Balancing Global and Local Strategic Contexts: Expatriate Knowledge Transfer, Applications and Learning within a Transnational Organization

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Abstract

In this paper we investigate how expatriates contribute to the transnational firm's strategic objectives of global efficiency, national ('local') responsiveness, and worldwide learning. We focus on their knowledge applications and experiential learning, two assignment-based outcomes of potential strategic value to the firm. We assess how these outcomes are impacted by the expatriate's everyday knowledge access and communication activities, measured by their frequency and geographic extent. Within our case organization, a prototype transnational firm, we find that the expatriates' *knowledge applications* result from their frequent knowledge access and communication with the corporate headquarters and other global units of the firm. In contrast, their *experiential learning* derives from a frequent access to host country (local) knowledge that is subsequently adapted to the global corporate context. From a practical perspective we view the knowledge gained through experiential learning as an invaluable resource for both present and future corporate assignments.

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Key words: business strategy, expatriates, knowledge transfer, knowledge applications, learning, transnational firms

In their analysis of global business strategy and organizational design, Bartlett and Ghoshal (1988, 1989) distinguish the transnational firm by its strategic objectives of global efficiency, national ('local') responsiveness, and worldwide learning. They identify a strong interdependence between the corporate headquarters, centralized specialist units and national subsidiaries of the firm that allows it to simultaneously 'think globally and act locally'. A prerequisite for this interdependence is a multidirectional flow of knowledge between all global units that includes the frequent rotation of individuals as expatriates (Bartlett & Ghoshal, 1989; Edström & Galbraith, 1977). The particular significance of expatriates, and our reason for their selection as our research subjects, is their cosmopolitan status (Haas, 2006). Their global mobility and diversity of experience allows them to transfer vital tacit knowledge across geographic boundaries in a way not readily duplicated by other transfer mechanisms (Argote & Ingram, 2000; Bonache & Brewster, 2001). Tacit knowledge, such as the individual's managerial, technical and organizational know-how, can over time bestow the firm with a sustained competitive advantage (Subramaniam & Venkatraman, 2001). Considering that individuals are the 'prime movers' of knowledge creation within an organization (Nonaka, 1994), how then do they contribute to the achievement of the firm's longer-term strategic goals?

Bartlett and Ghoshal (1989) provide a brief insight to this question. They observe, from a *knowledge applications* perspective, that the expatriate transfers knowledge and develops operations abroad consistent with the organization's global efficiency and national responsiveness targets. Second, from an *experiential learning* perspective they capture local subsidiary knowledge and apply it to the broader global operations in keeping with the firm's worldwide learning imperative. Despite this overview, we find that research into individual-level knowledge transfer across global boundaries is still quite limited (Orlikowski, 2002; Teigland & Wasko, 2003; Thomas, 1994). Few studies, either generic or expatriate-specific, have adopted an

integrated approach that considers both the geographic context *and* strategic outcomes of individual-level knowledge transfer. We here address this gap through the following research question: '*How* and *where* do expatriates transfer knowledge to achieve knowledge application and experiential learning outcomes?' In responding to this question our aim is threefold: to clarify the processes responsible for the two outcomes; to better understand each outcome *and* their differences; and to shed light on their longer-term contribution to corporate strategic objectives. Argote and Ingram (2000) note that knowledge transfer can be measured either by changes in knowledge or changes in performance. We here opt for the former, investigating the individual's knowledge application and experiential learning achievements whilst on a long-term international assignment of one year or more. We see this as a duration that can best realize strategic value (Westney, 2001).

For the 'how' of our research question, the knowledge transfer process, we adopt a role activity approach (Sarbin & Allen, 1969). We consider it the best way to assess the expatriates' everyday work practices. Based on an extensive literature review we identify two activities in particular that are central to the knowledge transfer process: knowledge access and communication. We reason that the knowledge residing in one location cannot be moved to another without the execution of both activities. We define the expatriate's *knowledge access* as their initial search for knowledge and the resultant identification of appropriate sources (Ancona & Caldwell, 1988; Ostroff & Kozlowski, 1992). *Communication*, on the other hand, encompasses their acquisition and sharing of knowledge through the use of network channels that facilitate coordination and negotiation (Ancona & Caldwell, 1988; Teigland & Wasko, 2003). For the geographic dimension of these activities, the 'where' of our research question, we adopt the widely recognized differentiation between local and global contexts (Bartlett & Ghoshal, 1989;

Westney, 2001). Although broad in definition, it effectively captures the relative proximity and extent of the expatriate's knowledge transfer activities.

From a practical perspective, our paper responds to Kamoche's (1997) call for international HRM theory and practice to be viewed within a framework of knowledge and learning. We select two important practical issues: first, the continuing relevance of long-term expatriate deployment within the transnational organization; and second, the value of such assignment experience to future repatriation or alternative re-assignment. In addressing these issues from a knowledge transfer perspective, our aim is to generate a better understanding of the associated management practices. In the ensuing paper we develop a theoretical model and associated hypotheses, review our research methods, present our results, and finally discuss these results and associated conclusions.

Theory and Hypotheses

Our research model, which summarizes the hypothesized relationships between expatriate knowledge transfer activities, their geographic context and resultant strategic outcomes, is presented in Figure 1. We next provide a theoretical background to the principal elements of the model.

Insert Figure 1 about here

Knowledge Transfer Activities

At present there are several diverging opinions of what constitutes knowledge transfer and what doesn't. For example, some researchers differentiate knowledge search from its transfer (Hansen, 2002; Hansen et al, 2005), whilst others include both but also include knowledge adaptation as a transfer activity (Szulanski, 2000). In our study we combine knowledge access and

communication as the core activities of knowledge transfer, but exclude knowledge adaptation because we view it as a post-transfer activity that is tied to the context of the receiving environment. In reality, both knowledge access and communication are everyday activities that are inherently dynamic. They not only interrelate and overlap, but also recur over time and space. Despite this, we do see evidence of a partial sequential differentiation that most closely compares to Szulanski's (2000) initiation and implementation stages of knowledge transfer.

