



COMMENTARY

Subsidiary absorptive capacity and knowledge transfer within multinational corporations

Jaeyong Song

Graduate School of Business, Seoul National University, Seoul, Korea

Correspondence:

J Song, Graduate School of Business, Seoul National University, Shillim Dong, Seoul 151-916, Korea.
Tel: +82 2 880 9080;
Fax: +82 2 878 3154;
email: jsong@snu.ac.kr

Abstract

The paper reviews extant literature on subsidiary absorptive capacity and knowledge transfer within multinational corporations (MNCs), and proposes an agenda for future research on the relationship between these two constructs. It suggests that motivation should be viewed as a moderating factor between subsidiary absorptive capacity and MNC knowledge transfer, and that future research should make a clear distinction between the choices of MNC headquarters and those of subsidiaries regarding knowledge transfer. The paper proposes that a more comprehensive, multi-level framework and dynamic model of the determinants of subsidiary absorptive capacity and MNC knowledge transfer be developed in future studies.

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INTRODUCTION

The idea that foreign direct investment is driven by a firm's knowledge assets can be traced back to the pioneering work of Hymer (1960) and the subsequent studies of Caves (1971), Buckley and Casson (1976), Cantwell (1989), and others. The process by which multinational corporations (MNCs) create value from knowledge was initially conceptualized as a linear sequence: knowledge was created in the firm's home base and then diffused worldwide in the form of new products and processes (Almeida, Song, & Grant, 2002). In this view of the process, knowledge transfer tended to be internalized within the MNC in order to avoid the transaction costs associated with market contracts in relation to knowledge assets.

Knowledge has been viewed as the most important source of corporate competitive advantage (Grant, 1996). Therefore hundreds of papers have discussed knowledge transfer within MNCs. Recently, an increasing number of papers have focused on key determinants of knowledge transfer within MNCs. One of these is the absorptive capacity that is developed by overseas subsidiaries of MNCs. According to Cohen and Levinthal (1990: 128), absorptive capacity is the "ability to recognize the value of new external information, assimilate it, and apply it to commercial ends." Effective knowledge transfer between knowledge senders and recipients requires absorptive capacity. MNCs are often selected for studies of knowledge

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transfer and organizational learning, because their capacity to create and transfer knowledge internally is one of their main competitive advantages. This ability is useful to overcome the liability of foreignness in overseas markets (Gupta & Govindarajan, 2000; Zaheer, 1995).

Minbaeva, Pedersen, Björkman, Fey, and Park (2003) published a pioneering paper in which the relationship between subsidiary absorptive capacity and effective knowledge transfer within MNCs was examined. Even before Minbaeva et al.'s paper, there was a multitude of studies dealing with the determinants of knowledge transfer in the international context. However, what had been much less explained was the question of "effective knowledge transfer." Minbaeva et al. made a substantial contribution in this area of effective knowledge transfer in the international context. Thus their award-winning paper provides the starting point for this study.

In this article, I provide an extensive review of extant literature on subsidiary absorptive capacity, intra-organizational knowledge transfer within MNCs, and the relationship between these two constructs. After highlighting the major contributions of Minbaeva et al. (2003), I identify major outstanding issues and propose an agenda for future research. I focus on the following six major issues or areas for future research as an extension of the work of Minbaeva et al. (2003):

- (1) motivation and subsidiary absorptive capacity;
- (2) human resources management (HRM) and determinants of subsidiary absorptive capacity;
- (3) choices of headquarters (HQ) vs subsidiaries regarding MNC knowledge transfer;
- (4) the need for a comprehensive framework of knowledge transfer within MNCs;
- (5) the need for multi-level studies; and
- (6) the need for dynamic models.

CONTRIBUTIONS OF THE WORK OF Minbaeva et al. (2003)

Minbaeva et al. (2003) investigated the relationships among HRM practices of MNC subsidiaries, subsidiary-level absorptive capacity, and intra-organizational knowledge transfer. The results of their empirical analysis of survey data revealed that the interaction between employees' abilities and motivation (key aspects of absorptive capacity) facilitates intra-organizational knowledge transfer in MNCs. In addition, HRM practices of MNC subsidiaries were identified as important mechanisms to enhance absorptive capacity in MNC subsidiaries.

Building on the behavioral science literature, Minbaeva et al. (2003) conceptualized subsidiary absorptive capacity as including both the abilities and the motivation of employees of MNC subsidiaries. By contrast, most prior studies focused only on ability of employees or organizations in relation to absorptive capacity. Minbaeva et al. (2003) highlighted the importance of the interaction between ability and motivation in determining the level of knowledge transfer between units of an MNC. In addition, they focused on individual behaviors as microfoundations of subsidiary absorptive capacity, emphasizing the role of individuals, their abilities, and their motivation to learn. Other studies focused on absorptive capacity at the organizational level only, thus overlooking the importance of motivational aspects (Minbaeva, Pedersen, Björkman, & Fey, 2014).

