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Repatriate knowledge transfer: Antecedents and boundary conditions of a dyadic process

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ABSTRACT

In this study, we build on the ability-motivation-opportunity framework to test whether both repatriates' disseminative capacity and domestic employees' absorptive capacity as well as their opportunities for interaction affect repatriate knowledge transfer. Further, we examine the moderating effects of two distinctive factors associated with repatriate knowledge transfer: repatriate knowledge characteristics and characteristics of international assignments. Using multi-source time-lagged data from 101 dyads, we find support for most of our hypotheses. Our study contributes to theory and practice by providing an integrated analysis of antecedents and boundary conditions of repatriate knowledge transfer and by highlighting its dyadic nature.

1. Introduction

One of the core competitive advantages of multinational companies (MNCs) arises from their ability to acquire and utilize globally dispersed knowledge (Zeng, Grøgaard, & Steel, 2018). MNCs possess unique capabilities to transfer this knowledge efficiently across their network of subsidiaries, which, in turn, contributes to their superior performance in comparison to their locally based competitors (Gupta & Govindarajan, 2000; Foss & Pedersen, 2004). While corporate headquarters (HQ) and globally dispersed subsidiaries can learn from each other in several ways, reverse knowledge transfer from foreign subsidiaries to HQ has recently gained in importance (Peltokorpi & Yamao, 2017; Yang, Mudambi, & Meyer, 2008). Access to results of local research and development activities and insights into customer preferences in foreign countries can facilitate the targeted development of products and services for specific groups of customers (Kogut & Mello, 2017). In addition, receiving valuable knowledge from foreign subsidiaries enables HQ to orchestrate intra-organizational knowledge flows among different foreign subsidiaries, thereby ensuring more efficient implementation of global strategies (Ambos, Ambos, & Schlegelmilch, 2006).

However, our understanding of the factors that shape reverse knowledge transfer is still limited (Kogut & Mello, 2017), in particular when it comes to individuals as knowledge transferors. This represents an important gap in the literature because knowledge is ultimately created and transferred by individuals (Minbaeva, 2013; Nonaka &

Takeuchi, 1995). One crucial group of individuals that can contribute to reverse knowledge transfer are international assignees *returning* from assignment, or repatriates (Nery-Kjerfve & McLean, 2012). Through their work experience at the foreign subsidiary, international assignees can acquire highly valuable knowledge about local markets and its customers and more general knowledge about doing business across borders (Berthoin Antal, 2000; Fink & Meierewert, 2005; Oddou, Osland, & Blakeney, 2009). Given their familiarity with multiple organizational units, international assignees are ideally positioned to transfer knowledge across the MNC (Caligiuri & Bonache, 2016; Harzing, Pudelko, & Reiche, 2016). Their role is particularly valuable when it comes to transferring tacit knowledge (Polanyi, 1967), knowledge that is intuitive and difficult to articulate independently of knowing subjects (Lam, 2000). However, research has documented that upon repatriation the knowledge that assignees gain at the foreign subsidiary is consistently underestimated as an assignment outcome and it is not viewed as a strategic resource that can leverage the global competitiveness of MNCs (Burmeister et al., 2015; Sanchez-Vidal, Sanz-Valle, & Barba-Aragon, in press). Thus, while repatriation creates a knowledge dissemination opportunity, evidence strongly suggests that this opportunity is rarely seized (Berthoin Antal, 2001; Oddou et al., 2013).

Given the potential strategic benefits of repatriate knowledge transfer (RKT), a reverse knowledge transfer process in which repatriates transfer contextually embedded knowledge from the host location to the home location upon return from the international

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assignment, scholars have begun to examine factors that may contribute to its success. Recent results from quantitative studies have indicated that repatriates' motivation and ability to transfer their knowledge to domestic employees upon return (Sanchez-Vidal et al., in press), and knowledge sharing opportunities with domestic employees (Huang, Chiu, & Lu, 2013) are important antecedents of RKT. However, the existing studies have not addressed the dyadic nature of RKT that has been depicted in conceptual models, in which the ability and motivation of both domestic employees and repatriates have been introduced as equally relevant antecedents of RKT (Oddou et al., 2009). Importantly, research on dyadic phenomena, such as RKT, is conceptually and statistically deficient unless the perspectives of both actors (in this case repatriates and domestic employees) are recognized on equal footing (Krasikova & LeBreton, 2012; Tse & Ashkanasy, 2015). Although this has been discussed theoretically, we were unable to identify a single study on RKT that reflected the perspectives of both repatriates and domestic employees. Furthermore, existing studies have not represented the complex and distinct nature of RKT as they have not discussed the boundary conditions of this reverse knowledge transfer process. Treating RKT as a conventional knowledge transfer process in MNCs ignores the specific challenges and added complexities of reverse knowledge transfer processes (Kogut & Mello, 2017; Oddou et al., 2009; Yang et al., 2008). For example, RKT is particularly challenging because repatriates need to reintegrate into their domestic work units and convince domestic employees, who may have limited international experience and interest in their international knowledge, to receive their knowledge (Burmeister et al., 2015; Oddou et al., 2009).

Based on the shortcomings of the existing literature, we aim to advance research on RKT in two ways. First, we highlight the dyadic nature of the process by focusing on repatriates' disseminative capacity and domestic employees' absorptive capacity and their opportunities for interaction as main predictors of RKT, in line with the ability-motivation-opportunity (AMO) framework (Blumberg & Pringle, 1982). More specifically, disseminative and absorptive capacity reflect the ability and motivation component of the AMO framework, opportunities for interaction of repatriates and domestic employees represent the opportunity component of the AMO framework, and RKT is the performance-related behavior we aim to explain. Our inclusion of domestic employees is critically important in the context of RKT, as research has documented that there is distinct lack of receptivity to repatriate knowledge (Oddou et al., 2009), meaning that repatriate ability and motivation alone can only do so much, which makes it critical to examine the role of domestic employees as knowledge recipients. Second, by considering two characteristics of RKT as boundary conditions, we aim to contextualize the predictions of the AMO with regard to the importance of ability, motivation, and opportunity for RKT. We integrate the characteristic of the knowledge being transferred, positing that the role of disseminative and absorptive capacity will become more critically important when repatriate knowledge is difficult to teach. In addition, we introduce the extent of the international experience of both repatriates and domestic employees as the second boundary condition. We argue that both actors' previous international experience can, respectively, detract from or contribute to the *shared field* for RKT, thus affecting the relevance of opportunities for interaction for RKT.

