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Abstract

There is a limited amount of studies, which investigate how different managerial practices may influence the behavior of knowledge senders in multinational corporations (MNCs). This paper addresses this gap by looking at whether and how certain expatriation practices can enhance a) the ability and b) the willingness of expatriates to transfer the knowledge they possess from the headquarters to the respective subsidiaries. By stepping on two bodies of literature, namely the knowledge transfer literature and the expatriation literature, we suggest that MNCs may enhance the expatriates' willingness to transfer their knowledge through the employment of long-term expatriation practices. Expatriates' ability to transfer knowledge may be increased through their involvement in short-term assignments, frequent flyers arrangements and international commuters practices. We test empirically the hypotheses on the basis of data from 92 subsidiaries of Danish MNCs located in 11 countries.

Key words: knowledge transfer, MNC, expatriation, dissemination capacity

Introduction

One of the major reasons why multinational corporations (MNCs) exist is their ability to transfer and exploit knowledge more efficiently in the intra-corporate context than through the market (Gupta and Govindarajan, 2000). It has been suggested that international businesses need to transfer distinctive knowledge to the foreign subsidiaries to build competitive advantage and offset some of the disadvantages of operating in these alien environments (Kogut and Zander, 1992). Moreover, it has been argued that knowledge transfer is also of considerable benefit to the subsidiary operation, which often has a limited knowledge base (Manne, 1965; Haspeslagh and Jemison, 1991). It has further been suggested, though, that whilst the management of this knowledge transfer is a key for achieving competitive advantage (Argote and Ingram, 2000), knowledge transfer does not always take place efficiently or effectively (Szulanski, 1996; Gupta and Govindarajan, 2000).

A number of empirical studies have been focusing on how knowledge transfer within a MNC depends upon particular factors. The factors that have so far attracted researchers' attention are the characteristics of the transferred knowledge (Zander and Kogut, 1995; Szulanski, 1996; Simonin, 1999), knowledge sources (Foss and Pedersen, 2002), absorptive capacity of knowledge receivers (Szulanski, 1996; Lyles and Salk, 1996; Lane and Lubatkin, 1998; Gupta and Govindarajan, 2000; Lane, Salk and Lyles, 2001; Minbaeva et al, 2003), and organizational context in which the transfer takes place (Szulanski, 1996; Simonin, 1999; Bresman et. al., 1999; Gupta and Govindarajan, 2000). Substantially less attention has been paid to the characteristics of knowledge senders as determinants in the process of knowledge transfer. Although the importance of the behavior of knowledge senders with regards to knowledge transfer has been illustrated in numerous theoretical and conceptual

studies, substantial empirical support is largely missing. Some attention to this matter was given by Szulanski (1996), Simonin (1999) and Gupta and Govindarajan (2000). However, the above mentioned empirical studies present different conclusions regarding the behavior of knowledge senders. This is hardly surprising since they had reached no consensus on the appropriate definition and measure of the concept. Moreover, the operationalization proposed in the referred studies seems not to be strong in capturing the essential aspects of the behavior of knowledge senders. This paper addresses this gap by empirically testing a number of hypotheses concerning knowledge senders' behavior by using the example of expatriates as MNC actors whose task to a great extent is to transfer knowledge. We introduce the notion of *disseminative capacity* defined as the ability and the willingness of organizational actors (who possess knowledge relevant for the organization) to transfer this knowledge where and when is needed in the organization. For the purposes of this paper, we limit ourselves to knowledge transfer from headquarters to subsidiaries. We do not merely explore the nature of disseminative capacity and its impact on knowledge transfer. We go a step further and consider different managerial practices, which may contribute to the development of disseminative capacity. In particular, we focus on four different types of expatriation practices and study how they relate to knowledge senders' behavior in terms of their ability and willingness to transfer knowledge.