Knowledge Access

Expatriates bring a substantial degree of know-how to their assignment host country, based on the experience gained from previous home country and other international assignments. After arrival in the host country, however, they must continue to access knowledge to satisfy their assignment role objectives. Both managerial role and organizational learning theories (Ancona & Caldwell, 1988; Huber, 1991) describe knowledge access as a process that incorporates the discrete and potentially sequential activities of scanning and more focused search. Ancona and Caldwell define scanning as the individual's access to knowledge not immediately relevant to the task at hand. By comparison, a focused search flows directly from current task demands. The driving force behind a focused search is one of resource dependence, that is a need to acquire specific knowledge of immediate relevance (Allen, 1977; Ancona & Caldwell, 1988). There is also a parallel need for time economies, prompting the individual to directly access the most reliable sources to avoid costly delays (Borgatti & Cross, 2003; Hansen, 2002). In these circumstances they take advantage of their well-established ties with other members of their task-specific knowledge network (Hansen, 2002). As Hansen finds, the shortened knowledge transfer paths afforded by strong relational ties result in frequent knowledge access and shorter project completion times. It is this frequency of knowledge access, and its geographic context, that underlie two of our four research hypotheses (1 and 3).

Communication

Communication has been widely reported as the predominant role activity of managers and experienced professionals (Mintzberg, 1973). An individual's communication network not only permits their access to a diverse range of knowledge sources, but also facilitates the coordination and negotiation needed for information exchange and trial-and-error problem solving (Ancona & Caldwell, 1988; Teigland & Wasko, 2003). Within global enterprises, where cross-border exchanges are prevalent, the individual's communication can be defined by its frequency, geographic extent, mode of interaction, and resultant outcomes (Kostova & Roth, 2003). Each of these attributes is relevant to the remaining two of our four research hypotheses (2 and 4). Several communications and boundary spanning researchers (eg. Allen, 1977; Ghoshal & Bartlett, 1988; Teigland & Wasko, 2003) have documented the relationship between communication frequency and performance outcomes. Similarly, many researchers (eg. Allen, 1977; Daft & Lengel, 1984) differentiate communication modes that are *personal*, or based on informal verbal exchanges such as face-to-face and the telephone, from those that are *nonpersonal* and associated with more formal documentary means such as memoranda, e-mails, and website access. In this paper we investigate these modes to more fully understand the expatriate communication process and its outcomes. We also see them as a potential means to differentiate between knowledge transfer that is tacit and that which is explicit (Kogut & Zander, 1993).

Geographic Context

As an active boundary spanner, the expatriate is well placed to facilitate the connections between their host subsidiary and the headquarters or other subsidiaries of the global firm (Kostova & Roth, 2003; Nohria & Ghoshal, 1997; Thomas, 1994). From this strategic vantage point they transfer knowledge across a range of geographic, organizational and other contexts. As Szulanski (2000) emphasizes, context is a fundamental element of the knowledge transfer process. The

knowledge transfer and organizational learning literatures offer several accounts of geographic and organizational contexts, most differentiating between relative proximity and extent. Because of its fit with our transnational research theme, we here select the distinction between contexts that are either local or global in extent (Bartlett & Ghoshal, 1989; Westney, 2001). As Westney observes, the terms 'local' and 'global' have at least two different dimensions. One is the location of knowledge, or where it is, and the other its nature or type. For our ensuing hypothesis development, our primary emphasis is on physical context. We define the expatriate's knowledge access and communication role activities as *local* where restricted to their host country or national subsidiary, and *global* where extending to locations outside the host country or national subsidiary. We also explore the nature of knowledge, however. We differentiate between that which is context-specific (or 'location-specific': Westney, 2001) and that which is context-generic and thus applicable to a diverse range of situations.

Strategic Outcomes: Knowledge Applications and Experiential Learning

On a regular, even daily basis the expatriate's recurrent knowledge access and communication activities can generate various knowledge application and learning responses. Van de Ven and Polley (1992) find a close cyclical relationship between the two outcomes, with the trial-and-error learning from individual actions (applications) forming the basis for additional actions. When viewed over the longer term of an expatriate assignment, especially more than one year, these short-term outcomes evolve into achievements of potential strategic value to the firm (Westney, 2001). We consider them strategic, rather than tactical, where they evolve from pre-determined objectives. On this basis, we define the expatriate's *knowledge applications* as their implementation of knowledge that directly aids their fulfillment of assignment role objectives. This mostly tacit knowledge encompasses the individual's managerial know-how, including that associated with business relations and network development; their technical know-how, including

its teaching to others; and their organizational know-how, particularly that relating to corporate culture, policies, procedures and best practice systems (Edström & Galbraith, 1977; Harzing, 2001; Hocking, Brown & Harzing, 2004; Welch & Welch, 1993). In contrast, the expatriate's *experiential learning* or learning-by-doing (Kolb, 1984; Nonaka, 1994) represents their cumulative internalization of knowledge during the application process. Based on the more limited expatriate learning literature (eg. Berthoin Antal, 2000*;* Caligiuri & DiSanto, 2001; Edström & Galbraith, 1977; Hocking et al, 2004), we conclude that the expatriate's experiential learning can be defined by the same managerial, technical and organizational know-how categories as their knowledge applications. In the following hypothesis development we draw together the principal elements of the Figure 1 model, first for knowledge applications and then experiential learning.

Knowledge Applications

Knowledge Access: As Bartlett and Ghoshal (1988) explain, the individuals (including expatriates) assigned to the national subsidiaries of a transnational firm operate within a corporate framework of knowledgeable and creative product and functional groups. These groups are the custodians of specialized technical knowledge on corporate products and systems, and the global coordinators of a clearly defined set of operating systems, policies and practices that ensure inter-unit integration. For the expatriate to personally contribute to the firm's global efficiency agenda, they must frequently access these corporate knowledge sources. To satisfy the parallel objective of national responsiveness, however, they must also adapt the 'bigger picture' corporate knowledge to the 'smaller picture' context of the host country. This is a process that requires their frequent access to local knowledge sources. Our question, then, is which of these two sources, global or local, contributes most to the expatriate's strategically significant knowledge applications? Westney (2001) notes that globally relevant corporate knowledge, which she

describes as context-generic, is of a higher order than location-specific knowledge because of its wider transferability and applicability. For the transnational firm this context-generic knowledge has evolved over time into strategic organizational practices (Kostova, 1999), a collective 'know-how' that encompasses the shared knowledge and competence of the organization. In contrast, the context-specific knowledge available from the host location is typically temporal, factual and thus more broadly representative of 'know-what'. On balance, therefore, we conclude that the expatriate's access to context-generic corporate knowledge, derived from their globally diverse intra-firm sources, offers a superior opportunity for strategic applicability. Hence:

> **Hypothesis 1:** *Frequent global rather than local knowledge access contributes positively to the expatriate's knowledge applications.*

