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ACQUIRING KNOWLEDGE BY FOREIGN PARTNERS FROM INTERNATIONAL JOINT VENTURES IN A TRANSITION ECONOMY: LEARNING-BY-DOING AND LEARNING MYOPIA

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This paper proposes and tests a model of how firms acquire knowledge from their international joint venturing experience. Based on survey responses from 73 Singapore and 89 Hong Kong firms with respect to their joint ventures set up in China, the results indicate that both overseeing effort and management involvement are significant channels of knowledge acquisition. The former channel is more important for firms with a great deal of operational experience in China and for parents of older joint ventures. This finding indicates that firms improve their skills of knowledge acquisition through learning-by-doing. Moreover, the strategic importance of the venture concerned, instead of the learning intent of the parent, is the driving force behind the allocation of resources to the two channels. This implies that firms mainly learn through managing their key joint ventures. Since a venture that provides novel and fruitful learning experience may not, and need not, be an operation of great strategic importance, this finding suggests the existence of learning myopia. Copyright © 2002 John Wiley & Sons, Ltd.

Knowledge management has been increasingly recognized as a key managerial function necessary for achieving competitive advantage (Argote and Ingram, 2000). It has been argued that alliances provide a platform for organizational learning, giving firms access to the skills and competencies of their partners (Kogut, 1988; Westney, 1988). In transition economies such as Hungary and China, foreign parents normally bring in technology and management know-how, and are a vital source of useful knowledge. Most studies of joint ventures set up in transition economies have investigated the transfer of technology and management practices from foreign parents to these economies (e.g., Child and Markóczy, 1993; Lyles and Salk, 1996; Lu and Björkman, 1997; Ilari and La Grange, 1999). Little research has been conducted on the transfer of knowledge in the opposite direction: from joint ventures to foreign parents. This gap of knowledge needs to be addressed as Tsang (1999a) argues that internationalization itself is a learning process. Firms learn from their overseas collaborative experience even though they may not acquire any specific skills from their venture partners.[1]

Based on a survey of 151 U.S. firms, Simonin (1997) tested a model of how firms learn from their strategic alliances. His results suggest that lessons of collaborative experience must be first internalized by the firm and drawn into specific

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[1] Although firms also learn about internationalization from other sources, such as consulting companies, joint ventures represent a major source of knowledge. For example, many managers interviewed in my fieldwork, which is discussed later in the paper, said that their companies' knowledge about China mainly came from their joint ventures established there. One manager said that his company learned more from its joint ventures than from its wholly owned subsidiaries in China, because the Chinese partners of these joint ventures provided useful information to his company from time to time.

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know-how before these lessons become useful for guiding future actions. The results indicate that firms with greater collaborative experience achieve higher levels of collaborative know-how. While his study makes a significant contribution to knowledge management in strategic alliances, it fails to address an important question: *How* does the firm acquire know-how from its collaborative experience? Suppose Firms A and B have formed a similar number and similar types of strategic alliances and have similar years of collaborative experience. In other words, they have a similar amount of collaborative experience. However, Firm A remains a silent partner in most of its alliances while Firm B actively participates in the management of its alliances. Do the two firms acquire similar amounts of collaborative know-how from their collaborative experience? Probably not. Thus there is a need to study the relationship between how firms learn from their collaborative experience and the amount of knowledge acquired by them. This particular issue has not been adequately addressed by past studies (e.g., Hamel, 1991; Inkpen and Crossan, 1995).

In researching strategic alliance and learning, most of the existing empirical studies were based on small-sample case analyses (e.g., Dodgson, 1993; Doz, 1996; Geppert, 1996; Inkpen and Dinur, 1998), with few exceptions (e.g., Simonin, 1997; Lyles and Salk, 1996). There is a clear need for hypothesis development and testing (Fiol, 1994; Simonin, 1997). In addition, some researchers of organizational learning (e.g., Sinkula, 1994; Slater and Narver, 1995; Lukas, Hult, and Ferrell, 1996) comment that no systematic effort has been devoted to developing valid measures of learning-related constructs.

This study is a response to the above deficiencies by (1) proposing and investigating the relative importance of two main ways, overseeing effort and management involvement, through which foreign parents acquire knowledge from their international joint ventures (IJVs), (2) examining two key factors, learning intent and strategic importance, that affect the allocation of resources to the two knowledge acquisition channels, (3) developing measures of the associated constructs, (4) testing the model on two cross-sectional samples, one from Singapore and the other from Hong Kong, (5) examining the moderating effects of age of joint venture and parent's China experience on the relationships proposed in the model, and (6) indicating the existence of two important learning phenomena in the IJV context: learning-by-doing and learning myopia. Although the model is simple and makes use of established constructs, this study investigates some crucial IJV learning issues, as stated in points (1), (2), and (5) above. These issues have never been examined together in a single study.

THEORETICAL MODEL

Figure 1 encapsulates the theoretical model. The next section briefly discusses the two knowledge acquisition processes, namely experiential and vicarious learning, which are particularly relevant to this study. The relationships between the constructs of the model are elaborated in the following sections.

Experiential and vicarious learning

Huber (1991) identifies five processes through which organizations acquire knowledge: grafting, congenital learning, searching and noticing, experiential learning, and vicarious learning. The last two processes are the focus of this study. The former refers to the case where organizations acquire knowledge through direct experience, while the latter is an attempt to learn the strategies, management practices, and especially technologies possessed by other organizations. The main objective of vicarious learning in the context of strategic alliance is to absorb deeply embedded knowledge from the alliance partner (Hamel, 1991). Vicarious learning is the focus of most of the existing literature on learning in strategic alliances. Within such conceptualization of learning, strategic alliances are frequently depicted as learning battlefields (e.g., Reich and Mankin, 1986; Hamel, Doz, and Prahalad, 1989; Lei and Slocum, 1992).

In building a typology of learning in strategic alliances, Tsang (1999b) comments that the above view of learning is simplistic. Tsang's analysis first distinguishes between two objects of learning. One is called 'learning from strategic alliance experience,' which involves implementing technology transfer, managing the strategic alliance per se, and knowing about the business environment where the alliance is located. The other object of learning is called 'learning the other partner's skills.' The former object of learning requires an experiential

