alliances, with first hand experience in KA. In terms of size, most sampled firms had an annual income of at least US \$30 million and more than 500 employees. Most sample firms had been established for several numbers of years, and were concentrated in such as photoelectrical, precision machinery, semiconductor, telecommunication, electronics, aircraft manufacturing, and other high tech industries. The teaching partners in these industries in Western nations have technologies that Taiwanese companies have tried hard to absorb. The sampled cases involved alliances with companies from the United States (45.9%), Japan (26.8%), and Europe (16.1%). Almost 50% of teaching partners engaged in both R&D and production activities, and 38.2% in R&D only. Most teaching partners, 64.4%, were perceived to be market leaders by their learning partners.

#### Measure

Measures were developed based on literature reviews, and assessed with a questionnaire. All questionnaire items were measured using a 7-point scale. The following subsections describe the measures for learner characteristics, partnerships, use of information technology, and KA.

#### Learner characteristics

**Learning intent:** According to Hamel's research (1991), learning intent is the extent to which a firm internalizes technology and organizational capability learned from teaching partners. This study adopts the measures developed by Simonin (2004).

**Learning capacity:** According to Simonin's research (2004), learning capacity includes resource-based capacity, incentive-based capacity, and cognitive-based capacity. This study adopts the measures developed by Simonin (2004).

**Professional skill development:** Professional skill development represents the extent to which learning firms value and offer training programs to develop the professional skills of their employees. This study adopts a measure modified from Lyles and Salk (1996). Each respondent was asked to rank the extent to which the company provides education and training for its employees.

#### Partnerships

**Relational capital:** Following Kale et al. (2000), this study defines relational capital as the intensive interaction between two partners in an alliance that develops mutual trust, respect, and friendship. This study adopts the measures developed by Kale et al. (2000).

**Long-term orientated relationship:** A long-term orientated relationship represents the extent to which partners will cooperate with each other in the future, and not merely current cooperation. Each respondent was asked to predict the opportunity for future cooperation with partners.

#### Use of information technology

The use of information technology consists of two parts:

|                                | Less effective | More effective | Two-tailed   |
|--------------------------------|----------------|----------------|--------------|
|                                | KA suppliers   | KA suppliers   | significance |
| Learner characteristics        |                |                |              |
| intent                         | 4.33           | 5.56           | 0.000***     |
| resource-based capacity        | 4.85           | 5.47           | 0.000***     |
| incentive-based capacity       | 3.50           | 4.34           | 0.000***     |
| cognitive-based capacity       | 3.84           | 4.57           | 0.000***     |
| professional skill development | 4.82           | 5.14           | 0.142        |
| Partnerships                   |                |                |              |
| relational capital             | 5.19           | 5.70           | 0.001**      |
| long-term orientation          | 5.48           | 5.81           | 0.050        |
| Information technology         |                |                |              |
| communication                  | 4.89           | 5.35           | 0.006**      |
| integrated database            | 4.52           | 4.80           | 0.155        |

Table 1. Descriptions of Suppliers with More and Less Effective KA.

\*p < 0.05\*\*p < 0.01\*\*\*p<0.001

Means are shown in each cell.

communication usage and integrated database usage. Chen et al. (2006) defined communication usage as the degree of communication and interaction between partners through information communication technology. This study adopts the measures developed by Chen et al. (2006). On the other hand, this study applies Nonaka and Takeuchi's concept of combination in knowledge spin (1995) to argue that information technology can help suppliers integrate external knowledge into an internal database, and thus facilitate the KA process. Integrated database usage involves learning firms maintaining a knowledge-integrated database for knowledge diffusion. The respondents in this study assessed the degree to which their companies used an integrated database for knowledge management.

#### KA

Similar to Polanyi (1996), and Nonaka and Takeuchi's (1995) research, this study classifies the knowledge acquired in international outsourcing alliances into explicit and tacit knowledge. This study modifies the measures developed by Dhanaraj et al. (2004); Duanmu and Fai's research (2007).