Minbaeva et al. (2003) also highlighted the role of HRM practices in promoting subsidiary absorptive capacity by treating its development as an endogenous part of the process. At the time, the transfer of knowledge had rarely been treated as endogenous to organizational routines and processes (Foss & Pedersen, 2002). Few existing studies in the past 10 years have investigated the processes by which absorptive capacity is developed within firms (Minbaeva et al., 2014). In contrast, Minbaeva et al. (2003) identified training and competence appraisal as factors affecting employees' ability, and merit-based promotion, performance-based compensation, and internal communication as factors affecting employees' motivation.

The award-winning work of Minbaeva et al. (2003) provided two major contributions to research in this field. First, the authors explicitly identified employee motivation in addition to ability as a key determinant of intra-firm knowledge transfer within MNCs. They proposed that even strong abilities of subsidiary employees are insufficient in themselves for inducing active knowledge transfer within an MNC. Strong employee motivation is also required. Second, by identifying HRM practices in MNC subsidiaries as key contributors to the development of subsidiary absorptive capacity, Minbaeva et al. (2003) theorized about and tested how absorptive capacity is actually developed and promoted within an MNC. They provided an endogenous model demonstrating the connections among HRM practices, subsidiary absorptive capacity, and knowledge transfer within an MNC.

The pioneering work of Minbaeva et al. (2003) influenced subsequent research on absorptive

capacity and knowledge transfer of MNC substantially. In this paper, I focus on major limitations of the original paper, on how subsequent papers based on the ideas of these scholars have diverged from the original paper, and on the major unresolved and unaddressed issues in follow-up papers.

MAJOR ISSUES AND DIRECTIONS FOR FUTURE RESEARCH

As Minbaeva et al. (2003) stated in their retrospective article, they only scratched the surface of the notions of absorptive capacity and intra-organizational knowledge transfer within MNCs. Several major issues remain to be addressed. In this section, the six major issues or areas for future research listed below are addressed, and related extant research is discussed.

Motivation and Subsidiary Absorptive Capacity

Minbaeva et al. (2003) viewed motivation as a key aspect of absorptive capacity rather than a separate construct, as was the case in previous studies. Cohen and Levinthal (1990: 131) stated that “to develop an effective absorptive capacity, whether it be for general knowledge or problem-solving or learning skills, it is insufficient merely to expose an individual briefly to the relevant prior knowledge. Intensity of effort is critical.” Minbaeva et al. (2003) examined this “intensity of effort.” They proposed that both motivation and ability are key aspects of absorptive capacity. They suggested that intensity of effort should be determined by motivation, according to cognitive process theories. However, this may be a logical over-stretch. Cohen and Levinthal viewed intensity of effort in terms of the amount of processing that makes use of associations between the items to be learned and knowledge in memory or the number of practice trials on related problems. However, employee motivation may not be involved in this process.

In a related study, Zahra and George (2002) defined four dimensions of absorptive capacity in terms of organizational abilities, with no consideration of employee motivation. Some empirical studies of absorptive capacity in the MNC context also made a clear distinction between absorptive capacity and motivation. For example, Gupta and Govindarajan (2000) argued that knowledge inflows into an overseas subsidiary would be associated with absorptive capacity, motivational disposition to acquire knowledge, and richness of transmission channels.

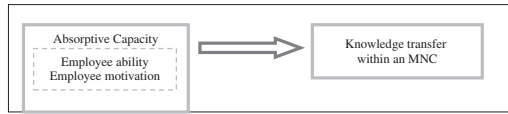
Moreover, Song and Shin (2008) found the trade-off between ability and motivation in terms of

knowledge sourcing. Based on this finding, Song and Shin (2008) highlighted the “paradox of technological capabilities.” Whereas the technological capabilities of MNC-HQs contribute to their capacity to source knowledge from host countries, strong technological capabilities are usually associated with well-established technological trajectories. These trajectories may constrain their search for new capabilities, encourage localized and path-dependent search behavior, and decrease motivation to source new knowledge from host countries. Thus strong capabilities may reduce motivation to learn from others, partly because of routine-constrained choices (Nelson & Winter, 1982), and partly because of the reduced incentive to outsource knowledge. As a result, above a certain threshold level of capability, MNC-HQs with already established distinct technological paths or routines may be less willing to source new or complementary knowledge from host countries. The same logic may be applied to the knowledge transfer and sourcing decision-making of overseas subsidiaries within the MNC network.

As an extension of the relative absorptive capacity concept of Lane and Lubatkin (1998), Song and Shin (2008) also proposed that both absolute and relative levels of technological capability may influence the motivation of MNC-HQs to outsource knowledge from host countries. Since learning occurs in a dyadic relationship between learning and teaching units, knowledge transfer behaviors must account for both the absolute and the relative characteristics of these units. Mitchell, Baum, Banaszak-Holl, Berta, and Bowman (2000) argued that although more opportunities for knowledge transfer across units may be available for nursing-home chains with strong capabilities, those with relatively strong capabilities are less likely to acquire knowledge from other units in the chain than those with weaker capabilities. Similarly, Song and Shin (2008) argued that considering relative capabilities captures the motivational factors underlying knowledge sourcing and transfer that are ignored when only absolute levels of technological capabilities are examined in international business research.

