

Chapter VI

Discussion and Conclusion

In previous chapters, the model of local firms' learning in international alliances, which draws on the organizational learning and the strategic alliances literatures, is proposed and tested. The purpose of this chapter is five-fold. First, results of the study are discussed. Second, implications of the study are proposed. Third, limitations of the study are stated. Fourth, future research is proposed. Finally, the conclusion of the study is provided.

Discussion

Nine hypotheses are tested in the previous chapter. These hypotheses are on the relationships between learning and its nine independent variables, i.e., cultural similarity, receptivity, trust, ownership structure, complementarity, prior tie, ambiguity, trialability, and usage advantage. Four measures of learning are proposed as overall learning, productivity improvement, innovation, and innovation adoption. Each measure of learning is examined separately.

Four statistical methods are used to examine the relationships between variables, i.e., correlation analysis, ANOVA, multiple regression analysis, and multiple discriminant analysis. These methods are selected in accordance with the purposes of the study and the measurement scale of variables in the analysis. To support the hypotheses, only the results from multiple regression analysis and multiple discriminant analysis are considered since they provide a model fit test. However, the results from correlation analysis and the ANOVA are used to guide and to reassure the final assessment.

The findings from the multiple regression analyses are remarkable. The analyses revealed that learning was explained well when it was measured in terms of a subjective perception such as the overall learning. When learning was measured in terms of an objective perception such as the productivity improvement (percentage decrease or increase of productivity) or the innovation (number of certification or new

design), the model had less power of explanation. These results suggest that it is plausible to argue that local firms in Thailand are rather passive learners. They recognize learning in terms of the improvements in production efficiency, production technology, changes of conduct and understanding, and better work environment. However, when learning becomes an action, local firms seem to be either a slow learner or a learner who learns not to learn much. A possible explanation why local firms learn not to learn much is that the cost of learning is too high to afford. Some executives explained in the interviews that their companies could not afford the development of new design by themselves because of the budget constraint and the size of the market was too small to be profitable from the investment for learning.

Discussion on four dimensions of learning are as follows.

1. Overall Learning

In this study, the overall learning includes the improvement of local firms in terms of production efficiency, production technology, changes in manufacturing, changes in understanding, and better environment. Overall learning is an appropriate measure of learning of local firms in the context of Thailand where manufacturers still need to upgrade their production process in order to be competent and acceptable in the world market. New world rules of trade and trade liberalization have coerced Thai manufacturers to improve the production efficiency, to develop new understanding of manufacturing, and to provide better work environment. Nowadays, the way that manufacturers in one country conduct their businesses is not only the internal issue for that country but also an issue that representatives in international organizations such as the World Trade Organization exploit as an element in their trade negotiations.

The improvement of these production-related operation can be equated with the double loop-learning of Argyris and Schon (1978) or the adaptive learning of Shrivastava (1983) or the generative learning of Senge (1990). According to these researchers, learning takes place when local firms modify their underlying policies or objectives (Argyris and Schon, 1978), adjust their behavior (Shrivastava, 1983), develop new way of looking at the world (Senge, 1990).

Results of the analysis suggest that the overall learning is significantly influenced by receptivity in terms of information capability, ambiguity and usage advantage of the knowledge in the multiple regression analysis. In the ANOVA, the overall learning is significantly influenced by trust, ownership structure, trialability, and usage advantage. In the correlation examination, the overall learning is significantly influenced by cultural similarity, receptivity, trust, ownership structure, ambiguity, trialability, and usage advantage.

The analyses show that ambiguity negatively related to the overall learning whereas cultural similarity, receptivity, trust, ownership structure, trialability, and usage advantage positively related to the overall learning as hypothesized. Prior tie and complementarity are found to have no significant relationship at all to the overall learning. The findings on complementarity and prior tie can be supported by the "Master Plan for Industrial Development of Thailand" (Thailand Development Research Institute, 1997). It is reported that:

The manufacturing industries in Thailand rely on imported technology. Many Thai factories are engaged in wholesale import of technology from abroad even when they have no previous experience in that technology or production process. Despite a high volume of technology imports, the development of indigenous technology by the Thais has been slow.