Taken together, the central research questions of this study are: (1) how ability and motivation of *both* repatriates' and domestic employees and their opportunities for interaction affect RKT, and (2) how these relationships are shaped by distinct characteristics of RKT, namely, the teachability of repatriate knowledge and the international experience of both repatriates and domestic employees. Our conceptual model is presented in Fig. 1.

2. Literature review

2.1. The distinct nature of RKT as a reverse knowledge transfer process

Reverse knowledge transfer processes from foreign subsidiaries to HQ, such as RKT, can be much more complex than and distinctively different from conventional knowledge transfer processes from HQ to foreign subsidiaries (Harzing et al., 2016; Kogut & Mello, 2017; Oddou et al., 2009; Yang et al., 2008). Reverse knowledge transfer processes may be complicated by power imbalances between the HQ, as the all-knowing principal, and foreign subsidiaries, as the more specialized and locally constrained agents (Yang et al., 2008). Despite strategic level recognition that knowledge created as subsidiaries is important for MNC operations (Piscitello, 2004), individuals at HQ often have to be convinced of the value and relevance of this international knowledge (Burmeister et al., 2015). Further, although organizations may value repatriate knowledge in principle, repatriates' domestic colleagues may be resistant to it in practice (Oddou et al., 2013). Indeed, studies have confirmed that repatriates report facing active and passive resistance when they try to share their knowledge (Berthoin Antal, 2001; Nery-Kjerfve & McLean, 2012). Such findings suggest that reverse knowledge transfer via repatriates may resemble a process of persuasion rather than straightforward knowledge dissemination (Yang et al., 2008). Thus, we study the influence of the individual characteristics of both repatriates as knowledge senders and domestic employees as knowledge recipients on RKT. More specifically, we examine how repatriates' disseminative capacity, domestic employees' absorptive capacity, and their opportunities for interaction influence RKT.

Second, repatriate knowledge is embedded in and shaped by the characteristics of the foreign host country (e.g., its norms and policies), which are different from those encountered in the home country (Oddou et al., 2009). The international, contextually embedded, and highly tacit nature of repatriate knowledge adds to the complexity of RKT (Fink & Meierewert, 2005). Such knowledge is more difficult to adapt to new contexts and teach to domestic colleagues who may not have not been exposed to international knowledge before (Chang, Gong, & Peng, 2012; Riusala & Smale, 2007). Accordingly, we examine one of the characteristics of repatriate knowledge, teachability, as a boundary condition of RKT. Specifically, we investigate whether teachability moderates the relationships between repatriates' disseminative capacity and RKT and domestic employees' absorptive capacity and RKT.

Third, the experience of being on international assignment can reduce the common cognitive ground (i.e., cognitive overlap and shared understanding; Nonaka, 1991; Oddou et al., 2009) between repatriates and domestic employees who lack such international experiences, thus complicating RKT further. Being on international assignment provides manifold learning opportunities during which international assignees can develop a more global mindset and learn to appreciate local perspectives on how to operate effectively in global business environments (Crowne, 2008; Oddou et al., 2013). However, when repatriates interact with domestic employees who might lack international exposure, repatriates may realize that they do not share a common "language" with domestic employees to communicate the usefulness of their international knowledge (Oddou et al., 2013; Reiche, Harzing, & Kraimer, 2009). This challenge be more exacerbated in cases of repatriates with extensive international experience, which may limit their understanding of and connection with their colleagues at the domestic work unit (Mäkelä & Suutari, 2009). To address these challenges, repatriates need to undergo a complicated socialization process upon return to the domestic work unit during which they re-learn about the home context and re-build trusting relationships with domestic employees (Oddou et al., 2009).¹ Consequently, to gain a first understanding into the

¹ We thank an anonymous reviewer for highlighting this aspect of RKT.

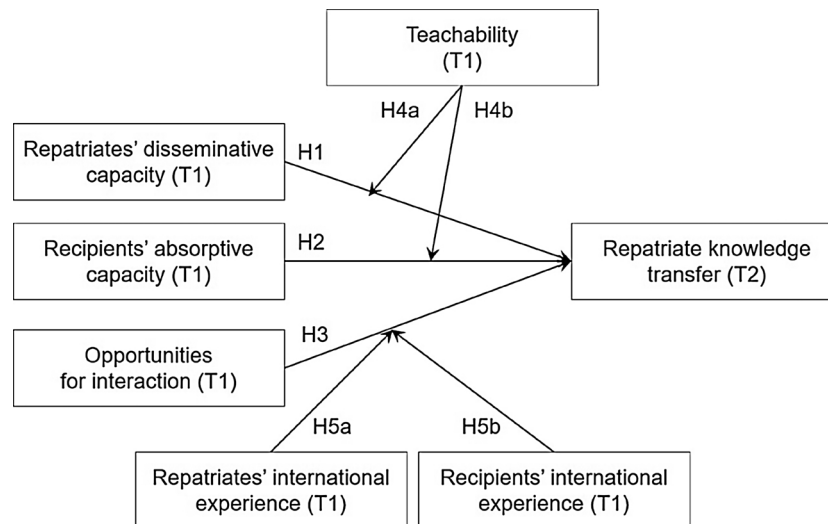


Fig. 1. Conceptual Model (H = Hypothesis).

specific challenges of RKT related to one's exposure to international environments, we examine the international experience of both repatriates and domestic employees as boundary conditions of RKT, namely we include repatriates' international experience and domestic employees' international experience as moderators of the relationship between opportunities for interaction and RKT.

3. Hypotheses development

3.1. The ability-motivation-opportunity framework and RKT

The AMO framework (Blumberg & Pringle, 1982) provides a useful theoretical lens to understand how RKT is affected by (1) repatriates' and domestic employees' ability and motivation to transfer knowledge and (2) their opportunities for interaction. The AMO framework proposes that ability, motivation, and opportunity are the fundamental drivers of any type of performance in the workplace. Whereas ability consists of the knowledge, skills, and experiences that are required to perform an action, motivation refers to the willingness of an individual to act (Chang et al., 2012; Minbaeva, 2013), and both elements of the AMO framework represent individual characteristics of employees. In contrast, opportunities for interaction are defined as characteristics of the work environment that can enable performance but that are beyond the control of individuals (Blumberg & Pringle, 1982).

