

CULTURE AND KNOWLEDGE CO-CREATION: Research Collaboration in the Chinese MNC context

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Abstract The paper examines the role of home country culture in university-industry research collaboration and knowledge interaction in the Chinese MNC context. We approach the issue by conducting a critical literature review with interviews from Finland and China. The previous studies on university-industry collaboration focus primarily on technology and knowledge transfer. The present study, however, argues that in the Chinese MNC context more interactive types of knowledge interaction like knowledge co-creation should be of key concern, so are various challenges in terms of local culture and interpersonal relationship (Chinese *guanxi*) that includes for example important organizational processes of interpersonal relationship and trust, intensive communication and interaction, mutual commitment and learning, and being well aware of cultural and knowledge-related differences between collaboration partners.

Key Words Culture, Knowledge Co-creation, Research Collaboration, multinational corporation (MNC), China

Introduction

As work and projects are increasingly conducted in globally distributed contexts, seeking and absorbing complementary knowledge in collaboration across geographic and cultural borders are increasingly becoming part of firms' key strategy and operations when gaining global competitiveness (Awazu, 2007; Buckley & Carter, 1999; Buckley et al., 2006; Lindqvist et al., 2007). Recent research indicates that such inter-cultural knowledge-based collaboration is increasingly important in science and engineering (John-Steiner, 2008; Olson & Luo, 2007), in rapid innovation via strategic communities (Kodama, 2003; 2005), in present open and horizontal innovation networks (von Hippel, 2007) and in university-industry knowledge alliances in emerging markets (Lin, 2005, Wang & Lu, 2007). This, however, does not mean knowledge-based collaboration is without difficulties. Many cross-border knowledge interactions, including knowledge transfer projects, have encountered considerable difficulties or have failed because of significant cultural variations and barriers (Almeida et al., 2002; Bröchner et al., 2004; Holden, 2002; Li & Scullion, 2006; Moitra & Kumar, 2007; Qin et al., 2008; Siegel et al., 2003). The key task of global knowledge management, as pointed out by Holden (2001), is thus to foster and direct collaborative cross-cultural learning and development.

Emerging markets are now seen as a major source of global innovation and knowledge management (Fu et al., 2006; Pillania, 2005). The development of new knowledge and capabilities is particularly relevant and salient in emerging and changing markets like in China (Hong et al., 2008; Khavul et al., 2007; Li & Scullion, 2006; Tsui, 2004). Knowledge-based collaboration including university-industry knowledge alliances and interaction has been forming in a fast pace in China (Heikkinen et al., 2007; Li, 2005; Li & Zhong, 2003; Lin, 2005; von Zedtwitz, 2007; Wang & Lu, 2007).

The present research is important in practical R&D contexts of management. Our initial observations in China have shown that to gain competitive advantage, particularly in future-oriented and developing markets involving dissimilar cultural contexts, subsidiary research centres of world-leading multinational corporations (MNCs) have shifted their attention from static types of collaboration (e.g., authorized or contract-based research) to much more interactive collaboration and interaction (e.g., knowledge co-creation). This is mainly because of the increasing complexity of the tasks in hands and also the pressing need to understand collaboration partners in an unfamiliar and uncertain business environment. Intensive interaction is assumed to bridge huge cultural distance and knowledge gaps, facilitating the effectiveness of cross-border knowledge interaction. Such a new organizational context demands research on more interactive types of knowledge interaction, in which the impact of culture is more evident and even intense. We believe systematic research in cross-cultural contexts can yield better understanding of the issue pursued here and provide more profound theoretical and managerial implications.

The paper starts with a review of knowledge interaction in research collaboration, in which knowledge theories and strategies regarding exploration versus exploitation are particularly emphasized. Next, relation-based culture in China is introduced, followed by the section of *guanxi* and knowledge interaction, laying a stress on the role of interpersonal relationship or informal social networking (Chinese *guanxi*) in knowledge co-creation. We use two sets of empirical data collected during 2007-2008 to discuss preliminary findings related to the

present research. Finally, we discuss both theoretical and practical implications for U-I studies in the Chinese MNC context and suggest some alternatives for future research.