The paper is structured in the following way. We present and discuss the notion of disseminative capacity by grounding it in the findings of a few selected studies on knowledge sharing behavior. We operationalize disseminative capacity as a function of knowledge senders' ability and willingness to transfer their knowledge and on this basis, we formulate hypotheses related to these two constructs. We then step on the

expatriation literature in order to identify the variety of expatriation practices applied by MNCs. We afterwards bridge the two bodies of literature, the one of knowledge transfer and the one on expatriation, and develop hypotheses linking knowledge senders' behavior with the types of expatriation practices. We empirically test the hypotheses with the data collected in 92 subsidiaries of Danish multinational corporations located in 11 countries. The paper concludes with outlining the findings of the study as well as proposing directions for future research.

Disseminative capacity

As pointed out in the introduction, researchers have been continuously arguing for the behavior of knowledge senders to be one of the determinants of knowledge transfer. However, to date the research on what we term here 'disseminative capacity' has been largely theoretical and case-based. Existing theoretical studies have been mainly aimed at the identification of reasons for the lack of knowledge sharing. For example, Cabrera (2003) reviewed main sociological and psychological theories to identify factors that may be related to knowledge sharing behavior. Based on the review, nine factors were identified as possibly influencing knowledge-sharing behavior of knowledge senders. Trust positively predicts knowledge sharing within, as well as between, work units. Feeling of obligation to share knowledge is positively related to the knowledge sharing behavior of individuals. Norms that encourage open exchanges of knowledge among organizational members will lead to greater amount of knowledge sharing. A strong sense of group identity influences the knowledge sharing behavior of individuals. Individuals will likely share their knowledge if they perceive a clear benefit (reward) for so doing. Thus, a perceived cost of sharing knowledge is positively associated with the knowledge-sharing behavior of individuals. The perception that others are willing to share their knowledge (reciprocity) is an

important factor in determining whether or not an individual chose to share his/her knowledge with others. An individual will only be motivated to share his/her knowledge if he/she believes that he/she can make a worthwhile knowledge contribution. Thus, the beliefs regarding various individual competencies and skills are positively associated with the knowledge sharing behavior of individuals. Personality features, in particular extroversion, agreeableness, consciousness and openness, are positively associated with the knowledge sharing behavior of individuals. According to Cabrera (2003: 14), “norms are expected to directly influence knowledge sharing intentions, while the other factors are expected to indirectly influence knowledge sharing intentions through their impact on knowledge sharing attitudes”.

Other recent contributions were made by Husted and Michailova (2002) and Michailova and Husted (2003). They argued that behavior of knowledge senders depends on senders’ willingness to share knowledge with other organizational members on request. The decision not to share is individual, often rational and well justified from the perspective of the knowledge sender. Husted and Michailova (2002) name six reasons for such behavior:

- Potential loss of value and bargaining power and protection of individual competitive advantages due to a strong feeling of personal ownership of the accumulated, “hard won” knowledge.
- Reluctance to spend time on knowledge sharing. Knowledge senders may not be interested in knowledge sharing since the time and resources spent on it could be invested in what may appear to be more productive for the individual.

- Fear of hosting “knowledge parasites”. Knowledge senders may be reluctant to share their knowledge with someone who has put less or no effort into his/her own development.
- Avoidance of exposure. By not sharing knowledge, individuals protect themselves against external assessment of the quality of their knowledge.
- Strategy against uncertainty. Due to the uncertainty regarding how the knowledge receiver will perceive and interpret shared knowledge, knowledge senders may be highly cautious about revealing the relevant knowledge.
- High respect for hierarchy and formal power. Knowledge senders may be reluctant to share crucial knowledge for fear of losing a position of privilege and superiority.

The overall conclusion of the reviewed studies is that behavior of knowledge senders depends upon individual characteristics, such as, among others, senders’ previous knowledge and experience, and their willingness to transfer knowledge. The decision to transfer knowledge is largely individual and is driven by at least two behavioral factors - *ability* and *willingness*. Knowledge senders may not be able to transfer their knowledge due to the absence of skills to transfer, lack of competencies, language deficiency, etc. (Cabrera, 2003). On the other hand, knowledge senders may be well experienced and have strong abilities to transfer, but may be unwilling to do so due to a number of reasons outlined by Husted and Michailova (2002).