Scholars have started to examine a wide range of variables that contribute to the success of RKT. They have studied contextual characteristics, such as organizational support (e.g., Chen & Lin, 2011), relational characteristics, such as shared cognitive ground (e.g., Mäkelä & Brewster, 2009), and knowledge characteristics, such as knowledge quality (e.g., Newton, Hutchings, & Kabanoff, 2007). Several studies have also drawn attention to the repatriates' ability and motivation to transfer knowledge, as well as the opportunities they have to engage in RKT (Berthoin Antal & Walker, 2011; Blakeney, Oddou, & Osland, 2006; Bonache & Zárraga-Oberty, 2008; Oddou et al., 2009), in line with the AMO framework (Blumberg & Pringle, 1982). Yet at present the majority of work on the topic remains conceptual (Bonache & Zárraga-Oberty, 2008; Lazarova & Tarique, 2005; Oddou et al., 2009), and empirical work is predominantly qualitative, based on case studies or interviews (Berthoin Antal & Walker, 2011; Burmeister et al., 2015; Mäkelä & Brewster, 2009; Oddou et al., 2013). Furthermore, when studying individual characteristics, such as repatriation adjustment (e.g., Furuya, Stevens, Bird, Oddou, & Mendenhall, 2009) or repatriates' ability and motivation to transfer knowledge (Huang et al., 2013; Oddou et al., 2013; Sanchez-Vidal et al., in press), existing studies have

exclusively focused on repatriates as knowledge senders, thereby ignoring the individual characteristics of domestic employees as knowledge recipients.

3.2. Repatriates' disseminative capacity and RKT

Research has argued that repatriates are the main drivers of the RKT process (Oddou et al., 2013), and they need to be both able and willing to share their knowledge with domestic employees. Taken collectively, the ability and motivation to share knowledge have been referred to as disseminative capacity (Minbaeva & Michailova, 2004; Minbaeva, Park, Vertinsky, & Cho, in press; Sanchez-Vidal et al., in press). This 'combined capacity' can help repatriates overcome specific challenges associated with RKT, such as the contextual differences between home and host country. Repatriate knowledge is embedded and shaped by the culture and contextual characteristics (e.g., norms, policies, processes) of the host country which makes its translation to the domestic context difficult (Oddou et al., 2009). Repatriates who are able to identify the right knowledge and detect the right moment (Burmeister et al., 2015; Oddou et al., 2013), and who can communicate their international knowledge in ways that are easily understandable (Minbaeva & Michailova, 2004; Oddou et al., 2009; Reiche, 2011), are better able to bridge the contextual differences between home and host country and facilitate RKT. Further, RKT is a time-consuming and effortful process (Lazarova & Tarique, 2005), and repatriates need to be willing to invest personal resources into sharing their valuable knowledge with domestic employees, rather than focusing solely on their own work progress. This investment is critically important especially in cases where foreign knowledge is not perceived as useful by domestic employees who may lack an international mindset (Yang et al., 2008) and may need to be persuaded persistently to receive repatriate knowledge (Burmeister et al., 2015).

Hypothesis 1. *The disseminative capacity of repatriates is positively associated with RKT.*

3.3. Domestic employees' absorptive capacity and RKT

Domestic employees' absorptive capacity, or the combined motivation and ability of domestic employees to absorb knowledge from others (Cohen & Levinthal, 1990; Minbaeva et al., in press; Minbaeva, Pedersen, Bjoerkman, Fey, & Jeong, 2003), complements repatriates' disseminative capacity in facilitating RKT. Absorptive capacity is a decisive factor in knowledge transfer processes because the mere

dissemination of knowledge is not productive when the knowledge is not absorbed and applied by knowledge recipients (Chang et al., 2012; Minbaeva et al., 2003). To facilitate RKT, domestic employees need to be able to understand the usefulness of repatriate knowledge and make sense of how it relates to their existing knowledge and how it can be applied to their own work (Bonache & Zárraga-Oberty, 2008; Oddou et al., 2009). In addition, domestic employees need to be interested in international knowledge to be willing to invest time to interact with repatriates to receive their international knowledge (Burmeister et al., 2015; Oddou et al., 2009; Oddou et al., 2013). Empirical research in support of the importance of domestic employees' absorptive capacity for RKT is non-existent to date (Burmeister, 2017; Lazarova, 2015), however, research on the MNC unit level has found that subsidiary absorptive capacity and subsidiary knowledge reception are positively related (Chang et al., 2012).

Hypothesis 2. *The absorptive capacity of domestic employees is positively associated with RKT.*

3.4. Opportunities for interaction and RKT

Opportunities for interaction have to be created by MNCs, and they represent the third main driver of RKT that can be derived from the AMO framework (Blumberg & Pringle, 1982). Formal opportunities for interaction, i.e., structured environments (e.g., meetings) that are created by MNCs (Rulke & Zaheer, 2000), are particularly important in the context of RKT because repatriates need to be re-integrated into the domestic work unit. Repatriates re-enter the domestic work unit after their international assignment as outsiders, who need to regain the trust of their former colleagues through a process of socialization (Oddou et al., 2009). As regular communication between repatriates and domestic employees is necessary for repatriates to understand and re-learn the expectations and norms of the domestic work unit and be re-accepted as a trustworthy source of information (Oddou et al., 2009), opportunities for interaction are relevant to facilitate repatriates' socialization process. In addition, opportunities for interactions can enable repatriates and domestic employees to understand each other's thinking processes and develop a shared cognitive ground (1994, Nonaka, 1991; Thomas & Petersen, 2015), which is crucial because the meaning of the international knowledge of repatriates needs to be uncovered while they interact (Bonache & Zárraga-Oberty, 2008; Huang et al., 2013; Oddou et al., 2009). Empirical findings provide initial support for our arguments, as opportunities for interaction have been shown to be positively associated with RKT (Huang et al., 2013).

Hypothesis 3. *Formal opportunities for interaction are positively associated with RKT.*

3.5. Boundary conditions of RKT

While the variables conceptualized in the AMO framework represent the foundation for successful RKT, the transfer of repatriate knowledge is further shaped and influenced by its distinct international nature. In this study, we shed light on the distinct nature of RKT by introducing teachability of repatriate knowledge and the international experience of repatriates and domestic employees as boundary conditions of RKT.

3.5.1. Teachability of repatriate knowledge

The knowledge of international assignees is especially difficult to transfer as it has been acquired in different cultural environments and is embedded in these foreign contexts (Bonache & Brewster, 2001; Fink & Meierewert, 2005; Minbaeva & Michailova, 2004; Riusala & Smale, 2007). It has been described as highly tacit, which increases the difficulty of its transfer (Fink & Meierewert, 2005; Oddou et al., 2009). Tacit knowledge resides within the minds of individuals (Nonaka, 1991;

Polanyi, 1967), and it has been suggested that it consists of three components: complexity, codifiability, and teachability (Kogut & Zander, 1993; Zander & Kogut, 1995). In this study, we focus on teachability for three reasons: First, codifiability and teachability have been identified as the dimensions that most directly reflect knowledge tacitness, in contrast to complexity (Zander & Kogut, 1995). Second, teachability has been conceptualized as the dimension of tacitness that is relevant for the transfer of knowledge between geographically distant organizational units via individual workers, which makes this dimension particularly suitable in the context of RKT (Kogut & Zander, 1993; Zander & Kogut, 1995). Third, empirical research on reverse knowledge transfer has shown that teachability is more relevant than codifiability because the use of international assignees as knowledge transferors signifies that their knowledge cannot easily be expressed in writing and requires personal interaction (Riusala & Smale, 2007).

