

Understanding the Motivational Benefits of Knowledge Transfer for Older and Younger
Workers in Age-diverse Coworker Dyads: An Actor-Partner Interdependence Model

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Abstract

The growing age diversity in organizations in most industrialized economies provides opportunities to motivate both older and younger workers by enabling them to benefit from each other through knowledge transfer. In this study, we integrate self-determination theory with socio-emotional selectivity theory to argue that the alignment between workers' age and their roles in knowledge transfer can generate motivational benefits for them. More specifically, we argue that receiving knowledge from coworkers (i.e., *actor knowledge receiving*) is more closely aligned with younger workers' goal priorities, while having coworkers receive one's knowledge (i.e., *partner knowledge receiving*) is more closely aligned with older workers' goal priorities. We expect that these motivational benefits manifest in younger and older workers' need fulfillment at work, which can shape their subsequent intention to remain with the organization. We used an actor-partner interdependence model to test our hypotheses with time-lagged data from a sample of 173 age-diverse coworker dyads, and found support for most of our hypotheses. The age-specific motivational perspective that we adopt has implications for self-determination theory and research on knowledge transfer and mentoring.

Keywords: socio-emotional selectivity theory, self-determination theory, work motivation, employee retention, mentoring, actor-partner interdependence model

Due to demographic change, workforces are currently more age-diverse than ever before, which leads to an increased level of social interactions among employees with pronounced age differences (Finkelstein, Truxillo, Fraccaroli, & Kanfer, 2015). Interactions among employees who belong to different age groups can yield both challenges and opportunities: On the one hand, employees may experience conflict because they categorize employees from other age groups into out-group members who compete for resources (North & Fiske, 2015). On the other hand, older and younger employees can benefit from each other's non-redundant knowledge through knowledge transfer (Gerpott, Lehmann-Willenbrock, & Voelpel, 2017). Knowledge transfer is a communicative process during which at least two individuals interact such that one individual can receive and utilize the knowledge that was shared by another individual after retrieving it from memory (Grand, Braun, Kuljanin, Kozlowski, & Chao, 2016).

While the cognitive benefits of knowledge transfer, for example, with regard to problem-solving, creativity, and performance, are well documented (e.g., Gilson, Lim, Luciano, & Choi, 2013; Mesmer-Magnus & DeChurch, 2009), our understanding of consequences of knowledge transfer in age-diverse workforces is currently limited in two important ways. First, we know that older and younger workers are motivated by different aspects of their work (Fasbender, Burmeister, & Wang, in press; Mor-Barak, 1995; M. Wang, Burlacu, Truxillo, James, & Yao, 2015). Older workers tend to seek opportunities to be generative toward younger coworkers, while younger workers seek opportunities for knowledge acquisition (Henry, Zacher, & Desmette, 2015; Kooij, Lange, Jansen, Kanfer, & Dijkers, 2011). As such, neglecting these motivational differences between age-diverse employees may lead to incomplete conclusions in examining the consequences of knowledge transfer. Second, organizations can only benefit from knowledge transfer if employees are motivated to remain and exert their future efforts at their current organization (Gegenfurtner, Veermans, Festner, & Gruber, 2009; Maurer & Lippstreu, 2008). Therefore, it is important to

understand which aspects of knowledge transfer motivate age-diverse employees to remain with their organization. Taken together, we argue that taking an age-specific motivational perspective is essential to advance our understanding of the consequences of knowledge transfer.

Our focus on taking a motivational perspective to understand the effects of knowledge transfer between age-diverse employees also contributes to the mentoring literature. Mentoring involves the transfer of knowledge from more experienced workers (i.e., mentors) to less experienced workers (i.e., protégés), which can result in benefits for the protégés, such as learning and organizational commitment (Lankau & Scandura, 2002). At the same time, mentors can experience gratification and recognition from the mentoring relationship (Eby, Durley, Evans, & Ragins, 2006), which has been described as rejuvenating (Hunt & Michael, 1983). However, the mentoring literature is largely silent in offering understanding about how age differences between the mentor and protégé may shape the benefits of knowledge transfer. For example, studies examining the effects of age differences between mentors and protégés have exclusively focused on mentoring relationship formation or mentoring activities as outcomes (e.g., Allen & Eby, 2003; Feldman, Folks, & Turnley, 1999; Finkelstein et al., 2003; Ghosh, 2014; Whitely, Dougherty, & Dreher, 1992). Thus, understanding how age may shape the motivational benefits that older and younger employees derive from knowledge transfer has potential to advance the mentoring literature as well.