Motivation should therefore be treated as a separate construct from absorptive capacity, as Gupta and Govindarajan (2000) also indicated. As shown in Figure 1, I propose that motivation be treated as a moderating factor between subsidiary absorptive capacity and knowledge transfer within an MNC, rather than as an aspect of absorptive capacity. Lewin, Massini, and Peeters (2011) also suggested that the incentive structure for information and

Minbaeva et al.'s (2003) model, in which motivation is viewed as an element of absorptive capacity



Proposed model, in which motivation is viewed as a moderating factor between absorptive capacity and knowledge transfer within MNCs

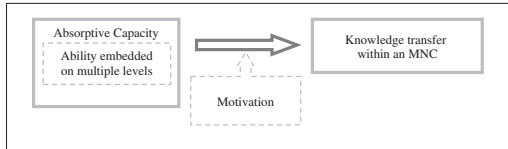


Figure 1 Relationships among motivation, absorptive capacity, and knowledge transfer within MNCs.

knowledge sharing, transfer, and utilization as a basis of employee motivation moderates the relationships between absorptive capacity and the timing or success of new technology adoption. Despite the valuable findings in these studies, future research should examine the relationship between motivation and subsidiary absorptive capacity further.

HRM and Determinants of Subsidiary Absorptive Capacity

HRM practices may be seen as determinants of subsidiary absorptive capacity. A major contribution of Minbaeva et al. (2003) was to highlight the role of HRM practices in promoting subsidiary absorptive capacity. They treated the development of absorptive capacity endogenously, unlike most prior studies, in which intra-organizational knowledge transfer was seen as exogenous to organizational routines and processes. To show that HRM practices promote subsidiary absorptive capacity by influencing employee abilities and motivation, Minbaeva et al. (2003) examined general HRM practices such as training, competence/performance appraisal, merit-based promotion, performance-based compensation, and internal communication. Despite the unique contribution of their research, these general HRM practices are seldom related directly to knowledge transfer within an MNC. Although these HRM practices may promote the overall ability and motivation of employees, intra-organizational knowledge transfer may not necessarily follow. Thus future research should examine HRM practices that are related to specific motivation for knowledge transfer, rather than the general HRM practices examined in the study of Minbaeva et al. (2003). For example, future research could focus on the performance appraisal and compensation practices that reward knowledge

transfer *per se* (Björkman, Barner-Rasmussen, & Li, 2004; Miao, Choe, & Song, 2011).

The effects of HRM practices on subsidiary absorptive capacity should also be investigated in terms of staffing issues, especially as concerns the role of expatriates. Minbaeva et al. (2003) downplayed the role of expatriates in knowledge transfer by including the share of expatriates merely as a control variable. However, many other studies (Argote & Miron-Spektor, 2011; Bartlett & Ghoshal, 1990; Björkman et al., 2004; Chang, Gong, & Peng, 2012; Kostova & Roth, 2002; Song, Almeida, & Wu, 2003; Song, Chung, & Yun, 2013; Tan & Mahoney, 2003) have emphasized the importance of employee mobility and the role of expatriates as important agents of transfer of knowledge from MNC-HQ. Tacit knowledge is sticky; it does not flow easily unless individuals possessing the tacit knowledge move (Huber, 1991; Song et al., 2003; Szulanski, 1996). Argote and Ingram (2000: 164) argued that "because people play the most critical role in the success of technology transfer, further research on the role of members ... is needed."

Tan and Mahoney (2003) argued that most expatriate employees are acquired through internal transfer rather than as new hires, and are likely to have accumulated firm-specific knowledge throughout their tenure at parent companies. When an MNC's competitive advantage is based upon firm-specific, tacit knowledge, the parent company will naturally push to impart such knowledge to its subsidiaries as completely and quickly as possible in order to help them overcome the liability of foreignness and compete successfully with local companies (Zaheer, 1995). Expatriate employees will naturally be a big part of this push (Gupta & Govindarajan, 2000; Song et al., 2013). In terms of motivation, expatriates may be more effective and cooperative in facilitating knowledge transfer within an MNC than locally hired managers, because they tend to be more concerned with the performance of the entire MNC organization (Miao et al., 2011).

In transferring tacit knowledge from an MNC-HQ to its overseas subsidiaries, expatriates may enhance the absorptive capacity of those subsidiaries to act as flexible reservoirs of tacit knowledge (Song et al., 2013). Prior studies (Delios & Björkman, 2000; Doz & Prahalad, 1986; Harzing, 2002) showed that MNCs with strong marketing or technological capabilities are more likely to use expatriates to transfer tacit knowledge to overseas subsidiaries than are firms without such capabilities. Such MNCs can also help overseas subsidiaries to adapt transferred



knowledge to new host-country environments. Because expatriates share the language, work experience, and organizational culture with managers of the parent company, and maintain informal communication networks with HQ managers, they may continue to serve as conduits of knowledge transfer between the MNC-HQ and its overseas subsidiaries. They also contribute to the preservation of internal consistency and future additional knowledge transfer from parent to subsidiary. By contrast, local managers provide familiarity with the local environment and enhance external legitimacy, enabling subsidiaries to acquire knowledge from the host country more effectively.