## RESULTS

This study uses a mean score of KA to classify suppliers into two groups, including more effective KA suppliers and less effective KA suppliers. We used the statistic technique- Multivariate analysis of variance (MANOVA) in this study to compare means of suppliers' attributes of learner characteristics, partnerships, and use of information technology between more and less effective KA suppliers. Table 1 shows these results. Attributes of learning intent, resource-based capacity, incentive-based capacity, cognitive-based capacity, relational capital, and communication usage were significantly higher in more effective KA suppliers than in less effective KA suppliers. These empirical findings suggest that suppliers with more effective KA exhibit greater learning intent, resourcebased capacity, incentive-based capacity, cognitivebased capacity, relational capital, and communication usage than suppliers with less effective KA. These results confirm H<sub>1</sub>, H<sub>2</sub>, H<sub>4</sub> and H<sub>6</sub>. However, the two types of suppliers showed no significant difference in terms of professional skill development, long-term orientation, and integrated database, refuting H<sub>3</sub>, H<sub>5</sub> and H<sub>7</sub>.

To test H<sub>8</sub>, this study uses the mean score of tacit KA and explicit KA to classify suppliers into more effective suppliers and less effective suppliers for both tacit KA and explicit KA. Then, MANOVA was used to analyze the differences between more effective suppliers and less effective suppliers of tacit KA and explicit KA. Tables 2 and 3 show these results. Regarding tacit KA, Table 2 shows higher levels of all the attributes of learner characteristics, partnerships, and use of information technology in more effective tacit KA suppliers than in less effective tacit KA suppliers. On the other hand, regarding explicit KA, Table 3 shows that higher levels of learning intent, resource-based capacity, incentive-based capacity, cognitive-based capacity, relational capital, and communication usage in more effective explicit KA suppliers than in less effective explicit KA suppliers. Interestingly, there was no significant difference between more effective explicit KA and less effective explicit KA in terms of professional skill development, long-term orientation, and integrated database usage. However, professional skill development, long-term orientation, and integrated database usage were significantly different in suppliers with more effective tacit KA and less effective tacit KA. In other words, supplier attributes of professional skill development, long-term orientation, and integrated database usage are necessary to the acquisition of tacit knowledge, but not for the acquisition of explicit knowledge. The discussion above shows that different factors influence tacit KA and explicit KA, thus confirming  $H_8$ .

Table 2. Descriptions of suppliers with more and less effective tacit KA.

|                                | Less effective     | More effective     | Two-tailed   |
|--------------------------------|--------------------|--------------------|--------------|
|                                | tacit KA suppliers | tacit KA suppliers | significance |
| Learner characteristics        |                    |                    |              |
| intent                         | 4.38               | 5.49               | 0.000***     |
| resource-based capacity        | 4.82               | 5.49               | 0.000***     |
| incentive-based capacity       | 3.46               | 4.36               | 0.000***     |
| cognitive-based capacity       | 3.75               | 4.64               | 0.000***     |
| professional skill development | 4.72               | 5.22               | 0.019*       |
|                                |                    |                    |              |
| Partnerships                   |                    |                    |              |
| relational capital             | 5.16               | 5.72               | 0.000***     |
| long-term orientation          | 5.42               | 5.87               | 0.008**      |
| Information technology         |                    |                    |              |
| communication                  | 4.85               | 5.37               | 0.002**      |
| integrated database            | 4.41               | 4.91               | 0.011*       |

\*p < 0.05\*\*p < 0.01\*\*\*p<0.001

Means are shown in each cell.

Table 3. Descriptions of suppliers with more and less effective explicit KA.

|                                | Less effective        | More effective        | Two-tailed   |
|--------------------------------|-----------------------|-----------------------|--------------|
|                                | explicit KA suppliers | explicit KA suppliers | significance |
| Learner characteristics        |                       |                       |              |
| intent                         | 4.41                  | 5.55                  | .000***      |
| resource-based capacity        | 4.87                  | 5.50                  | .000***      |
| incentive-based capacity       | 3.48                  | 4.42                  | .000***      |
| cognitive-based capacity       | 3.90                  | 4.54                  | .002**       |
| professional skill development | 4.86                  | 5.11                  | .242         |
| Partnerships                   |                       |                       |              |
| relational capital             | 5.18                  | 5.75                  | .000***      |
| long-term orientation          | 5.54                  | 5.77                  | .181         |
| Information technology         |                       |                       |              |
| communication                  | 4.95                  | 5.30                  | .042*        |
| integrated database            | 4.55                  | 4.79                  | .225         |

\*p < 0.05\*\*p < 0.01\*\*\*p<0.001

Means are shown in each cell.

Table 4 summarizes these statistical results.