In the current study, we integrate self-determination theory (SDT; Deci & Ryan, 1985, 2000) with socio-emotional selectivity theory (SST; Carstensen, 1991, 2006; Carstensen, Isaacowitz, & Charles, 1999; Lang & Carstensen, 2002) to understand how different aspects of knowledge transfer elicit motivational benefits for older vs. younger workers in terms of their need fulfillment at work and their subsequent intention to remain with the organization (i.e., employees' desire to continue to work for their current organization; Armstrong-Stassen

& Ursel, 2009). In particular, we examine *actor knowledge receiving* (i.e., one receives knowledge from an age-diverse coworker) and *partner knowledge receiving* (i.e., an age-diverse coworker receives one's knowledge) as distinguished age-specific avenues through which younger vs. older coworkers fulfill their basic needs (i.e., autonomy, competence, and relatedness), which, in turn, increase their intention to remain.

With our study, we aim to make three main contributions. First, we integrate SDT with SST to conceptualize actor and partner knowledge receiving as different avenues through which younger and older employees realize motivational benefits in interactions with age-diverse coworkers. Using SST, we provide nuance to SDT by addressing the previously untested claim in SDT that the universality of the three basic needs does not mean that "their avenues for satisfaction are unchanged across the life span" (Ryan & Deci, 2000, p. 75). We provide an age-specific substantiation of this idea by theorizing that younger employees experience *actor* knowledge receiving as motivating, while older employees perceive *partner* knowledge receiving as motivating. Second, we examine outcomes rather than antecedents and motivational rather than cognitive benefits of knowledge transfer to advance research in this domain. Our perspective thus complements the current understanding of this dyadic process which mainly focused on how knowledge transfer could be facilitated (e.g., Argote, McEvily, & Reagans, 2003; S. Wang & Noe, 2010) and the cognitive benefits of knowledge transfer (Mesmer-Magnus & DeChurch, 2009; Van Wijk, Jansen, & Lyles, 2008). Third, we contribute to the literature on employee retention and mentoring by focusing on knowledge transfer as an important driver of intention to remain with the organization. Intention to remain is an important outcome in age-diverse workforces, as organizations tend to be concerned about older workers' desire to retire and younger workers' frequent job changes (Biemann, Zacher, & Feldman, 2012; M. Wang & Wanberg, 2017; Wöhrmann, Fasbender, & Deller, 2017). Further, knowledge transfer represents a specific component of mentoring relationships and understanding how knowledge transfer leads older and younger employees

to connect more closely to their organizations can advance the limited insights on the role of age in mentoring.

An Age-Specific Perspective on the Motivational Benefits of Knowledge Receiving

Both SDT and SST are theories of motivation that enable us to explain why employees experience certain actions as motivating. SDT as a general theory of human motivation proposes that humans have three basic psychological needs—autonomy, competence, and relatedness (Deci & Ryan, 1985, 2000). Autonomy needs at work refers to the desire to feel a sense of volition and psychological freedom when interacting with the work environment. Competence needs at work describes workers' desire to feel effective in interacting with the work environment. Relatedness needs at work represents the desire of workers to feel connected to others at work and have close relationships. Importantly, SDT suggests that the three basic psychological needs are universal and essential for psychosocial functioning (Deci et al., 2001; Deci & Ryan, 1985; Gagné & Deci, 2005). Supporting the universality argument, positive effects of autonomy, competence, and relatedness needs fulfillment on employee work engagement, well-being, and performance have been reported across studies (Baard, Deci, & Ryan, 2004; Deci et al., 2001; van den Broeck, Ferris, Chang, & Rosen, 2016).