Communication: High levels of interaction are needed with a firm's product centers to determine task requirements and acquire knowledge resources for task execution (Ancona & Caldwell, 1988). This boundary-spanning communication is relevant to not only knowledge access, but also the ongoing coordination needed for product, systems and practice adaptation to the host environment. As Ghoshal and Bartlett (1988) demonstrate, the subsidiary-based 'managers' of global enterprises communicate regularly with their headquarters counterparts, often on a daily basis, for the host country adoption of technical innovations. Frequent boundary-spanning communication enables these individuals to introduce new knowledge from outside their host business unit, rather than simply reconfiguring the existing local knowledge (Teigland & Wasko, 2003). Where the individual has prior experience with other units of the firm, a common trait for expatriates, they are more likely to engage in frequent cross-border communication via their extended interpersonal networks (Nohria & Ghoshal, 1997). These networks connect the expatriate to well-established relational ties that are valued because of their expertise, reliability and accessibility (Borgatti & Cross, 2003). In contrast, their local network is of a more limited

size, most likely having been developed only since their arrival at the host location. Despite the physical proximity of their local colleagues therefore, whether host country nationals or fellow expatriates, we believe the expatriate will more likely associate with familiar relational ties within their extended global network. This network offers them a greater number and diversity of trusted contacts to facilitate their knowledge application efforts. Hence:

Hypothesis 2a: *Frequent global rather than local communication contributes positively to the expatriate's knowledge applications.*

A characteristic of transnational firms is the existence of dynamic and rapidly evolving task environments where the transacted knowledge is typically non-routine and complex (Egelhoff, 1991). As Egelhoff maintains, knowledge processing in such environments is often reliant upon verbal mechanisms such as direct personal contact, team meetings and task forces. These personal modes, involving face-to-face and telephone exchange, can best ensure the sense making, shared understanding and context building essential to knowledge applications (Daft & Lengel, 1987). Such tacit knowledge sharing is not only possible through team meetings, however, but also the numerous informal channels that define an individual's personal network (Bartlett & Ghoshal, 1989; Edström & Galbraith, 1977). Although nonpersonal modes such as memoranda, e-mails and website access constitute a viable option for knowledge applications, we see their disadvantage as an undue formality, explicitness, and lack of contextual richness. Because their exchange mechanism is sequential, with varying response time lags, they will be less effective where time economies matter. In contrast, personal modes offer an increased informality, tacitness, and richness of contextual meaning. They permit higher levels of interactivity with minimal response time lags, each critical to the often-intense problem solving and decision-making associated with knowledge applications. Hence:

Hypothesis 2b: *Frequent personal rather than nonpersonal communication contributes positively to the expatriate's knowledge applications.*

Experiential Learning

Knowledge Access: As a newcomer to the assignment host location the expatriate is usually in unfamiliar territory. To contribute meaningfully to the global firm's national responsiveness and worldwide learning objectives, therefore, they must access a wide range of knowledge about the local culture and language, the local business setting, the local organizational structure and, importantly, the local interpersonal communication networks (Berthoin Antal, 2000; Torbiörn, 1982; Welch & Welch, 1983). In a multinational context, albeit at a subsidiary unit rather than individual level, it has been demonstrated that the access to local knowledge resources leads to innovative learning outcomes (Ghoshal & Bartlett, 1988). As Tyre and von Hippel (1997) explain, the achievement of effective learning outcomes requires an intimate understanding of the subtleties and complexities of the host environment. In contrast, the knowledge accessed from more remote locations plays little or no part in the situated learning process because it lacks sufficient contextual relevance (Argote & Ingram, 2000; Nonaka, 1994; Orlikowski, 2002). We thus conclude that, although the expatriate is regularly dependent upon knowledge updates from the headquarters and other distant corporate sources, their assignment-based experiential learning is inevitably bound to the physical context of the host location. Hence:

Hypothesis 3: *Frequent local rather than global knowledge access contributes positively to the expatriate's experiential learning.*

Communication: As part of their 'know-who' learning process within the host country (Berthoin Antal, 2000), one would expect the expatriate to engage in frequent exchanges with local nationals and fellow expatriates. Despite this, we envisage a higher-level expectation placed upon them due to the firm's worldwide learning imperative. This requires that they interpret the locally

accessed knowledge within a broader corporate context. As Westney (2001) observes, generic knowledge is expanded and enriched by the need to explain location-specific knowledge. Cohen and Levinthal's (1990) concept of absorptive capacity affirms that, because learning is more difficult in a novel domain (the host country), a broader reference framework is needed to make the new knowledge more intelligible. This reference framework, known by such terms as the 'organizational code' (March, 1991) and 'company way' (Orlikowski, 2002), embodies the shared understanding essential to worldwide learning. The individual's access to its multiple knowledge resources is via their extended international network. As Teigland and Wasko (2003) find, an individual's exchanges with their more distant colleagues in the firm can result in creative learning outcomes. In contrast, their exchanges with colocated workers can over time lead to a redundancy of knowledge and the inability to generate new ideas. On balance, therefore, we conclude that the expatriate's frequent communication via their extended international network is essential to their comprehension of how locally accessed knowledge fits into the broader corporate context. Hence:

Hypothesis 4a: *Frequent global rather than local communication contributes positively to the expatriate's experiential learning.*

Nonaka (1994) explains how knowledge is internalized during the learning-by-doing process. He refers to the gradual translation of explicit into tacit knowledge by the direct observation of others and the associated periods of trial-and-error experimentation. These activities allow sufficient time for logical thinking and the gradual assimilation of complexities within the communicated knowledge. This reflective learning process is unlikely to occur during the highly interrupted verbal exchanges typically associated with team activities. Instead, it is more likely when the individual is isolated or alone within their physical workspace. Here they typically access nonpersonal communication media such as e-mail documents and electronic websites. As

Teigland and Wasko (2003) note, electronic transfer mechanisms provide workers in the geographically dispersed units of a firm with the chance to communicate through their shared organizational and technical code. They demonstrate that the greater the individual's reliance on these electronic networks, the higher their levels of information exchange and resultant creative learning. Thus, although personal and nonpersonal modes may differ little in their ready transmission of knowledge across international boundaries and time zones, we posit that nonpersonal modes provide greater opportunities for the orderly understanding and internalization of the transmitted knowledge. Hence:

> **Hypothesis 4b:** *Frequent nonpersonal rather than personal communication contributes positively to the expatriate's experiential learning*.