Knowledge Interaction in Research Collaboration

In inter-cultural research collaboration and management literature, *knowledge interaction* is often a term feely used without any clear definition or discussion. Mostly in such cases, it has just been taken or used to imply somehow a kind of knowledge exchange between two or more teams, organizations or communities that host different bodies of knowledge. The knowledge collaboration partners may often be complementary (e.g., Bukh & Johanson, 2003; John-Steiner, 2000; Santoro & Gopalakrishnan, 2000), meaning two or more organizations have distinct but mutually synergistic resources necessary for advancing new knowledge. Complementarity is one alternative that enables organizations to acquire and exploit new knowledge (Teece, 1987/ Santoro & Gopalakrishnan, 2000).

With a more precise meaning, knowledge interaction as a concept has been used in university-industry (U-I) collaboration studies (Fukugava, 2005; Hong et al., 2007; Santoro & Gopalakrishnan, 2000; Schartinger, 2002). For instance, knowledge interaction is used to describe all types of direct and indirect, personal and non-personal interactions between organizations and/or individuals from the firm side and the university side, directed at the exchange of knowledge within innovation processes (Schartinger et al, 2002). In this research, knowledge interaction includes U-I interactive knowledge strategies, relationships, processes, activities and outcomes.

Exploration versus Exploitation

There is a long debate in knowledge and learning process whether *knowledge exploitation* or *knowledge exploration* should be the focus of the firm to gain an effective knowledge interaction and its value creation (March, 1991; Grant & Baden-Fuller, 2004; Gupta et al., 2006; Spender, 1992). In understanding and explaining strategic alliances, Grant and Baden-Fuller (2004), for instance, promote a knowledge accessing theory in which they argue that the primary advantage of alliances over both firms and markets is in accessing rather than acquiring knowledge. In MNC context, Gupta et al. (2006) emphasize the consistency between conceptual and empirical definitions of exploitation and exploration and raise a key question: How should organizations balance between exploration and exploitation?

Managers and researchers may understand knowledge and knowledge strategies differently in research collaboration. Some use intensively *knowledge exploitation or codification strategy*, emphasizing the application of existing knowledge others significantly employ *knowledge exploration or personalization strategy*, laying stress on knowledge creation through collaboration. Two differentiated strategies have further been conceptualized by Jasimuddin et al. (2005). The exploitation or codification strategy focuses chiefly on explicit knowledge, allows knowledge to be carefully codified and stored in databases where it can be made easily available to use. The exploration or personalization strategy tends to focus on tacit knowledge, addresses the storage of knowledge in human minds and its transferring through person-to-person interface (through activities such as story telling).

Depending on different knowledge theories and strategies of exploitation versus exploration, the following knowledge interaction approaches are often used in inter-organizational research collaboration: *technology and knowledge transfer* (TKT), *knowledge integration* (KI) and *collaborative knowledge creation* (CKC) (Hong et al., 2007). In simple terms, TKT is the communication of technology and knowledge from one agent to another (Hedlund & Nonaka, 1993). The one that provides the needed knowledge is the knowledge source or supplier, and the one that gets the knowledge is the knowledge recipient. KI emphasizes the process of integrating and transforming *the acquired knowledge* for the firm's specific use. Comparatively, integrating knowledge takes less time in the learning process than transferring knowledge (Grant, 1996). CKC refers to a situation when two or more partners come and work together to create new information and knowledge, which can be used for the benefit of both or all sides, and potential for their future innovation and development (Engeström et al., 2003; Holland & Lave, 2008; Inkpen, 1996). The focus of CKC is on creating and developing new knowledge through research collaboration.