The remainder of this section is devoted to a discussion of the operationalization of disseminative capacity. In sum, we define disseminative capacity as a function of knowledge senders’ ability and willingness to transfer their knowledge. We expect the

higher degrees of senders' ability and willingness to transfer knowledge to be positively associated with the degree of knowledge transfer to the subsidiary.

Knowledge senders' willingness to transfer knowledge

Several attempts have been made to study empirically the effect of willingness of knowledge senders on knowledge transfer. For example, Szulanski (1996) assumed that the characteristics of the source of knowledge, namely lack of willingness and being not perceived as reliable, are among the factors that influence the difficulty of knowledge transfer. His construct measure for the "source lacks motivation" consisted of 13 items (Cronbach alpha 0.93). Szulanski (1996) asked respondents whether they saw benefit in measuring their own performance, understanding their own practices, sharing their understanding with other units, assessing the feasibility of the transfer, communicating with the recipient, planning the transfer, documenting the practice for the transfer, implementing the recipient's support systems, training the recipient's personnel, helping the recipient troubleshoot, helping resolve recipient's unexpected problems, and lending skilled personnel. He found that although the senders' lack of willingness is one of the barriers to knowledge transfer, it is a less important barrier when compared to other barriers such as absorptive capacity, causal ambiguity and arduous relationships between senders and receivers.

Simonin (1999) also found the willingness of external sources to fully cooperate in knowledge transfer (low partner protectiveness) to be non-significant to the outcomes of knowledge transfer. This may be attributed to the biased answers, difficulties to detect or observe the phenomena, partners' opportunistic behavior, etc. (Simonin, 1999). He operationalized partner protectiveness as presence of intentional routines

and policies to restrict the sharing of relevant information concerning its technology/process know-how and perception of a partner as very protective of its technology/process know-how.

Gupta and Govindarajan (2000) considered the motivational disposition of the knowledge senders as having a positive impact on the magnitude of knowledge inflow and outflow. They operationalized this construct in terms of the subsidiary vs. corporate focus of the incentive system for the subsidiary president. The results did not provide much support for the prediction. Gupta and Govindarajan (2000) outlined two possible explanations of this: first, the motivational disposition to transfer knowledge may depend on other variables but the incentive system of the CEO; and second, the motivation of the receivers to acquire knowledge may be more important than motivation of the senders to transfer knowledge.

It is clear that the empirical studies appear to have had limited success in addressing the question of the impact of motivational disposition of knowledge senders. Despite of that, there is a general consensus among theorists that strong willingness of the knowledge senders to transfer their knowledge increases the likelihood of the successful knowledge transfer.

Knowledge senders' ability to transfer knowledge

Valuable knowledge is often of a tacit nature. Transferring tacit knowledge demands teaching (Winter, 1987). Therefore, among other features, knowledge senders should have well developed abilities to articulate and communicate knowledge. The abilities could be acquired through education, training, observation, involvement, etc. Once such abilities are acquired, knowledge senders can in principle apply them again and

again, adopt and improvise to suit changing circumstances. The more experience knowledge senders have in sharing knowledge, the more effective their sharing performance.

Both employees' ability *and* willingness are of importance for organizational behavior. "More is to be gained from increasing the motivation of those who are high in ability than from increasing the motivation of those who are low in ability... More is gained from increasing the ability of those who are highly motivated than from increasing the ability of those who are relatively unmotivated" (Vroom, 1964: 203). To achieve a high performance at any level, both the ability and motivation to perform effectively are needed (Baldwin, 1959). Accordingly, to facilitate knowledge transfer both aspects of disseminative capacity - ability and willingness of employees - are needed. Thus,

Hypothesis 1. The higher the ability and willingness of knowledge senders to transfer knowledge, the higher the degree of knowledge transfer to the subsidiary.

