

Organizational Knowledge Creation in the Chinese Context

Ian J. Walsh, Mamta Bhatt, and Jean M. Bartunek

Boston College, USA

ABSTRACT This paper elaborates theories of organizational knowledge creation by exploring the implications of institutional change for organizational knowledge creation in Chinese organizations of different ownership forms. Using a dynamic institutional perspective, we discuss prominent characteristics of the Chinese context and develop propositions about knowledge creation patterns in different organizational forms. We also theorize about the effects of increasing institutionalization on patterns of organizational knowledge creation in China and the consequent implications for innovation. We conclude with a discussion of the theoretical implications of this model and suggestions for further research.

KEYWORDS China, contextualized research, innovation, knowledge creation, organizational forms

INTRODUCTION

Knowledge creation, representing a primary basis for organizations' global competitiveness (Bhagat, Kedia, Harveston, & Triandis, 2002), is a critical precursor to innovation and effective organizational performance (Popadiuk & Choo, 2006; Van de Ven, Polley, Garud, & Venkatraman, 1999). As Nonaka (1991: 96) noted, 'successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization and quickly embody it in new technologies and products'. The importance of innovation has skyrocketed in the present times, and the success of a firm largely depends on how it innovates and, by implication, creates knowledge.

China represents an important context in which to understand knowledge creation processes. The country has assumed an increasingly prominent role in the global economy (Tsui, Schoonhoven, Meyer, Lau, & Milkovich, 2004). Its population of 1.3 billion people and its low operating costs have attracted significant foreign direct investment (FDI) (Huang, 2003). This inflow of foreign capital along with internal development has resulted in the creation of many foreign and private

enterprises and an average 10 percent annual GDP growth rate since the late 1980s (National Bureau of Statistics of China, 2005). In this context, firms need continually to develop new knowledge to compete in such a rapidly changing environment. In addition, the Chinese government has identified innovation as one of its three most pressing concerns for national development (Tsui, Zhao, & Abrahamson, 2007). To effectively foster innovation, organizations will need to hone their capacities for knowledge creation.

Researchers have examined knowledge management in China through comparative studies that have distinguished the Chinese context from other cultural environments, including the USA, Japan (Burrows, Drummond, & Martinsons, 2005), Russia (Michailova & Hutchings, 2006) and Arabic countries (Weir & Hutchings, 2005). These studies differentiate the Chinese context primarily in terms of the prominence of Confucian values and the emphasis on social relations and informal communication for knowledge creation. For example, Burrows et al. (2005) argued that the Chinese favour knowledge transfer through interpersonal contact. The authors argue that this style conflicts with that of Western managers, who prefer to codify knowledge in explicit form. These differences may contribute to the performance problems experienced by many international joint ventures (IJVs) (Si & Bruton, 1999).

These studies offer an important contribution but present an incomplete picture of knowledge creation in the Chinese context. While Confucian values represent an important element of this context, other factors are also likely to influence how organizations create knowledge. Specifically, the sociopolitical environment in China has produced a wider diversity of organizational forms than is generally found elsewhere. The dominant role of state-owned enterprises (SOEs) has been reduced by the growing presence of firms in the domestic private sector, wholly foreign-owned companies and international joint ventures (Tsui et al., 2004). It is too simplistic to assume that knowledge creation practices are consistent across the different organizational forms. Scholars know relatively little about how these different types of organizations create knowledge. We address this gap by way of contextualized organizational research, which 'entails linking observations to a set of relevant facts, events, or points of view that make possible research and theory that form part of a larger whole' (Rousseau & Fried, 2001: 1). Theories of organizational behaviour are more useful when they consider the local context in which organizations operate (Boyacigiller & Adler, 1991; Tsui, 2006).

In this paper, we examine the role of organizational form, as distinguished by ownership type, and of the institutional environment on knowledge creation in the Chinese context. Specifically, we argue that the institutional environment imposes different requirements on organizations of different ownership forms that, in turn, produce distinct patterns of knowledge creation and innovation. We begin with a brief review of research on organizational knowledge creation and innovation and

of the Chinese context. We then offer propositions about how knowledge creation and innovation may take place in Chinese organizations with different ownership forms. Specifically, we propose that state-owned enterprises and wholly-owned subsidiaries of Western firms will be more inclined to engage in knowledge creation processes that draw on existing explicit knowledge and foster incremental innovation. We expect that domestic private firms and Eastern-owned foreign firms will more commonly employ processes that utilize existing tacit knowledge and enable radical innovation. We also theorize that equity based joint ventures may be most prepared to engage all knowledge creation processes. We propose that increasing institutionalization across China will reduce the relationship between organizations' ownership form and knowledge creation practices over time. We conclude with a discussion of the implications of this model and directions for further research.

THEORETICAL BACKGROUND AND PROPOSITIONS

Knowledge Creation and Innovation

Knowledge is a multifaceted concept and has been defined in many ways. Here, we define knowledge as 'justified true beliefs' derived from accumulated information (Nonaka, 1994: 15). Knowledge creation represents the generation of new knowledge (Argote, McEvily, & Reagans, 2003) and can be distinguished from two related constructs: learning and innovation. While knowledge often prompts action, learning only occurs following action when individuals identify a relationship between their intentions and the outcomes of their actions (Argyris, 1999). Innovation has been defined as 'the use of new knowledge to offer a new product or service' (Afuah, 2003: 13). Innovation embeds new ideas generated through knowledge creation in new organizational outputs (Van de Ven et al., 1999). We, thus, characterize knowledge creation as a precondition for innovation.