In the previous studies, researchers relate different knowledge interaction strategies and approaches to different organizational consequences in the development of accumulated knowledge, competence and capabilities. In many firms knowledge interaction strategies are also more and more differentiated, unconsciously and/or intentionally.

Explicit vs tacit knowledge: Highly tacit knowledge is likely to be found with a knowledge-creation (i.e., knowledge exploration) strategy rather than a knowledge-reuse (i.e., knowledge exploitation) strategy (Hasen et al., 1999). There are both advantages and disadvantages in emphasizing either explicit or tacit knowledge (Jasimuddin et al., 2005).

Applied vs basic research: applied research contains greater not-codified or tacit knowledge than basic research. Mansfield (1995), for instance, concludes from his study that in many kinds of applied R&D, it is very useful for academic and firm personnel to interact and work together on a face-to-face basis, whereas in basic research such ties may be weaker and more sporadic.

Capability exploiting vs capability augmenting: knowledge interaction strategies and approaches are closely linked to the firm's developing path on types of research laboratory meant to be capability exploiting versus capability augmenting (technology transfer unit vs global technology unit; support laboratory vs research laboratory) (Ambos & Schlegelmilch, 2008).

Codification vs personalization strategy: in their studies from health care to high tech, it is found that those that pursued an assemble-to-order product or service development strategy emphasized the codification and reuse of knowledge. Those that pursued highly customized service offerings, or a product innovation strategy, invested mainly in person-to-person knowledge sharing (Hansen et al., 1999).

In the light of the reviewed knowledge theorizing and related studies, we propose that modes of knowledge interaction (i.e., TKT, KI & CKC) and corresponding strategies (i.e., exploitation vs exploration, codification vs personalization) should match up well along with the consideration of knowledge type (explicit vs tacit), research tasks in hands (applied

vs basic research), and capability development practices (capability exploiting vs augmenting). Thus, we believe it can enhance greatly effectiveness of inter-cultural research collaboration. Such alignment can be depicted in Figure 1.