Methods

Research Design and Data Collection

Our research design is based upon a single study organization. This approach is well suited to the investigation of real-life events, in our case the expatriates' knowledge transfer activities (Yin, 1994). Other benefits are a strong internal validity for theory building, and a significant level of control for the many contextual variables. We adopt a dual-method data collection approach that incorporates a mail-out survey to expatriates, followed by semi-structured interviews with a representative cohort of the same population. Our case organization, Ericsson Australia (or 'EPA'), is a wholly owned subsidiary of the Swedish telecommunications firm LM Ericsson ('Ericsson'). Ericsson has been conducting business internationally for about 126 years of its 131-year history (since 1881). It was selected for our study because of its reputation as a prototype transnational organization (Bartlett & Ghoshal, 1988, 1989). The Australian

subsidiary's primary role is the development of telecommunication product applications and solutions for the combined Australia/Asia-Pacific regional market. With product design and development largely driven out of the Swedish headquarters and other centralized specialist units (in Europe and the United States), the Australian subsidiary's relationship is one of strategic dependence upon these central units. A co-existing interdependence exists, however, with the globally dispersed national subsidiaries. For example, our expatriate interviews identify the existence of global peer units, typically three to four for each technical function, that work with the same products and regularly rotate experienced personnel on expatriate assignments.

From late 2000 to early 2001, following preliminary pilot testing, we administered a mail-out survey to 111 Australia-based expatriates. This number included virtually all on long-term assignments to the Australian subsidiary at the time. Their assignments were from one to four years' duration, and occasionally longer. To increase our relatively small sample size, we administered the survey to a further 13 individuals. Although repatriated or re-assigned from Australia within the previous six months, they were considered to have sufficient recall of their Australian assignment experience for survey completion purposes. From the total of 124 survey mail-outs, all identical in format and presented in Ericsson's official business language of English, we received 71 usable returns - a response rate of 57 percent. T-test comparisons of expatriate nationality, company tenure and business stream revealed no significant non-response bias. Within the survey population the expatriates ranged in age from 25 to 52 and averaged 34.5 years, whereas the gender split was 91 percent male and nine percent female. The duration of employment with Ericsson averaged 10 years, whilst the number of previous long-term international assignments with the firm - *excluding* the current one – ranged from nil to six with a mean of one. A roughly equal split existed between survey respondents of parent-country (Swedish) nationality and those of third-country nationality (that is, *excluding* Australians). The

third-country nationals were drawn from all global regions. Most respondents comprised professionally trained engineers, with 12.7 percent at the managerial level and the remainder either technical professionals or project supervisors. Functionally they were spread across the three complementary business streams of development (26.8 percent), technical services (59.1 percent) and sales and marketing (14.1 percent). Within these business streams there are several levels (or so-called 'lines') of product support, with the downstream technical associates of a particular business unit often doubling as internal business customers. This situation altered the dynamics of an otherwise interdependent technical relationship, such that the upstream service provider assumed a more dependent relationship with their downstream customer.

Following the preliminary analysis of our survey data we conducted semi-structured face-to-face interviews. The interviewees comprised twelve expatriates from the original survey population of 124 who, with one exception, were among the 71 survey respondents. They were in proportion to the survey population as a whole based on gender, parent country versus third country nationality, seniority level, and business stream. Our interview framework was designed to be consistent overall with that of the mail-out survey. The interview questions were deliberately open-ended, however, to stimulate the explanatory clarification of survey feedback and otherwise add new information of potential relevance. All interviews were conducted at the interviewee's worksite by the first author, based on the English language. The interview duration was from 30 minutes to a maximum of one hour, and averaged 45 minutes.

Measures and Analysis

We present two dependent variables for analysis. *Knowledge applications* (α=.76) is a nine-item composite measure that combines the 'business application outcomes' and 'organization application outcomes' measures of Hocking et al (2004). For measurement purposes we have summed and averaged all nine items rather than dividing them into smaller groups. As such the

measure more closely matches our original theoretical construct[1]. The same approach is taken for our second dependent variable, *experiential learning* (α=.82), a nine-item measure based on the same know-how categories as knowledge applications. It records the extent [5=fully, ranging to 1=not at all] of the expatriate's valuable assignment-related learning on the following subjects: the international business environment; the management of international business projects/ventures; specialized professional methodology with international relevance; advanced technology with international relevance; international (ie. cross-cultural) business relations and communications; the company's international structure and personal networks; the company's international identity and cultural values; the company's international policies and procedures; and the company's international best practice systems.

Our first independent variable, *local knowledge access*, is a new two-item measure that defines the frequency [5=fully, ranging to 1=not at all] of the expatriate's access to knowledge sources at two complementary loci within the host country: their own business unit; and other business units within the host country organization. *Global knowledge access* is the equivalent measure for the two complementary loci outside the host country: the company's global headquarters; and the company's other international offices. These broad geographic-organizational subdivisions, designated as either local or global, are adapted from Ghoshal and Bartlett (1988). For measurement purposes the two items for each variable have been summed and averaged. Our four communication variables - *local communication (personal)*, *local communication (nonpersonal)*, *global communication (personal)*, and *global communication (nonpersonal)* - are new measures based on consecutive survey questions: the first records the expatriates' frequency of communication with the same local and global sources as knowledge access; and the second qualifies the expatriates' proportional use (measured as a percentage) of personal and nonpersonal communication modes. For communication frequency we adopt time-

specific Likert scales that follow the precedent set by Allen (1977), Ghoshal and Bartlett (1988) and others: 5=hourly, 4=daily, 3=weekly, 2=monthly or less, and 1=not at all. Our differentiation of personal modes (face-to-face and telephone) and nonpersonal modes (e-mail and other) is adapted from Subramanian and Venkatraman (2001). For each of the four communication measures we have summed and averaged the respective frequency and mode items, then multiplied the two averages. As all six knowledge access and communication variables comprise items that are objective and discrete, with discriminant validity, we do not assign alpha reliabilities. We have nevertheless checked for undue dependencies between our knowledge access and communication measures, finding no supporting evidence. The strongest bivariate correlation, between local knowledge access and local communication (verbal) ($r=.34$, $p<.01$: Table 1), falls well within acceptable limits (Studenmand & Cassidy, 1987).