We expect that the relationships between disseminative and absorptive capacity and RKT are moderated by teachability, such that the relationships are stronger when teachability is low. In other words, if repatriates' knowledge can easily be explained to others, repatriates' disseminative capacity and domestic employees' absorptive capacity become relatively less important. While past research has not yet tested these specific interaction effects, it has suggested that knowledge characteristics and individual characteristics of senders and recipients interact to influence the degree of knowledge transfer (Bou-Llusar & Segarra-Ciprés, 2006; Martin & Salomon, 2003; Minbaeva, 2007; Szulanski & Cappetta, 2003). Specifically, knowledge teachability has been linked closely to the knowledge transfer capacity of knowledge senders and recipients, such that knowledge with low teachability required higher efforts by both actors to enable knowledge transfer (Bou-Llusar & Segarra-Ciprés, 2006; Kogut & Zander, 1993).

Hypothesis 4a. *The relation between disseminative capacity and RKT is moderated by teachability so that it is stronger when the teachability of repatriates' knowledge is low.*

Hypothesis 4b. *The relation between absorptive capacity and RKT is moderated by teachability so that it is stronger when the teachability of repatriates' knowledge is low.*

3.5.2. Number of international assignments

Repatriates who have been on several international assignments are sometimes perceived as permanent expatriates (Bolino, 2007; Kraimer, Shaffer, & Bolino, 2009). As they may have been absent from the domestic organization for a long time, their domestic counterparts might have largely forgotten about them (Jassawalla & Sashittal, 2009; Nery-Kjerfve & McLean, 2012). This phenomenon has been described as being *out of sight, out of mind* (Adler, 1981), and tends to be more pronounced when time on assignment(s) has been longer (Kraimer et al., 2009). Although upon return repatriates attempt to reintegrate into their domestic work unit, having been away for a lengthy period can weaken the strength of their ties with domestic employees (Mäkelä & Suutari, 2009). As a result, their interactions with domestic employees can be more difficult (Oddou et al., 2013). Establishing formal opportunities for interaction can be particularly important to those who have been on several assignments, as these repatriates are more likely to need support to overcome potential communication barriers they encounter when communicating with their domestic colleagues (Reiche et al., 2009).

Hypothesis 5a. *The relation between formal opportunities and RKT is moderated by repatriates' number of international assignments so that it is stronger when repatriates have been on more international assignments.*

In contrast, we propose that providing formal opportunities in which knowledge can be shared might be less important for recipients who have gained international experience themselves, based on three factors: prior related knowledge, global mindset, and common

cognitive ground with repatriates. First, international experience provides employees with the opportunity to gain international knowledge (Berthoin Antal, 2000; Fink & Meierewert, 2005). The ability to relate the new knowledge transferred by the repatriates to their own previously gained international knowledge, can increase the receptiveness of domestic employees (Subramaniam & Venkatraman, 2001). Second, international assignments expose individuals to specific challenges associated with living and working abroad, which provide numerous learning opportunities (Boyacigiller, Beechler, Taylor, & Levy, 2004; Stahl, Miller, & Tung, 2002). These learning opportunities can facilitate the development of a more global mindset, i.e., “the ability to think and understand in ways that are outside of their normal mindset” (Oddou et al., 2009, p. 3). Thus, domestic employees who have been on assignments themselves might be more open to and interested in the international knowledge of repatriates. Third, recipients with more international experience might also share more common cognitive ground (Nonaka, 1991) with repatriates. Common cognitive ground can facilitate collaborative behavior and interpersonal communication (Mäkelä & Brewster, 2009; Nahapiet & Goshal, 1998), in particular in cross-cultural communication (Thomas & Petersen, 2015).

Hypothesis 5b. *The relation between formal opportunities and RKT is moderated by recipients’ number of international assignments so that it is weaker when recipients have been on more international assignments.*

4. Method

4.1. Procedure

Data were collected from RKT dyads, consisting of repatriates and domestic employees. Repatriates had to meet three criteria: (1) they were expatriated and repatriated by their employer (i.e., company-initiated assignment), (2) the length of their international assignment was at least 12 months (i.e., long-term assignment; Minbaeva & Michailova, 2004), and (3) their return to the domestic work unit should have taken place at least about 6 months prior to the data collection to allow for potential engagement in RKT, but not more than 5 years ago to enable sufficient recollection of their RKT experiences. Domestic employees had to meet two criteria: (1) they had to be members of the domestic work unit to which repatriates returned, and (2) they were required to have interacted with repatriates in a work-related context after their return. Prior to our analyses, we did a further empirical check to ascertain that domestic employees fulfilled this criterion. We asked knowledge recipients during wave 1: “Please indicate how frequently you interacted with the repatriate during the time of RKT” on a scale from 1 (less than once a month) to 8 (essentially every working day). Data showed that, on average, repatriates and knowledge recipients interacted two to three times a week ($M = 6.59$, $SD = 1.88$, Median = 7.00).

We contacted human resource (HR) departments of large MNCs headquartered in Germany, which were likely to employ a sizeable group of international assignees. Eight established MNCs agreed to participate. These MNCs each employed more than 15,000 employees and had subsidiaries in several international locations. The majority of five MNCs operated in the industrial goods sector (e.g., automotive supplier), and the other three MNCs were located in the aviation, energy, and the technology sector.

The data collection procedure involved three steps: First, HR departments identified repatriates who fulfilled our inclusion criteria and informed them about the requirements of the study. Second, repatriates who agreed to participate received the link to the first online questionnaire via email. At the end of the online questionnaire, repatriates created a personal five-digit code that allowed us to match dyad members. Repatriates forwarded the online questionnaire to the respective domestic employee that they had identified and informed them about their code. All dyads were exclusive in this study, thus dyad

members were only part of one dyad. Third, three to six weeks after the first wave of data collection, repatriates and knowledge recipients received the link to the second online questionnaire, which only included the study’s dependent variable. We applied a time-lagged design to reduce the risk of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Data was collected in two waves between January and May 2015, and the online questionnaires were administered in English. We chose to apply the questionnaires in English because our HR contacts verified the English language proficiency of our participants. In some cases, English was the corporate language, but in all cases both repatriates and domestic colleagues frequently communicated in English at work. Furthermore, application of measurement instruments in the original language circumvents the challenges associated with creating translated scales that are culturally equivalent (e.g., Puppatt, Burmeister, & Deller, 2017).