Nonaka's research (Nonaka, 1994, 2005; Nonaka & Takeuchi, 1995) represents a primary theoretical foundation for understanding how organizational knowledge is created in contemporary organizations. Even though it has been criticized for emphasizing the need to convert tacit knowledge (Tsoukas, 2003) and assuming cultural universality (Glisby & Holden, 2003), this research provides an internationally accepted vocabulary that is used to describe a generalized theory of knowledge creation to which meaningful contrasts can be drawn.

Nonaka's research (Nonaka, 1994, 2005; Nonaka & Takeuchi, 1995) builds on Polanyi's (1966) distinction between explicit and tacit knowledge. Explicit knowledge is readily accessible to individuals in a format that enables them to understand, use and communicate it. It is stored in formal records, such as digital or bound volumes, that are readily accessible through databases, libraries and

archives. Conversely, tacit knowledge resides within individuals who hold it, and it cannot be easily communicated in concrete terms (Nonaka, 1994).

In their model of knowledge creation, Nonaka and Takeuchi (1995) identified four distinct patterns by which existing tacit and explicit knowledge are converted into new knowledge. Two of these patterns represent 'exploration' processes (Popadiuk & Choo, 2006: 309) that use tacit knowledge as an input. 'Socialization' refers to the conversion of existing tacit knowledge into new tacit knowledge. It commonly occurs through joint activities, for example 'being together, spending time, living in the same environment – rather than through written or verbal instructions' (Nonaka & Konno, 1998: 42). 'Externalization' represents the translation of tacitly held knowledge, such as specialized knowledge held by customers or specialists, into an explicit, readily understandable form (Nonaka & Konno, 1998). Other examples include concept creation in new product development and quality control circles, where employees articulate tacit knowledge to improve the manufacturing process (Nonaka, Toyama, & Konno, 2000).

The other two patterns of knowledge creation may be understood as 'exploitation' processes (Popadiuk & Choo, 2006: 309) that employ explicit knowledge as an input. 'Combination' entails the conversion of existing explicit knowledge into new explicit forms, such as collecting 'externalized knowledge (e.g., public data) from inside or outside the company and then combining such data or transferring explicit data through presentations or meetings' (Nonaka & Konno, 1998: 45). This process is facilitated by large-scale databases and computerized communication networks (Nonaka et al., 2000). Finally, 'internalization' refers to the conversion of existing explicit knowledge into tacit knowledge. Internalization occurs when organization members participate in formal training programs, which allow employees to access the explicit knowledge of the firm (Nonaka & Konno, 1998).

Rather than progressive stages, these four patterns represent integral components of an optimal spiral of knowledge creation, which 'amplifies knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization' (Nonaka, 1994: 17). In this paper, we focus on organization-level knowledge creation. Further, specific characteristics of a context lead many organizations to favour some patterns and disfavour others (Nonaka, 1994), thus producing new organizational knowledge less effectively. For instance, socialization has been regarded as the most common knowledge creation pattern in China due to the prevalence of Confucian values and the preference for informal, interpersonal communication in this context (Burrows et al., 2005; Weir & Hutchings, 2005).

As noted above, organizations' knowledge creation practices affect their capacities for innovation. Popadiuk and Choo (2006) related the four knowledge creation processes to two types of innovation. They proposed that exploration patterns (externalization and socialization) are conducive to radical innovation, while exploitation patterns (combination and internalization) foster incremental

innovation. Radical innovation leads to the establishment of new dominant concepts with new core design concepts while incremental innovation refines and extends existing designs (Henderson & Clark, 1990). Effective approaches to knowledge creation, which encompass all four conversion patterns, enable organizations to produce radical and incremental innovation, both of which are important to effective organizational performance (Nonaka, 1994).

Nonaka (1994, 2005) suggests that knowledge creation is fundamentally a dialectical process that requires *ba*, or shared context. This shared context opens up opportunities for potential creators of knowledge to interact with one another and subsequently to produce new organizational knowledge. Dialectical interaction among parties with alternative viewpoints and information is critical to creating knowledge (Calhoun & Starbuck, 2003) and effective action (Bartunek, 1984). Isolation of potential knowledge creators from one another prohibits the interactions involved in the conversion processes that generate organizational knowledge (Nonaka & Takeuchi, 1995). For instance, socialization of tacit knowledge among different individuals cannot occur when geographic, cultural or institutional barriers impede their interaction since these individuals do not have a shared context or *ba*.

The Chinese Context

Two important characteristics of the Chinese context affect how organizations create knowledge: its organizational ownership forms and its institutional environment.

Diversity of organizations' ownership forms. The Chinese context is characterized by a broad range of organizational ownership forms, including SOEs, the domestic private sector, wholly-owned foreign enterprises and international joint ventures. An organizational structure provides a 'field' (Nonaka, 1994: 23) in which knowledge can be amplified, and an organization's specific characteristics, including size, redundancy and span of activities, may influence the use of the four knowledge creation processes. Given the diversity of ownership forms, assertions about knowledge creation that do not consider an organization's form are too simplistic. In China, organizations of different ownership forms are subject to varying rules, policies and constraints (Si & Bruton, 1999); these differences foster distinctive approaches to knowledge creation. For instance, the 'behavior of Chinese employees in respect to knowledge sharing can be expected to differ substantially between those employed in the remaining SOEs and those employed in foreign-owned corporations' (Weir & Hutchings, 2005: 96).

Fragmented institutional environment. Institutional systems shape organizational action through formal rules, such as legal statutes or regulations, and informal

conventions, such as cultural norms (North, 1990). Characteristics of the institutional environment, such as the degree of personal autonomy and prevalence of collaboration, also influence the means by which individuals create knowledge within an organization (Robertson, Scarborough, & Swan, 2003). Further, the marked diversity in organizational forms suggests that organizations of different ownership forms may operate in different institutional contexts and, thus, create knowledge in distinctive ways (Dimaggio & Powell, 1983). The institutional context represents a primary shared context, or *ba* (Nonaka, 1994), which affects how organizations create new knowledge. Consistent with North's (1990:3) characterization of institutions as 'the rules of the game', *ba* represents 'a shared space that serves as a foundation for knowledge creation' (Nonaka & Konno, 1998: 40). The nature of this shared space orients an organization toward particular knowledge creation processes and away from others.