The finding on prior tie also can be supported by the study of Inkpen (1995) which also found that the experience of having worked before with a given partner did not affect the learning efforts of parent companies.

The results of the analyses imply that the partner attributes and the knowledge attributes play major roles in the improvement of local firms' production-related operation. The relationship attributes partly contribute to the overall learning of local firms. Ownership structure is the most important among three elements of relationship attributes.

The ANOVA also indicates that, on average, local firms have fairly high overall learning. The mean values of overall learning for all independent variables are almost four, ranging from one to five. The mean value of overall learning for the respondents whose partner's knowledge has low usage advantage is below three, indicating the strong relationship between usage advantage and the overall learning.

2. Productivity Improvement

Productivity improvement may be equated with double loop-learning of Argyris and Schon (1978) which occurs when error is detected and corrected in ways that involve the modification of an organization's underlying norms, policies and objectives. Productivity improvement includes the improvements of defective rate, return product, machine's capacity utilization, R&D, and man-hour productivity. Productivity improvement is an appropriate measure of learning of local firms in Thailand because it indicates the degree of improvement of production efficiency of local firms which the Government of Thailand has aimed to achieve. An evidence can be seen from the establishment of the Thailand Productivity Institute to promote production efficiency of manufacturers in Thailand.

The ANOVA indicates that local firms have low productivity improvement. The mean values of productivity improvement for all variables are lower than one, ranging from zero to four. Results of the study suggest that the productivity improvement is significantly related to trust and usage advantage in the correlation examination, the ANOVA, and the multiple regression analysis. The productivity improvement is also significantly related to receptivity in terms of knowledge cultivating activities in the ANOVA. It is found that receptivity, trust, and usage advantage positively related to productivity improvement as hypothesized.

Cultural similarity, ownership structure, prior tie, complementarity, ambiguity, and trialability have no significant relationship at all with the productivity improvement. These results implied that the partner attributes and the knowledge attributes partially play important roles in the productivity improvement of local firms. The relationship attributes have no role in the productivity improvement.

It is plausible to argue statistically that cultural similarity is redundant when trust is in the model. Therefore, cultural similarity may not relate significantly to the productivity improvement since trust, which is stronger, is employed.

Ambiguity and trialability play no roles in productivity improvement. Incorporated these results with those of innovation adoption, it can be assumed that local firms have low productivity improvement because they utilize their partner's technology without trial. This result in low understanding of how technology works

and how to utilize that technology effectively. The significance of usage advantage indicates that local firms consider the creditability, efficiency, and cost and benefit of the technology implementation more than creating a foundation for new knowledge. The significant relationship between trust and the productivity improvement asserts that local firms consider technology of their foreign partner as undoubtedly useful.

3. Innovation

Innovation includes new product design development and production standard development. Innovation is a composite measure which is derived from a principal component analysis. The combination of new product design development and production standard development is labeled as innovation since it may imply the creation of a new product and new production. Innovation is an important measure of learning of local firms in terms of sustaining competitive advantage. The ability of manufacturers to upgrade their production process in terms of innovation can be equated with deuterio-learning which is suggested by Argyris and Schon (1978) that it occurs when members in the organization discover what they did that facilitated or inhibited learning.

The ANOVA indicates that local firms do not have high innovation since the mean values of innovation for all variables are below two, ranging from one to four. Results of the study suggest that the innovation is significantly related to receptivity, in terms of knowledge cultivating activities, and usage advantage in the multiple regression analysis. The innovation is significantly related to receptivity, in terms of knowledge cultivating activities, and ownership structure in the ANOVA. The innovation is significantly related to receptivity, in terms of firm's resource strength and knowledge cultivating activities, trust, ownership structure, prior tie, and usage advantage in the correlation examination. It is found that receptivity, trust, ownership structure, prior tie, and usage advantage positively related to innovation as hypothesized. Cultural similarity, complementarity, ambiguity, and trialability are not significant at all to innovation.