A comprehensive conceptual framework including factors that influence subsidiary absorptive capacity must be adopted in future research. Subsidiary absorptive capacity may be affected by diverse factors other than the HRM practices investigated by Minbaeva et al. (2003). Prior studies suggest that locational factors (e.g., technical resources of the host country) and organizational factors (e.g., subsidiary experience and autonomy) may also increase a subsidiary's absorptive capacity (Miao et al., 2011).

The absorptive capacity of foreign subsidiaries improves as they gain more experience over time (Birkinshaw, Hood, & Jonsson, 1998; Delios & Beamish, 2001; Ghoshal & Bartlett, 1990; Luo & Peng, 1999). Munificence of resources in the host country also contributes to subsidiary absorptive capacity (Frost, 2001; Song & Shin, 2008). Moreover, knowledge transferred from HQ and other subsidiaries enhances the absorptive capacity of subsidiaries (Miao et al., 2008; Argote & Ingram, 2000), thereby suggesting a dynamic perspective for the relationship between knowledge transfer and subsidiary absorptive capacity.

HQ Choice vs Subsidiary Choice in Knowledge Transfer

The initial source of development of absorptive capacity (i.e., the parent or the autonomous subsidiary) has considerable influence on subsequent knowledge transfer. Depending on whether the parent initiates the process or the autonomous subsidiary does, the level and type of knowledge transfer to a focal subsidiary would vary substantially. The possibility that a subsidiary may determine the level of knowledge transfer autonomously, regardless of its absorptive capacity, was not considered in the study of Minbaeva et al. (2003).

Some studies have emphasized the importance of the HQ–subsidiary relationship within the global

network of the MNC. The level of control or autonomy given to a subsidiary has been identified as an organizational determinant of global learning and knowledge transfer within MNCs (Asakawa, 2001; Ghoshal & Bartlett, 1990; Schulz, 2001; Song, Asakawa, & Chu, 2011). Centralized control imposed by a parent company reduces subsidiary employees' motivation to learn, limits initiatives for innovation by hindering autonomous searching and learning activities, and thus ultimately prevents the development of new capabilities applicable to local markets (Birkinshaw et al., 1998; Frost, Birkinshaw, & Ensign, 2002; Miao et al., 2011). By contrast, a high level of autonomy allows subsidiaries to achieve more than simply running current business operations by developing new, innovative ways of improving their performance in the foreign environment (Garvin, 2000; Ghoshal & Bartlett, 1990). Other studies from this viewpoint found an association between managerial autonomy and increased subsidiary competence (Birkinshaw et al., 1998) and enhancement of innovative activities (Ghoshal & Bartlett, 1990). Thus subsidiaries with high autonomy are more likely to obtain valuable knowledge and have more influence on the level and direction of knowledge transfer within an MNC.

Monteiro, Arvidsson, and Birkinshaw (2008) suggested that knowledge transfer from MNC-HQ and elsewhere can be framed as a process of problemistic searching on the part of an overseas subsidiary as the recipient. If an autonomous and competent subsidiary can determine its own level of knowledge transfer (Birkinshaw et al., 1998), then the development of its capabilities over time builds absorptive capacity for more inward knowledge transfer. On the other hand, a competent subsidiary may be less motivated to source knowledge from the parent. Thus, as Song and Shin (2008) suggested, a trade-off exists between subsidiary absorptive capacity and motivation over time.

Some studies have shown that greater autonomy of MNC subsidiaries has become more common in recent years (Ambos & Ambos, 2009; Mudambi & Navarra, 2004). Thus future research should consider the level of subsidiary autonomy vs that of internal embeddedness (Asakawa, 2001; Song et al., 2011). Song et al. (2011) suggested that overseas R&D subsidiaries may become embedded in an internal network involving the parent company and other subsidiaries within an MNC. This phenomenon is called "internal embeddedness." Under these conditions, shared values between an HQ and its overseas subsidiaries are reinforced: thus

internal embeddedness usually constrains subsidiary autonomy. When internal embeddedness is strong, the influence of HQ may facilitate cognitive lock-in (Grabher, 1993), constraining overseas subsidiaries to rely heavily on internal knowledge from HQ. While internal embeddedness facilitates trust and cooperation among actors (Coleman, 1988), it also tends to create the group-think phenomenon, by which any new knowledge and information from external environments that do not conform to existing norms may be filtered out. As Hansen (1999) argued, weak internal embeddedness facilitates knowledge searching and sourcing from the host country, whereas strong embeddedness and weak autonomy foster internal knowledge transfer within an MNC.

Besides, subsidiary mandates must also be considered, as they may influence the level and type of knowledge transfer substantially. Birkinshaw et al. (1998) suggested that an MNC-HQ is responsible for defining the strategic imperatives for the whole MNC, and understands best how subsidiary mandates can be assigned to ensure that those imperatives are fulfilled. For example, mandates regarding home-base augmentation or exploitation of R&D labs (Kuemmerle, 1999) may determine the level, type, and direction of knowledge transfer among the subsidiaries, and between them and MNC-HQ (Song et al., 2011).