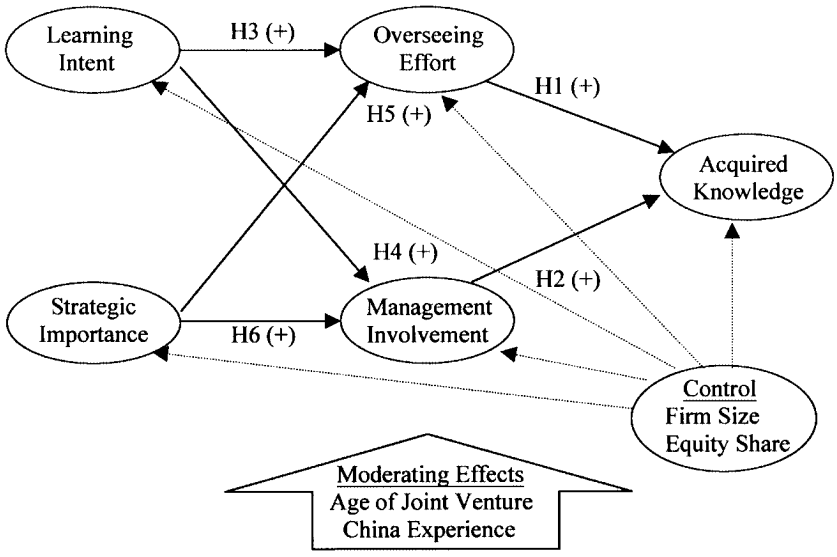

Figure 1. Model of knowledge acquisition

learning process while the latter entails a vicarious learning process. Tsang (1999b) argues that for a strategic alliance formed by a firm from a developed country in a developing country, there is usually a large gap of technical competency between the foreign and the local partners. Sino-foreign joint ventures are a typical example of such alliances. While the Chinese partner is eager to learn the technological and management skills brought in by the foreign partner, the latter would focus a lot more on learning from their business experience in China than acquiring skills from the former. In other words, the two partners engage in different objects of learning. Tsang describes this pattern of learning as asymmetrical.

Knowledge acquisition

In a survey of 178 foreign firms operating in China, Luo (1999) found that technological, organizational and marketing skills, as well as knowledge of the local environment possessed by these firms, enhanced their financial returns and overall performance in China. Thus, parents need to acquire useful knowledge from their overseas ventures in order to improve their performance. Following the argument of Tsang (1999b), this study examines three types of knowledge: (1) skills and competencies held by the Chinese partner, (2) knowledge of overseeing and managing the joint venture itself, and (3) knowledge of doing business in China.

The ways through which parents acquire knowledge from their strategic alliances, as discussed in the literature and found in my fieldwork detailed in a later section, can be classified into two broad channels. The first channel concerns joint venture–parent interactions and is called 'overseeing effort' in this study. The second is through management involvement, that is, participating in joint venture management.

Overseeing effort refers to supervising the joint venture by managers in the parent through their communication with the venture. Inkpen (1996) argues that the joint venture–parent relationship plays an important role in knowledge management. The relationship is especially crucial in the case of IJVs where the geographical distance between the joint venture and the parent can be huge. More often than not, certain managers in the parent are assigned to communicate with the joint venture and to keep an eye on its performance. The joint venture is usually required to submit regular reports on financial matters, production, personnel, local market situations, and so on to the parent. The amount of time and effort spent by parent managers on understanding the operation of the venture is a key determinant of knowledge acquisition. For instance, instead of carefully studying the reports submitted by the ventures, noting irregularities and raising appropriate queries, the managers concerned may just file the reports without even browsing through them. The latter behavior helps

little in enhancing the knowledge base of the parent with respect to the joint venturing activities.

Parent managers usually pay regular visits to their joint ventures. Inkpen's (1996) study found that visits and tours of joint venture facilities were an effective means for parent managers to learn about the ventures. Such visits may enable managers to extract more intimate knowledge about the ventures that is not available through long-distance communications alone. Lastly, it is important for managers assigned to joint ventures, or parent managers who are responsible for overseeing joint ventures, to share their knowledge with other managers in the parent. This would create redundancy of information, which 'refers to the existence of information more than the specific information required immediately by each individual' (Nonaka, 1994: 28). The sharing of extra information among individuals promotes the sharing of individual tacit knowledge. Moreover, through dialogues and debates taking place in the sharing process, the knowledge concerned will be refined and made more explicit. In short, parents that make great effort to oversee their joint ventures should acquire more knowledge from the ventures than parents that do not.

Hypothesis 1: Overseeing effort is positively related to acquired knowledge.

In discussing learning-related joint ventures, Makhija and Ganesh (1997) argue that to accomplish knowledge transfer, partners need to participate actively in the relevant organizational processes in which the knowledge is embedded. Similarly, in a study of 40 North American-Japanese joint ventures located in North America, Inkpen and Crossan (1995) found that experiencing a joint venture on a first-hand basis was essential for exploiting any learning opportunities that might arise in the venture. The second channel of acquiring knowledge from a joint venture is therefore through management involvement, which refers to the extent to which the parent participates in managing details of the various aspects of the venture operation.

The difference between overseeing effort and management involvement is that the former focuses on the amount of time and energy spent by managers at the parent on tending to the joint venture whereas the latter refers to the actual involvement in managing the daily operation of the venture. Generally speaking, management involvement is a more direct channel than overseeing effort. Although the two constructs have conceptually distinct meanings, they are likely to be positively related. For instance, if a parent is heavily involved in managing its joint venture by, say, sending a large number of expatriate managers there, managers inside the parent probably need to commit a great deal of time, energy and attention to the venture as well.

Management involvement is usually achieved by assigning expatriate managers to work in the joint venture. The findings of Lyles and Salk's (1996) study support the idea that expatriate managers are an effective vehicle for knowledge acquisition. In the case of China, these managers may assume top management positions such as general manager and deputy general manager. They may also hold functional positions such as production manager, plant manager, financial controller, personnel manager, and so on. Sometimes, owing to the human resource constraint faced by parents in Singapore and Hong Kong, some expatriate managers work in joint ventures on a part-time basis. For instance, they may travel to China and stay there for two weeks every month. A rather rare case is that parents try to participate in daily decision-making processes of joint ventures without sending any expatriate managers to the ventures. This practice becomes more feasible nowadays because of the advance of information and telecommunication technologies.

Management involvement is particularly important for vicarious learning. Based on an in-depth case study of eight Sino–U.S. joint ventures, Osland (1994) argues that more inter-partner learning occurs at the joint venture level than at the parent level. It is because managers who are frequently exposed to joint venture partners have more opportunities to learn from them, than do those who manage the ventures from a distance at the parents. As to experiential learning, Inkpen and Beamish (1997) maintain that the experience of managers in an IJV is the key to acquiring knowledge of the local environment where the venture is located. In an in-depth longitudinal study of Sino–foreign joint ventures, Hoon-Halbauer (1999) found that managers working in the ventures would be in a good position to understand the dynamics and complexity of managerial and inter-partner relationships.

Hypothesis 2: Management involvement is positively related to acquired knowledge.

Resource allocation

Knowledge acquisition is a process that requires commitment of resources, in particular, managerial time, attention, and effort (Pucik, 1988). Many firms may claim their interest in knowledge acquisition, but the true test of the seriousness of their motivation rests on the actual commitment of resources for that purpose. A firm that commits few resources to the two conduits of acquisition discussed above will obtain little knowledge in the end.

Westney (1988) distinguishes between two types of cooperative strategies: output-oriented and learning-oriented. The first has as its goal the production of a certain output for the parent to use; the focus is on the achievement of operational objectives. The second type may also aim at the production of a specific output, but it has the additional goal of learning. These two types of cooperative strategies point to two driving forces behind the allocation of resources towards learning: learning intent of the parent and strategic importance of the joint venture.