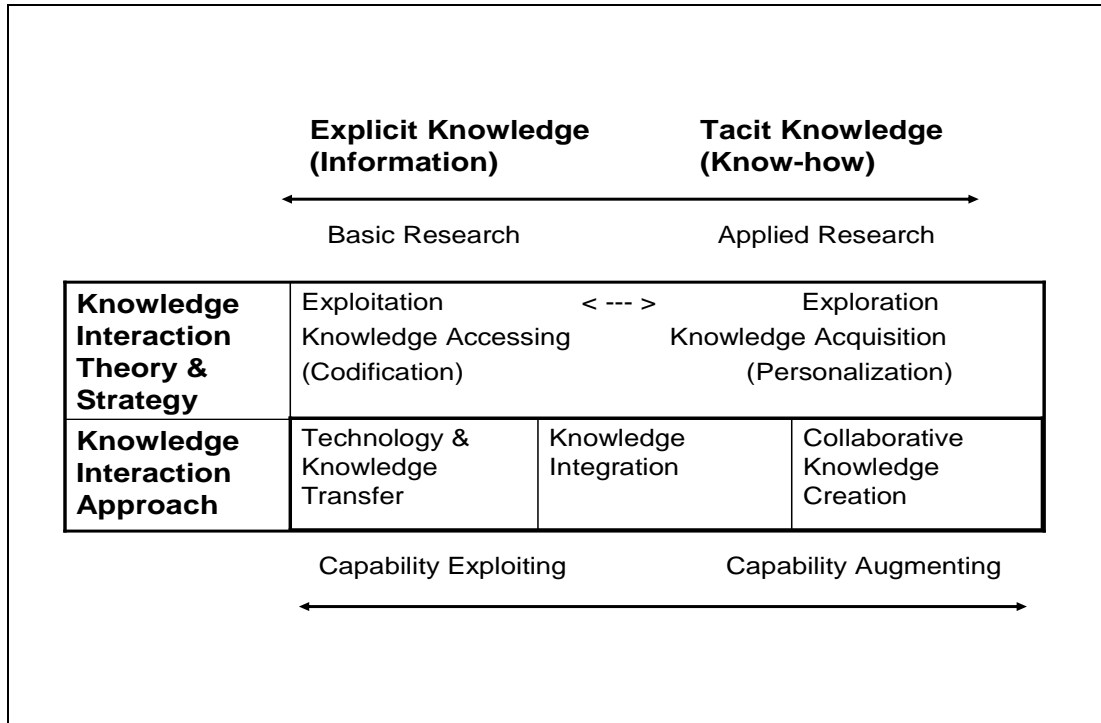


Figure 1: The coalignment of knowledge interaction strategies and approaches with corresponding knowledge type, research task and capability development

The Impact of Culture

Some early findings indicate that political culture has a significant impact on the firm's choice of *exploitation-exploration* internationalization strategy. It has been found that firms in internationalist home country cultures are more likely to pursue exploitation strategies, whereas those in cosmopolitan cultures are more likely to pursue exploration strategies. For firms embedded in patriotic or internationalist cultures, a mix of exploitation and exploration internationalization strategies might be the more likely choice (Armagan & Ferreira, 2005). Other study relates national culture to the firm's developing path on types of research laboratory meant to be capability exploiting versus capability augmenting. For instance, it is assumed that exploitation laboratories perform better in environments exhibiting (like in China): high power distance, high collectivism, high masculinity, high uncertainty avoidance, and long term orientation; whereas augmenting laboratories perform better in environments exhibiting (like in Finland): low power distance, high individualism, high femininity, low uncertainty avoidance, and short term orientation (Ambos & Schlegelmilch, 2008).

Relation-based Culture in China

China is quite different from the rest of the world. In China personal ties are nurtured and people show high loyalty to their personal networks known as *guanxi* (interpersonal

relationship or informal social networking), which are commonly used to get things done in China. The combination of cultural norms and the socioeconomic and political situation in China means that *guanxi* ties are particularly important (Luo, 2007). *Guanxi* is therefore considered a core element of Chinese culture or one of key Chinese national cultural characteristics (Buckley et al., 2006; Ramasamy et al., 2006), one of the major dynamics of Chinese society and a key business determinant of a firm's performance (Luo, 2007), and a competitive advantage for Chinese capitalism (Yang, 2002).

In relation-based cultures, the priority is given on personalization strategy and tacit knowledge (Hasen et al., 1999; Bhagat et al., 2002). As Hasen et al. (1999) note, "To make the personalization strategies work, firms like Bain invest heavily in building networks of people". In explaining China's path towards modernization which is different from that of the West, Boisot and Child (1996: 622) contend that China's economic reformation and decentralization has led "not to markets but to clans and permits the more local and personalized institutional order", called "network capitalism". Moreover, it is argued that people in individual cultures (e.g., Scandinavian nations) emphasize explicit knowledge, whereas those in collectivist cultures (e.g., China) emphasize tacit information and knowledge (Bhagat et al., 2002)

***Guanxi* and Knowledge Interaction**

The formal structure and governance will not work without the support of informal social relationships and networking in organizational communication and knowledge management (Adler, 1993; 2001; Hong & Engeström, 2004; Nonaka & Takeuchi, 1995; Ring & Van de Ven, 1994). The interpersonal relationship or informal social networking is particularly important in relation-based cultures and societies like in China. Weir and Hutchings (2005), for instance, claim that key to understanding knowledge management in the Arab world and China is recognizing the networked nature of these societies. Informal social networking called *guanxi* is especially important in China.

Guanxi and Trust

The significance of trust and Chinese *guanxi* has recently been studied in connection with cross-border knowledge interaction (Buckley et al., 2006; Miesing et al., 2007; Ramasamy et al., 2006). Child (2001/Miesing et al., 2007) points out that trust is important for teamwork and joint knowledge creation, prevention of opportunistic behavior, and for the creation of numerous other benefits to global collaboration. Contrasting the cultural bases for trust found in the East with the greater use of institutional bases of trust found in the West, he stresses the importance of developing strong personal bonds – what the Chinese call "relationship building" (283/117) or *guanxi* networking.