Results of the analyses imply that the partner attributes, the relationship attributes, and the knowledge attributes have partial role in the innovation of local

firms. Results of the study also imply that local firms do not learn by doing since ambiguity and trialability play no role in the innovation. The significant relationship between usage advantage and the innovation implies that learning by using may be more important to local firms in Thailand than learning by doing. According to Rosenberg (1982), learning by using is an external learning which is the result of what happens when users have the opportunity to use the product. On the contrary, learning by doing which is the internal learning is what happens when manufacturers have the opportunity to produce the product. From the concept of Rosenberg, it implies that local firms in Thailand do not have sustaining competitive advantage since they are interested in only external learning from participating in international alliance.

Other attributes that enhance the innovation of local firms include knowledge cultivating activities, trust, ownership structures, and prior tie. The ANOVA suggests that knowledge cultivating activities plays the most important role in influencing local firms' learning from their partners in international alliances. The difference of the mean values between the respondents who have low level of knowledge cultivating activities and those with high level of knowledge cultivating activities is stronger than that of other variables. Nevertheless, the raw data indicate that, on average, local firms have conducted training courses for their employees only one to six times in a year. Company's memo is more often used, however, it is seven to twelve times a year. These results imply that local firms should conduct these activities more frequently. It is because the more frequently the local firms conduct these activities, the higher the likelihood that learning will take place.

Ownership structure also plays an important role in enhancing the innovation of local firms. The ANOVA indicates that respondents with ownership in the alliance have higher mean value of innovation than that of the respondents without ownership in the alliance. It implies that local firms that have equity in the alliance will have more opportunity to access and obtain knowledge from their partners more than those who have no equity. Likewise, Li and Shenkar (1997) also found that local companies in China that seek foreign partners to update and improve their technological know-how of the existing facilities are more likely to select a non-equity cooperative structure. In the meantime, local partners are more likely to choose equity joint

ventures when the project is a new venture or involves a new product which are more likely to require the transfer of technological know-how.

Trust and prior tie do not have much role in the innovation although their relationships with the innovation are significant. The differences of the mean values of the innovation when it is defined by the two variables do not vary much between the low group and the high group. In the meantime, the correlations of these variables with the innovation are low. These results maybe contradict a previous study which is conducted by Olson and Singsuwan (1997). Their study found that the Thai respondents will be more willing to work on a less than perfect relationship in order to develop something that will be better in the future. However, the finding on trust of the current research complements the work of Olson and Singsuwan which found that the Thai executives are concerned about trust in the strategic alliance but they are not severe about perfect trust.

In the same study, Olson and Singsuwan also found that Thai respondents did not believe cultures between partners had to be perfectly similar in order for an alliance to be successful. Cultural differences are manageable when trust between partners is high. The current research also found that local firms had high trust in their foreign partners, in particular, in the foreign firm's capability and competency. In the mean time, cultural similarity is not significant for the innovation. Therefore, the finding complements the previous study that the Thai executives do not believe much in cultural similarity in order to develop an innovation. However, in this study, the respondents present high cultural similarity to their foreign partners. Although the relationship between cultural similarity and the innovation is not significant, the direction is positive as hypothesized.

4. Innovation Adoption or Partner's Technology Utilization

The innovation adoption may be equated with Huber's (1991) learning that occurs when members of an organization acquire chunks of knowledge and recognize it as potentially useful for organizational purposes. The innovation adoption is also based on Rogers's (1983) concept of diffusion of innovation. The adoption of innovation will lead change to those who adopt the innovation. An innovation

adoption may imply an imitation which is an important source of learning (Hedberg, 1981). This kind of learning should be incorporated with the process of evaluation and trial and error (Rogers, 1983; Levitt and March, 1988).

Results of the study suggest that the innovation adoption or partner's technology utilization is significantly related to ownership structure and usage advantage in the multiple discriminant analysis. The innovation adoption is significantly related to trust, ownership structure, prior tie, and usage advantage in the correlation examination. The partner attributes, the relationship attributes, and the knowledge attributes have partial roles in the innovation adoption of local firms. It is found that trust, ownership structure, prior tie, and usage advantage positively related to innovation adoption as hypothesized. Cultural similarity, receptivity, complementarity, ambiguity, and trialability are not significantly related to the innovation adoption.