A parent adopting a learning-oriented cooperative strategy usually possesses clear learning intent, which, in this study, refers to the level of desire and will of the parent with respect to learning from the joint venturing experience. Goold, Campbell, and Alexander (1994: 263) argue that a 'precondition for successful learning is a recognition of the need to learn'. The important role played by learning intent is well recognized in the literature. In discussing the potential that multinational corporations have for learning from their diverse operations, Ghoshal (1987: 432) points out that to exploit this potential, 'the organization must consider learning as an explicit objective, and must create mechanisms and systems for such learning to take place'. The outcome of many Japan–West alliances is perceived to be detrimental to Western firms and beneficial to their Japanese partners partly due to the latter's clear intent to acquire specific competencies from the former and the former's lack of such intent (Hamel *et al.*, 1989; Reich and Mankin, 1986; Teramoto, Richter, and Iwasaki, 1993). The deployment of suitable human and supporting resources essential to knowledge acquisition is contingent upon the actual commitment of senior management to the learning agenda. A strong motivation to learn represents the first important step in removing organizational barriers that may hinder the allocation of resources for the purpose of learning.

Hypothesis 3: Learning intent is positively related to overseeing effort.

Hypothesis 4: Learning intent is positively related to management involvement.

In his landmark study, Simon (1947) argues that organizations influence individual decision processes by allocating and distributing the stimuli that channel managerial attention in terms of what aspects of the situation are to be attended, and what aspects are to be ignored. In further developing Simon's insight, Ocasio proposes an attention-based theory of the firm. His central argument is that 'firm behavior is the result of how firms channel and distribute the attention of their decision-makers' (Ocasio, 1997: 187). What managers actually decide depends on what issues and answers they focus their attention on. Their focus of attention in turn depends on the particular context that they find themselves in, and on how the firm's rules, resources, and social relationships distribute issues, answers, and decision-makers into specific activities, communications, and procedures.

If a parent follows an output-oriented cooperative strategy, this strategic orientation will serve as a broad guideline for channeling managerial attention. In particular, strategic importance of the output, or in general the outcome, of a joint venture naturally becomes a key determinant of managerial attention. When decisions concerning resource allocation are made, joint ventures that attract more attention are likely to obtain more resources. In other words, the greater the strategic importance of a joint venture, the more resources and attention the parent will commit to it (Cullen, Johnson, and Sakano, 1995). If a joint venture is viewed as an important element in the parent's competitive strategy or is a major profit contributor, parent management are likely to get more involved in the venture activities and to send more expatriate staff to the venture in order to ensure success. Joint ventures that are peripheral to the parent's strategy often receive less executive attention, and are less able to compete for scarce corporate resources.

In the extreme case, the parent treats such ventures as financial investments and is happy to be a silent partner. As long as the ventures generate reasonable financial returns, the parent does not bother to keep an eye on their actual operation. In this case, resources allocated to knowledge acquisition are minimal. The above discussion leads to the following hypotheses:

Hypothesis 5: Strategic importance is positively related to overseeing effort.

Hypothesis 6: Strategic importance is positively related to management involvement.

Although the six hypotheses stated above seem straightforward, it is far from obvious as to the relative importance of the two knowledge acquisition channels and of the two resource allocation rationales (1) in general and (2) under the influence of the moderating effects discussed below.

Moderating effects

The above relationships between the five constructs are likely to be moderated by two important variables: age of joint venture and China experience of parent. Alliance duration has been a crucial variable in the literature. For instance, as an alliance sustains itself over time, inter-partner trust intensifies (Gulati, 1995), relative bargaining power between partners changes (Yan and Gray, 1994), and attachment between partners develops (Inkpen and Beamish, 1997). Alliance duration is therefore expected to be a key variable in this study. Since personal contacts and face-to-face communication are rich communication media (Daft and Lengel, 1984) that are well suited for identifying information to be transferred and for acquiring a deep understanding of information (Argote, 1999), intimate personal interactions are considered most effective during the early stage of knowledge transfer (Dutton and Starbuck, 1979). In other words, management involvement is crucial for successful knowledge acquisition from young joint ventures. To reduce cost of operation, dominant foreign partners of Sino–foreign joint ventures may try to gradually localize the managements of the ventures over time and let their Chinese partners play a more active role in managing day-to-day operation. A likely result is reduced management involvement from the foreign partners, which then rely more on overseeing effort for obtaining knowledge from the ventures. It is thus reasonable to expect that management involvement plays a more important role for young joint ventures.

Hypothesis 7: Management involvement has a greater impact on acquired knowledge for young than for old joint ventures.

When a joint venture is newly established, it may represent a stimulating, novel learning opportunity for its parents. This would motivate the parents to work out explicit learning agendas and commit resources toward implementing these agendas. Hence learning intent is likely to be the major driving force behind resource allocation during the early life of a joint venture. When the venture matures and becomes a routine operation, its learning potential may be considered fully exploited. With the goal of learning being reached, achievement of operational objectives becomes the focus of managerial attention, and an increasingly output-oriented cooperative strategy is adopted (cf. Westney, 1988). Resource allocation will be based more on strategic importance.

Hypothesis 8: Learning intent has a greater impact on the two knowledge acquisition channels for young than for old joint ventures.

Lei and Slocum (1992) argue that ignorance and lack of experience are often at the root of alliance problems and failures. Simonin (1997) empirically shows that collaborative experience is fundamental to building collaborative know-how. In a survey of 138 Canadian firms doing business in China, Abramson and Ai (1999) found that experience in China itself was a key success factor. Hence, the parent's foreign direct investment (FDI) experience in China is considered another moderating variable in this study. It seems intuitively obvious that a firm with extensive collaborative experience will enjoy a higher chance of managing additional interfirm linkages effectively (Westney, 1988). Similarly, Harrigan (1985) maintains that there is an experience curve effect associated with the management of joint ventures. Therefore, as a firm gains more experience of operating in China, its skills of acquiring knowledge will probably improve. As mentioned earlier, overseeing effort is

a less direct channel of knowledge acquisition and thus demands more skills from parents. Firms with little experience of operating in China, compared with their more experienced counterparts, are less likely to master overseeing effort as a knowledge acquisition channel.

Hypothesis 9: Overseeing effort has a greater impact on acquired knowledge for experienced than for inexperienced parents.

When an organization faces a novel situation, its managers will evoke problem-solving activities aimed at constructing a definition of the situation and developing ways of dealing with it (March and Simon, 1993). The motivation to learn subsides, however, after the same or a similar situation has been encountered for a few times. The situation will then be handled in a routine manner, which incorporates past learning. Or, in the words of March and Simon (1993: 161): 'When a stimulus is of a kind that has been experienced repeatedly in the past, the response will ordinarily be highly routinized'. Firms that have a great deal of experience in China have probably encountered a considerable variety of situations and would not find much novelty in its encounters. Compared with their less experienced counterparts, these firms less tend to adopt a learning-oriented cooperative strategy.