To understand the *ba* in which Chinese organizations create knowledge, it is necessary to understand the nature of China's institutional environment. China has steadily moved from a planned economy to a market based system (Li & Yang, 2006; Peng, 2003). The market transaction structure is transitioning from what North (1990: 34) characterized as 'relational contracting' toward an 'arm's length transaction', which involves a more impersonal form of exchange and third party enforcement of property rights. In an elaboration of Peng's (2003) model of institutional transitions, Li and Yang (2006) proposed that China has entered a middle stage of institutional development. In this phase, relational transacting begins to give way to a rules based mode of exchange while markets and institutions are still under development.

In such underdeveloped institutional environments, informal norms may be expected to guide actor behaviour (Droege & Johnson, 2007; North, 1990). The informal norms in the Chinese context are firmly grounded in the Confucian value system and *guanxi* ties that guide interpersonal exchange and interaction (Tsui & Farh, 1997). *Guanxi* has been defined as 'direct particularistic ties between two or more individuals' (Tsui & Farh, 1997: 57; Tsui, Farh, & Xin, 2000: 226). These ties and the obligations they carry are often categorized into three types of relationships of decreasing importance (Chen, Chen, & Xin, 2004; Tsui & Farh, 1997): *jia ren* (family); *shou ren* (familiar others), such as hometown compatriots; and *sheng ren* (strangers). *Guanxi* represents a source of social capital that facilitates knowledge creation and has implications for knowledge management (Fu, Tsui, & Dess, 2006; Hutchings & Michailova, 2004; Tsui et al., 2004).

While the economic systems in China are changing rapidly, the central government has a long tradition of imposing formal rules through the sociopolitical system. The socialistic tradition of its central government, which continues to play a strong role in the social and political environment, has been stable over time (Schoonhoven, 2006). As this context suggests, institutional environments are not necessarily uniform in terms of their degree of development or the type

of rules that guide action (Scott, 2005). The institutional context in China is at once guided by a combination of highly developed formal rules and informal norms.

This fragmentation of the institutional environment has important consequences for how organizations create new knowledge; for example, 'Environments that are highly fragmented . . . impede the spread of institutional consensus and conformity' (Oliver, 1991: 171). Complex and fragmented state control can produce 'a jungle of conflicting requirements at the local level' (Oliver, 1991; Scott, 1983: 105). In such situations, organizations of different forms, which face distinctive regulatory pressures (Si & Bruton, 1999), may be expected to produce knowledge differently based on how much they are subject to the formal rules and informal norms that guide the institutional context. The institutional context in China encompasses two distinct *ba*: one oriented around formal rules and the other guided by informal norms. We expect that organizations operating within well-developed, rules based systems will be particularly oriented toward the use of explicit knowledge while organizations in underdeveloped institutional environments will favour processes that draw on tacit knowledge.

Propositions on Knowledge Creation in the Chinese Context

We now theorize about how organizational knowledge creation is likely to occur in each of the organizational ownership forms in this environment, and we identify the effects on innovation.

Stated-owned enterprises. Prior to the economic reforms that opened China's economy to foreign investment, almost all business was transacted through SOEs, which are directly owned and controlled by the central government. Even in the face of persistent criticism of SOEs' relatively poor performance (Li & Wu, 2002), the percentage of firms owned by the state remains as high as 50 percent in some provinces (National Bureau of Statistics of China, 2005).

SOEs represent extensions of the central government and, thus, operate fully within its formal rule system. Such well-developed institutional contexts depend on formal communication, such as published reports and statistics, which enable enforcement of their rules. Dimaggio and Powell (1983) theorized that greater involvement of state agencies within an institutional context increases the degree of isomorphism, and 'SOEs have assimilated numerous core business values and practices of Western market oriented companies, as was the Chinese government's goal with the transition movement' (Ralston, Terpstra-Tong, Terpstra, Wang, & Egri, 2006: 839). Even though Western managers and researchers increasingly recognize tacit knowledge as an important ingredient for effective performance, they generally identify the availability of explicit knowledge as a precondition of success (cf. Argyris, 2004). As such, we expect knowledge

conversion processes that draw on explicit knowledge will be particularly common in SOEs.

Proposition 1: SOEs will emphasize combination and internalization to create new organizational knowledge that facilitates incremental innovation.

Domestic private sector. The domestic private sector includes two organizational forms, township and village enterprises (TVEs) and domestic private firms. TVEs, which are jointly owned by members of a geographic locality, expanded rapidly in the face of decentralization in the 1980s (Li & Shenkar, 1996; Li & Yang, 2006). Due to their efficient performance, TVEs accounted for 42 percent of China's gross industrial output in 1994 (Li, 2005; Tong & Chan, 2003). A considerable proportion of firms previously considered to be TVEs were actually domestic private firms that affiliated with local government units in order to gain access to financial, material, or market resources (Chen, 2007). Domestic private firms, which are owned entirely by Chinese citizens, may take the form of sole proprietorships, family businesses, private partnerships and domestically owned private corporations (Tsui, Bian, & Cheng, 2006).