Insert Table 1 about here

Our control variables for expatriate nationality, seniority level and business stream are as outlined in the preceding summary of our expatriate sample (Research Design and Data Collection). Our *cultural difference* variable, on the other hand, is a single-item reverse-coded measure adapted from Simonin (1999). It records the expatriates' concurrence [5=strongly agree, ranging to 1=strongly disagree] with the statement that the cultural values in their host country are consistent with their own. Our *time-on-assignment* control variable, measured as the elapsed years of assignment duration, is as defined by Hocking et al (2004).

For our quantitative analysis we use hierarchical multiple regressions for each dependent variable. Model 1 incorporates the control variables only; model 2 adds the two knowledge access variables; and model 3 adds the four communication variables. Even though our sample size is relatively small (N=71), we confirm each regression as a normal linear distribution. We find no significant multicolinearity between independent variables; the respective tolerances and

variable inflation factors for each model fall well within acceptable ranges[2]. Our analysis of expatriate interviews follows the procedures outlined by Miles and Huberman (1994). We have transcribed and coded the interview audiotapes to provide data that is structured, intelligible and readily accessible for analytical purposes. The code themes are consistent with our survey data, thus allowing a ready collation of the two databases.

Results

Knowledge Applications

Knowledge Access: In *hypothesis 1* we anticipated a positive contribution to the expatriates' knowledge applications by their frequent global rather than local knowledge access. We find quantitative support for the hypothesis, with global knowledge access a significant contributor to knowledge applications ($p<.01$, models 2 and 3: Table 2). Although not predicted by the hypothesis, there is also a minor contribution from local knowledge access ($p<.10$ significance, model 2 only). Our descriptive statistics (Table 1) reveal that the expatriates' local knowledge access is more frequent on average than their global access, although t-tests reveal the difference is not significant ($t=1.431$, $p=.157$). Our interview feedback supports the quantitative results, at the same time clarifying the process of expatriate knowledge access. The expatriates generally regard their knowledge search as contingent upon the specific problem or need at the time. A common pattern is that, based upon geographic and time zone convenience, they first seek knowledge from colleagues within their own business unit. If a local source is unavailable or inadequate, however, the next step is to try further afield. This usually involves a global peer unit, or a central design or product unit, rather than another Australian unit. As one technical professional noted, "*every different sub-organization has core competence that you may need to access*". We find that those expatriates with a strong existing network of globally distributed personal contacts often access them immediately rather than first seeking knowledge from a local

business unit. For example, when a product is in the development phase, or where a design problem later arises, knowledge is sought directly from the relevant global design or product unit in Sweden and elsewhere. As one expatriate emphasized, these 'straight lines' to the relevant knowledge sources would not be possible for a local employee as "*they wouldn't know where to start*".

Insert Table 2 about here

Communication: In *hypothesis 2a* we predicted a positive contribution to the expatriates' knowledge applications by their frequent global rather than local communication. *Hypothesis 2b* further advocates that the communication is more likely to be personal in mode rather than nonpersonal. We find limited support for the combined hypotheses, with global communication (personal) contributing in a small way to knowledge applications ($p<.10$ significance, model 3: Table 2). This is despite global communication (personal) being a significantly less frequent activity than local communication (personal) (Table 1). Neither the latter measure, nor the two for nonpersonal modes, makes a significant contribution to knowledge applications. Turning to our qualitative results, we find general support and clarification for the quantitative evidence. For hypothesis 2a, our interviews reveal that the expatriates' communication with their globally dispersed intra-firm contacts is more targeted and productive than with local associates. These global contacts, comprising recognized technical specialists and trusted colleagues from earlier international assignments, are widely used for knowledge access, information sharing and problem solving activities. Although the expatriates use formal communication channels when following established procedures, they more readily adopt an informal approach. They identify a particular advantage of their extended informal communication network as its size. As one experienced technical professional observed, the number of potential contacts in his global

network was "*up to thousands*", whereas his peer network in the host business unit in Melbourne comprised about 12 people.

In relation to hypothesis 2b, which concerns communication mode, our interview results indicate a prevalence of team activity. Whether as formal meetings conducted on a weekly basis, or more informal (and often daily) gatherings within the workplace, these team activities offer an important forum for knowledge sharing through face-to-face exchange. E-mails are used more for routine communications such as the sharing of documentary information before a meeting. Where time or distance inhibits walking around, the telephone becomes a preferred communication mode. For example, the provision of technical support for internal customers in other global regions requires a personal touch that is most effective by telephone. This may be for longer-term relationship building or else the rapid resolution of a complex technical problem. Where a need exists for more highly interactive sessions with technical associates at other international locations, telephone or videoconference hook-ups are preferred. On a less frequent basis, but potentially for several weeks or even months at a time, the expatriates travel to participate in international team activities where the primary communication mode is face-to-face.

Experiential Learning

Knowledge Access: In *hypothesis 3* we predicted a positive contribution to the expatriates' experiential learning by their local rather than global knowledge access. Our regression results offer strong quantitative support for the hypothesis. Local knowledge access, but not global access, is a significant contributor to experiential learning ($p<.01$, models 2 and 3: Table 3). Qualitative support is available from our expatriate interviews, and from an open-ended survey question on the perceived value to the firm of the expatriates' assignment-related learning. The survey respondents particularly valued their learning about local customers, local personal networks, host country cultural differences, and the local organization. Our interviews clarify that

this local learning, more so than knowledge applications, is ongoing and cumulative over time. The expatriates found time was needed to adjust to their new host country environment. They also required time to understand and adjust to changes in the local organization, both its politics and people. As one experienced technical professional noted, "*the first thing you had to get your head around [after arrival in the host country, was] the slight differences in the way people network, and the way people operate and look at each other - here as opposed to other countries in the market*". In fact the expatriates often compared their host location conditions and practices to those from previous home country and other international assignments. We saw this as a conscious attempt to frame the newly accessed local knowledge within a broader regional or global context. The extent of this contextual re-interpretation seemed greater with increasing cultural diversity between assignment locations.