4.2. Participants

A total of 134 repatriates participated in both online questionnaires, which corresponded to a response rate of 46.5%. However, only 103 domestic employees (i.e., recipients) provided data at both time points. As the unit of analysis of this study was the RKT dyad, individual responses that could not be matched with the second dyad member were excluded. Thus, the final sample comprised 101 RKT dyads ($N = 202$ participants), resulting in an effective response rate of 35.1%. The majority of respondents were German (65% of repatriates; 68% of recipients), followed by French (5% of repatriates; 7% of recipients), British (5% of repatriates; 1% of recipients), and Swedish (4% of repatriates; 3% of recipients) nationals. Respondents worked in the following industries: industrial goods (47%), aviation (17%), energy & infrastructure (15%), and technology, media, and communications (14%). The remaining respondents (8%) had selected “other”. Fifty-six of the repatriates, and 41 of the knowledge recipients occupied a leadership position (i.e., had direct reports). The repatriates in our sample were on average 41.99 years old ($SD = 7.95$), and 84% were male. On average, their last international assignment had lasted 37.59 months ($SD = 18.24$), and they had returned to their domestic work unit 23.19 months ago ($SD = 14.41$). The knowledge recipients were on average 39.32 years old ($SD = 8.57$), and 70% were male.²

4.3. Measures

In order to ensure the use of reliable and valid scales for the measurement of our constructs, we adapted items from existing scales to the repatriation context, and we verified the content validity of these items in a pre-study (please see Appendix A in Supplementary material for details). The complete list of items can be found in Appendix B in Supplementary material. All scale anchors ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Data at Time 2 was collected three to six weeks after Time 1, to alleviate concerns about common method bias.

4.3.1. RKT

RKT was measured at Time 2 with nine items and both repatriates and recipients provided data on the dependent variable. The items were adapted from existing scales (Bartol, Liu, Zeng, & Wu, 2009; Minbaeva et al., 2003). A sample item reflecting the perspective of repatriates is “I frequently share my knowledge by making helpful suggestions that benefit the knowledge recipient”, while a sample item representative of the perspective of recipients is “The repatriate frequently shares his/her knowledge by making helpful suggestions that benefit me.” Both

² In additional analyses not reported here, we tested whether demographic and status differences among repatriates and recipients (i.e., difference in position, age and gender difference) influenced RKT. None of these variables had a significant effect on RKT, nor did their inclusion alter the interpretation of our hypotheses tests. Thus, we decided to exclude these variables from our analyses.

repatriates and recipients provided data on the dependent variable, and the two perspectives were averaged. Conceptually, this approach is consistent with the dyadic perspective on knowledge transfer, and researchers have argued that aggregation should be used to generate the most complete, unbiased, and accurate perception of knowledge transfer (Reinholt, Pedersen, & Foss, 2011; Szulanski, Cappetta, & Jensen, 2004). Empirically, we checked interrater agreement between repatriates and domestic employees to justify aggregation (James, Demaree, & Wolf, 1993). The mean value of $r_{wg}^*(j) = .74$ supported aggregation (Lindell & Brandt, 1999; Lindell, Brandt, & Whitney, 1999). Cronbach's alpha was .92.

4.3.2. Repatriates' disseminative capacity

Repatriates' disseminative capacity was measured at Time 1. In line with conceptual and empirical arguments of past research (Minbaeva & Michailova, 2004; Oddou et al., 2009, 2013), we created a composite measure by multiplying repatriates' ability and motivation to reflect repatriates' disseminative capacity. Both ability and motivation of the repatriate were rated by the knowledge recipient. Repatriates' ability to transfer knowledge was measured with five items. Existing measures of ability to transfer were not suitable for this study's purpose, as they covered only a very limited content domain (e.g., Chang et al., 2012; Siemsen, Roth, & Balasubramanian, 2008) or used single-item measures to assess this complex construct (e.g., Minbaeva & Michailova, 2004). Therefore, a multi-item measure was developed based on Oddou et al. (2013). A sample item is "The repatriate is able to choose the right knowledge to share with me." Cronbach's alpha was .81. Repatriates' motivation to transfer knowledge was measured with five items that were adapted from Chang et al. (2012) to fit the repatriation context. A sample item is "The repatriate is willing to overcome difficulties to transfer his/her knowledge to me." Cronbach's alpha was .80.

4.3.3. Domestic employees' absorptive capacity

Domestic employees' absorptive capacity was measured at Time 1. Based on past research (Minbaeva et al., 2003; Minbaeva, 2007), we created a composite measure of domestic employees' absorptive capacity by multiplying their ability and motivation. Both ability and motivation of the recipient were rated by the repatriate. Recipients' ability to receive knowledge was measured with five items that were developed based on existing studies (Chang et al., 2012; Ter Wal, Criscuolo, & Salter, 2011). A sample item is "The knowledge recipient has the ability to acquire my repatriate knowledge." Cronbach's alpha was .79. Recipients' motivation to receive knowledge was measured with six items that were adapted from Minbaeva et al. (2003). A sample item is "The knowledge recipient wants to increase work unit performance by applying my repatriate knowledge." Cronbach's alpha was .86.

4.3.4. Formal opportunities for interaction

Formal opportunities were measured with a single item based on Huang et al. (2013) at Time 1. Data were provided by repatriates and recipients. The respective items were "There are effective formal opportunities (e.g., meetings) for interaction between me and the repatriate", and "There are effective formal opportunities (e.g., meetings) for interaction between me and the recipient." Studies on knowledge transfer have successfully applied single-item measures to collect data on interaction variables (e.g., Joshi, Sarker, & Sarker, 2006; Kang, Rhee, & Kang, 2010). We averaged the ratings of repatriates and recipients to obtain a more robust measure, as formal opportunities for interaction represent unambiguous facts that should be perceived similarly by both dyad members. We found empirical evidence for averaging the scores of repatriates and recipients by calculating interrater agreement ($r_{wg} = .71$).