## DISCUSSION

The findings of this study have several implications for managers that are involved in knowledge acquisition in international outsourcing alliances. Comparing the effective KA suppliers' profiles with their relative features reveals how suppliers with certain attributes can optimize their KA. Especially, this study accounts for the differences between tacit KA and explicit KA. Learning intent and capacity are key factors to achieving successful KA for both tacit KA and explicit KA. This finding supports the view of many researchers that learner characteristics are important in the KA process (Hamel, 1991; Simonin, 2004). In particular, a good mechanism for developing professional skill ensures effective tacit KA. If suppliers want to acquire their buyers' tacit knowledge, they must value and develop their own human capital.

This finding is in line with previous studies, we need to care more about the important role of human factors during the process of KA (Oddou et al., 2009; Furuya et

|                                | KA | Explicit KA | Tacit KA |
|--------------------------------|----|-------------|----------|
| Learner characteristics        |    |             |          |
| intent                         | ~  | v           | •        |
| resource-based capacity        | ~  | v           | ~        |
| incentive-based capacity       | ~  | v           | ~        |
| cognitive-based capacity       | ~  | v           | ~        |
| professional skill development |    |             | •        |
|                                |    |             |          |
| Partnerships                   |    |             |          |
| relational capital             | ~  | v           | ~        |
| long-term orientation          |    |             | ~        |
| Information technology         |    |             |          |
| communication                  | ~  | v           | •        |
| integrated database            |    |             | v        |

Table 4. Factors contributing to more effective KA, tacit KA, and explicit KA.

al., 2009; Liu et al., 2010). A supplier-buyer partnership is another key ingredient in effective KA. Suppliers should build up relational capital with buyers to acquire tacit knowledge and explicit knowledge more effectively. If suppliers are interested in tacit KA, they should also emphasize future deals and cooperation with buyers. This long-term orientation encourages buyers to share more tacit knowledge. Overall, these findings echo the argument that relational quality facilitates knowledge transfer in international knowledge acquisition (Dhanaraj et al., 2004; Kale et al., 2000). Suppliers that consider international outsourcing alliances to be a short-term deal may not be willing to invest in a long-term relationship with their buyers. However, the results of this study indicate that if suppliers could have a long-term partnership with their buyers, it could have a more positive effective on tacit KA. This finding complements previous studies (e.g., Kale et al., 2000; Tsai, 2001; Inkpen and Tsang, 2005) that we further to point out different relational factors affect on tacit and explicit KA differently. Previous studies indicate that information technology has a significant effect on the supplier outcomes of relationship learning in cross-border customer-supplier relationships (Wu et al., 2006; Jean et al., 2010a; Jean and Sinkovics, 2010; Jean et al., 2010b). However, there is little evidence supporting the importance of using information technology in the process of cross-national KA.

The findings of this study prove that the usage of communication information technology is vital to effective tacit and explicit KA. If suppliers can establish a knowledge-integrated database to organize external knowledge, they can significantly increase their chances of effective tacit KA.

There are some limitations to this study. First, empirical data was collected using cross-sectional data; therefore, a bias might exist in the hypothesis test. Future studies should collect empirical data using a longitudinal

approach. Second, this study only uses the variable of professional skill development to describe a supplier's mechanism of human capital development. Future studies could use other variables, such as creativity training and language learning programs etc., to explore how a supplier's human capital development affects KA. Finally, since the entire sample in this study was drawn from suppliers in international outsourcing alliances, the result may not be applicable to other firms with different characteristics.

## ACKNOWLEDGEMENT

This research was supported by a grant from the National Science Council of Taiwan under Contract no. NSC 98-2410-H-231-022.

## REFERENCES

- Alipour H, Davabi K, Mehrabi Z, Moshtaghi M (2010). "The role of knowledge management in the achievement of competitive advantage: A case study of Iran alborze insurance company in western mazandaran". Afr. J. Bus. Manag., 4(7): 1346-1350.
- Chen SC, Lee WR, Hung KP, Chen LJ, Chai R (2006). "A study on the impact of internet utilization and communication on technology transfer and alliance performance". Chiao Da Manage. Rev., 26(2): 215-242. (In Chinese)
- Cohen WM, Levinthal DA (1990). "Absorptive capacity: A new perspective on learning and innovation". Admin. Sci. Quart., 35: 128-152.
- Dhanaraj C, Lyles MA, Steensma HK, Tihanyi L (2004). "Managing tacit and explicit knowledge transfer in IJVs: The role of relational embeddedness and the impact on performance". J. Int. Bus. Stud., 35(5): 428-442.
- Duanmu JL, Fai FM (2007). "A processual analysis of knowledge transfer: From foreign MNEs to Chinese suppliers". Int. Bus. Rev., 16(4): 449-473.
- Ernst D (2000). "Inter-organizational knowledge outsourcing: What permits small Taiwanese firms to compete in the computer iIndustry?". Asia Pac. J. Manag., 17: 223-255.
- Furuya N, Stevens MJ, Bird A, Oddou G, Mendenhall M (2009).