Hypothesis 10: Learning intent has a greater impact on the two knowledge acquisition channels for inexperienced than for experienced parents.

Control variables

Firm size has been recognized as a key variable affecting organizational learning. For example, in an empirical study of organizational learning among small architectural and urban planning firms, De Monchaux (1993) argues that the small size of an organization facilitates the sharing of experience and learning among its members. In the case of strategic alliance, Hagedoorn and Schakenraad's (1994) study found a strong, positive effect of firm size on the intensity of strategic partnering and technology cooperation. Simonin (1997), who used firm size as a control variable in his study, found a significant impact of size on collaborative experience. Size of the parent is also an important variable that has to be controlled for in this study. For example, small firms may not be able to participate actively in their IJVs because of the shortage of managerial personnel.

Another key control variable is equity share. Equity is the provision of a capital resource to a joint venture by its parents. In theories of corporate governance and in company law, the share of equity in a joint venture represents legal possession of assets. Yan and Gray (1994) argue that equity investment made by a parent constitutes a source of bargaining power that in turn affects the extent of management control over the joint venture enjoyed by the parent. Child, Yan, and Lu (1997) found in their study of 67 Sino-foreign joint ventures that share equity consistently predicted the levels of influence ascribed to the relevant parent. Equity share is thus a relevant variable in this study. For instance, a foreign parent that owns a small equity share of an IJV may not be able or be motivated to involve extensively in the joint venture management.

METHODS

Samples

This study employed a questionnaire survey methodology and used partial least squares (PLS) to analyze data. PLS is particularly suitable for data analysis during the early stage of theory development where the theoretical model and its measures are not well formed (Barclay, Higgins, and Thompson, 1995; Chin, 1998). I conducted the first survey in Singapore in mid-1996 and repeated it in Hong Kong in early 1997. Conducting the surveys on two somewhat similar populations, or carrying out what Easley, Madden, and Dunn (2000) call an intrastudy replication, enables me to examine the reliability and validity of the constructs and to test the model in a more rigorous manner.

One main advantage of choosing Singapore and Hong Kong is that they share many similar attributes and endowments (Wu, 1997). Both were British colonies, subsequently flourished and became two of the four economic 'dragons' in the Asia–Pacific region. Populated mainly by immigrant Chinese, both have minimal natural resources, adopt highly liberal economic policies, and are hailed as among the freest economies in

the world. Because of these and other similarities, extraneous variation arising from factors such as national cultural differences is kept to the minimum in this study. The comparison of results obtained from the two surveys would thus be simpler.

Another advantage of choosing Singapore and Hong Kong is that the two city-economies differ significantly in terms of their FDI experience in China. Owing to geographical proximity, Hong Kong firms rushed to set up operations in China shortly after the Chinese government announced the economic reforms in late 1978. On the other hand, Singapore firms started to invest in China in a big way only after the two countries had established formal diplomatic ties in 1990. Hong Kong firms are on average more experienced in China than their Singapore counterparts. Moreover, the former are more likely to have joint ventures that have been in existence for long periods of time. As discussed earlier, China experience and age of joint venture are considered moderators in this study. So the two samples together would provide good variations for the moderators.

The population for each survey consisted of firms that had established joint ventures in China. I compiled the mailing lists of the two surveys from several sources including company press announcements, company annual reports, Reuvid (1994), the 1986–95 issues of *Almanac of China's Foreign Economic Relations and Trade*, *Singapore China Trade and Investment Directory 1996/97*, and the 1995 issue of the *Members' Business Directory (China Business)* published by the Chinese General Chamber of Commerce in Hong Kong. I restricted the samples to manufacturing industries in order to minimize extraneous variation that might arise from differences between the service and manufacturing sectors (cf. Erramilli and Rao, 1993). The final mailing lists were composed of 380 and 550 firms respectively for the Singapore and the Hong Kong surveys.

For each survey, I sent out a follow-up mailing four weeks after the first one. To avoid the problem associated with social desirable responding (Zerbe and Paulhus, 1987) and to make the respondent feel more comfortable in disclosing somewhat sensitive company information, I conducted the surveys in an anonymous manner. I received 73 and 89 usable questionnaires from the Singapore and the Hong Kong surveys respectively, representing response rates of 19.2 percent and 16.2 percent. To address the issue of nonresponse bias, I compared early versus late respondents based on the assumption that subjects who responded less readily were more similar to those who did not respond at all than those who did respond readily (Kanuk and Berenson, 1975; Armstrong and Overton, 1977). Results indicated no significant differences in basic firm characteristics, such as number of partners in the joint venture, age of the joint venture, shareholding of the respondent firm in the joint venture, and size of the respondent firm.

The majority of respondents for both surveys were top executives holding positions such as chairman, president, chief executive officer, managing director, and general manager. In addition, more than half of the respondents in each sample had been with their firms for ten or more years. Thus most of the respondents not only had an in-depth understanding of the management systems and strategic thinking of their firms but also were probably the most qualified people to provide information on strategic alliances (cf. Eisenhardt and Schoonhoven, 1996). Being top executives, they were able to observe and to determine the impacts of a specific alliance on the rest of the organization (Simonin, 1997). Heide and John (1990) argue that quality of information from key informants is sufficiently rich for building theories that address complex organizational phenomena, despite the problems inherent in relying on single respondents (cf. Bowman and Ambrosini, 1997).

Since all measures of the constructs were collected in the same survey instrument answered by a single respondent, the possibility of common method variance was present. Following Scott and Bruce (1994), Konrad and Linnehan (1995), and Simonin (1997), I examined such a possibility by Harman's single-factor test. For both surveys, several factors, as opposed to one single factor, emerged and the first factor did not account for the majority of the variance. So a substantial amount of common method variance did not seem to be present (Podsakoff and Organ, 1986).

Measures

The following steps guided the development of the questionnaire. First, I carried out extensive fieldwork in late 1995 and early 1996 involving 19 Singapore firms and some of their manufacturing operations in China. A basic research question was: What and how do Singapore firms learn

from their FDI experience in China? Altogether I interviewed 83 managers in Singapore and in 10 Chinese cities. Since at the time of the study, there were few empirical studies on the same, or a similar, topic, the fieldwork provided me with very rich and useful qualitative information concerning mechanisms and determinants of learning. Second, I reviewed the existing literature to locate, wherever possible, measures that would appropriately capture the constructs under study. Third, I operationalized the constructs based on the findings of the fieldwork as well as the literature. Finally, I pretested the draft questionnaire on six managers, who had rich experience of establishing and overseeing joint ventures in China. Moreover, two scholars, who were experts in Sino–foreign joint venture management, carefully studied the draft questionnaire. The managers and scholars assessed the face validity of each question and suggested some modifications or enhancements. I then revised the questionnaire according to their comments. The Appendix presents the questionnaire items associated with the five constructs of the theoretical model.