The Need for a Comprehensive Framework of Knowledge Transfer within an MNC

A more comprehensive framework of determinants of knowledge transfer within MNCs must be developed in future research. The framework provided by Minbaeva et al. (2003) focused on absorptive capacity (represented by employee ability and motivation) as a property of subsidiaries. Minbaeva et al. (2003) suggested that other factors of knowledge transfer, such as the relationship between the parties involved, the sender's characteristics, and the characteristics of the knowledge transferred, should be examined as an extension of their model in future research. In another study, Minbaeva et al. (2014) also called for further research on organizational mechanisms to facilitate knowledge transfer.

Argote and Miron-Spektor (2011: 1131) stated that "a current theme in research on knowledge transfer is to identify factors that facilitate or inhibit knowledge transfer and thereby explain the variation observed in the extent of transfer." They suggested that these factors include characteristics of knowledge such as tacitness (Szulanski, 1996),

characteristics of the units involved in the transfer such as absorptive capacity (Cohen & Levinthal, 1990) and expertise, and characteristics of the relationships among the units such as the quality of their relationships (Szulanski, 1996; Zollo & Reuer, 2010). Argote et al. (2003) also proposed an integrative framework for knowledge management, including knowledge transfer. They suggested that properties of the context within which knowledge management occurs can be organized at the level of the unit (e.g., individual, group, or organization) involved in knowledge management, according to the relationships between units, or in relation to the knowledge itself. Gupta and Govindarajan (2000: 475) also pointed out that "knowledge transfers within the MNC take place within the context of an inter-organizational 'network' of differentiated units." They suggested that "flows of knowledge through the network can be studied from at least three different levels of analysis: nodal (i.e., a focus on the behavior of individual units), dyadic (i.e., a focus on the joint behavior of unit pairs), and systemic (i.e., a focus on the behavior of the entire network)."

Studies of intra-firm knowledge transfer have therefore called for or proposed a more comprehensive framework than that provided in Minbaeva et al. (2003). From these studies, several determinants of knowledge transfer within MNCs can be identified in the following categories:

- (1) properties of knowledge;
- (2) properties of units;
- (3) properties of relationships among units;
- (4) knowledge transfer mechanisms and the contexts in which they operate; and
- (5) interactions among these mechanisms.

A more comprehensive framework may be developed by examining factors in some or all of these categories that promote or hinder knowledge transfer within MNCs. These factors are elaborated below.

First, in terms of properties of knowledge, Almeida et al. (2002) emphasized that despite the inherent advantages of some firms over others in the production and deployment of knowledge, knowledge tends to be "sticky" within firms, especially tacit knowledge (Szulanski, 1996). The costs of transferring such "sticky" knowledge overseas are substantial (Tece, 1977). Various knowledge properties are considered in the international knowledge transfer literature, the tacit/explicit (or codifiable) knowledge continuum being by far the most extensively examined (Michailova & Mustafa, 2012).

Michailova and Mustaffa (2012) identified knowledge distance/link as another important knowledge property. Knowledge distance refers to the extent to which the subsidiary knowledge stock is related to, relevant to, and/or linked with the knowledge stock of the HQ and/or peer subsidiaries. In an empirical study, Kogut and Zander (1996) showed that the advantages of the MNC are most apparent in the circumstances surrounding transfer of tacit knowledge. The more complex, less codifiable, and less teachable the knowledge embodied within an innovation, the greater the likelihood that it will be transferred overseas by direct investment rather than licensing.

Second, an in-depth understanding of the properties of units (both senders and recipients) must be included in future research on knowledge transfer. In earlier research in the MNC context, senders were typically assumed to be HQs. However, as overseas subsidiaries become increasingly more competent and autonomous, transfer of knowledge from them to other subsidiaries and HQs establishes them as senders. Thus, when knowledge transfer in the global network of an MNC is investigated, the properties of both senders and recipients (both subsidiaries and HQs) and their relationships must be taken into consideration. Experience, competence, and autonomy of overseas subsidiaries as both recipients and senders must be more explicitly examined.

Third, future research should examine properties of the relationships among units, such as embeddedness in a global network or host-country environment (Song et al., 2011), network position and status of a focal unit such as centrality within the network (Tsai, 2001), and levels of trust (Michailova & Mustaffa, 2012). Uzzi (1996) defined embeddedness as closeness in a relationship reflecting the intensity of information exchange and the extent to which resources between the parties in the dyad have been adapted to meet their needs. Two key social networks have been identified in which overseas subsidiaries are embedded:

- (1) an external network in the host location; and
- (2) an internal network within the MNC (Asakawa, 1996).