We identified that, among other factors, knowledge transfer is dependent upon the behavior of knowledge senders, which is a function of their ability and willingness to transfer knowledge. We now step on the expatriation literature in order to identify the variety of expatriation practices applied by MNCs. Our purpose is to determine whether different types of expatriation practices may influence expatriates' ability and willingness to transfer knowledge.

Expatriation practices and disseminative capacity

A number of earlier contributors to the field of international business, and particularly Perlmutter (1969) in his seminal work, cast light upon the evolving relationship between headquarters and subsidiaries as the multinational corporation itself grows towards maturity. In adopting a predominantly structural view of organizational adaptation, Perlmutter (1969) argued that as the holding operation grows to trust the subsidiary, it becomes feasible to delegate appropriate areas of strategic activity to the latter. More recently, observers of international co-ordination mechanisms have taken issue with the emphasis placed on control through formal organizational structures and systems of planning by Perlmutter and his contemporaries (Ferner, 2000). In a comprehensive review of the available literature in the late 1980s, Martinez and Jarillo (1989) found that increasing attention was being given to the informal and subtle managerial tools employed by corporations, such as networking, informal communication, acculturation and socialization (Galbraith and Kazanjian 1986). In pointing to the inadequacies of the architectural perspective, Martinez and Jarillo (1989) assert that formal and informal control mechanisms invariably operated in conjunction with each other in dealing with the complexities of multinational organization.

In dealing with such complexities, MNCs rely heavily on expatriation practices. There may be several targets for expatriation assignments: to control and coordinate, to break down the barriers between the parent company and subsidiaries and foster the parent corporate culture, to solve technical problems, to develop local talents, to transfer knowledge, etc. (Harris et. al., 2003). In particular, the role of expatriates as agents of knowledge transfer has become a subject of recent academic debates (see for example, Tsang, 1999; Downes and Thomas, 2000; Delios and Bjorkman, 2000;

Bonache and Brewster, 2001). Thus, in our framework, expatriates are treated as knowledge senders. Expatriates are often expected to both have the skills to quickly and continuously transfer knowledge and be willing to do so. In the following we argue that MNCs may consider applying different expatriation practices depending on whether the aim is to increase expatriates' willingness or ability to transfer knowledge to the subsidiaries. We suggest that expatriates' willingness to transfer their knowledge can be enhanced through the employment of long-term expatriation practices. We also propose that expatriates' ability to transfer knowledge may be increased through their involvement in short-term assignments, frequent flyers arrangements and international commuters practices.

Enhancing expatriates' willingness to transfer knowledge

Harris (2002) defined long-term expatriate assignment as an assignment where the employee and family move to the host country for a specified period of time, usually over one year. Expatriates employed on long-term assignments are permanently stationed at the overseas subsidiary. They experience high autonomy, greater responsibilities, and other factors, which in the behavioral literature are known as role discretion (Stewart, 1982). The greater an individual's discretion as to "what work gets done, how it gets done and by whom", the greater the sense of responsibility the individual would feel for these decisions and the greater commitment expatriates will exhibit (Gregersen and Black, 1992). Organizational commitment originally focused on an individual's emotional attachment to an organization (Mowday et. al., 1979). It could be expected that if someone has high levels of affect toward their job or organization, they would be more likely to be motivated to perform better. Therefore,

permanently placed expatriates with a specified duration may be showing higher willingness to contribute to the organizational goals. Thus,

Hypothesis 2. The more MNCs use long-term expatriate assignments, the higher the senders' willingness to transfer knowledge.

Enhancing expatriates' ability to transfer knowledge

Recently we have been observing changes in the profiles of international assignments and rising of alternative forms to traditional expatriate assignments.