The relatively recent introduction of the domestic private sector to the Chinese context has yielded an institutional environment largely driven by informal norms. The formal rules that exist for these organizations are relatively new and changing with limited or unclear enforcement (Droege & Johnson, 2007). Also, while formal restrictions facing these firms have loosened in recent years, they continue to face a 'less than favorable' institutional environment (Ralston et al., 2006: 827) The central government frequently garnishes their reported revenues to subsidize underperforming firms, and the protection of their assets, such as new technologies, remains inconsistent and unreliable. These policies impede the creation of explicit knowledge. For instance, governmental policy requiring profitable domestic private firms to provide financial subsidies to less successful competitors may motivate these organizations to understate financial figures in statistical reports (Fishman, 2005), which are a primary form of explicit knowledge. This concealment obstructs processes that use explicit knowledge as an input.

These organizations have relied on informal cultural norms to guide their actions in the absence of a fully developed rule system (Droege & Johnson, 2007). Many of these firms are run by families or by members of a geographic locale, whose relationships are traditionally strong in the hierarchy of Confucian relationships. These robust interpersonal relationships facilitate the ongoing sharing that is characteristic of interactions that draw on tacit knowledge. This long-term orientation facilitates the socialization of tacit knowledge, such as cultural understanding or craft techniques, that is more naturally shared through informal communication. Given the emphasis on personal relationships in the domestic private

sector, we expect that these organizations will favour knowledge creation processes that draw on existing tacit knowledge, which are particularly important for radical innovation.

Proposition 2: The domestic private sector will emphasize socialization and externalization to create new organizational knowledge that facilitates radical innovation.

Wholly foreign-owned enterprises. According to Cooke (2004: 35), 'since the mid-1990s [China] has been the second-largest recipient of FDI worldwide'. Recently, wholly foreign-owned enterprises have become an increasingly preferred organizational form among foreign investors; between 1992 and 2000, these firms grew their share of FDI in China from 27 percent to 57.4 percent (Deng, 2001). Foreign-owned businesses from both Eastern and Western countries, such as Dell, Motorola and Samsung Electronics are opening on an increasing basis in China (Deng, 2003; Guillen, 2003).

Organizational practices in foreign-owned businesses reflect a mix of both Chinese and foreign cultures. While foreign firms often bring expatriate management teams from their home environments, they generally employ Chinese citizens in their operations and adapt in some ways to the Chinese culture. For instance, although ToyCo, a foreign-owned toy manufacturing company in China, has adopted Western management techniques, it also displays strong paternalism, a characteristic of Chinese culture (Cooke, 2004). Similarly, Motorola made an effort to develop a 'shared mindset' by facilitating coordination between the headquarters and the Chinese subsidiaries for formulating strategies (Buckley, Clegg, & Tan, 2006: 283).

We expect that the knowledge creation practices of foreign firms will primarily draw on the institutional environments in their home countries, particularly in the early stages of market development when the firms have relatively little experience operating in China (Li & Yang, 2006). Western foreign-owned enterprises (WFOEs) are, thus, likely to favour knowledge creation patterns that convert existing explicit knowledge. This orientation would be expected from such firms, which have heretofore operated in a well-developed institutional environment.

The investment of large amounts of foreign capital by ethnic Chinese living outside China has also produced many Eastern foreign-owned enterprises (EFOEs). Given the Confucian orientation (Wei, Liu, & Liu, 2005) and developing institutional environments (Carney & Gedajlovic, 2002) in many of their home countries, EFOEs are likely to engage knowledge creation processes that employ existing tacit knowledge.

Proposition 3a: WFOEs will emphasize combination and internalization to create new organizational knowledge that facilitates incremental innovation.

Proposition 3b: EFOEs will emphasize socialization and externalization to create new organizational knowledge that facilitates radical innovation.

International joint ventures. The opening of the Chinese economy also led to the development of international joint ventures (IJVs) between foreign and Chinese partners. These firms take two common forms: equity based joint ventures, (EJVs), which are co-owned and managed by Chinese citizens and foreign investors, and contract joint ventures (CJVs), which contract tasks to Chinese partners (Beamish, 1993). Joint ventures accounted for 12 percent of the national total investment and 17 percent of gross industrial output in 2002 (Ralston et al., 2006).

Following the opening of the Chinese economy, IJVs became the dominant organizational form for foreign investors seeking to operate there. In recent years, WFOEs have overtaken joint ventures as the most common form for foreign investors (Deng, 2001), perhaps due to the high instability and failure rates of IJVs (Nippa, Beechler, & Klossek, 2007; Shenkar & Li, 1999). In addition, IJVs are often plagued by managerial challenges, such as incompatible interests among partners or shortages of qualified workers (Qiu, 2005), which can undermine efforts to create knowledge.

While they must overcome these substantial obstacles, EJVs, which share ownership between foreign and Chinese investors, offer the most promise of all organizational forms for engaging all four patterns of knowledge creation. Expatriates arriving from Western contexts are likely to bring with them strong preferences for creating explicit knowledge and to seek local partners with knowledge creation styles that complement their skills (Shenkar & Li, 1999). In these organizations, the different knowledge creation styles of Western and Chinese members will provide an advantageous environment for knowledge creation as individuals introduce new or unfamiliar patterns to their fellow members. EJVs allow for interaction among people and sharing of uncodified knowledge (Osborn & Baughn, 1990) that is critical to the creation of new tacit knowledge. By choosing to jointly invest in a firm, partners in EJVs demonstrate the high levels of trust (Child, 1994) found among those with stronger *guanxi* ties (Tsui et al., 2000). They 'signal a commitment to a long-term relationship between parent firms' (Osborn & Baughn, 1990: 508) that is needed to facilitate tacit to tacit knowledge conversion.