I asked respondents to answer the joint venture-related questions with respect to a specific joint venture that he or she was most familiar with. A requirement was that the joint venture should have at least one local Chinese partner and should have started operation. This arrangement was preferred to asking questions about general joint venturing experience in China because the questions would be less concrete. Moreover, the experience of one joint venture might be very different from another and it would be difficult for the respondent to generalize. Likewise, the questionnaires used by Inkpen (1992) and Simonin (1991) ask questions on one strategic alliance only.

Learning intent

Four items were used to measure this construct. In the empirical studies conducted by Hamel (1991) and Simonin (1991), learning intent refers to a strategic alliance partner's determination to learn certain skills possessed by the other partner. This vicarious learning aspect of the construct is captured by the first measurement item of the construct. The other three items are concerned with skills of doing business in China, inter-partner collaboration and overseas operation management. These items capture the experiential learning aspect.

Strategic importance

A joint venture's sales revenue, profit, strategic position, and product market potential were used as indicators of its strategic importance. As a supplement, another item asks the respondent to assess the overall importance of the venture.

Overseeing effort

Five indicators were used. The first two items are concerned with the amount of attention paid by executives in the parent to the joint venture. The next two items are about the frequency of visits to the venture by senior management and the frequency of communication between the venture and the parent. Inkpen (1992) used two similar items in his study to measure the effort made by the parent to oversee the joint venture. The last item assesses whether the staff involved in the joint venture are encouraged to share their experience with other colleagues of the parent.

Management involvement

Eight functional areas were used. The first seven are generally applicable to a manufacturing operation. The last item, dealing with Chinese government bodies, is specific to the Chinese context. This item was included in the questionnaire because of the well known fact that firms, whether local or foreign, need to go through China's bureaucratic maze in order to get things done (Stewart, 1990). In a study of 37 U.S. firms that had operations in China, Sanyal and Guvenli (2000) found that performance of these operations was influenced by the quality of their relationship with the host government.

Acquired knowledge

Nine areas of Sino–foreign joint venturing knowledge were used to measure this construct. The respondents in my fieldwork mentioned these areas, except the first, from time to time when I asked them what their firms had learned from the

joint venturing experience in China.[2] These nine areas reflect the three types of knowledge mentioned earlier. The first indicator, which is about acquiring skills and competencies held by the Chinese partner, refers to the outcome of vicarious learning. The second type of knowledge, which is captured by the second, third and fourth indicators, concerns managing the joint venture itself. The rest of the indicators refer to the knowledge and skills of doing business in China. In particular, the item about establishing business connections (or *guanxi*) was included because of its importance for business success in China (Xin and Pearce, 1996; Luo, 1997; Tsang, 1998).

Moderating and control variables

Age of joint venture was estimated by subtracting the year of formation from the year of survey (i.e., 1996 or 1997). For China experience, one item in the questionnaire asks respondents to indicate the years of experience that their firms have in managing manufacturing operations in China. Firm size was measured by number of employees, and equity share by the percentage of shares in the joint venture owned by the respondent's company.

Reflective vs. formative indicators

Two basic types of relationships—reflective and formative—are relevant to structural equation modeling, such as PLS. A construct with reflective indicators is one where the indicators are expressed as a function of the construct; the indicators are believed to 'reflect' the construct, with the construct 'causing' the observed measures. Many psychological constructs, such as job satisfaction and organizational commitment, are good examples. In contrast, when a construct has formative indicators, it is expressed as a function of those indicators; the indicators 'form' or 'cause' the unobservable, underlying construct. An example is the construct 'management involvement' used in this study, which was regarded as a composite of the scores assigned to the eight functional areas by the respondent. Similarly, Olk and Young (1997) used formative indicators to assess an organization's involvement in an R&D consortium.

The choice between reflective and formative relationships is not a trivial matter and has direct implications for the estimates. For instance, traditional assessments of individual item reliability, convergent validity, and discriminant validity are irrelevant for formative indicators and their associated constructs. Unfortunately, there have not been any hard and fast rules governing the choice (cf. Cohen *et al.*, 1990; Bollen and Lennox, 1991; Chin, 1998; Hulland, 1999). While some construct-to-indicators relationships are, by their very nature, clearly reflective or formative, others are less so. In addition to management involvement mentioned above, acquired knowledge was another construct considered as having formative indicators in this study; all the other three constructs were reflective. Johnson *et al.* (1996) argue that validation of constructs with formative indicators rests mainly on the thoroughness with which the construct domain is tapped (i.e., content validity). In this study a relatively large number of indicators were used to tap the domains of management involvement and acquired knowledge.

RESULTS

Measurement model

To assess the unidimensionality of the three constructs with reflective indicators, I carried out exploratory principal components analysis. For both samples, the factors that emerged corresponded exactly to the constructs, with the exception of the first indicator of learning intent (i.e., to learn specific skills and competencies held by the Chinese partner). The survey responses indicated that the firms had little intent to learn from their Chinese partners. Scores assigned by the respondents to the first indicator of learning intent were much lower than those assigned to the other three indicators of the same construct. I compared the scores of the former indicator with those of each of the latter indicators by the Wilcoxon signed ranks test. The difference between the two sets of scores for each of the six pairs of indicators (three

[2] There is a mismatch between the indicators measuring learning intent and those measuring acquired knowledge. In my fieldwork, I observed that respondents usually mentioned their learning intent in general terms. On the other hand, when they were asked what their firms had learned, they gave more specific items of acquired knowledge. I constructed the indicators measuring learning intent and acquired knowledge based on this observation. I also sought advice on this matter from the six managers who participated in the pilot test of the questionnaire. All of them agreed that my treatment was appropriate, as firms often did not have very specific learning intent in mind.

from each sample) was highly significant at $p < 0.001$. This finding empirically supports Tsang's (1999b) conceptual argument that for the asymmetrical learning pattern found in strategic alliances formed by foreign partners that come from developed countries with local partners of developing countries, the former have little motivation to learn from the latter. Moreover, the firms perceived that they actually learned little from their Chinese partners. Scores of the first indicator of acquired knowledge, which measures this aspect of learning, were much lower than those of the other indicators of the same construct. Again, I compared the scores of the former indicator with those of each of the latter indicators by the Wilcoxon signed ranks test. Similar to the case of learning intent, the difference between the two sets of scores for each of the sixteen pairs of indicators (eight from each sample) was highly significant at $p < 0.001$.

In PLS, item reliability is assessed by examining loadings. All loadings of the reflective indicators, except those of the first indicator of learning intent, exceeded the recommended threshold of 0.7 (Carmines and Zeller, 1979). Since indicators with very low loadings add little explanatory power to the model while attenuating and thus biasing the estimates of the parameters linking the constructs (Nunnally, 1978), the first indicator of learning intent was dropped from further analysis.[3]

To assess the convergent validity of constructs, researchers using PLS generally report the internal consistency measure developed by Fornell and Larcker (1981), which is similar to Cronbach's alpha. Nunnally (1978) suggests that 0.7 as a benchmark for 'modest' reliability was applicable in the early stages of research. Both the internal consistency and Cronbach's alpha of each construct with reflective indicators were larger than 0.8.