Harris (2002) classifies them in the following way:

- short-term expatriate assignment, when an employee is permanently placed and has a specified duration, usually less than a year. The expatriate's family may or may not accompany him/her;
- international commuting, when an employee commutes from the home country to a place of work in another country, usually a weekly or biweekly basis while the family remains at home;
- frequent flyer assignment, when an employee undertakes frequent international business trips but does not relocate.

Expatriates on short-term assignments, international commuters and frequent flyers are the tools by which MNCs to a great extent obtain and maintain their global knowledge. These expatriates are frequent visitors in different units of MNCs; they enhance MNCs intellectual capital by extracting the best solutions from different locations; they increase their individual understanding and vision of international operations; they continuously increase their skills and develop competencies. Thus,

Hypothesis 3. The more MNCs use short-term assignments, international commuters and frequent flyers, the higher the senders' ability to transfer knowledge.

The hypotheses are summarized in the model presented in Figure 1.

- INSERT FIGURE 1 ABOUT HERE -

Methodology

The hypotheses are tested on a data set of the subsidiaries of Danish MNCs (headquartered in Denmark). For the construction of the data set the Hermes CD Direct from KOB (Kobmandstandes Oplysnings Bureau) was used. The database query was initiated by selecting the firms, which were parent companies in Denmark, and then limited to the ones that had two or more subsidiaries abroad. This resulted in a list that was cross-checked with the Borsen 500 in order to ensure that the population was as complete and relevant as possible. Some of the Danish headquarters provided the names and contacts at their subsidiaries; for other subsidiaries contacts were obtained from the foreign commercial sections of the Danish Embassies in the respective countries.

To test the hypotheses empirically, a questionnaire survey methodology was chosen. To the best of our knowledge at the given time, there was no existing single instrument to measure the issues covered by this research. Thus, the new questionnaire was developed using a combination of prior related surveys (Gupta and Govindarajan, 2000; Szulanski, 1996; Simonin, 1999; Zander, 1991; Brewster et al, 2001; Harris, 2002) and findings from the pilot study. The language of the questionnaire was chosen to be English. The questionnaire was pre-tested.

Explanations of such terms as knowledge, knowledge transfer, the degree of knowledge transfer, and alike, were given at the beginning of the questionnaire.

The questionnaire was addressed to a HRM manager/Personnel Director at the subsidiary with a cover letter describing the main themes of the study. If the HRM manager was unable to complete the survey, it was up to him/her to forward the questionnaire to another senior/middle level manager with sufficient knowledge regarding the themes of the study. The resulting data set consists of 92 subsidiaries (30 per cent). The subsidiaries were located in USA, China, Germany, Sweden, UK, Russia, Poland, France, Sri Lanka, India, and Portugal.

Measures for all variables are presented in the Table 1. Descriptive data (mean values, standard deviation, minimum and maximum values) on all variables are provided in Table 2. The correlation matrix for all variables is presented in Table 3.

- INSERT TABLE 1 ABOUT HERE -

- INSERT TABLE 2 ABOUT HERE -

- INSERT TABLE 3 ABOUT HERE -

To deal with the reliability of the measures, the inter-rater reliability test¹ was conducted prior to the analysis (Gupta and Govindarajan, 2000). SPSS statistical analysis software was used for all analyses. A prior examination of whether the

¹ Inter-rater reliability (or inter-observer reliability) test is one of four general classes of reliability estimates and the best one to estimate reliability when the measure is an observation. It is used to assess the degree to which different respondents give consistent estimates of the same phenomenon. When the measure is a continuous (like in our case), the best way is to calculate the correlation between the ratings of two respondents.

relationships in question could be described by a linear model was carried out using scatter plots.

Results

Table 4 provides an examination of the relationship between the characteristics of knowledge senders and the degree of knowledge transfer.