Insert Table 3 about here

Communication: In *hypothesis 4a* we predicted a positive contribution to the expatriates' experiential learning by their global rather than local communication. *Hypothesis 4b* further advocates that the communication is more likely to be nonpersonal rather than personal in mode. We find unequivocal support for hypothesis 4b, although less so for hypothesis 4a, in that both global communication (nonpersonal) *and* local communication (nonpersonal) make minor contributions to experiential learning ($p<.10$ significance, model 3: Table 3). The results from our expatriate interviews generally support the quantitative evidence. They also clarify the relationship between the individual learning process and the expatriates' use of nonpersonal communication modes. Team meetings, and especially the more formal meetings, are primarily for initial agenda setting and later reporting purposes, whereas the expatriates' individual learning is best achieved during the intervening workflow cycles. These cycles alternate between periods of trial-and-error experimentation and problem solving ('troubleshooting') whilst working alone,

and one-to-one consultations with others to confirm and compare what has been achieved. As one technical professional noted, *"there is a fair amount of live-time work [in] which we don't communicate [with others]; we rely on our own resources*". These periods of troubleshooting can last for two to three days at a time and are valued because, as one technical specialist observed, "*sometimes you need to work alone for a while just to get to know the problem*". The expatriates electronically access centralized corporate databases that are both technical and organizational in content. The technical databases, for example, comprise detailed and often highly complex product specifications, protocols, wiring diagrams and problem solving precedents. Both technical and organizational databases are typified by codified knowledge that is globally available on a generic or standardized platform. They are written in a common organizational language, complete with company-specific technical acronyms, which is readily shared across international distances and time zones through e-mail communication and intranet websites.

Discussion and Conclusions

We identify three notable theoretical contributions of our research. First, we demonstrate that the expatriates' *knowledge applications* are largely influenced by their frequent knowledge access and communication with the corporate headquarters and other global units of the firm (Fig.2). This happens despite the expatriates' more frequent knowledge access and communication with those in the host country. We see at least two explanations for this effect: the first relates to the value and diversity of the globally accessed knowledge; and the second the reliability and accessibility of the expatriates' personal (and to a lesser extent, nonpersonal) knowledge sources. With respect to the knowledge itself, our results highlight the value of context-generic knowledge that is sourced from the globally dispersed units of the firm. Over time, and through a process of

corporate socialization, this diversified knowledge has become enriched, embedded and institutionalized as the corporate mindset. It represents a shared understanding that permeates the know-how and everyday practices of all organizational participants (Kostova, 1999; Orlikowski, 2002). As March (1991) confirms, individuals increasingly converge to the organizational code as they become more knowledgeable. Contrary to the view of Bonache and Brewster (2001), who maintain that specific knowledge has a greater value than generic knowledge because of its imperfect mobility, our evidence suggests that context-generic global knowledge can possess a higher strategic value provided it is *company-specific*. Embedded as it is within the organization's culture, practices and routines, company-specific knowledge possesses a level of tacitness that averts the easy imitation by others. Unlike local context-specific knowledge, however, it is readily transferred across intra-firm boundaries via a widely understood, yet uniquely codified corporate language.

Insert Figure 2 about here

With respect to the sources of knowledge rather than the knowledge itself, we find that the expatriate will preferentially access their extended international network because their local sources of knowledge, although closer and more convenient, are of themselves insufficient. They offer the expatriate fewer choices, and thus an increased likelihood over time of repetition and redundancy (Allen, 1977; Hansen et al, 2005; Teigland & Wasko, 2003). In contrast, the communication between individuals with diverse backgrounds and knowledge structures has an ability to enhance the organization's capacity for innovation (Cohen & Levinthal, 1990). In fact the expatriate has no pressing need to be bound to their host country sources for knowledge applications. Based on the available communication technologies within transnational firms, it is possible for relational proximity to be more effective than geographic proximity (Rice & Aydin, 1991). It is for these reasons of personal relatedness that the expatriate chooses to interact with

their global community-of-practice, seeking out the strong ties established during earlier global assignments. These trusted associates offer them the best chance of attaining their resource dependence and time economy targets, especially during the often-intense periods of problem solving and decision-making that typify knowledge applications.

A second significant finding of our study is the strong influence of local knowledge access on the expatriates' *experiential learning* (Fig. 2). As confirmed by other researchers (eg. Berthoin Antal, 2000; Torbiörn, 1982), we demonstrate the value placed by the expatriate on knowledge gained about the local organization, local personal networks, and local culture. Access to this knowledge, which is contextually bound to the host location, offers the expatriate a unique learning opportunity that Nonaka (1994) variously refers to as 'on-the-spotism', 'hands-on-experience' and 'experiencism'. This depiction of situated learning as dependent upon physical location is in contrast to Lant's (1999) view of it as contextually embedded within organizational and personal relations. We in fact find evidence for *both* scenarios. From a physical location perspective, local sources are required for the expatriates' acquisition and preliminary understanding of host country environmental knowledge. From a relational perspective, however, their interpretation of this knowledge within a broader corporate context requires their interaction with those in their extended network. As Szulanski et al (2003) explain, an understanding of *both* corporate practice and local environmental contexts is essential for effective cross-border knowledge adaptation and the related process of adaptive learning.

A third noteworthy finding of our study is the differing effects of communication modes on expatriate knowledge applications and experiential learning (Fig.2). For knowledge applications, which depend on global rather than local communication, the expatriates rely upon personal modes such as the telephone, videoconferences and face-to-face contact. These are often deployed within a team environment where high levels of interactivity are required. In contrast,

the expatriates' experiential learning appears more effective during the intervening periods of personal reflection and problem solving. As Kolb (1984) explains, the cyclical shift between the adaptive phases of reflective observation and active experimentation is central to the process of experiential learning. Our results add weight to Ostroff and Kozlowski's (1992) empirical finding that both direct observation and trial-and-error experimentation are a more effective means for individual learning than interpersonal relations. As these researchers note, simply being told something, and often not being told enough, restricts the individual's capacity to assimilate knowledge. In contrast, and as we confirm, the knowledge format offered by nonpersonal communication modes is inherently clearer and more objective. It presents the expatriate with an improved opportunity for rational thinking and understanding, and thus a more effective internalization of the transmitted knowledge.

As we noted earlier, expatriate learning has a close everyday relationship with knowledge applications through the iterative process of learning-by-doing. Our research results demonstrate, however, that some significant process path differences exist from a longer-term strategic perspective (Fig.2). We attribute these differences to the existence of dual yet contrasting strategic contexts that are simultaneously global and local, yet generic and specific. As our results show, these contexts contribute to a two-phase process of cross-border knowledge adaptation. The first phase, most relevant to the expatriate's knowledge applications, requires that they funnel corporate knowledge from the globally dispersed units of the firm and modify it to fit their specific host country environment. In a reciprocal process more applicable to the expatriates' experiential learning, the second phase involves a re-interpretation of locally accessed knowledge and its subsequent expansion to fit a broader corporate contextual framework. We believe our research has shed light on how individual expatriates, through their knowledge applications and

experiential learning, can impact the delicate contextual balance that enables the transnational firm to think globally yet act locally. Their particular contribution can perhaps be better described as 'adapt locally, reinterpret globally'.