This study suggests that ambiguity and trialability do not significantly influence the innovation adoption of local firms in Thailand. The findings imply that local firms do not participate in the trial stage before assimilate their partner's technology into their production process. The finding on the significant relationship between usage advantage and the innovation adoption implies that local firms in Thailand only evaluate the technology of their partner and adopt it without trial.

The descriptive statistics indicates that 37.3 percent of local firms have utilized their partner's technology in forty one percent or more of their production process. The result is not much surprising in the context of the industries that are selected for this study, i.e., vehicle and parts industry and electrical and electronics products and parts. These two industries are characterized as high capital- and high technology-intensive (TDRI, 1992: 29). Local firms cannot afford the trial process due to the constraint financial resource and the scarcity of qualified human resources. Therefore, only the evaluation process is important to these two industries.

Moreover, local firms highly trust that their partner is responsible, capable, competent, frank, and thoughtful. The positive relationship between trust and the innovation adoption indicates that local firms believe that the assimilation or the utilization of their partner's technology will certainly not undermine them. Local firms trust that they will receive an appropriate technology from their partner.

Therefore, it is plausible that ambiguity and trialability seem not important to the innovation adoption. In addition, cultural similarity is not needed as indicated in the work of Olson and Singsuwan (1997) that cultural differences are manageable.

The significant relationship between ownership structure and the innovation adoption implies that the ownership in the alliance may provide an opportunity for local firms to know and understand their partner's technology. It is easy for the local firms to assimilate or utilize their partner's technology into their own production process.

Implications

The intention of this study is to understand factors that are attributable to local firm's learning from their foreign partners in international alliances. From the analyses, two implications can be provided. The first implication is for the local firm. The second implication is for the government of Thailand, in particular, Board of Investment, Ministry of Industry, and Ministry of Education.

1. Implication for Local Firms

The implication is made on the learning of local firms and the three attributes that enhance learning, i.e., partner-related, relationship-related attributes and knowledge-related attributes.

Learning

The analyses suggest that local firms do not have high level of learning when it is measured in terms of objective perceptions. The results imply that local firms maybe not really learn from their partners. It is suggested that Thai manufacturers must seriously learn from their partners, especially how to improve the production technology and the production methods. It is because Thailand has to compete with other countries in the world market. Non-tariff barriers, for instance, measures for

environmental protection, have been established in some developed countries to protect their local productions. International alliances can be used as a means for Thai local firms to learn from their partners how to develop their production process or production technology that meet the standard or the requirements of foreign markets especially those that are big enough to provide profit for the investment. These markets will provide opportunities for Thai firms to survive and grow in the future.

Partner Attributes

Two characteristics are suggested.

1. **Be skeptical.** Results of the study suggest that local firms consider their culture as similar to that of their partners. Moreover, they highly trust in their partners. Usage advantage of technology is considered more important than the characteristics of ambiguity and trialability. It implies that local firms need not to change their behavior or their way of conduct in order to cope with foreigners. They also highly rely on their partners' capability. Creditability is more concerned than a development of actual understanding about the technology. Therefore, local firms have not learned new things from these partners. It is suggested that local firms should be more concerned about the differences of cultures. The concept of 'let it go', 'let it be', and 'let them be as they are and let me be as I am' should be changed. The characteristics of skepticism should be developed since it creates a good student.

2. **Be alert.** Respondents indicate that they perform knowledge cultivating activities not very often. However, knowledge cultivating activities is found to be positively related to learning. Therefore, in order to obtain more knowledge, local firms should pay more attention on training their employees.

Relationship Attributes

Be real rich. Ownership structure can be equated with financial resource since the equity is an asset. Prior tie with foreign partners is equated with international connection or experience. Complementarity is the contribution of resources between

partners, therefore, is equated with wealth. It is suggested from the study that ownership structure plays more important role in learning than prior tie and complementarity between partners. It implies that among financial resource, international connection or experience, and capital and non-capital wealth, the former is the strongest characteristics of local firms in Thailand. However, respondents indicate that among resources they have, financial resource is the weakest. Therefore, it is suggested that local firms should invest in business that they actually have capacity to pursue. In addition, local firms should collaborate with partners who are capable but compatible and not stronger. It is because either dominant foreign partners or weaker and less capable foreign partners also provide a little opportunity to learn from them.