SST as a life span development theory of motivation (Carstensen, 1991; Carstensen et al., 1999; Carstensen, 2006; Lang & Carstensen, 2002) proposes that younger individuals typically view time as open-ended, while older individuals perceive time as constrained, which subsequently affects their goal priorities (Fasbender et al., in press; M. Wang, Burlacu et al., 2015). Accordingly, younger individuals tend to prioritize instrumental or knowledge-related goals, enacted for example through accumulating knowledge. In line with these theoretical premises of SST, meta-analytical evidence showed that younger workers reported higher growth-related motives (i.e., to which extent one values opportunities for advancement and learning at work; Kooij et al., 2011) than older workers. To contrast, older individuals

focus on goals to gain positive socio-emotional experiences, enacted for example through generativity striving (Lang & Carstensen, 2002). Generativity refers to helping and establishing the next generation through, for example, passing on one's knowledge (Erikson, 1963; McAdams & Logan, 2004). Supporting this theoretical expectation based on SST, research showed that older workers are motivated by jobs that allow them to support future generations (Mor-Barak, 1995; van den Oetelaar, 2011).

The integration of SDT and SST enables us to advance an age-specific perspective on the motivational benefits of knowledge receiving that manifest via the fulfillment of the three basic psychological needs. More specifically, SST allows us to theorize why older and younger workers might experience different actions as self-determined and need fulfilling (Ryan & Deci, 2000). We theorize that younger employees experience *actor* knowledge receiving as motivating based on their knowledge-related goal priorities, while older employees perceive *partner* knowledge receiving as motivating based on their socio-emotional and generative goal priorities (Lang & Carstensen, 2002). Our arguments about the different need fulfillment benefits that younger vs. older employees derive from actor vs. partner knowledge receiving are thus based on the match between age-specific goal priorities and one's role during knowledge transfer. As such, we use SST to conceptualize actor and partner knowledge receiving as distinguished age-specific avenues through which younger and older employees realize motivational benefits as specified in SDT via interactions with age-diverse coworkers. Our conceptual model is depicted in Figure 1.

*** Please insert Figure 1 about here ***

Hypotheses Development

Knowledge Receiving and Need Fulfillment at Work for Younger and Older Workers

With regard to *actor* knowledge receiving, we hypothesize that its motivational benefits are more likely to manifest among younger workers. First, we expect a positive relation between actor knowledge receiving and autonomy need fulfillment for younger

workers because they are likely to view the acquisition of knowledge as a way to exercise volition and experience a sense of agency in responding to work-related demands. Previous research has shown that younger workers with relatively limited work experience tend to internalize their role as knowledge recipients (Burmeister, Fasbender, & Deller, 2018) and are motivated to accumulate knowledge to be able to gain more autonomy in their work environment (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012; van den Oetelaar, 2011). Receiving valuable knowledge from older coworkers might therefore be a welcome opportunity for younger workers to enlarge their repertoire in responding to work-related demands, thereby facilitating their psychological freedom.

Second, younger workers are likely to perceive knowledge receiving as a means to fulfill their needs for competence based on their focus on knowledge-related goals (Carstensen et al., 1999). Accordingly, younger workers ought to feel more effective and competent in interacting with the work environment as a result of receiving knowledge from their older coworkers (Canning, 2011; van den Oetelaar, 2011; Warr, 2001). This should especially be the case, as older workers often possess not only useful task-specific knowledge, but also valuable organization-specific knowledge, including knowledge about social networks and the political landscape in the workplace (Gerpott et al., 2017; M. Wang, Kammeyer-Mueller, Liu, & Li, 2015). This knowledge can be critical for younger workers to enlarge their knowledge reservoir and engage more competently with their work environment.