Practical Implications

Researchers such as Bonache and Cervino (1997) argue that transnational firms can accomplish global efficiency *without* the use of long-term expatriates. They maintain instead that the firm can manage its global operations through the use of home-based international managers. Our current research findings suggest that the expatriates' knowledge applications, a prerequisite for the firm's achievement of global efficiency, might indeed be managed on a remote basis. This is because they largely rely upon context-generic corporate knowledge that is readily transferable via global communication technologies. The same cannot be said, however, for the individual's experiential learning. As our research results indicate, this is dependent upon their direct 'hands-on' access to knowledge that is contextually embedded at the host location. It cannot be readily accessed, nor fully understood, without the expatriate's physical presence over a substantial time period. We conclude, therefore, that for the firm to achieve its worldwide learning (and, to a lesser extent, national responsiveness) objective, there is a pressing justification for the continued use of long-term expatriate assignments.

Expatriate management researchers have for some time debated the practice of repatriation to the home country and, less so, the alternative of re-assignments to other locations. Only in more recent years have these practices been considered within a framework of knowledge transfer and learning (Bonache & Brewster, 2001; Lazarova & Tarique, 2005). Our research suggests that each foreign assignment is a cumulative learning experience, providing the expatriate with a broadened international perspective and a range of mechanisms to cope with complexity and diversity. It would appear that their most valuable asset is the context-generic

knowledge or know-how that steadily accumulates from one assignment to the next. For each assignment the conversion of context-specific into context-generic knowledge enriches the expatriate's absorptive capacity. It thus enables the next assignment experience to be more readily understood and assimilated. As such we see a strong basis for the adoption of two inclusive HR management practices. The first is the retention of the employee from one assignment to the next, permitting the preservation of company-specific knowledge that is highly tacit and of considerable strategic value. The second is the selection of future assignment projects that not only capitalize on the individual's past experience and absorptive capacity, but also stretch them in ways that ensure their continued exposure to new learning experiences. This may well mean another foreign assignment, especially one associated with a different cultural environment. As Stroh and Caligiuri (1998) indicate, leadership development through cross-cultural assignments is one of three human resource management practices that contribute significantly to improved firm performance and success.

Limitations and Future Research

Although restricted to a single case, we consider our research results relevant to other transnational organizations. This is because we have focused on generic process activities rather than firm-specific detail. We acknowledge that our study results are potentially limited by the relatively small size of our survey response sample (N=71). As explained in our Methods section, however, we have sought to address this concern by increasing the sample size to the maximum amount possible. We have also restricted the number of independent and control variables to less than one-fifth of the survey sample size of N=71, resulting in multiple regressions with statistical validity. Our use of expatriate self-reports rather than a broader range of enquiry can also be viewed as a study limitation. We nevertheless believe we have minimized the risk of common method variance through the design of survey and interview questions that seek objective

responses rather than potentially biased perceptual responses (Spector, 2006). Our questions invite subject (expatriate) recall of recent activities rather than the potentially more vague observations of those not engaged in these activities. Also, in virtually all cases we adopt measures of frequency (of activity) rather than opinion.

Our study highlights a number of areas for future research. First, we appeal for a more rigorous definition of the process of individual-level knowledge transfer. As we explain in our introductory comments on knowledge transfer activities (Theory and Hypotheses section), there are at present several diverging opinions on what constitutes knowledge transfer and what doesn't. A part of this uncertainty is the relationship between knowledge adaptation and the transfer process. Our study demonstrates that knowledge adaptation is an important link between the expatriates' knowledge transfer activities and their resultant knowledge applications and experiential learning. Particularly as past research on cross-border knowledge adaptation is limited (Szulanski et al, 2003), we here advocate it receive more attention, especially at the individual level of analysis. In conclusion, we see a considerable opportunity for empirical research that clarifies the complex relationship between individual and organizational-level knowledge transfer within global firms. As for our study, this research should address processes, their contextual framework, *and* strategic outcomes. It would no doubt also be enriched by a due attention to transfer effectiveness and impediments. We are confident that knowledge-based research is a key to a more reasoned, and hopefully more successful approach to the IHRM practices that relate to expatriation, repatriation and alternative re-assignment.

Endnotes

1,2. Although not included here, the relevant background data is available upon request from the authors.