4.3.5. Knowledge teachability

Knowledge teachability was measured at Time 1 with three items that were adapted from previous work (Srecković & Windsperger, 2013;

Zander & Kogut, 1995). A sample item is "Repatriates can easily explain the critical aspects of repatriate knowledge." In line with previous research (Kogut & Zander, 1993; Zander & Kogut, 1995), the items were recoded such that high values indicated low teachability of repatriates' knowledge (i.e., high knowledge tacitness). Both repatriates and recipients provided data on this variable. To obtain a more robust measure of teachability, we averaged the ratings of repatriates and recipients. We found empirical support for using the aggregated score of difficulty to teach knowledge in a mean $r_{wg}^*(j)$ value of .77. Cronbach's alpha was .72.

4.3.6. Number of international assignments

Repatriates and domestic employees provided data on their number of international assignments at Time 1. They were asked: "If any, how many international assignments (> 12 months) have you completed to date?" On average, repatriates had been on 1.55 international assignments³, and recipients had been on 0.80 international assignments.⁴ This amount-based measure captures the quantitative component of work-related international experiences gained during international assignments (Takeuchi & Chen, 2013).

4.4. Construct validation of measures

We subjected repatriates' disseminative capacity, domestic employees' absorptive capacity, teachability, and RKT to an overall CFA to assess the convergent and discriminant validity of this study's multi-item measures. All of the items loaded significantly on their latent variable (*t*-statistics ranging from 4.41 to 8.80), thus supporting convergent validity. To assess discriminant validity, we compared the fit of the four-factor model to a one-factor model. Although the fit of the four-factor model was not perfect ($\chi^2 = 685.50$, $df = 473$, $p < .001$, RMSEA = .07, CFI = .87), it was significantly better than the fit of the one-factor model ($\chi^2 = 1343.73$, $df = 495$, $p < .001$, RMSEA = .14, CFI = .49; $\Delta\chi^2 = 658.22$, $\Delta df = 22$, $p < .001$). The results provided support for the discriminant validity of the study's multi-item measures.

4.5. Data analysis

As we obtained data from eight different MNCs, we tested an unconstrained model to estimate Intraclass Correlation Coefficient 1 (ICC1; Bryk & Raudenbush, 1992). 14% of the variance in RKT was attributable to group membership (i.e., company). Therefore, we performed hierarchical linear modeling (HLM; Bryk & Raudenbush, 1992), to account for the non-independence of observations, even though we were not interested in company-level effects (Bliese & Hanges, 2004; Bliese, 2000; Klein & Kozlowski, 2000). Compared to non-hierarchical regression models, this approach has the advantage that it controls for the possibility of too many Type I errors based on too small standard errors, and the possibility of too many Type II errors based on at the same time based on a loss of power (Bliese & Hanges, 2004). We examined variance inflation factors to establish that multicollinearity was not an issue (Bowerman & O'Connell, 1990). Predictors were grand-mean centered prior to the analysis to aid interpretability (Aiken & West, 1991). All analyses were performed with the package *lme4* (Bates, Maechler, Bolker, & Walker, 2015) in R Version 3.2.3 (R Core Team, 2017).

5. Results

Table 1 presents the mean scores, standard deviations, and

³ 69 repatriates had been on only 1 international assignment, 17 had been on 2, 9 had been on 3, 3 had been on 4, and 3 repatriates had been on 5 international assignments.

⁴ The majority of 46 domestic employees had not been on an international assignment, while 36 had been on one assignment, 7 had been on two, 5 had been on three, and 2 domestic employees had been six international assignments.

Table 1
Descriptive Statistics: Means, Standard Deviations, and Intercorrelations of the Study's Variables.

Variable	N	M	SD	1	2	3	4	5	6
1. Repatriates' disseminative capacity	101	3.86	0.49						
2. Recipients' absorptive capacity	98	3.51	0.56	.14					
3. Formal opportunities	99	3.43	1.02	.20*	.03				
4. Teachability	100	3.08	0.53	-.27**	-.31**	.08			
5. Repatriates' number of IAs	101	1.55	0.98	-.06	-.08	.00	-.03		
6. Recipients' number of IAs:	96	0.80	1.12	.09	.10	.08	-.13	.12	
7. Repatriate knowledge transfer	101	3.65	0.44	.56***	.51***	.37***	-.32**	-.08	.14

Note. N = 101 dyads (202 individuals). IA = international assignment. *p < .05. **p < .01. ***p < .001.

Table 2
Test of Hypotheses: Regression Analysis Predicting Repatriate Knowledge Transfer.

	Model 1: Main effects			Model 2: Interaction effects		
	b	SE	t	b	SE	t
(Intercept)	3.66	0.03	124.00***	3.70	0.03	118.24***
Repatriates' disseminative capacity	0.05	0.01	6.37***	0.04	0.01	5.36***
Recipients' absorptive capacity	0.05	0.01	6.50***	0.05	0.01	5.98***
Formal opportunities	0.11	0.03	3.85***	0.14	0.03	4.59***
Teachability				-0.15	0.07	-2.21*
Repatriates' number of IAs				-0.01	0.03	-0.23
Recipients' number of IAs				0.02	0.03	0.71
Repatriates' disseminative capacity * Teachability				0.01	0.01	0.43
Recipients' absorptive capacity * Teachability				0.04	0.01	2.84**
Formal opportunities * Repatriates' number of IAs				0.06	0.04	1.57
Formal opportunities * Recipients' number of IAs				-0.06	0.03	-2.03*
-2 x log (lh)		32.99			14.65	
Δ-2 x log (lh)					18.34**	
df		94			82	

Note: Level 2 = 8 companies; Level 1 = 101 dyads (202 individuals). IA = international assignment. *p < .05. **p < .01. ***p < .001.

intercorrelations of the studied variables.

As displayed in Table 2, Hypotheses 1 to 3 were supported, as repatriates' disseminative capacity (b = .04, t(82) = 5.36, p < .001), domestic employees' absorptive capacity (b = .05, t(82) = 5.98, p < .001), and formal opportunities for interaction (b = .14, t(82) = 4.59, p < .001) were significantly related to RKT.

Hypothesis 4a stated that the effect repatriates' disseminative capacity on RKT would be stronger if teachability of knowledge is low. This interaction effect was not significant (b = .01, t(82) = 0.43, p = ns). Thus, was not supported. However, Hypothesis 4b was supported, as the influence of domestic employees' absorptive capacity on RKT was stronger if the teachability of repatriates' knowledge was low (b = .04, t(82) = 2.84, p < .01). Fig. 2 displays the stronger relationship between absorptive capacity and RKT at low levels of knowledge teachability. Both simple slopes of RKT onto absorptive capacity at low and high levels of teachability were significant (-1 SD: simple slope = .02, t(82) = 2.02, p < .05; +1 SD: simple slope = .06, t(82) = 5.00, p <

.001).