To assess discriminant validity, Fornell and Larcker (1981) suggest the use of average variance extracted (i.e., the average variance shared between a construct and its indicators), which should be greater than the variances shared between the construct and other constructs in the model (i.e., the squared correlation between two constructs). The comparison can be made in a correlation matrix, which includes the correlations between different constructs in the off-diagonal elements of the matrix, and the square roots of the average variance extracted values calculated for each of the constructs along the diagonal. In order that the discriminant validity is adequate, the diagonal elements should be significantly greater than the off-diagonal elements in the corresponding rows and columns. Table 1 indicates that the three constructs with reflective indicators had adequate discriminant validity for both samples.

Structural model

Table 2 reports the results of hypothesis testing and the amounts of explained variance in overseeing effort, management involvement, and acquired knowledge. I tested the significance of path estimates using a bootstrap approach (cf. Chin, 1998). All the six path estimates of the Singapore sample and five path estimates of the Hong Kong sample had signs predicted by their respective hypotheses. Five and four of the six hypotheses were supported for the Singapore and Hong Kong samples respectively. I followed the procedure used by Keil *et al.* (2000) to test whether estimates of the same path obtained from the two samples were significantly different.[4] The last column of Table 2 shows the significance levels of the differences. For both samples, strategic importance was the main driving force behind the allocation of resources for the purpose of joint venture management; the impact of learning intent was marginally significant with respect to overseeing effort only for the Singapore sample. While both management involvement and overseeing effort had significant effects on acquired knowledge for the two samples, the impact of management involvement was significantly greater for the Singapore firms.

The R^2 value represents the percentage of variance in an endogenous construct explained by

[3] I reran the analysis using the first indicator as a separate construct and found that its effects on overseeing effort and management involvement were not significant.

[4] The calculation procedure for comparing corresponding paths across structural models is:

$$S_{\text{pooled}} = \sqrt{\{[(N_1 - 1)/(N_1 + N_2 - 2)] \times \text{SE}_1^2 + [(N_2 - 1)/(N_1 + N_2 - 2)] \times \text{SE}_2^2\}}$$

$$t = (\text{PC}_1 - \text{PC}_2)/[S_{\text{pooled}} \times \sqrt{(1/N_1 + 1/N_2)}]$$

where S_{pooled} = pooled estimator for the standard deviation, t = t-statistic with $N_1 + N_2 - 2$ degrees of freedom, N_i = size of sample i, SE_i = standard error of path in structural model of sample i, and PC_i = path coefficient in structural model of sample i.

Table 1. Correlations and discriminant validity[a]

Variable	1	2	3	4	5	6	7
1. Learning intent	0.834	−0.233	−0.156	−0.181	−0.190	0.210	−0.081
2. Strategic importance	0.863	0.789	0.602	0.766	0.660	−0.266	0.077
3. Overseeing effort	0.507	0.805	0.753	0.674	0.626	−0.271	−0.001
4. Management involvement	0.475	0.685	0.830	—	0.650	−0.341	−0.021
5. Acquired knowledge	0.331	0.511	0.705	—	—	−0.404	−0.014
6. Firm size	0.354	0.536	0.641	0.743	—	—	−0.009
7. Equity share	0.019	−0.046	0.190	0.253	0.292	—	—
	0.183	0.269	0.447	0.353	0.174	−0.040	—

[a] The lower triangle shows correlations and square roots of average variance extracted values for the Singapore sample, and the upper triangle shows the corresponding values for the Hong Kong sample.

other constructs connected to it directly. Table 2 shows that the R^2 values, especially those of acquired knowledge, were generally large.[5] In view of the fact that a considerable number of factors may affect these constructs, the amount of variance explained by this parsimonious model is remarkable, adding support to the theoretical soundness of the model.

As mentioned earlier, Singapore firms are latecomers to China whereas Hong Kong firms are early movers. The average age of the joint ventures in the Singapore sample was only 4.13 years, much lower than the corresponding average of 8.48 years found in the Hong Kong sample. Similarly, the average number of years of experience that the Singapore firms had in managing manufacturing operations in China was only 5.74 while the corresponding figure for the Hong Kong firms was 13.38. Thus the differences between the path estimates obtained from the two samples might be partly due to the moderating effects of age of joint venture and China experience discussed below. On the other hand, the two samples were similar in terms of the preference for being the majority shareholder in the joint venture: 69.9 percent and 73.0 percent of the Singapore and Hong Kong firms respectively held more than 50 percent of the shares in their joint ventures.

[5] Since firm size and equity share are control variables, learning intent and strategic importance were not regarded as endogenous constructs.

To examine moderating effects, I first pooled the samples together in order to arrive at larger variations for the moderators. To understand the role of age of joint venture as a possible moderator of the postulated learning process, I divided the combined sample into three roughly equal groups and excluded the middle group that consisted of cases with joint ventures of four to eight years of duration. I then ran PLS analysis separately for each of the two remaining groups. (Note that Simonin, 1999a, 1999b, used a somewhat similar method to study moderating effects in his structural equation modeling). Table 3 presents the results. A notable finding was that while both channels of knowledge acquisition were significant for old joint ventures, management involvement had a dominant influence for young joint ventures. Hypothesis 7 was thus supported. The strong influence of strategic importance remained the same as in the full sample case. The effects of learning intent were not significant for both samples, rejecting Hypothesis 8.

To study the moderating effect of China experience, I also divided the combined sample into three groups and excluded the middle group that consisted of firms having seven to thirteen years of manufacturing experience in China. Table 4 reports the results of PLS analysis. Management involvement was found to be a more important acquisition channel than overseeing effort for inexperienced parents whereas the reverse was true for experienced parents. Thus overseeing effort played a significantly more important role in knowledge acquisition for experienced than for

Table 2. Path estimates and variance explained (full sample)

Hypothesis	Path	Expected sign	Path estimate		Significance of the difference between path estimates
			Singapore	Hong Kong	
H1	Overseeing effort → Acquired knowledge	+	0.292†	0.330*	n.s.
H2	Management involvement → Acquired knowledge	+	0.570**	0.363*	0.001
H3	Learning intent → Overseeing effort	+	0.143†	−0.002	0.001
H4	Learning intent → Management involvement	+	0.066	0.016	0.01
H5	Strategic importance → Overseeing effort	+	0.547***	0.574***	0.05
H6	Strategic importance → Management involvement	+	0.426**	0.736***	0.001
Control	Firm size → Learning intent		0.026	0.210	0.001
Control	Firm size → Strategic importance		−0.035	−0.265*	0.001
Control	Firm size → Overseeing effort		0.224**	−0.118	0.001
Control	Firm size → Management involvement		0.281*	−0.150†	0.001
Control	Firm size → Acquired knowledge		0.086	−0.191	0.001
Control	Equity share → Learning intent		0.184†	−0.079	0.001
Control	Equity share → Strategic importance		0.268*	0.075	0.001
Control	Equity share → Overseeing effort		0.283***	−0.046	0.001
Control	Equity share → Management involvement		0.238	−0.078	0.001
Control	Equity share → Acquired knowledge		−0.155	−0.007	0.001
Construct			R^2 value		
Overseeing effort			0.611	0.378	
Management involvement			0.394	0.614	
Acquired knowledge			0.609	0.520	

†$p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

inexperienced parents, supporting Hypothesis 9. The crucial role played by strategic importance remained unchanged, and the influence of learning intent was minimal. Hence Hypothesis 10 was rejected. Tables 3 and 4 indicate that the R^2 values of the endogenous constructs were large, confirming the strong explanatory power of the model.