Guianxi and Knowledge Transfer

The significant role of *guanxi* in knowledge transfer has been discussed in the Chinese context (Buckley et al., 2006; Jiang, 2005; Ramasamy et al., 2006). Buckley et al.'s research (2006) implies that cultural awareness of *guanxi* affect cross-border knowledge transfer and firm performance. They argue that "given the diversity and complexity of the Chinese business environment, even for explicit knowledge to be transferred and absorbed,

cultural barriers have to be removed and good inter-partner relationships have to be established.” (p. 278). Also in the Chinese context, Ramasamy et al. (2006) raise an interesting question whether *guanxi* can serve as a bridge to inter-organizational knowledge transfer. In their research, *guanxi* consists of three components: trust, relationship commitment, and communication. Their results of an interview-based survey with Chinese enterprise general managers show that trust and communication are the two main channels of knowledge transfer. The authors suggest that inter-partner activities tend to be informal in China and so using informal channels (like *guanxi*) to transfer knowledge would be more desirable and practical.

Guanxi and Knowledge Sharing

In the Chinese culture and the like managers and organizational members will share knowledge with those with whom they already have a trustful relationship (Weir & Hutchings, 2005) – knowledge sharing in joint ventures is problematic because of the potential of divisions between local employee insiders and foreign management outsiders (Hutchings & Michailova, 2003; Weir & Hutchings, 2005). In another research, it has been found that *guanxi* orientation played an important role in knowledge sharing intention. As Huang et al. (2008) observed Chinese people’s *guanxi* orientation is quite high: They are inclined to maintain a good relationship with persons around them. Quite often, they will treat their colleagues in a friendly way and hope to create a harmonious atmosphere. This character makes them willing to share their knowledge and skills to help others since this could help facilitate a smooth relationship. Kok (2006) explores knowledge sharing from a human resource management perspective in Singapore-based companies with emphasis on specific aspects of Chinese culture. He concludes from his study that the successful management of tacit organizational knowledge sharing requires a deep understanding of the specific cultural values (e.g., *guanxi*) that underpin both behavior and organizational culture.

Preliminary Findings

We take the R&D collaboration of Finnish MNC subsidiaries with Chinese universities as an illustration, discussing the role of home country culture in terms of trust and *guanxi* in collaborative knowledge creation and innovation involving dissimilar cultural contexts. In the following, we use two sets of interview data collected during 2007-2008 to discuss preliminary findings related to the research.

Interviews 2007

In June 2007, the author conducted an interview round in five universities related to the forest and printing industries in China. Nineteen professors and researchers were interviewed, most of whom experienced with collaborating with MNCs. The interviewing worked as a pilot study for our future project on U–I collaborative knowledge creation and innovation. Each interview took approximately one hour. We asked how and when the culture matters in U–I collaboration and knowledge interaction, and how to cope with cultural challenges when an MNC subsidiary starts collaborating with local universities.

Based on the interviews, it can be said that *guanxi* and knowing the right people play an influential role at the beginning of U–I collaboration. It seems that the negotiations for joint projects are normally initiated by people who are acquainted from before and share some personal history or background (e.g., former students and colleagues).

There are various challenges in U–I collaboration between MNCs and Chinese universities. According to the interviewees the biggest challenges are related to the differences between universities and companies in culture and knowledge. They are reflected, for instance, in different research tasks or types of research. Companies aim to carry out applied research, whereas universities are interested in basic and explorative research. One example of a favourable company partner was mentioned, namely Intel. This is simply because the company strongly invests in basic research and gives freedom to the university to manage their research in their own style.