Not all joint ventures offer such advantages. Contract based ventures assign specific tasks and responsibilities to local Chinese partners and collaboration between local and foreign members does not occur as often as in equity based ventures. Partners in these ventures tend to be less interdependent and collaborate less frequently in decision-making than in equity based partnerships (Child, 1994). From a knowledge creation perspective, the two parties in CJVs operate as two (or more) separate entities. These arrangements entail lower levels of collaboration and interaction that are likely to impede the interpersonal sharing involved in converting tacit knowledge. Shenkar and Li (1999: 141) studied international joint

ventures in China and found that the transfer of tacit knowledge is more common in equity joint ventures, which enable ‘cohabitation’ of members of partner firms. Hence, we expect that contract joint ventures will be less equipped to engage in exploration strategies than equity joint ventures.

Proposition 4: Unlike contract joint ventures, equity joint ventures between Chinese and Western partners will emphasize all four patterns of knowledge creation to facilitate both incremental and radical innovation.

The effects of increasing institutionalization. China is in the middle of a major institutional transition that is redefining its institutional context through a series of fundamental and comprehensive changes (Droege & Johnson, 2007; Li & Yang, 2006; Peng, 2003). For instance, during the course of writing this paper, the Chinese government introduced new reforms that expanded Chinese citizens’ rights to own private property (Oster, 2007). This particular legislation applies specifically to the ownership of residential dwellings, but further relaxation of restrictions on ownership rights or recent legislation that strengthens workers’ employment rights (Kahn & Barboza, 2007) could have a substantial impact on individuals’ willingness to create explicit knowledge. As Schoonhoven advises (2006: 298), ‘Given the rapid pace of environmental change in the Chinese context, scholars must not assume fixed institutional conditions in China, but rather must be alert for the likelihood that major assumptions about the context may not be valid. While institutions themselves are “taken-for-granted” entities, nonetheless institutional change in China is hardly complete’.

Over time, the Chinese context will move from its current transitional state to a fully developed, industrial environment (Li & Yang, 2006). This change will witness the emergence of a well-developed institutional context in China, in which organizational action will be more firmly guided by formal rules. For instance, the development in China of legal support for the terms of contracts and of transparency in legal and accounting processes will encourage a shift from personal to impersonal enforcement of business transactions (Child & Tse, 2001).

In a well-developed institutional environment, personal relationships will become less important as a basis for market transactions and organizational action (Li & Yang, 2006). As China’s institutional environment becomes more characterized by formal rules, organizations will increasingly turn toward knowledge creation practices that employ explicit knowledge. Such changes may motivate Chinese managers to ‘abandon their strong emphasis on personal trust and instead develop mechanisms for formal trust – for instance, clear-cut, objective performance metrics and specific rules and regulations that are less susceptible to individual interpretation’ (Javidan & Lynton, 2005: 28). A well-developed institutional environment will encourage combination and internalization, both of which exploit existing explicit knowledge across organizations of all forms.

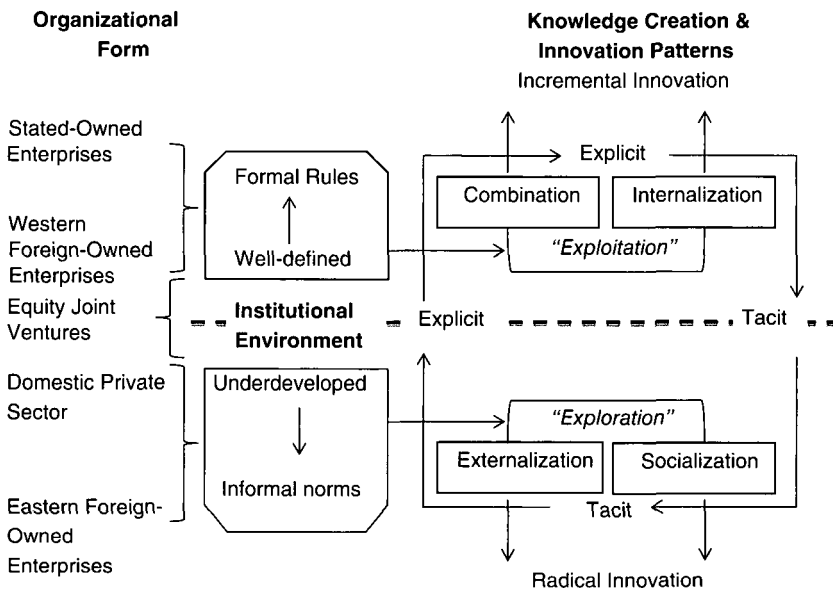
Organizational form will, thus, become a less important differentiator of knowledge creation patterns over time.

Proposition 5: Increasing institutionalization in the Chinese context will reduce the relationship between organizational form and knowledge creation practices over time.

DISCUSSION

Based on an assessment of the Chinese context, we have formulated five propositions about the propensity of organizations of different ownership forms to engage in the four processes of knowledge creation. The resulting model is depicted in Figure 1. The transitional institutional context in China has produced distinct shared contexts, or *ba*, for different organizational forms, which lead to different patterns of knowledge creation and innovation. We propose that SOEs and WFOEs experience shared contexts characterized by formal rules and, thus, favour knowledge creation processes that employ explicit knowledge and may yield incremental innovation. Domestic private firms and EFOEs operate in shared contexts driven by informal norms and, thus, demonstrate a greater proclivity to draw on tacit knowledge and may foster radical innovation. Through their engagement of groups from different institutional contexts, EJVs are capable of engaging all four patterns of knowledge creation, which may foster both incremental and radical forms of innovation. Further, we have identified how institutionalization over time may weaken the relationship between organizational ownership forms and knowledge creation patterns.

Figure 1. Organizational knowledge creation in the Chinese context



Theoretical Implications

Nonaka (1994) and Nonaka and Takeuchi (1995) offered a guiding framework in knowledge management research. In this paper, we elaborate Nonaka's work by exploring its application in the Chinese context. Previous research that focuses on knowledge creation in China suggests that Chinese organizations emphasize tacit knowledge due to the preponderance of Confucian values. We argue that an organization's ownership form exposes it to a particular institutional environment that leads it to emphasize specific knowledge creation processes.