Song et al. (2011) called the former type of embeddedness "external embeddedness." Although the latter type of network includes all the units in a firm, the HQ–subsidiary relation is the most representative form of embeddedness, especially in the context of knowledge transfer within the MNC (Asakawa & Lehrer, 2003). As mentioned earlier, Song et al. (2011) labeled this type of embeddedness

"internal embeddedness." Because of conflicting isomorphic pressures (Rosenzweig & Singh, 1991), the type and level of external or internal embeddedness may facilitate or inhibit a subsidiary's behavior and its propensity to source knowledge from other units, including HQ.

Research on knowledge transfer within MNCs has emphasized the importance of both formal and informal systems of communication (Ghoshal, Korine, & Szulanski, 1994; Gupta & Govindarajan, 2000). The former requires authority relationships, whereas the latter requires socially embedded reciprocity. Galbraith (1973) identified frequent communication among employees as the simplest but most powerful means of enhancing organizational information-processing capabilities. Consistent with this view, Ghoshal and Bartlett (1988) found that frequent communication between subsidiary managers and parent company managers plays a crucial role in the transfer of knowledge from a parent company to its overseas subsidiaries. Miao et al. (2011) suggested that frequent communication not only increases the absolute quantity of knowledge and information being exchanged, but also provides opportunity for the recipient to receive continuous support and help from the knowledge provider. Ghoshal et al. (1994) found that frequent contact between managers located in different subunits within the MNC network facilitated communication and inter-unit knowledge transfer. Recent studies (i.e., Corredoira & Rosenkopf, 2010; Monteiro et al., 2008; Noorderhaven & Harzing, 2009) also provided consistent evidence that social interactions promoted significant knowledge flow by serving as knowledge channels.

The interaction between network position and absorptive capacity is also important for intra-organizational knowledge transfer within an MNC (Tsai, 2001). Because of variations within MNC networks, network status or the position of an overseas subsidiary within the MNC network must be considered in future studies (Nohria & Ghoshal, 1997). According to Tsai (2001), the more central a unit's position within an intra-organizational network, the broader its knowledge sources and the greater the absorptive capacity needed to transfer its knowledge. Michailova and Mustaffa (2012) examined studies on knowledge flows within MNCs. The focus of these studies varied from the level of subsidiary dependence on the HQ and the level of interdependence with peer subsidiaries to examination of network relations and their characteristics. In addition to structural elements of networks such as network

position, relational elements such as trust have received considerable attention in subsidiary knowledge transfer research (Michailova & Mustaffa, 2012).

Fourth, knowledge transfer mechanisms and contexts require closer investigation. Systems of transfer, acquisition, integration, and transformation are described in the knowledge management literature (Grant, 1996; Hedlund, 1994), as are the people, tasks, and tools inherent in knowledge transfer mechanisms (Argote & Ingram, 2000). However, existing studies have not addressed how firms employ these systems (Song et al., 2013). What conditions lead to what firm choices, and what firm choices lead to what outcomes? By examining MNCs, we can address the first question – we can explicitly examine choices that firms make to manage knowledge.

Almeida et al. (2002) identified multiple formal and informal mechanisms that MNCs use to transfer tacit knowledge within their global networks, including structure, management systems and processes, organizational culture, and leadership. They argued that MNCs vary in the degree to which these knowledge transfer mechanisms are effectively employed. Almeida and Phene (2004) also suggested that formal or informal linkages among units within MNCs play an important role in knowledge transfer and innovation through the creation of trust and reciprocity exchanges. They highlighted the importance of coordination and integration mechanisms within MNCs that promote such linkages among units.

However, Ambos and Ambos (2009) lamented the lack of major progress in our understanding of organizational-level knowledge transfer mechanisms used by MNCs. In an attempt to elucidate how different knowledge transfer mechanisms enhance the effectiveness of knowledge transfer, they investigated personal coordination and technology-based coordination as two distinct mechanisms. Argote and Miron-Spektor (2011) also proposed that future research should examine the relative effectiveness of various knowledge transfer mechanisms such as personnel movement (Song et al., 2003), social networks (Almeida & Phene, 2004), coordination and integration (Ghoshal & Bartlett, 1990), communication frequency, and policy and richness of transmission channels (Gupta & Govindarajan, 2000). Michailova and Mustaffa (2012) analyzed existing studies of knowledge transfer mechanisms and found differences in emphasis in the literature from the use of technology and “hard” knowledge

management infrastructure to more informal mechanisms of knowledge flows such as social networks.

Finally, to go one step further, the interactions among various knowledge transfer mechanisms must be examined. Michailova and Mustaffa (2012: 388) pointed out that “what the literature has yet to explain in detail is how the ‘hard’ and ‘soft’ mechanisms interact to influence knowledge flows.” Finally, Minbaeva et al. (2014) suggested that additional research is needed to develop our understanding of how different contextual factors such as culture, mindset, history, and religion influence the development of subsidiary absorptive capacity and intra-MNC knowledge transfer.