- INSERT TABLE 4 ABOUT HERE -

Model 1 presents the results of the regression analysis on the impact of knowledge senders' ability and willingness on the degree of knowledge transfer. The model was statistically significant ($p < 0.05$) with R-square 0.086. It means that more than 8 per cent of variance of the degree of knowledge transfer can be explained by joint variance of the senders' characteristics – ability and willingness. Knowledge senders' ability to transfer knowledge had a strong positive effect on the degree of knowledge transfer ($p < 0.05$), providing partial support for Hypothesis 1. The second independent variable was not significant. Furthermore, the coefficient had a negative sign. This may be explained by the fact that senders' ability and willingness were strongly positively correlated ($p < 0.001$) (see Table 3). In Model 2 of Table 4 we control for the interaction effect between senders' ability and willingness. As a result, the effect of willingness of knowledge senders on knowledge transfer was in the expected direction, but not significant.

In the correlation matrix presented in Table 3 four types of expatriate assignments showed high degree of associations. Some of the correlation coefficients indicated the possibility of multicollinearity (i.e. $r > 0.5$). To uncover the underlying factor structure associated with seven HRM practices, we factor-analyzed them using the principal component analysis as an extraction method. The factor analysis had a confirmative

rather than an explorative nature. It gave a possibility to decrease a number of independent variables that may reduce problems associated with multicollinearity. Factor loadings for each factor, eigenvalues and percentage of variance explained by each factor are reported in Table 5.

- INSERT TABLE 5 ABOUT HERE -

As expected, two factors emerged from the analysis. Factor 1 included types of expatriate assignments employed to improve ability of knowledge receivers (Hypothesis 3). Among them are short-term expatriates, international commuters and frequent flyers (Cronbach alpha 0.70). Factor 2 was represented by one type of assignment – long-term expatriation. This type of assignment was expected to influence the willingness of knowledge senders to transfer knowledge (Hypothesis 2). To test hypotheses 2 and 3 we ran regression analyses with four types of expatriate assignments (factor-analyzed) as independent variables, and willingness of knowledge senders (Model 1) and ability of knowledge senders (Model 2) as dependent variables. The results are presented in Table 6.

- INSERT TABLE 6 ABOUT HERE -

Model 1 showed strong statistical significance with $p < 0.05$ and R-square 0.095. The model provided support for hypothesis 2: the presence of long-term expatriates influences positively the willingness to transfer knowledge to MNCs' subsidiaries.

Model 2 was statistically significant with R-square 0.053. The employment of expatriates on the short-term basis, use of international commuters and frequent flyers positively influence the ability of knowledge senders to transfer knowledge ($p < 0.05$). Hypothesis 3 was confirmed.

Concluding remarks

Those empirical studies, which focus on the behavior of knowledge senders, are limited in number and concentrate exclusively on the senders' willingness to transfer knowledge. At the same time, the ability of knowledge senders to transfer their knowledge is under-researched. This paper argues for the need to address both the willingness and the ability as important characteristics of knowledge senders in the process of knowledge transfer. We have introduced the notion of disseminative capacity as dependent on both ability and willingness of knowledge senders and operationalized the concept on the basis of these two constructs.

Among the limited studies on processes and characteristics, which we label "disseminative capacity", there has been a clear tendency to pay little attention to the managerial practices, which may influence disseminative capacity. We contribute to exploring the link between disseminative capacity and managerial techniques by taking expatriation as an example. Taking MNCs as a context, we hypothesized how is different expatriation practices influence knowledge senders' (expatriates') disseminative capacity and how this is associated with the degree of knowledge transfer from headquarters to subsidiaries.

Our analysis provided partial support for Hypothesis 1. We found that while knowledge senders' ability to transfer knowledge had a strong positive effect on the degree of knowledge transfer, the effect of knowledge senders' willingness was not significant. Our model 1 provided support for Hypothesis 2, namely that opting for long-term assignments influences positively expatriates' willingness to transfer knowledge across MNCs' subsidiaries. The data analysis confirmed our Hypothesis 3 that expatriates' ability to transfer knowledge is positively associated with the

employment of practices such as short-term expatriation, the use of international commuters and frequent flyers.