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Text Figures and Tables

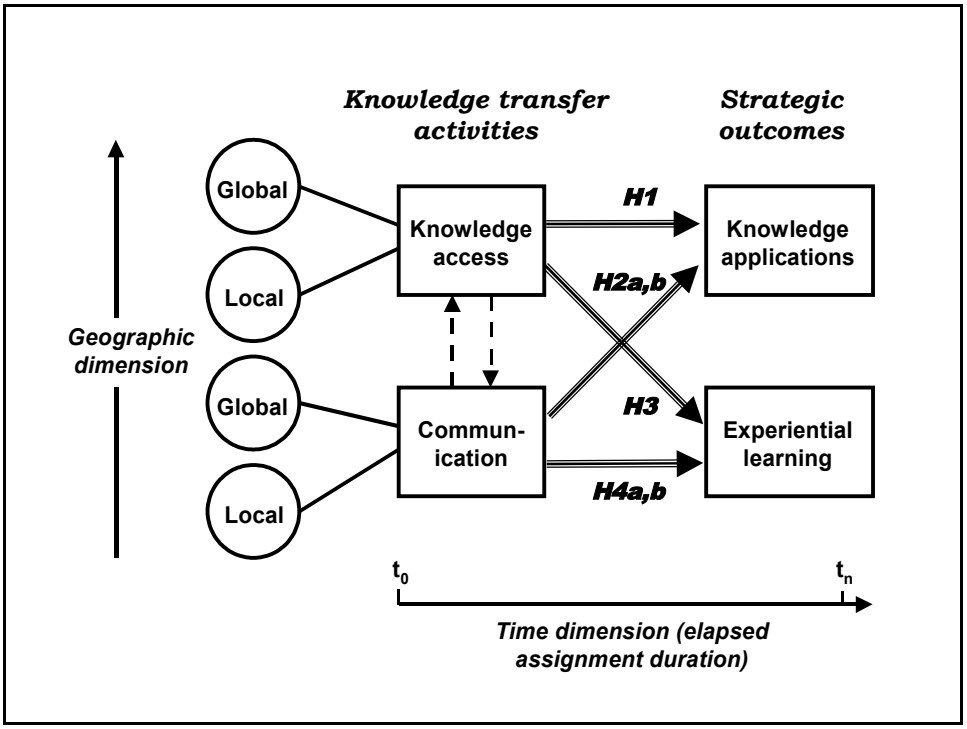

Figure 1. *Research model (with relevant hypotheses)*

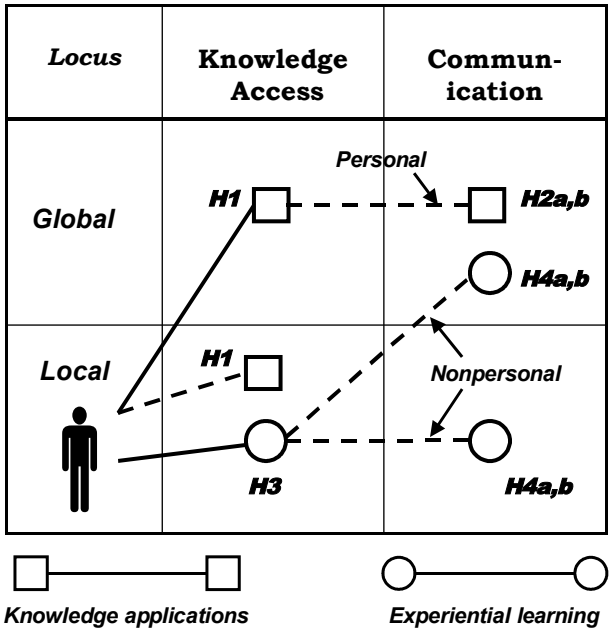

Figure 2. *Summary of results, and relevant hypotheses; continuous lines denote a strong relationship (p<.01-.05 significance), and dashed lines a weaker relationship (p<.10).*

Table 1. Bivariate correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Dependent																
1. Knowledge applications	2.95	.68														
2. Experiential learning	3.28	.66	.37**													
Independent																
3. Local knowledge access	3.46	.83	.21	.33**												
4. Foreign knowledge access	3.32	.91	.53**	.19	.20											
5. Local communication (personal)	1.11	.41	.20	.00	.34**	.25*										
6. Local communication (nonpersonal)	.69	.33	-.06	.24*	-.07	-.11	-.71**									
7. Global communication (personal)	.30	.25	.27*	-.02	.04	.24	-.03	.05								
8. Global communication (nonpersonal)	.95	.30	.09	.21	.01	.16	.14	.07	-.28*							
Control																
9. Expatriate nationality (*PCN*)	.54	.50	.12	-.15	-.16	.12	-.20	.16	.14	.23						
10. Cultural difference	2.24	.97	.02	.19	.03	.06	-.07	.02	-.10	-.11	-.18					
11. Seniority level (*Manager*)	.13	.34	.06	-.17	-.11	.00	-.02	-.03	.24*	-.17	.10	-.10				
12. Development business stream	.27	.45	-.16	-.04	-.13	-.27*	-.14	-.10	-.36**	-.06	.18	.01	-.14			
13. Technical services business stream	.59	.50	-.06	-.02	.10	.06	-.13	.22	.24	-.03	-.26*	.15	-.20	-.73**		
14. Sales and marketing business stream	.14	.35	.28*	.07	.02	.26*	.37**	-.19	.12	.12	.13	-.23	.45**	-.25*	-.49**	
15. Time-on-assignment	2.04	.76	.15	.32**	-.05	.07	.03	.03	-.06	.08	-.02	-.18	-.02	.01	.01	-.02

N=71; ** p<.01 (two-tailed), * p<.05 (two-tailed)

Table 2. Hierarchical regressions: knowledge applications

Variables	Model 1	Model 2	Model 3
Constant (B)	2.33 (.39)	.54 (.55)	.34 (.72)
Control variables			
Expatriate nationality (*PCN*)	.10 (.17)	.08 (.15)	.01 (.17)
Cultural difference	.17 (.09)	.17 (.08)	.20† (.09)
Seniority level (*Manager*)	-.13 (.27)	.00 (.24)	-.05 (.26)
Business stream: Development	-.17 (.19)	-.01 (.17)	.07 (.20)
Sales and marketing	.29* (.27)	.19 (.24)	.23 (.27)
Time-on-assignment	.19 (.11)	.20† (.10)	.23† (.10)
Independent variables			
Local knowledge access		.19† (.09)	.20 (.10)
Global knowledge access		.44** (.10)	.40** (.10)
Local communication (personal)			-.06 (.32)
Local communication (nonpersonal)			-.02 (.35)
Global communication (personal)			.23† (.36)
Global communication (nonpersonal)			.07 (.28)
Adjusted R^2	.06	.27	.26
Change		.21	-.01
F	1.72	4.07**	2.92**

Most data represent standardized beta coefficients and significance for each relevant variable, with standard errors in parentheses.

N=71; ** p<.01, * p<.05, † p<.10.

Table 3. Hierarchical regressions: experiential learning

Variables	Model 1	Model 2	Model 3
Constant (B)	2.36 (.37)	1.39 (.56)	.40 (.67)
Control variables			
Expatriate nationality (*PCN*)	-.09 (.16)	-.06 (.15)	-.23† (.16)
Cultural difference	.24† (.09)	.26* (.09)	.28* (.08)
Seniority level (*Manager*)	-.27* (.25)	-.22† (.25)	-.22† (.24)
Business stream: Development	.00 (.18)	.03 (.18)	.19 (.18)
Sales and marketing	.23† (.25)	.21 (.25)	.30* (.25)
Time-on-assignment	.34** (.10)	.36** (.10)	.37** (.09)
Independent variables			
Local knowledge access		.31** (.09)	.34**(.09)
Global knowledge access		.01 (.10)	.03 (.10)
Local communication (personal)			-.08 (.30)
Local communication (nonpersonal)			.29† (.33)
Global communication (personal)			.17 (.33)
Global communication (nonpersonal)			.24† (.26)
Adjusted R^2	.13	.20	.32
Change		.07	.12
F	2.56*	3.05**	3.57**

Most data represent standardized beta coefficients and significance for each relevant variable, with standard errors in parentheses.

N=71; ** p<.01, * p<.05, † p<.10.