As institutional environments of a nation become more developed, however, all firms will become increasingly governed by a similar set of formal rules (North, 1990; Peng, 2003). In a well-developed institutional environment, interpersonal relationships may become comparatively less important as a basis for market transactions and organizational action (Li & Yang, 2006). Rules based contractual arrangements may supercede *guanxi* based informal relations (Hong & Engestrom, 2004) as the institutional environment becomes more fully developed.

The formalization of the institutional environment and the general orientation toward the use of explicit knowledge suggests that organizations in China may risk becoming less adept at radical innovation. This potential risk points to the continued importance of Confucian values in the Chinese context. As the institutional environment increasingly prioritizes the use of explicit knowledge, we expect organizations that retain their orientation toward Confucian values while becoming more skilled at using explicit knowledge will be in an ideal position for creating new knowledge and producing both radical and incremental innovation.

Implications for Future Research

In order to test the propositions and further develop the theoretical ideas presented in this paper, we encourage researchers to engage in first-hand observation of knowledge creation patterns in Chinese organizations. In particular, qualitative studies that examine knowledge creation processes within organizations of different ownership forms offer the potential to gain deeper insight on the phenomenon than we have presented. Future studies that draw on archival data, such as company websites, publications and news reports, to assess knowledge creation processes and outcomes offer an opportunity to discern variations among organizations with different ownership structures. The dynamic nature of our model also points to the importance of longitudinal research designs to understand the effects of both discrete environmental events and ongoing, dynamic environmental change on organizational knowledge creation in China.

Further, the Chinese context itself demonstrates remarkable internal diversity. Differences in the institutional environment across regions is likely to affect

organizations' abilities to co-create new knowledge. Thus, comparative studies of knowledge creation among China's many regions offers an important opportunity to learn more about how to create knowledge within segments of a context that may have more differences than similarities. Comparative research in the field of knowledge management is somewhat limited (e.g., Chow, Deng, & Ho, 2000; Michailova & Hutchings, 2006; Weir & Hutchings, 2005). Studies comparing patterns of knowledge creation in China with other contexts that also have diverse organizational forms (e.g. India) can further scholarly understanding of how external environments and cultural differences contribute to the creation of organizational knowledge.

We used literature from Chinese authors and journals and also reviewed our work with Chinese colleagues to check that we were properly representing contemporary conditions in China. However, we remain outsiders to this context and have not fulfilled Tsui's (2004, 2006) call for context specific, indigenous research. Involvement of local scholars in further studying and testing theories of knowledge creation by testing the construct validity of Nonaka's model with culturally appropriate measures will enable further development of these ideas.

CONCLUSION

The contemporary Chinese context is characterized by an extraordinary degree of organizational and institutional change. It has begun a transition away from traditional, relationship-driven management toward a new model that emphasizes economic outcomes and institutionalized rules. We hope we have furthered scholarly understanding of organizational knowledge creation in the Chinese context and of the implications of these patterns for innovation. Understanding organizational knowledge creation and innovation in this context is particularly important to scholars' efforts to advance organizational theories and to practitioners' efforts to craft effective management practices in this dynamic environment.

NOTE

We are very grateful to Richard DeJordy, Zhi Huang, Chun-Yi Hung, Anne Tsui and the anonymous reviewers for their helpful suggestions on earlier drafts of this paper.

REFERENCES

- Afuah, A. 2003. *Innovation management: Strategies, implementation and profits*. New York: Oxford University Press.
- Argote, L., McEvily, B., & Reagans, R. 2003. Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management Science*, 49(4): 571–582.
- Argyris, C. 1999. *On organizational learning*. Malden, MA: Blackwell.