In the future the main motivation factors and major forms for U–I collaboration in Chinese universities may remain the same. However, the forms of collaboration may take a more intensive course. The interviewed professors could see the universities and the MNCs working closer both physically and mentally, and sharing working forces and knowledge to a larger extent than before. Since both partners in U–I collaboration pursue to create new knowledge out of the collaboration, the best result can be achieved when the partners have a shared understanding and a common goal throughout the whole project.

Interviews 2008

After a U-I workshop organized by a research center of Finnish MNC in Beijing in July 2008, three key participants were interviewed afterwards, among them two are keynote speakers in the workshop. The *first* interviewee is a senior user experience manager from the MNC headquarter in Finland. Part of job responsibilities of the interviewee is on China-related innovation issues in connection with a specialized innovation group. The interviewee has had hands-on experience of collaborating with several Finnish and Chinese universities through running several innovation projects of the firm (Interviewee A). The *second* interviewee is from a top research institute attached to the Academy of China. The research area of the interviewee focuses on consumer cognition. The interviewee has research collaboration experience with Chinese and multinational companies for over six years (Interviewee B). The *third* interviewee is from another MNC's China office, who works as a researcher in connection with the Chinese market of the corporation and China-related projects. The main job responsibilities of the interviewee include supporting local products, understanding local users and conducting pilot research on local R&D projects (Interviewee C). Since three interviewees are from different organizations, we describe each as a separate case.

Case 1 (Interviewee A)

The Finnish MNC is the one organizing the workshop. It focuses its business on ICT and has multiple ways of collaborating with various partners. It collaborates with its suppliers and with R&D partners and also with different universities and research institutes home and abroad. The case company seems to prefer to collaborate with familiar partners. Previous contacts and project experience or having common history, trust and common language, for example, increase the chances of being chosen as a partner. Moreover, organizational

characteristics such as transparency, openness and trust with mutual appreciation and respect can facilitate the success of research collaboration.

In the view of Interviewee A, U-I gap is huge and the active interaction is the way to enhance mutual understanding and fill up the gap. As explained by the interviewee, “if we do not do it together, the gap remains rather big ... we were lacking human resources before, we would have paid a couple of hundred thousands (one euro is about ten Chinese RMB yuan) if they could do the research for us. But the results were not what we wanted”.

In U-I collaboration, the interviewee emphasizes the role of *guanxi* on collaborating with universities. “We prefer to have contacts with universities we have already known to a good deal ... this is the case particularly when things are important”. The interviewee told that a colleague in the research center in Beijing had established collaboration with a top technology university of the country where the colleague graduated from, and he himself initiated collaboration with another university in a different Chinese city where he graduated (Alma Mater). He believes that in this way it is easier to collaborate. The main reasons, as explained by the interviewee, first, in such a way you know your collaborators better, second, you know better what they could deliver to you, and finally, you do not need to take much efforts to guess what they mean and what they intend to do through the long collaboration process.

When things are very important in collaboration with external partners, one way to reduce risk, as it is said before, is to turn to collaborate with universities they have already known well. Another way is simply to find another firm to collaborate instead. The reasons for trusting more firms than universities, as the interviewee told, first, in the firm there is a clear employer-employee relation, whereas in university most often it is a teacher-student relation; the second reason is that quite often in the firm there are strict rules and regulations you must to follow, whereas in the university it is more like an open system, in which sharing information and knowledge is very much encouraged. From our discussion, we understood that confidentiality is one of the key issues the collaborating company concerns. It is likely to be related to whom you're collaborating and if the collaborator can be trusted. In a way, this is also related to organizational type and its unique culture (universities vs firms).

Case 2 (Interviewee B)

More and more top Chinese universities and research institutes have combined their postgraduate educational programs and training in connection with firms' R&D projects and financial sponsorships. In addition to meeting the need of and raising the external research fund, practical relevance of academic research has increasingly been recognized publicly from the university side. This was previously much more negative, since the idea of privileging academy over business was prevalent in China and in its educational system. Academic research and commerce were completely isolated and university professors and researchers were not assumed to have any connection with business.