DISCUSSION

The results indicate that both channels, overseeing effort and management involvement, have significant impacts on the amount of knowledge absorbed by firms from their IJVs. In particular, overseeing effort appears to be more important for firms that are experienced in managing manufacturing operations in China whereas management involvement is of crucial importance for inexperienced firms. Owing to the substantial cost of stationing expatriate managers in China, management involvement is generally a more expensive way of acquiring knowledge than overseeing effort. On the other hand, overseeing effort is a less direct conduit and thus requires greater skills in obtaining, scanning, interpreting and processing of information. It seems that compared with newcomers to China, experienced firms are more able to make use of the less expensive conduit. Such an ability is illustrated by the comment made by a respondent in my fieldwork: 'We have very rich experience

Table 3. Path estimates and variance explained for two-group comparison on age of joint venture

Path	Age of joint venture		Significance of the difference between path estimates
	Young ($n_1 = 47$)	Old ($n_2 = 52$)	
Overseeing effort → Acquired knowledge	0.127	0.470*	0.001
Management involvement → Acquired knowledge	0.661*	0.302†	0.001
Learning intent → Overseeing effort	0.062	−0.027	0.01
Learning intent → Management involvement	−0.182	0.016	0.001
Strategic importance → Overseeing effort	0.604***	0.584***	n.s.
Strategic importance → Management involvement	0.763***	0.667***	0.01
Firm size → Learning intent	−0.039	0.201	0.001
Firm size → Strategic importance	−0.110	−0.213	0.001
Firm size → Overseeing effort	0.067	0.063	n.s.
Firm size → Management involvement	0.172	0.055	0.01
Firm size → Acquired knowledge	0.224	−0.277†	0.001
Equity share → Learning intent	0.219	−0.051	0.001
Equity share → Strategic importance	0.244†	−0.133	0.001
Equity share → Overseeing effort	0.291**	0.117	0.001
Equity share → Management involvement	0.097	0.009	0.05
Equity share → Acquired knowledge	−0.081	−0.172	0.05
Construct	R^2 value		
Overseeing effort	0.569	0.330	
Management involvement	0.558	0.431	
Acquired knowledge	0.630	0.658	

†$p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

of operating in China. Even if we don't send any of our people to station in China, we know what is happening there (i.e., in the joint venture). We have ways of gathering the necessary information ... We learned these techniques (of acquiring information) through practice.' This finding supports the concept of learning-by-doing, which refers to the process by which the firm becomes more practiced and, hence, more efficient at doing what it is already doing (Cohen and Levinthal, 1989). In other words, firms improve their skills in information-processing through learning-by-doing (Katz, 1982; Levitt and March, 1988; Nass, 1994). Although learning-by-doing is a well-established concept in the literature, it has usually been associated with the learning-curve effect in manufacturing (cf. Argote, 1999) and has rarely been investigated in the context of strategic alliance. This study makes a contribution to this gap of knowledge.

The idea of learning-by-doing also throws light on the moderating effect of the age of joint venture. The results indicate that management involvement is a much more important acquisition channel for parents of young joint ventures than parents of old joint ventures. When an IJV is newly established, the foreign parent concerned needs to participate actively in the venture in order to obtain useful information. After the parent has familiarized itself with the venture operation and has improved its information-processing capability, it is able to acquire knowledge by means of a less direct channel. This finding is consistent with that of Argote's (1999) empirical studies that personal interactions are likely to be most effective during the early stage of knowledge transfer, and less personal means of communication, such as documents and routines, can be very effective once this stage has completed.

This study provides empirical support for the asymmetrical learning pattern in Tsang's (1999b) conceptual typology. The Singapore and Hong Kong firms surveyed had little intent to learn the skills and competencies, if any, held by their Chinese partners. Thus these firms mainly achieved experiential rather than vicarious learning. As mentioned earlier, management involvement is crucial for vicarious learning because intimate contacts between partners are necessary for transferring knowledge from one partner to the other. The focus on experiential learning by the firms under study partly explains why management

Table 4. Path estimates and variance explained for two-group comparison on China experience

Path	China experience		Significance of the difference between path estimates
	Little ($n_1 = 48$)	Much ($n_2 = 47$)	
Overseeing effort → Acquired knowledge	0.337†	0.461**	0.01
Management involvement → Acquired knowledge	0.515*	0.314†	0.001
Learning intent → Overseeing effort	0.061	−0.084	0.001
Learning intent → Management involvement	−0.155	−0.030	0.001
Strategic importance → Overseeing effort	0.632***	0.693***	0.001
Strategic importance → Management involvement	0.698**	0.749***	n.s.
Firm size → Learning intent	−0.003	0.169	0.001
Firm size → Strategic importance	−0.182	−0.276†	0.01
Firm size → Overseeing effort	0.058	−0.103	0.001
Firm size → Management involvement	0.081	−0.117	0.001
Firm size → Acquired knowledge	−0.189	−0.217	n.s.
Equity share → Learning intent	0.003	−0.012	n.s.
Equity share → Strategic importance	0.159	−0.119	0.001
Equity share → Overseeing effort	0.184*	0.169	n.s.
Equity share → Management involvement	0.050	0.156	0.05
Equity share → Acquired knowledge	−0.359†	−0.063	0.001
Construct	R^2 value		
Overseeing effort	0.482	0.578	
Management involvement	0.462	0.645	
Acquired knowledge	0.643	0.660	

†$p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

involvement becomes a less important conduit when the parent is more experienced or when the joint venture gets older.

Nonaka, Toyama, and Nagata (2000) maintain that the firm's knowledge-creating process determines how knowledge is accumulated over time. This study supports their argument in the context of Sino–foreign joint ventures. A striking result concerns the consistently overwhelming effects of strategic importance on both channels of knowledge acquisition, whether in the full sample or in the partial samples when moderating effects were examined. In contrast, the effects of learning intent were minimal. That is, the intent to learn is not accompanied by actions that encourage and support learning (cf. Ghoshal, 1987; Tiemessen *et al.*, 1997). In short, how important a joint venture is, and not how much a firm wants to learn from the joint venturing experience, is the driving force behind the allocation of resources to the two channels. The result suggests the existence of learning myopia—firms mainly learn through managing their key joint ventures that catch their attention. This has important managerial implications because the usefulness of the experience gained from a joint venture may not be directly proportional to its significance (Tsang, 1999a). A venture that provides novel and fruitful learning experience may not, and need not, be an operation of great strategic importance. Such learning myopia hinders firms from taking advantage of the full spectrum of their joint venturing experience. Simonin's (1997) study suggests that lessons of collaborative experience have to be transformed into know-how before they can improve performance. This study indicates that learning myopia is likely to be a key factor affecting the quality of experience, which in turn determines the quality of know-how and the benefits that can be generated. The result found in this study is consistent with that of Beamish and Berdrow's (2000) survey of Canadian and U.S. firms. Their study indicates a marginal exploration of learning opportunities by these firms from their IJVs.