The interaction of formal opportunities and repatriates' number of international assignments was in the expected positive direction and relevant in size (b = .06, t(82) = 1.57, p = ns), but it was not significant. Thus, Hypothesis 5a was not supported. However, we found support for Hypothesis 5b, which stated that formal opportunities for interaction are less relevant for RKT if domestic employees have been on more international assignments (b = -.06, t(82) = -2.03, p < .05). The interaction plot showed that recipients with more international experience were able to compensate for the detrimental effect of low formal opportunities compared to recipients with limited international experience (Fig. 3). The simple slope of the regression of RKT onto formal opportunities was significant at low levels of recipients' international experience (-1 SD: simple slope = .21, t(82) = 4.68, p < .001), but not at high levels (+1 SD: simple slope = .07, t(82) = 1.65, p = ns).

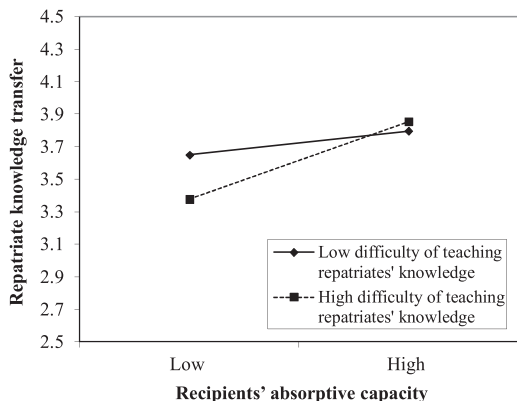


Fig. 2. Interaction Effect of Recipients' Absorptive Capacity and Teachability.

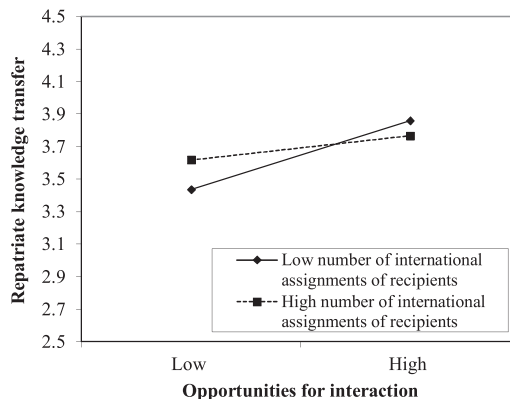


Fig. 3. Interaction Effect of Formal Opportunities for Interaction and Recipients' Number of International Assignments.

6. Discussion

With this study, we contribute to research on RKT as a reverse knowledge transfer process from foreign subsidiaries to HQ that can affect the competitiveness of MNCs. Specifically, we built on the AMO framework to jointly examine the influence of characteristics of repatriates as knowledge senders and domestic employees as knowledge recipients as well as their opportunities for interaction on RKT. Furthermore, we considered, both theoretically and empirically, the complex and distinctive nature of RKT by studying two boundary conditions, namely knowledge teachability and number of international assignments, to test the AMO framework in the context of reverse knowledge transfer processes. We found that repatriates' disseminative capacity, domestic employees' absorptive capacity, and their formal opportunities for interaction were positively associated with RKT. In addition, our findings indicated that teachability and number of international assignments moderated two of these relationships: The influence of domestic employees' absorptive capacity on RKT was stronger if repatriate knowledge was difficult to teach, and opportunities for interaction were less important for RKT if domestic employees had more international experience.

6.1. Theoretical implications

This study makes two primary contributions to the literature. First, we extend the propositions made by the AMO framework to a dyadic phenomenon that is influenced by the characteristics of two equally important actors: repatriates as knowledge senders and domestic employees as knowledge recipients. In exposing the critical role of individuals as primary actors' in RKT, our findings are aligned with the micro-foundations perspective (Minbaeva, 2013), which emphasizes the need to understand the individual-level mechanisms underpinning knowledge transfer in MNCs. Further advancing the study of individuals as knowledge transferors in MNCs, our findings emphasize that models of reverse knowledge transfer in MNCs will be incomplete if they only study one of the parties in the RKT process, given that both repatriates' disseminative capacity and domestic employees' absorptive capacity significantly contributed to RKT. To date, research has emphasized that repatriates are the drivers of the RKT process and are responsible for convincing domestic employees to acquire their repatriate knowledge (Berthoin Antal, 2001; Burmeister et al., 2015; Oddou et al., 2013; Sanchez-Vidal, Sanz-Valle, & Barba-Aragon, 2018). Our findings advocate for balancing the scale by also examining the role of domestic employees as knowledge recipients and call for an alignment of theory and empirical examination of RKT. We thus highlight the need to consider a dyadic perspective as an integral part of the micro-foundations perspective, when aiming to understand the individual-level mechanisms that enable knowledge creation in MNCs.

Second, our findings also suggest that specific knowledge characteristics and the international experience of those engaged in RKT have a role to play in RKT by acting as boundary conditions of the relationships between the AMO antecedents and RKT. With regard to the role of knowledge characteristics, our findings suggest that given that repatriate knowledge is contextually embedded, its teachability must be taken into consideration when examining RKT. Although we found no empirical support to our proposition that teachability would strengthen the effect of repatriates' disseminative capacity on RKT, our results demonstrate that the role of recipients' characteristics does change depending on the level of teachability. One potential explanation might be that repatriates, unlike recipients, are less constrained by inhibiting factors (i.e., low teachability), as they have a more realistic understanding about the nature of their knowledge prior to engaging in RKT. This finding also suggests that recipients' characteristics, and not repatriates' characteristics, increase in importance if the RKT process becomes more challenging. With regard to the role of the international experience of those engaged in RKT, our findings showed that

recipients' international experience can compensate for the inhibiting effects of limited availability of formal opportunities for interaction on RKT. This finding is particularly interesting because MNCs often lack the necessary tools and processes to extract repatriate knowledge effectively (e.g., Berthoin Antal, 2001; Oddou et al., 2009). Thus, domestic employees who have previously gained international experience themselves, might represent the most appropriate knowledge recipients for international knowledge, especially if the resources of companies to provide organizational support are limited. This finding further emphasizes the importance of the role of domestic employees during RKT, as not only their absorptive capacity, but also their international experience influences whether repatriate knowledge can be transferred. In addition, and in line with our predictions, the interaction between opportunities for interaction and repatriates' international experience was positive and relevant in size, but the effect was not significant. We assume that this non-significant finding can partly be attributed to the relatively small sample size of our study.