Nowadays Chinese universities and research institutes tend to collaborate a lot with companies. Actually Interviewee B entered the institute in 2002 as a doctoral student by collaborating with a company's research project. More recently, the interviewee's contact and connection with the MNC research center is also via an institute's previous contact. It

seems that good internal collaboration between research units within the institute may lead to external collaboration with companies, and the interviewee believes that the differentiated and established core competence of research unit is important for both internal and external collaboration.

The topic under discussion with the MNC research center is rather new, and the interviewee said that it might be that they need a process of knowing each other and getting to understand the topic better. There is thus a strong need for communication and interaction by different channels: e-mails, regular exchange type of small scale meetings, introducing what they have discovered in their laboratory, inviting the company people to visit them, or participating a discussion forum organized by a third party in which university and company people can talk face-to face and communicate. By doing so and through such a process they hope to know better the company's market situation and needs, making unclear or unspecified needs clear and specified, finding gradually a common focus or target to work on further.

The interviewee considers that it is a big challenge for using appropriate way to approach right phenomenon and to insist on what one has really found (not adapt too much the firm's immediate needs and preferences). This simply means that you need to demonstrate your collaborative partner firm something convincing and valuable. For the interviewee's area of research, this may include, for instance, in-depth interview for outlining a big picture of the research, laboratory experiments for more detailed and objective evidence, and living labs that might be ideal in combining real life situation with experimental method. In collaboration with companies and solving practical problems it would be important to adopt multi-methods to produce meaningful results. This is also the way to create and maintain a long-term collaboration with companies, which is what the interviewee wishes to have. One reason why the researcher likes to collaborate with an MNC is that it has a long-run target in research compared with that of Chinese private and state-owned companies.

Case 3 (Interviewee C)

The MNC where Interviewee C is from concentrates its business on internet searching, which is technology-oriented with highly centralized control system. On the other hand, the operations of product development can be very innovative and localized as well. The span of developing a product can be extremely short like a couple of days or a week. The research function of the company in China seems to be an emerging thing, and searching for local research partners is on its way in order to develop and support more localized products and services in the future.

The interviewee considers the workshop organizing center a business competitor of theirs. However, the participation of the interviewee in the workshop was based on *guanxi* in a way the interviewee knows some of the key persons who organized the workshop. Moreover, although they do not have any formal collaboration relationship, the occasion of the workshop fits well such a communication because of the exchange of academic ideas, which is supposed to be openly shared. As the interviewee said, "we do not have any collaboration relationship with their research center ... I have good relationships with researchers A and B (both are key persons who organized the workshop), we have rather good personal relationships (private *guanxi*) ... In my opinion, the exchange of academic ideas should not be influenced by business competition".

The good relationship or previous contacts in familiarity is one important reason for finding a partner for collaborating each other. The interviewee emphasizes very much also the relatedness of research. They do not have any collaboration with any local universities yet, which they are search for having in the future. The difficulty not finding one yet is related to the confidential issue and since what they research on is highly related to the corporation strategies and the confidentiality is relatively high. The interviewee said, “we though it might be good to collaborate with University A, that is with the unit (within University A) led by Professor A (one of the keynote speakers of the workshop), we haven’t done anything yet, because the projects are with high confidentiality”. Moreover, for collaboration, “what is relatively important is, how to say, that is (the collaboration partners) should have such research experience on internet research”. They would like to collaborate with local universities in the future, but the situation is, “as a result of our searching, there has not been one university that is relatively good at researching on the internet interaction, or perhaps there exist no such a university yet in the country”.

While they are searching for local research universities in China, they have had a few companies as potential collaborators. Some of them have already started collaborating with one company in Shanghai, with a small project, expecting to have more long-term collaboration afterwards if the experimenting project goes and ends well. They are very selective, and even for finding this one it has already taken for a year or so.