Knowledge Attributes

The results of this study indicated that usage advantage is more important than ambiguity and trialability in local firm's learning. The analyses may imply that the concentration only on the usage advantage of the transferred knowledge resulted in the low level of learning of local firms. It is suggested that all three elements of knowledge attributes are important to local firms' learning. The clear understanding and the trial of the technology will enable local firms to develop their own technology and to decrease their dependence upon foreign technology. Local firms' technology development should be conducted while the local firms still participate in the alliance since it provides opportunity to access the partner's technology.

2. Implication for the Government of Thailand

Government policies play important roles in local technology development. Results of the study imply that even though the government has developed many comprehensive measures and policies for upgrading the competitiveness of manufacturers in Thailand, the efficiency of the Thai manufacturers is still not improved. Suggestions for the government of Thailand are as follows.

1. Be realistic and honest. The government officials should develop and implement the development plan on the basis of real data with real intention to develop the industrial sector. The measures and policies should be understandable, feasible, and really serve the need of the industrial sector. Short-term and long-term plans should be developed and implemented by the government agencies within a common goal and not overlapped among the different agencies. The government officials should conduct their authority honestly and with high intention to bring about the benefit to the country. The government budget should not be spent only in order to create the image of a big organization which deserves strong promotion either in terms of a big budget for the following fiscal years or in terms of more high ranking officials in the organization.

2. Create learning culture. The support for usage advantage and the lack of supports for trialability and ambiguity of this study imply that Thai manufacturers are not interested much in learning from their foreign partners. Thai manufacturers are interested only in the outcome without intention to develop a sustainable competency through a knowledge transfer or a trial. This reflects the lack of learning culture in Thai society. The government, in particular, the Ministry of Education should promote the environment for a creation of learning culture in the national education systems. A research center should be established in every school to provide an appropriate level of knowledge for young researchers. This is to enable Thai children to develop a learning habit which will in turn develop a characteristic of good technology receiver and innovator in the future. Meanwhile, the Ministry of Industry should also promote environment of learning organization in local firms. Training courses should be organized to educate and create the learning culture and learning habit for companies' employees. Executives and management levels of private firms should be educated about the importance of developing a sustainable competency through foreign partners' technology transfer. The importance of the characteristic of knowledge in terms of trialability should be emphasized since it theoretically leads to learning.

3. Tough measures. The partial support for trust may imply that the local firms will take whatever technology that their partners bring to their alliances. Therefore, the government, in particular, the Board of Investment should develop

tough measures on technology transfer from foreign firms. There should be inquiry into what technology the company will introduce to Thailand and how this technology may be transferred. The impact of the technology should be carefully evaluated in terms of environment preservation, quality of life of Thai people, and science and technology advancement. Foreign investment should not be promoted only in terms of inward financial flow but also in terms of upgrading quality of people and knowledge.

Limitations

The current research has empirical and theoretical limitations as follows.

1. Empirical limitations

First, although the quality of the measurement is provided by a careful conduct on literature review, research design and purification of measures, the construct complexity fails to meet a satisfactory discrimination. Cultural similarity and trust cannot be discriminated when they are in the same principal component analysis. The phenomenon may be caused by the relatedness of the indicators. It is suggested that cultural distance or national culture may be more appropriate than corporate culture.

Second, I have examined only the relationship between a dependent variable and independent variables, implying that these independent variables may contribute only to the change in the learning of local firms in international alliances. In fact, it is important to consider the inter-relationships between independent variables. For instance, prior tie may contribute to the change of trust between partners. Then, they jointly affect learning.

Third, the data collection process for the mail survey has focused on a single respondent. Some responses might be biased due to the unintentional conduct of some respondents which is occurred by the constraints of the time available to answer the questionnaire. Multiple key informants would have been desirable to corroborate and cross-validate the reported information.

Fourth, the population is from two industries in Thailand only. Care should be exercised in generalizing this results to other population. Although the study

represents a reasonable starting point, it is not appropriate to assume that this sampling frame is able to generalize to other countries.