- Argyris, C. 2004. *Reasons and rationalizations: The limits to organizational knowledge*. Oxford: Oxford University Press.
- Bartunek, J. M. 1984. Changing interpretive schemes and organizational restructuring: The example of a religious order. *Administrative Science Quarterly*, 29(3): 355–372.
- Beamish, P. W. 1993. The characteristics of joint ventures in the People's Republic of China. *Journal of International Marketing*, 1(2): 29–48.
- Bhagat, R. S., Kedia, B. L., Harveston, P. D., & Triandis, H. C. 2002. Cultural variations in the cross-border transfer of organizational knowledge: An integrative framework. *Academy of Management Review*, 27(2): 204–221.
- Boyacigiller, N. A., & Adler, N. J. 1991. The parochial dinosaur: Organizational science in a global context. *Academy of Management Review*, 16(2): 262–290.
- Buckley, P. J., Clegg, J., & Tan, H. 2006. Cultural awareness in knowledge transfer to China – the role of guanxi and mianzi. *Journal of World Business*, 41(3): 275–288.
- Burrows, G. R., Drummond, D. L., & Martinsons, M. G. 2005. Knowledge management in China. *Communications of ACM*, 48(44): 73–76.
- Calhoun, M. A., & Starbuck, W. H. 2003. Barriers to creating knowledge. In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell handbook of organizational learning and knowledge management*: 473–492. Malden, MA: Blackwell.
- Carney, M., & Gedajlovic, E. 2002. The co-evolution of institutional environments and organizational strategies: The rise of family business groups in the ASEAN region. *Organization Science*, 23(1): 1–29.
- Chen, W. 2007. Does the colour of the cat matter? The red hat strategy in China's private enterprises. *Management and Organization Review*, 3(1): 55–80.
- Chen, C. C., Chen, Y., & Xin, K. 2004. Guanxi practices and trust in management: A procedural justice perspective. *Organization Science*, 15(2): 200–209.
- Child, J. 1994. *Management in China during the age of reform*. Cambridge: Cambridge University Press.
- Child, J., & Tse, D. K. 2001. China's transition and the impacts on international business. *Journal of International Business Studies*, 32(1): 8–21.
- Chow, C. W., Deng, F. J., & Ho, J. L. 2000. The openness of knowledge sharing within organizations: A comparative study of the United States and the People's Republic of China. *Journal of Management Accounting Research*, 12(1): 65–95.
- Cooke, F. L. 2004. Foreign firms in China: Modelling HRM in a toy manufacturing corporation. *Human Resource Management Journal*, 14(3): 31–52.
- Deng, P. 2001. WFOEs: The most popular entry mode into China. *Business Horizons*, 44(4): 63–72.
- Deng, P. 2003. Determinants of full-control mode in China: An integrative approach. *American Business Review*, 21(1): 113–123.
- Dimaggio, P. J., & Powell, W. W. 1983. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2): 147–160.
- Droege, S., & Johnson, N. B. 2007. Broken rules and constrained confusion: Toward a theory of meso-institutions. *Management and Organization Review*, 3(1): 81–104.
- Fishman, T. C. 2005. *China Inc.: How the rise of the next superpower challenges America and the world*. New York, Scribner.
- Fu, P. P., Tsui, A. S., & Dess, G. G. 2006. The dynamics of guanxi in Chinese high-tech firms: Implications for knowledge management and decision making. *Management International Review*, 46(3): 1–29.
- Glisby, M., & Holden, N. 2003. Contextual constraints in knowledge management theory: The cultural embeddedness of Nonaka's knowledge-creating company. *Knowledge and Process Management*, 10(1): 29–36.
- Guillen, M. F. 2003. Experience, imitation, and the sequence of foreign entry: Wholly owned and joint-venture manufacturing by South Korean firms and business groups in China, 1987–1995. *Journal of International Business Studies*, 34(2): 185–198.
- Henderson, R., & Clark, K. B. 1990. Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35(1): 9–30.

- Hong, J., & Engstrom, Y. 2004. Changing principles of communication between Chinese managers and workers. *Management Communication Quarterly*, 17(4): 552–585.
- Huang, Y. 2003. *Selling China: Foreign direct investment during the reform era*. Cambridge and New York: Cambridge University Press.
- Hutchings, K., & Michailova, S. 2004. Facilitating knowledge sharing in Russian and Chinese subsidiaries: The importance of groups and personal networks. *Journal of Knowledge Management*, 8(2): 84–94.
- Javidan, M., & Lynton, N. 2005. The changing face of the Chinese executive. *Harvard Business Review*, 83(12): 28–30.
- Kahn, J., & Barboza, D. 2007. China passes a sweeping labor law. *The New York Times*, June 30: L.
- Li, D. D., & Wu, C. 2002. Reforming state-owned enterprises: Diversifying ownership versus improving performance. In A. S. Tsui & C. M. Lau (Eds.), *The management of enterprises in the People's Republic of China*: 79–98. Boston: Kluwer Academic Publishers.
- Li, J., & Shenkar, O. 1996. In search of complementary assets: Co-operative strategies and knowledge seeking by prospective Chinese partners. In J. Child & Y. Lu (Eds.), *Management issues in China: International enterprises*, vol. 2: 52–65. New York: Routledge.
- Li, J., & Yang, J. Y. 2006. China's domestic private firms: A literature review and directions for future research. In A. S. Tsui, L. Cheng, & Y. Bian (Eds.), *China's domestic private firms: Multi-disciplinary perspectives on management and performances*: 206–229. Armonk, NY: M.E. Sharpe.
- Li, P. P. 2005. The puzzle of China's township–village enterprises: The paradox of local corporatism in a dual-track economic transition. *Management and Organization Review*, 1(2): 197–224.
- Michailova, S., & Hutchings, K. 2006. National cultural influences on knowledge sharing: A comparison of China and Russia. *Journal of Management Studies*, 43(3): 383–405.
- National Bureau of Statistics of China. 2005. *China statistical yearbook*. [Cited 21 May 2008.] Available from URL: <http://www.stats.gov.cn/english/statisticaldata/yearlydata/>
- Nippa, M., Becchler, S., & Klossek, A. 2007. Success factors for managing international joint ventures: A review and an integrative framework. *Management and Organization Review*, 3(2): 277–310.
- Nonaka, I. 1991. The knowledge-creating company. *Harvard Business Review*, 69(6): 96–104.
- Nonaka, I. 1994. A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1): 14–37.
- Nonaka, I. 2005. Managing organizational knowledge: Theoretical and methodological foundations. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management: The process of theory development*: 373–393. Oxford: Oxford University Press.
- Nonaka, I., & Konno, N. 1998. The concept of 'Ba': Building a foundation for knowledge creation. *California Management Review*, 40(3): 40–54.
- Nonaka, I., & Takeuchi, H. 1995. *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- Nonaka, I., Toyama, R., & Konno, N. 2000. SECI, ba and leadership: A unified model of dynamic knowledge creation. *Long Range Planning*, 33(1): 5–34.
- North, D. 1990. *Institutions, institutional change and economic performance*. Cambridge, UK: Cambridge University Press.
- Oliver, C. 1991. Strategic responses to institutional processes. *Academy of Management Review*, 16(1): 145–179.
- Osborn, R., & Baughn, C. C. 1990. Forms of interorganizational governance for multinational alliances. *Academy of Management Journal*, 33(3): 503–519.
- Oster, S. 2007. Property owners feel right at home in China. *Wall Street Journal*, March 14: B1.
- Peng, M. W. 2003. Institutional transitions and strategic choices. *Academy of Management Review*, 28(2): 275–296.
- Polanyi, M. 1966. *The tacit dimension*. London: Routledge & Kenan Paul.
- Popadiuk, S., & Choo, C. W. 2006. Innovation and knowledge creation: How are these concepts related? *International Journal of Information Management*, 26(4): 302–312.
- Qiu, Y. 2005. Problems of managing joint ventures in China's interior: Evidence from Shaanxi. *SAM Advanced Management Journal*, 70(3): 46–55.