Analysis of the three cases

We started the analysis of the three cases with the analysis of each individual case separately. This is called within-case analysis (Eriksson & Kovalainen 2008, Patton 2002). The cases were analyzed thematically using theoretical aspects as the basis for the analysis. The themes used in the analysis were for example the ways of knowledge interaction evident in the case and the role that interpersonal relationship plays in the case. In multiple case studies, this phase is followed by cross-case analysis, which includes comparison of the cases in search for similarities or differences across cases and in contrast to theory (Eriksson & Kovalainen 2008, Patton 2002).

Case 1 implies that the reason for the firm to actively interact with universities in research is due to the huge gap between collaborators. The interaction facilitates mutual understanding and bridges the gap so that the desired results can be produced through collaboration. It seems that more interactive types of knowledge interaction (e.g., knowledge co-creation) become necessary because of the huge gap between university and industry. This trend becomes more evident in a way that the firm collaborates with universities in most cases for untargeted research. For more deliverable and specified projects they turn more to firms rather than to universities.

Confidentiality is an important issue mentioned in Case 1. The case firm, for instance, tries to reduce the risk of leaking information and knowledge by first to collaborate with familiar universities for doing important projects, and second, it goes out to find a firm instead. It seems that confidential issue in collaboration is related to previous collaboration experience, long-term relationships and trust. It is also related to organization type: whether it collaborates with a firm or with a university.

In Case 2, frequent communication and mutual learning between partners are emphasized. One of the major reasons is concerned with unspecified topic to be researched on. This also indicates that in such a situation, U-I collaboration is untargeted at its early stage, and one needs to understand the situation and be patient in discussing and finding a potential common project. It is time consuming as well.

Case 3 considers familiar interpersonal contacts and good relationships the important reason for finding a collaboration partner in research. The interviewee emphasizes very much also the relatedness of research the partner should have. This tells the changing relationship of *guanxi*: it is not the sole factor as it was before, and it, however, still plays a key role in the Chinese workplace, and task-related issues like research relatedness take a strong effect in the new co-configuration of *guanxi* and task-related consideration.

Regarding knowledge interaction approaches, as Cases 1 and 2 indicate, in the case of large cultural and knowledge-related gap between partners and in discussing unspecified research topics, it is necessary for collaboration partners to interact actively to achieve desired outcomes, which was somewhat present in Case 3 as well.

To sum up, interviews both in 2007 and 2008 indicated that the key challenge of U-I collaboration and knowledge interaction in the Chinese MNC context is related to the home country culture in terms of *guanxi*. This includes, for instance, important organizational processes of interpersonal relationship and trust, intensive communication and interaction, mutual commitment and learning, and being well aware of cultural and knowledge-related differences between collaboration partners. In all cases, it is evident that trust and the issue of confidentiality are tightly related to each other. Trust seems to have much to do with collaboration experience, long-term relationship and organization in type and relatedness.

Conclusion

Our study deals with U-I research collaboration and knowledge interaction in the Chinese MNC context. It emphasizes the role of home country culture in terms of *guanxi*. Our preliminary findings seem to support what we have argued in the paper on 1) the significant impact of home country culture (e.g., *guanxi*) on U-I knowledge interaction in research collaboration, and 2) good alignment of knowledge interaction strategies and approaches with corresponding knowledge type, research task and capability development.

Drawing from our theorizing and pilot studies, we realize more that although previous U-I studies focus primarily on knowledge transfer type of knowledge interaction, in the Chinese MNC context, it seems more interactive types of knowledge interaction like knowledge co-creation should more be of a focusing concern. Theoretically, more interactive types of knowledge interaction are likely to be associated with tacit knowledge and personalization knowledge strategy. In reality, from all of our empirical observations, we can see that the biggest challenge of U-I collaboration does not lie in technology or codified knowledge, or in the mode of one-way knowledge transfer, but more in time consuming and *guanxi*-oriented type of knowledge co-creation in which the dominant type of knowledge concerned is most often tacit, future-oriented, complex and context-specific.

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