Fifth, the population for this study is rather small ($N=102$). The propositions, thus, resulted in weak support. A study being done with a much larger sample should be conducted in the hope that some of the relationships suggested in this research will gain stronger support.

Sixth, most of the indicators are perceptual measures. Proxies and derivations from secondary data may be desirable to validate the perceptual responses. Moreover, the data on the foreign partners are collected through the responses of local partners. Conjecture about the foreign partners' behavior may be inaccurate and thus may bias the results.

Seventh, hypotheses of this study are tested by employing multiple regression and multiple discriminant analyses. Consequently, some concepts cannot be explained. In social science, a structural equation approach will be more useful in explaining causal relationship between variables.

Eighth, this study measures ownership structure as a binary variable. Therefore, the result cannot indicate an optimal level of ownership that will enhance an opportunity for a local firm to learn from its foreign partner in an international alliance. The real value of the equity will probably provide clearer understanding about the variable.

2. Theoretical Limitations

Drawing on only the literatures of organizational learning and strategic alliances limits the scope of the study. It is because of the novelty and departure from more classical streams of thoughts, these two perspectives provide mostly conceptual works and variety of concepts. Research based on organizational learning and strategic alliances still needs empirical work. It is conceivable that some of the relationships between variables are wrongly hypothesized due to the difference in the context between the current research and previous studies, i.e., complementarity. The weak support of some hypotheses indicates that there may be some indicators are

erroneously omitted. There is also no certainty that all the relevant variables are included in the conceptual model.

Future Research

Questions of how organizations learn from their partners continue to be important to scholars in international business. This research is intended to complement the related studies that have been done on alliance. There are a number of empirical and theoretical aspects in which the current framework can be elaborated.

Empirically, first, the current findings may not be readily generalizable because the study included observations in only two industries, i.e., electrical and vehicle in one country. The sample size is also small. It would be interesting and important to conduct a comparative study on different industries which have different characteristics. It is to see whether difference of result will be achieved. Future research with a larger sample should also follow to further corroborate the arguments presented here.

Second, learning may be impacted by other moderators not considered here. For instance, experience in cross cultural negotiations may moderate the effect of ownership structure on learning. Government regulations and policies on technology transfer may moderate the effect of trust on learning. Future research should be conducted by adding moderators.

Third, the current study employs multiple regression analysis and multiple discriminant analysis. There are many questions that these two techniques cannot answer. The structural equation modeling approach is encouraged here since it will provide more understanding about the inter-relationships between variables.

Theoretically, first, it is suggested that further research should be conducted on sample in other country than Thailand to examine whether there is any difference in how and what local firms learn.

Second, more perspectives other than those of organizational learning and strategic alliances should be drawn on. Different views will create synergy in the study.

Third, another dimensions of learning should be studied. For instance, the effect partner characteristics on learning not to learn.

Conclusion

The current research is conducted to provide an understanding of factors influencing local firms' learning from their partner in international alliances. A mail survey approach is used for collecting data. Two industries are selected for the study because of their importance to the economy of Thailand. Multiple-item measures are carefully purified for their reliability and validity.

There are four measures of learning in this study. The first measure of learning is the overall learning. The second measure of learning is productivity improvement. The third measure of learning is innovation which is the combination of new product design and standard development. The fourth measure is innovation adoption which implies the utilization of partner's technology. Nine independent variables are classified into three attributes, i.e., partner-related, relationship-related, and knowledge-related.

Nine hypotheses are proposed and tested. Correlation examination, ANOVA, multiple regression analysis, and multiple discriminant analysis are employed for the statistical test. Results indicate that trust and usage advantage can explain more number of dimensions of learning than other variables. Complementarity cannot explain learning of local firms at all. Results of the study indicate that local firms are very usage advantage oriented. It is suggested that local firms should focus on other characteristics of partner's technology, i.e., ambiguity and trialability. It is because these two characteristics will enhance a sustainable competitive advantage from learning.

Future research is encouraged to be performed by drawing on more perspectives other than those of organizational learning and strategic alliances. Different industries and different countries are suggested in order to extend the understanding of the topic. New dimensions of learning should be studied, e.g., learning not to learn.