To avoid learning myopia, firms should actively manage their learning processes. Whenever a new IJV is set up, its learning potential has to be carefully evaluated. Management should examine whether the IJV provides novel and useful management experience and whether knowledge can be acquired from other partners of the IJV. The evaluation step has to be followed by allocating

appropriate resources for the propose of learning. To exploit the learning potential identified above, clear objectives with respect to learning have to be set for managers who are sent to work in the IJV. To facilitate the transfer of knowledge, these managers should submit reports to the parent on useful lessons that they learn from the IJV. They may also be required to hold seminars and workshops in the parent for sharing their IJV experience with other managers. By so doing, useful IJV experience will less likely be lost due to personnel turnover.

The considerable explanatory power of the model, as indicated by the large R^2 values, adds support to its theoretical soundness. Moreover, to test the model on two somewhat similar national samples simultaneously is a major methodological improvement over prior studies, virtually all of which were based on single samples. By incorporating an element of replication in this study, I was able to examine the reliability and validity of the constructs in a more rigorous manner and to investigate how far relationships found in one sample could be replicated in another. This practice is in line with the spirit of replication that is crucial for theory development yet lacking in social science research (Tsang and Kwan, 1999).

Limitations

In addition to the caveat pertaining to common method bias discussed earlier, there was a possibility of social desirability bias (Podsakoff and Organ, 1986). I do not think that such a bias would be a serious concern for this study. First, I conducted the surveys in an anonymous manner and previous research has shown that anonymity reduces social desirability bias in studies of sensitive topics (cf. Konrad and Linnehan, 1995). Second, the topic of learning in Sino–foreign joint ventures was unlikely to be perceived by many respondents as highly sensitive. The candor of the six managers who participated in the pretest appeared to support this belief.

Single-respondent bias is unlikely to be a serious problem in the study either. First, the breadth and depth of knowledge required to answer the questionnaire is much less demanding than that required by questionnaires used in certain prior studies, such as Simonin (1991) and Inkpen (1992). Second, the majority of the respondents for both surveys were top executives. Moreover, more than half of the respondents in each sample had been with their firms for ten or more years. Hence, most of the respondents were probably the most qualified people in their firms to provide information on specific ventures (cf. Eisenhardt and Schoonhoven, 1996).

There was an overlap of 33 cases between the samples of young joint ventures and inexperienced parents, and an overlap of 27 cases between the samples of old joint ventures and experienced parents. As a result, the effects of two moderating variables could not be very clearly separated. This deficiency is partly due to the nature of the two variables. For instance, it is not likely to find a foreign firm that has little experience in China and yet manages an old Sino–foreign joint venture.

Future research directions

This study shows that through learning-by-doing, over time firms tend to rely more on overseeing effort than management involvement to acquire knowledge. This macro-level finding needs to be supplemented by studies of micro-level mechanisms. For instance, how do firms develop the skills in obtaining necessary information by means of joint venture-parent interactions? Are the nature and quality of knowledge obtained through the two channels similar? It seems that in-depth case study, rather than questionnaire survey, is a more appropriate research method in this instance.

As discussed above, the fact that Singapore and Hong Kong firms are not motivated to learn from their Chinese partners partly explains why management involvement becomes a less important channel when the parent is more experienced or when the joint venture gets older. Since management involvement is crucial for vicarious learning, if a firm intends to acquire certain skills from its joint venture partner, such as the case of the Japanese firms in Hamel's (1991) study, the firm will continue to rely on management involvement as an acquisition conduit. How far this conjecture is correct has to be tested empirically.

Cultural differences were not a concern for this study because Singapore is a predominantly Chinese society. Nevertheless, national culture is a pertinent factor affecting knowledge transfer and acquisition (Kedia and Bhagat, 1988; Lyles and Salk, 1996). Child and Rodrigues (1996) argue

that national cultural differences may foster feelings of distancing and conflict between expatriate and local staff in an IJV, and hinder the transfer of knowledge between the two groups of people. As such, it is reasonable to expect that the greater the cultural difference between two joint venture partners, the more likely they will rely on management involvement (a more straightforward channel) to acquire knowledge. Again, empirical test is called for.

In conclusion, despite its limitations, this study significantly contributes to our knowledge of organizational learning in the IJV context. Having said that, the topic remains an under-researched area. It is expected that this paper will stimulate more empirical research effort in this direction.

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APPENDIX: SURVEY ITEMS USED TO MEASURE CONSTRUCTS

A 7-point Likert scale was used for the following questions:

Learning intent

One of your company's objectives of forming this joint venture is to:

1. Learn specific skills and competencies (e.g., technology) held by your Chinese partner(s)[6]
2. Learn more about how to do business in China
3. Learn or improve the skills of inter-firm cooperation in a joint venture setting
4. Learn or improve the skills of managing overseas operations

Strategic importance

1. Sales revenues of this joint venture's products constitute a significant portion of the total income of your company
2. This joint venture occupies an important strategic position in China *vis-à-vis* your company's competitors
3. Market potential for this joint venture's products in China is huge
4. This joint venture is regarded as an important profit contributor
5. Overall, your company views this joint venture as very important

Overseeing effort

1. Amount of executive time and attention committed by your company to this joint venture
2. Amount of attention paid by your company to evaluating the written operational reports submitted by this joint venture to your company
3. Frequency of visits to this joint venture conducted by senior management (i.e., department heads or above) of your company
4. Frequency of communication between this joint venture and your company
5. The extent to which staff assigned to this joint venture or who have special responsibility for it are encouraged to share their experience with colleagues in your company

Management involvement

Your company is involved in managing details of the following areas of this joint venture:

1. Human resource
2. Production
3. Quality control
4. Purchasing
5. Sales and marketing
6. Accounting and finance
7. Information system
8. Dealing with Chinese government bodies

Acquired knowledge

The extent to which your company has learned from this joint venture experience in the following areas:

1. Specific skills and competencies held by your Chinese partner(s)
2. Collaborating with your Chinese partner(s) in running this joint venture
3. Setting up a management system in this joint venture
4. Overseeing this joint venture operation from Singapore/Hong Kong
5. Knowing about the Chinese business environment, e.g., tax system, labor policy, etc.
6. Dealing with Chinese government bodies
7. Building up business connections (*guanxi*) in China
8. Adapting technology to the local Chinese condition
9. Establishing marketing and distribution networks in China

[6] Dropped in final analysis.