- "Managing the learning and transfer of global management competence: Antecedents and outcomes of Japanese repatriation effectiveness". J. Int. Bus. Stud., 40: 200-215.
- Gupta AK, Govindarajan V (2000). "Knowledge management's social dimension: Lessons from Nucor Steel". Sloan Manag. Rev., (Fall): pp. 71-80.
- Hamel G (1991). "Competition for competence and inter-partner learning within international strategic alliances". Strat. Manage. J., 12: 83-103.
- Inkpen AC (2000). "Learning through joint ventures: A framework of knowledge acquisition". J. Manag. Stud., 37(7): 1019-1043.
- Inkpen, AC, Tsang, EWK (2005). "Social capital, networks, and knowledge transfer". Acad. Manag. Rev., 30(1): 146-165.
- Jean RB, Sinkovics RR (2010). "Relationship learning and performance enhancement via advanced information technology: The case of Taiwanese dragon electronics firms", Int. Mark. Rev., 27(2): 200-222.
- Jean RB, Sinkovics RR, Kim D (2010). "Drivers and performance outcomes of relationship learning for suppliers in cross-border customer-suppliers relationships: The role of communication culture". J. Int. Mark., 18(1): 63-85.
- Jean RB, Sinkovics RR, Cavusgil ST (2010). "Enhancing international customer-supplier relationships through IT resources: A study of Taiwanese electronics suppliers". J. Int. Bus. Stud., 41: 1218-1239.
- Kale P, Singh H, Perlmutter H (2000). "Learning and protection of proprietary assets in strategic alliances: Building relational capital". Strateg. Manag. J., 21(3): 217-237.
- Kogut B, Zander U (1992). "Knowledge of the firm, combinative capabilities, and the replication of technology". Organ. Sci., 3: 383-397.
- Liu X, Lu J, Filatotchev I, Buck T, Wright M (2010). "Returnee entrepreneurs, knowledge spillovers and innovation in high-tech firms in emerging economies". J. Int. Bus. Stud., 41: 1183-1197.
- Lyles MA, Salk JE (1996). "Knowledge acquisition from foreign parents in international joint ventures: An empirical examination in the hungarian context". J. Int. Bus. Stud., 27(5): 877-903.
- Makhija MV, Ganesh U (1997). "The relationship between control and partner learning in learning-related joint ventures". Organ. Sci., 8: 508-527.

- Mesquita LF, Anand J, Brush TH (2008). "Comparing the resourcebased and relational views: Knowledge transfer and spillover in vertical alliances". Strat. Manag. J., 29: 913-941.
- Minbaeva D, Pedersen T, Björkman I, Fey CF, Park HJ (2003). "MNC knowledge transfer, subsidiary absorptive capacity, and HRM". J. Int. Bus. Stud., 34: 586-599.
- Mowery DC, Oxley JE, Silverman BS (1996). "Strategic alliances and interfirm knowledge transfer". Strat. Manage. J., (Winter special issue), 17: 77-91.
- Nonaka I, Takeuchi H (1995). The Knowledge-creating Company, Oxford University Press: NY.
- Noorderhaven N, Harzing, A (2009). "Knowledge-sharing and social interaction within MNEs". J. Int. Bus. Stud., 40: 719-741.
- Oddou G., Osland, JS, Blakeney, NB (2009). "Repatriating knowledge: variables influencing the "transfer" process". J. Int. Bus. Stud., 40: 181-199.
- Polanyi M (1966). The Tacit Dimension, Routledge and Kegan Paul: London.
- Simonin BL (2004). "An empirical investigation of the process of knowledge transfer in international strategic alliances". J. Int. Bus. Stud., 35(5): 407-427.
- Tsai W (2001). "Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance". Acad. Manag. J., 44(5): 996-1004.
- Wu F, Yeniyurt S, Kim D, Cavusgil ST (2006). "The impact of information technology on supply chain capabilities and firm performance: A resourcebased view". Ind. Mark. Manag., 35: 493-504.