The study has several limitations. One of the challenges, as pointed out also by Huselid (1995), was the methodological problem confronting the survey-based research in general: the reverse causality between expatriation practices and organizational outcomes, and survey response bias. A study of this type requires as broad sample as possible. Future research is needed in order to collect data from multiple respondents to minimize the risk of common method bias. The validity of the current data on employees' ability and willingness was limited due to the use of only one respondent per subsidiary, a weakness in most international research.

The study is among the first attempts to examine *empirically* the role of certain expatriation practices in the process of knowledge transfer within MNCs. While previous studies have paid little attention to how disseminative capacity is created and developed in the firm, the implication of our results is that ability and willingness of knowledge senders can be improved by applying specific HRM practices.

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Table 1. Measures for all variables

Variable	Label	Description
Degree of knowledge transfer. Cronbach alpha 0.84.	DoKT	<p>Please evaluate the degree of knowledge transfer from sister subsidiaries to your subsidiary. Marketing know-how, distribution know-how, packaging design/technology, product designs, process designs, purchasing know-how and management systems and practices. Likert type scale ranging from 1 for very low till 5 for outstanding.</p> <p>Please evaluate the degree of knowledge transfer from the parent corporations (HQs) to your subsidiary. Marketing know-how, distribution know-how, packaging design/technology, product designs, process designs, purchasing know-how and management systems and practices. Likert type scale ranging from 1 for very low till 5 for outstanding.</p>
Ability of knowledge senders to transfer	SeAb	Please evaluate ability of the knowledge senders (HQs and sister subsidiaries) to transfer new internal knowledge. Likert type scale ranging from 1 for very low till 5 for outstanding.
Willingness of knowledge senders to transfer	SeMot	Please evaluate willingness of the knowledge senders (HQs and sister subsidiaries) to transfer new internal knowledge. Likert type scale ranging from 1 for very low till 5 for outstanding.
Long-term expatriation	LTexpat	Please mark the number that best indicates the degree to which each statement describes HRM practices employed across all subsidiaries within MNC: Presence of expatriates on long-term assignments (usually over one year. Likert type scale ranging from 1 for no or very little extent till 5 for very great extent.
Short-term expatriation	STexpat	Please mark the number that best indicates the degree to which each statement describes HRM practices employed across all subsidiaries within MNC: Presence of expatriates on short-term assignments (usually less than one year). Likert type scale ranging from 1 for no or very little extent till 5 for very great extent.
International commuters	ICexpat	Please mark the number that best indicates the degree to which each statement describes HRM practices employed across all subsidiaries within MNC: presence of international commuters (an expatriate who commutes from country to country usually on a weekly basis). Likert type scale ranging from 1 for no or very little extent till 5 for very great extent.
Frequent flyers	FFexpat	Please mark the number that best indicates the degree to which each statement describes HRM practices employed across all subsidiaries within MNC: presence of frequent flyers (an expatriate who undertakes frequent international business trips but does not relocate). Likert type scale ranging from 1 for no or very little extent till 5 for very great extent.

Table 2. Descriptive statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
LTexpat	1.00	5.00	2.9778	1.25401
STexpat	1.00	5.00	2.1957	1.07150
ICexpat	1.00	4.00	2.0769	1.12774
FFexpat	1.00	5.00	2.4565	1.16178
SeAb	1.00	5.00	3.2857	0.80672
SeMot	1.00	5.00	3.1196	0.93577
DoKT	1.00	4.36	2.6235	0.66051

Table 3. Correlation Matrix

	1	2	3	4	5	6	7
1. LTexpat	1.000						
2. STexpat	0.367***	1.000					
3. ICexpat	0.098	0.483***	1.000				
4. FFexpat	-0.071	0.219*	0.590***	1.000			
5. SeAb	-0.008	0.049	0.183 [†]	0.201 [†]	1.000		
6. SeMot	0.278**	0.261*	0.034	0.091	0.495***	1.000	
7. DoKT	0.078	0.057	0.088	0.183 [†]	0.293**	0.132	1.000