Third, we expect that younger workers feel more connected due to knowledge receiving. Research showed that younger workers are motivated to develop social relationships at work when these have the potential to yield instrumental benefits, such as knowledge access (Inceoglu, Segers, & Bartram, 2012; Truxillo, Cadiz, & Rineer, 2017). As receiving valuable knowledge from older coworkers provides younger workers with the opportunity to grow their knowledge reservoir, younger workers should be more likely to

engage in social interactions with older coworkers. This ought to create more opportunities for younger workers to deepen their social relationships with older coworkers and facilitate feelings of relatedness at work (Beal, Cohen, Burke, & McLendon, 2003).

Hypothesis 1: For younger workers, actor knowledge receiving is positively associated with their (a) autonomy, (b) competence, and (c) relatedness need fulfillment at work.

With regard to *partner* knowledge receiving, we hypothesize that older workers are more likely to experience need fulfillment when their age-diverse coworkers receive knowledge from them. First, we expect a positive relation between partner knowledge receiving and autonomy need fulfillment for older workers, because older workers are likely to perceive providing knowledge as an opportunity to exercise volition in acting on their goals to be generative toward others (Carstensen et al., 1999; Erikson, 1963; Lang & Carstensen, 2002; McAdams & St. Aubin, 1992). Research has shown that older workers actively craft their jobs in ways that allows them to share their knowledge with younger coworkers (van den Oetelaar, 2011). Accordingly, having the opportunity to enable younger coworkers to receive their knowledge should facilitate older workers' experience of agency and psychological freedom, as knowledge providing is a discretionary behavior and enacts autonomy at work (Bartol, Liu, Zeng, & Wu, 2009; Cabrera, Collins, & Salgado, 2006).

Second, older workers are likely to perceive partner knowledge receiving as a means to fulfill their needs for competence based on achieving their goal to be generative toward others (Erikson, 1963; McAdams & St. Aubin, 1992; Mor-Barak, 1995). In particular, older workers tend to feel competent and satisfied at work when they have opportunities to utilize their existing knowledge and skills (Canning, 2011; Warr, 2001). Enabling younger coworkers to benefit from their knowledge can be viewed as one way to utilize their knowledge, thus contributing to older worker competence need fulfillment. In addition, recent research suggests that older workers perceive themselves as the "go-to" person for knowledge

and expertise based on their generativity motives (Burmeister, Fasbender et al., 2018). Accordingly, knowledge reception by younger coworkers should be especially rewarding because it verifies older workers' self-image of being valuable knowledge providers.

Third, we expect a positive relation between partner knowledge receiving and relatedness need fulfillment at work for older workers, because the process of partner knowledge receiving may create an opportunity for older workers to deepen their social connection with their younger coworkers, which aligns well with their focus on gaining positive socio-emotional experiences (Carstensen et al., 1999; Erikson, 1963; McAdams & St. Aubin, 1992). In particular, to successfully transfer knowledge, both knowledge providers and recipients need to engage in high-quality communication and commit to a shared goal (Burmeister et al., 2015; Grand et al., 2016; Kwan & Cheung, 2006), both of which are likely to enhance the socio-emotional experience and contribute to a sense of relatedness for older workers. Indeed, previous research has shown that being generative is one important means for older workers to strengthen their existing social ties and experience relatedness (Truxillo et al., 2017).

Hypothesis 2: For older workers, partner knowledge receiving is positively associated with their (a) autonomy, (b) competence, and (c) relatedness need fulfillment at work.

Knowledge Receiving and Intention to Remain for Younger and Older Workers

In line with existing research on the positive effects of need fulfillment at work, we expect autonomy, competence, and relatedness need fulfillment at work to facilitate both older and younger coworkers' intention to remain with the organization. Autonomy, competence, and relatedness need fulfillment at work signal to workers that working for their current organization enables them to achieve personal growth and well-being (van den Broeck et al., 2016), thus positively affecting their intention to remain with the organization (Armstrong-Stassen & Schlosser, 2011; Gagné & Deci, 2005). Based on our theorizing about the different motivational benefits that older and younger coworkers derive from actor vs.

partner knowledge receiving, and the expected association between need fulfillment at work and intention to remain, we derive mediation hypotheses to link actor vs. partner knowledge receiving to intention to remain.