The Need for a Multi-level Framework

A multi-level framework must be utilized in future research on the relationship between absorptive capacity and knowledge transfer. Absorptive capacity is a multi-level construct, existing at individual, organizational, and dyadic levels (Volberda, Foss, & Lyles, 2010). Argote (Argote & Ingram, 2000; Argote, McEvily, & Reagans, 2003) demonstrated that knowledge resides in multiple repositories. It is embedded not only in individuals, but also in an organization’s rules, routines, cultures, structures, and technologies. Argote et al. (2003) emphasized that examining the process through which knowledge is embedded in rules and routines, and the effect of such embedding on group and organizational outcomes such as knowledge transfer, is an important research area that would benefit from additional research.

Gupta and Govindarajan (2000) also called for multi-level analyses of knowledge flows from a network perspective. They suggested that knowledge transfer can be studied at nodal (individual), dyadic (between unit pairs), and systematic (the entire MNC network) levels. Minbaeva et al. (2003) and Gupta and Govindarajan (2000) examined knowledge transfer at the nodal level. Gupta and Govindarajan argued that, at the dyadic level of analysis, the impact of bilateral homophily on the tendency to engage in knowledge transfer and the importance of reciprocity are two important issues to be investigated. They also suggested that, at the systemic level of analysis, some important effects remain to be clarified: the effect of a unit’s network centrality on the extent of knowledge flow, the impact of network density on the overall magnitude of knowledge flows throughout a network, and the influence of global competitiveness on the magnitude and

directionality of knowledge flows. Argote et al. (2003) also called for dyadic research on knowledge transfer by focusing on the effects of tie strength and level of trust.

The Need for Dynamic Models

Absorptive capacity and knowledge transfer are dynamic constructs with feedback loops, but most existing studies, including that of Minbaeva et al. (2003), treat them as static. Lane, Koka, and Pathak (2006) argued that research must depart from a structural perspective of absorptive capacity to adopt a dynamic capability perspective. Similarly, Todorova and Durisin (2007) also proposed that a model of absorptive capacity should capture its dynamics through the inclusion of feedback loops. Following the conceptualizations of Cohen and Levinthal (1990) and Zahra and George (2002), they argued that the development of absorptive capacity is a path-dependent process, and that the increase of knowledge in an area of expertise fosters the future development of capabilities in that area and other related areas. Thus they stated that future absorptive capacity is determined by the current absorption and integration of new knowledge into organizational routines and processes.

However, both subsidiary absorptive capacity and knowledge transfer within an MNC are dynamic constructs with feedback loops. In other words, knowledge transferred from HQ or other units becomes the basis of a subsidiary's absorptive capacity (Almeida & Phene, 2004). In turn, subsidiary absorptive capacity determines the level of subsequent knowledge transfer. Similarly, Argote and Ingram (2000) argued that knowledge repositories, which serve as the basis of absorptive capacity, are related to organizational knowledge transfer in two ways. On the one hand, knowledge repositories may be changed when knowledge transfer occurs. On the other hand, the state of knowledge repositories affects the processes and outcomes of subsequent knowledge transfer.

Thus, as proposed in a previous study (Almeida et al., 2002), a knowledge-building perspective should consider knowledge transfer and knowledge creation simultaneously, as these two constructs, along with absorptive capacity, are complementary in the dynamic setting. Recent research into knowledge management from the knowledge-based view of the firm has established that although knowledge generation (or "exploration") and knowledge application (or "exploitation") may be conceptually separate activities (March, 1991), they are closely

complementary (Almeida et al., 2002). In their study from the absorptive capacity viewpoint, Cohen and Levinthal (1990) also indicated that if absorptive capacity is a function of the recipient's prior knowledge base, then the use of knowledge cannot be separated from its creation. Hence the ability of an MNC to transfer knowledge from its home base to its overseas subsidiaries depends (inter alia) upon the extent to which those overseas subsidiaries are themselves engaged in knowledge development to enhance their absorptive capacities.

In outlining their "innovation-network model" of the MNC, Ostry and Gestrin (1993: 12) emphasized a "symbiotic relationship between technology diffusion and technology creation" that involves "numerous feedback loops within the system." Thus Almeida et al. (2002) proposed a knowledge-building view of an MNC – that the fundamental feature of the international movement of knowledge in MNCs is not so much the diffusion of knowledge from the units that specialize in knowledge creation to those that specialize in knowledge application, but rather a much more complex process, where units are engaged simultaneously and interactively in both creation and application. The challenge of managing knowledge therefore involves not only its transfer, but also its development through the combination of the transferred knowledge and the recipient's existing absorptive capacity.

In this dynamic context, the trade-off between subsidiary capability and motivation in the life cycle of an overseas subsidiary must also be considered (Song et al., 2011; Song & Shin, 2008). As depicted in Figure 2, a young subsidiary is likely to have weak abilities or absorptive capacity. But it has strong motivation for inbound knowledge transfer from HQ or other subsidiaries. However, as it becomes more established and gains experience over time, the

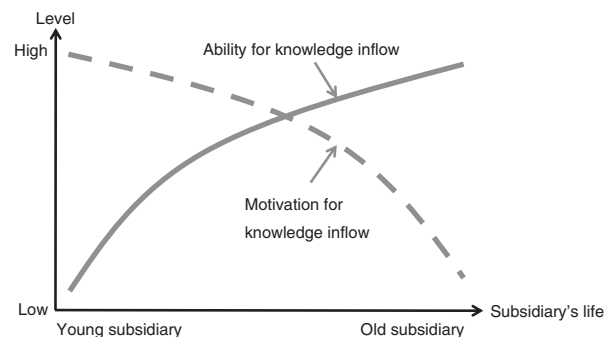


Figure 2 Trade-off between ability and motivation of an overseas subsidiary over time.

subsidiary may develop much stronger capabilities that build its absorptive capacity. These strong capabilities may weaken motivation for inbound knowledge transfer within an MNC.