*** - $p < 0.001$, ** - $p < 0.01$, * - $p < 0.05$, [†] - $p < 0.1$

Table 4. Regression analyses on knowledge transfer

Variable	Model 1		Model 2	
	β	<i>s.e.</i>	β	<i>s.e.</i>
Constant	1.880***	1.880***	0.874	0.900
SeAb	0.248*	0.248*	0.549*	0.272
SeMot	-0.019	-0.019	0.334	0.309
SeAb x SeMot			-0.102	0.086
R-square	0.086	0.086	0.102	
F	3.967*	3.967*	3.127*	

*** - $p < 0.001$, * - $p < 0.05$

Table 5. Factor loading

Extraction method: principal component analysis.

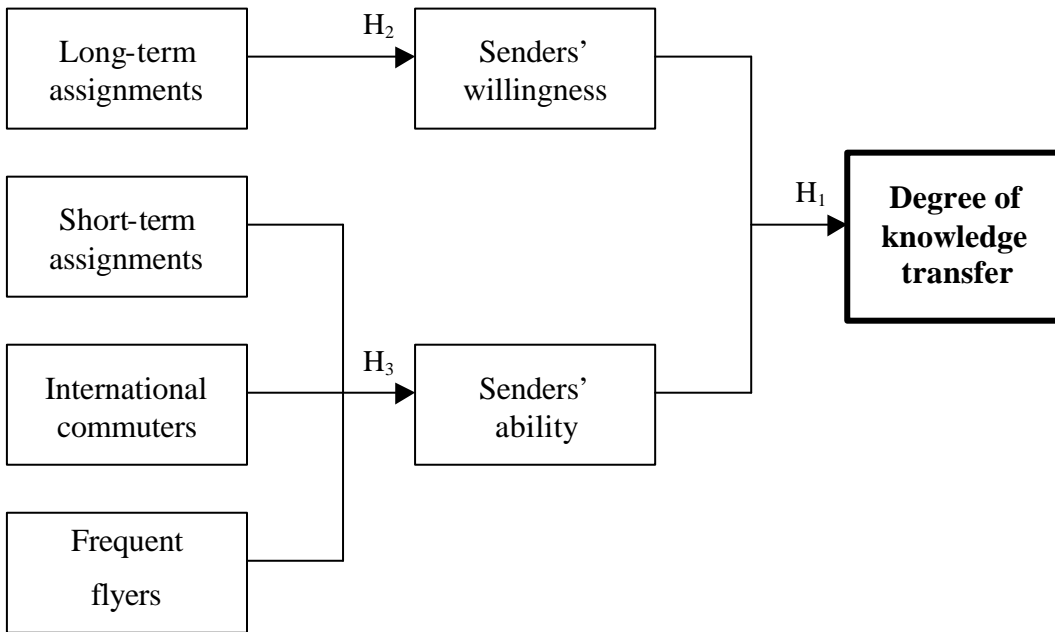
Variables	Factor 1	Factor 2
LTexpat	0.332	<u>0.821</u>
STexpat	<u>0.740</u>	0.418
ICexpat	<u>0.880</u>	-0.222
FFexpat	<u>0.692</u>	-0.558
Initial eigenvalues	1.912	1.209
% of variance	47.79	30.23

Table 6. Regression analyses for ability and willingness of knowledge senders to transfer knowledge

Variables	Model 1 (willingness to transfer)		Model 2 (ability to transfer)	
	β	<i>s.e.</i>	β	<i>s.e.</i>
Constant	3.101***	.096	3.284***	0.086
Factor 1	0.062	.097	0.187*	0.086
Factor 2	0.284**	.097	0.002	0.086
R-square	0.095		0.053	
F	4.538*		2.387 [†]	

*** - $p < 0.001$, ** - $p < 0.01$, * - $p < 0.05$, [†] - $p < 0.1$

Figure 1. The hypothesized model



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