- Ralston, D. A., Terpstra-Tong, J. L. Y., Terpstra, R. H., Wang, X., & Egri, C. 2006. Today's state-owned enterprises of China: Are they dying dinosaurs or dynamic dynamos? *Strategic Management Journal*, 27(9): 825–843.
- Robertson, M., Scarborough, H., & Swan, J. 2003. Knowledge creation in professional service firms: Institutional effects. *Organization Studies*, 24(6): 831–857.
- Rousseau, D. M., & Friedl, Y. 2001. Location, location, location: Contextualizing organizational research. *Journal of Organizational Behavior*, 22(1): 1–13.
- Schoonhoven, C. B. 2006. The emergence of China's private-sector firms: Theory development in the midst of evolving institutional and industrial conditions. In A. S. Tsui, Y. Bian, & L. Cheng (Eds.), *China's domestic private firms: Multi-disciplinary perspectives on management and performance*: 297–310. Armonk, NY: M.E. Sharpe.
- Scott, W. R. 1983. Health care organizations in the 1980s: The convergence of public and professional control systems. In J. W. Meyer & W. R. Scott (Eds.), *Organizational environments: Ritual and rationality*: 99–113. Beverly Hills, CA: Sage.
- Scott, W. R. 2005. Institutional theory: Contributing to a theoretical research program. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management: The process of theory development*: 460–484. Oxford: Oxford University Press.
- Shenkar, O., & Li, J. 1999. Knowledge search in international cooperative ventures. *Organization Science*, 10(2): 134–143.
- Si, S. X., & Bruton, G. D. 1999. Knowledge transfer in international joint ventures in transitional economies: The China experience. *Academy of Management Executive*, 13(1): 83–90.
- Tong, C. S. P., & Chan, H. L. 2003. Disparity in production efficiency of China's TVEs across regions: A stochastic frontier production. *Asia Pacific Journal of Management*, 20(1): 113–131.
- Tsoukas, H. 2003. Do we really understand tacit knowledge? In M. Easterby-Smith & M. A. Lyles (Eds.), *The Blackwell handbook of organizational learning and knowledge management*: 410–427. Malden, MA: Blackwell.
- Tsui, A. S. 2004. Contributing to global management knowledge: A case for high quality indigenous research. *Asia Pacific Journal of Management*, 21(4): 491–413.
- Tsui, A. S. 2006. Contextualization in Chinese management research. *Management and Organization Review*, 2(1): 1–13.
- Tsui, A. S., Bian, Y., & Cheng, L. 2006. *China's domestic private firms: Multi-disciplinary perspectives on performance and management*. Armonk, NY: M.E. Sharpe.
- Tsui, A. S., & Farh, J. L. 1997. Where *guanxi* matters: Regional demography and *guanxi* in the Chinese context. *Work and Occupations*, 24(1): 56–79.
- Tsui, A. S., Farh, J. L., & Xin, K. R. 2000. *Guanxi* in the Chinese context. In J. T. Li, A. S. Tsui, & E. Weldon (Eds.), *Management and organizations in the Chinese context*: 225–244. New York: St. Martin's Press.
- Tsui, A. S., Schoonhoven, C. B., Meyer, M. W., Lau, C., & Milkovich, G. T. 2004. Organization and management in the midst of societal transformation: The People's Republic of China. *Organization Science*, 15(2): 133–144.
- Tsui, A. S., Zhao, S., & Abrahamson, E. 2007. What to study in China? Choosing and crafting important research questions. *Management and Organization Review*, 3(2): 171–181.
- Van de Ven, A. H., Polley, D., Garud, R., & Venkatraman, S. 1999. *The innovation journey*. New York: Oxford University Press.
- Wei, Y., Liu, B., & Liu, X. 2005. Entry modes of foreign direct investment in China: A multinomial logit approach. *Journal of Business Research*, 58(11): 1495–1505.
- Weir, D., & Hutchings, K. 2005. Cultural embeddedness and contextual constraints: Knowledge sharing in Chinese and Arab cultures. *Knowledge and Process Management*, 12(2): 89–98.

Ian J. Walsh (walshia@bc.edu) is a doctoral candidate in Organization Studies at Boston College. His dissertation explores the role of deep structure identification in individuals' participation in organizing that sustains valued organizational elements following an organization's formal death. He has also conducted research on collective turnover which was published in *Human Relations*.

Mamta Bhatt (bhattm@bc.edu) is a doctoral candidate in Organization Studies at Boston College. Her research interests include identity and identification, non-traditional work arrangements, such as contingent work and cross-cultural issues. Her dissertation explores how contingent professionals experience and manage their relational identity vis-à-vis the clients' employees.

Jean M. Bartunek (bartunek@bc.edu) is the Robert A. and Evelyn J. Ferris chair and Professor of Organization Studies at Boston College as well as a Fellow and a past president of the Academy of Management. Her Ph.D. in social and organizational psychology is from the University of Illinois at Chicago. Her substantive research interests focus on organizational change, the conflict associated with it and organizational cognition, and her methodological interests centre around insider/outsider research. She is an associate editor of the *Journal of Applied Behavioral Science* and is on the editorial boards of many other journals.

Manuscript received: April 16, 2007
Final version accepted: August 14, 2008
Accepted by: Anne S. Tsui