Finally, in a dynamic setting, previous experience of knowledge transfer is important. The parent company may develop a set of routines for imparting knowledge to its subsidiaries, routines that improve over time (Song et al., 2013). Greater experience on the part of the parent also diminishes reliance on expatriates as agents of knowledge transfer over time.

CONCLUSION

In this commentary article, two major contributions of the article of Minbaeva et al. (2003) were highlighted. First, they explicitly considered both employee motivation and ability as key determinants of intra-firm knowledge transfer within MNCs. Second, by identifying HRM practices of MNC subsidiaries as key contributors to the development of absorptive capacity, they provided an endogenous model of the linkage between HRM practices and absorptive capacity that eventually affect knowledge transfer within MNCs. Their pioneering work has greatly influenced subsequent research on absorptive capacity and knowledge transfer within MNCs.

However, the article by Minbaeva et al. (2003) has a number of limitations or remaining issues to be addressed in future research. I suggest six major issues and future research agenda in this paper. First, although Minbaeva et al. (2003) viewed motivation as another key aspect of subsidiary absorptive capacity, I suggested that motivation should be treated as a separate construct from absorptive capacity. Motivation acts as a moderating factor between absorptive capacity and knowledge transfer within MNCs, rather than as an aspect of absorptive capacity.

Second, in their examination of the determinants of subsidiary absorptive capacity, Minbaeva et al. (2003) highlighted the role of HRM practices in promoting subsidiary absorptive capacity by treating the development of absorptive capacity endogenously. However, they included general HRM practices that are not directly related to knowledge transfer within MNCs. Thus I proposed that future research should examine HRM practices that are more closely aligned to specific motivational factors related to knowledge transfer, rather than general HRM practices. Moreover, I also proposed that future research investigating the effects of HRM practices on absorptive capacity should explicitly consider

staffing issues, especially the role of expatriates. I also suggested that future research should adopt a more comprehensive conceptual framework when examining factors that influence subsidiary absorptive capacity.

The issue of who initiates the development of absorptive capacity and subsequent knowledge transfer was also raised in this paper. I suggested that the original source of the knowledge transfer process (either the parent or the autonomous subsidiary) has an effect on the level and type of knowledge transfer. I emphasized that future research should take subsidiary autonomy, internal embeddedness, and subsidiary mandates into consideration in examining the relationship between absorptive capacity and knowledge transfer.

Fourth, I proposed that a more comprehensive framework of determinants of knowledge transfer within MNCs should be developed and employed. Based on an extensive literature review, I identified the determinants of knowledge transfer within MNCs in the following five categories:

- (1) properties of knowledge;
- (2) properties of units;
- (3) properties of relationships among units;
- (4) knowledge transfer mechanisms and the contexts in which they operate; and
- (5) interactions among these mechanisms.

I suggested that future research should adopt a more comprehensive framework including some or all factors in these five categories that promote or hinder knowledge transfer within MNCs.

Fifth, I also proposed that future research should incorporate a multi-level framework, as absorptive capacity is a multi-level construct, and knowledge transfer within MNCs can be studied at the nodal, dyadic, and network levels. Finally, I proposed that future research should treat subsidiary absorptive capacity and knowledge transfer as dynamic constructs with feedback loops. I suggested that a knowledge-building perspective be developed that considers knowledge transfer and creation simultaneously, given that knowledge creation, absorptive capacity, and knowledge transfer are complementary in the dynamic setting of MNCs. In this dynamic context, I emphasized that the trade-off between subsidiary capability and motivation in the life cycle of an overseas subsidiary must be considered.

In addition, future research should distinguish between knowledge transfer to subsidiaries from MNC-HQ and that between subsidiaries. Similar



theoretical ideas may be extended and examined in the contexts of;

- (1) knowledge transfer from overseas subsidiaries to MNC-HQ;
- (2) knowledge sourcing from host countries where subsidiaries are located; and
- (3) knowledge outflows to competitors or host countries.

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Comparative studies of determinants of knowledge transfer in different directions are another fruitful avenue for future research.

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ABOUT THE AUTHOR

Jaeyong Song received his PhD at the University of Pennsylvania. Before joining Seoul National University, he was a professor at Columbia University. His research has appeared in top journals such as *Management Science*, *Strategic Management Journal*, *Organization Science*, *Journal of International Business Studies*, *Journal of Economics and Management Strategy*, *Harvard Business Review*, *Research Policy*, and *Journal of Management*. He is an area editor of *JIBS*. His research interests cover global strategy and innovation strategy.

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