6.2. Limitations and future research directions

Our findings should be interpreted in light of the study's limitations. First, we asked repatriates to identify domestic employees who would then provide the perspective of knowledge recipients. This approach of identifying dyadic partners may have led to a selection bias, because repatriates might have selected domestic employees with whom they had engaged in successful rather than unsuccessful RKT. However, the effect of this limitation is mitigated by the fact that such a selection bias would entail that our study is a more conservative test of our hypotheses, due to the reduced variance and the difficulty of identifying significant effects given this limitation. Nonetheless, future research could apply social network approaches (Wasserman, Scott, & Carrington, 2005) or referrals by third parties to identify knowledge recipients.

Second, even though we collected data from multiple sources, applied a time-lag between our measurement of independent and dependent variables, and tested interaction effects, which makes it less likely that results are affected by common method bias (Chang, van Witteloostuijn, & Eden, 2010), future research should implement longitudinal or experimental research designs to further assess the robustness of our findings and to establish causality.

Third, because reliable, valid, and previously published scales that measure the variables used in this study were not available, we adapted existing measures for the study's context. Thus, our current findings need to be interpreted with care, because scale validation is best understood as a never-ending process. Although the results of our pre-test and our subsequent construct validation provide initial support for the validity of our measures, future research can engage in additional construct validation work (see, for example, Burmeister, Fasbender, & Deller, 2018). In addition, formal opportunities for interaction were captured by a single item measure, which might have limited the breadth of the construct that we were able to cover. As we were not interested in complex psychological constructs, but rather narrow and unambiguous facts, single-item measures were taken to be sufficient (Nagy, 2002; Wanous & Reichers, 1996). Nonetheless, researchers could replicate our results with more fine-grained measures of opportunities for interaction.

Our findings provide several additional points of departure for future research. First, researchers could probe deeper through which mechanisms variables of the AMO framework influence RKT. We encourage researchers to identify affective (e.g., trust), cognitive (e.g., shared global mindset), and behavioral (e.g., frequency of interaction) mediators to explain how ability, motivation, and opportunity for interaction affect knowledge transfer processes via international assignees in MNCs. To provide an example, researchers could draw from social learning theory (Bandura, 1977) to understand how opportunities for interaction may create an environment in which repatriates

can establish their credibility as a role model thereby motivating domestic employees to receive their international knowledge.⁵

Second, future research could further deepen our understanding about the effect of knowledge characteristics by examining how different types of repatriate knowledge shape the RKT process. Different repatriate knowledge typologies exist (Berthoin Antal, 2000; Fink & Meierewert, 2005), and researchers could examine to which extent different knowledge types, for example know-what (declarative knowledge) in comparison to know-who (relational knowledge), facilitate or impede RKT. Again, the perspective of domestic employees would be important here, as their view on the usefulness of different types of repatriate knowledge would likely be influential for their openness to receiving repatriate knowledge (Kogut & Mello, 2017).

Third, our study focused on RKT as a reverse knowledge transfer process in MNCs, but expatriate knowledge transfer and in-patriate knowledge transfer (e.g., Reiche, 2011; Riusala & Smale, 2007) represent related but distinct ways in which international assignees may transfer knowledge across borders within MNCs. Recent research has suggested that meaningful differences exist between expatriate and in-patriate knowledge transfer (Harzing et al., 2016), but researchers have yet to explore possible differences between repatriate, expatriate, and in-patriate knowledge transfer.⁶ As ability, motivation, and opportunity of both knowledge senders and knowledge recipients are quite likely to be relevant in other types of knowledge transfer through assignees, future research can examine whether direction and type of transfer act as a boundary condition in shaping the influence of each established predictor. For example, compared to repatriates, expatriates tend to hold positions of elevated status and power. This higher status, in turn, is associated with knowledge recipients viewing them as more credible sources of knowledge (Reiche, 2011), which may make expatriate knowledge transfer less difficult than repatriate knowledge transfer. In addition, while the direction of transfer is the same for repatriates and in-patriates (i.e., from subsidiary to HQ), repatriates need to re-adjust to their known home location while in-patriates need to adjust to their previously unknown host location. Future studies need to compare and contrast similarities and differences among different types of knowledge transfer via international assignees to generate a more nuanced understanding of the role of individuals in cross-border knowledge transfer processes in MNCs (see Harzing et al., 2016).

Lastly, future studies should also consider the influence of the organizational level when studying the role of international assignees in knowledge transfer processes in MNCs. Our analysis showed that 14% of the variance in RKT was attributable to the organizational level, while a considerable amount of variance in RKT was explained by repatriates' and domestic employees' ability and motivation. Thus, future studies should aim to collect data from both individual and organizational levels to be able to answer questions about the multilevel nature of RKT. For example, researchers could explore whether organizational-level variables, such as MNC's international strategy or culture, moderate the influence of individual-level variables on RKT. In addition, they could examine whether certain organizational practices (e.g., training and development, compensation and benefits) may influence the individual antecedents in the first place.

6.3. Managerial implications

Our findings have several managerial implications. First, to facilitate RKT, practitioners need to acknowledge the dyadic nature of RKT, and they should try to strengthen both the repatriates' disseminative capacity and the domestic employees' absorptive capacity, rather than focusing on repatriates only. MNCs can influence individuals' disseminative and absorptive capacity by providing targeted HR practices,

such as communication, training, and career development initiatives (Lazarova & Tarique, 2005; Minbaeva et al., 2003; Minbaeva, 2005; Minbaeva, Pedersen, Bjoerkman, & Fey, 2014). For example, to increase the receptiveness of domestic employees, HQ can publicize the type and value of repatriates' international knowledge using internal communication mechanisms, such as e-mail newsletters and company newspapers, and actively encourage domestic employees to reach out to repatriates. Second, our finding that formal opportunities for interaction significantly predict RKT suggests that the process must be formalized. As a first step to facilitating RKT, organizations need to create structured environments, for example presentations and workshops, where repatriates share what they have learned abroad and domestic employees can ask questions. Third, the influence of knowledge teachability on the relationship between domestic employees' absorptive capacity and RKT needs to be addressed. Upon the return of repatriates, MNCs can use knowledge debriefing sessions to assess the teachability of repatriates' knowledge. Such an understanding can then be used to provide more targeted support to domestic employees. For example, domestic employees can receive training sessions in which they learn techniques to acquire repatriate knowledge even if it is difficult to teach (e.g., shadowing, questioning techniques). Fourth, the degree of international experience of recipients needs to be taken into account when managing RKT processes. If recipients' international experience is limited, MNCs should facilitate RKT by offering awareness trainings for domestic employees about the value of repatriate knowledge.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.jwb.2018.06.004>.

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⁵ We thank an anonymous reviewer for the suggestion to consider this point.

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