Hypothesis 3: For younger workers, actor knowledge receiving is positively associated with their intention to remain via their (a) autonomy, (b) competence, and (c) relatedness need fulfillment at work.

Hypothesis 4: For older workers, partner knowledge receiving is positively associated with their intention to remain via their (a) autonomy, (b) competence, and (c) relatedness need fulfillment at work.

Method

Sample and Procedure

Our sample consisted of age-diverse coworker dyads who were employed in the German-speaking region of Switzerland. Master students in psychology at a university in the German-speaking region of Switzerland used their social networks to recruit age-diverse coworker dyads that were co-located, had at least one face-to-face contact per week, and had an age difference of at least 10 years (the younger coworker in each dyad could not be older than 35 years in age, while the older coworker could not be younger than 45 years in age). The data presented in this article were part of a broader data collection effort on interactions between age-diverse coworkers, and this is the first publication from this dataset. In conducting this research, we followed APA's ethics code, and the study received ethics approval from the ethics commission of the psychology institute at the University of Bern (no. 2014-10-1051882). The 180 dyads that signed up voluntarily for this study together with their respective partner received an email including a link to the online questionnaires. In total, 173 dyads provided data, resulting in an effective response rate of 96 percent. To alleviate common method bias, we measured knowledge receiving at Time 1, and need

fulfillment at work and intention to remain with the organization at Time 2, with a time-lag of four weeks in-between.

The average age difference between dyad members was 26.60 years ($SD = 6.42$, Min. = 12, Max. = 42). Of the younger workers, 60 percent were female, they were on average 28.12 years old ($SD = 4.18$), and they had an average organizational tenure of 3.78 years ($SD = 3.49$). Of the older workers, 51 percent were female, they were on average 54.73 years old ($SD = 5.89$), and they had an average organizational tenure of 16.21 years ($SD = 11.82$). The age-diverse coworker dyads worked in diverse industries.

Measures

Younger and older coworkers provided self-ratings on all study variables. We used the translation-back-translation procedure to translate the English items into German. If not indicated otherwise, all measures used a 7-point response scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Knowledge receiving. We measured knowledge receiving with the 4-item scale from Wilkesmann, Wilkesmann, and Virgillito (2009). A sample item is “I learn a lot by asking my colleague.” Cronbach’s alphas were .86 (younger coworkers) and .87 (older coworkers).

Need fulfillment at work. We measured autonomy, competence, and relatedness need fulfillment at work each with the 4-item scales from Chiniara and Bentein (2016) on a scale ranging from 1 (*very dissatisfied*) to 7 (*very satisfied*). Sample items were “The degree of freedom I have to do my job the way I think it can be done best”; “The feeling of being competent at doing my job”; “The positive social interactions I have at work with other people.” Cronbach’s alpha values ranged between .78 and .90.

Intention to remain. We measured intention to remain using the 3-item scale by Armstrong-Stassen and Ursel (2009). A sample item is “I expect to continue working as long as possible in this organization.” Cronbach’s alphas were .92 (younger coworkers) and .95 (older coworkers).

Control variables. First, we controlled for organizational tenure (in years) of participants because research showed that workers with longer tenure tend to be more attached and loyal to their organizations (Cohen, 1993; Mathieu & Zajac, 1990). Second, we controlled for (a) perception of partner as mentor (i.e., “To which extent do you perceive your colleague as a mentor?”; 1 = to a very limited extent, 7 = to a very large extent), (b) dyad gender difference (i.e., 0 = no gender difference in dyad members, 1 = gender difference in dyad members), and (c) dyad tenure (i.e., “How many years have you known your colleague for?”), as these variables reflect the social relationship between older and younger coworkers and might affect the outcomes of their knowledge transfer interaction (Burmeister, van der Heijden, Yang, & Deller, 2018).

Analytic Strategy

We used the actor-partner interdependence model (APIM; Kashy & Kenny, 2000; Kenny, 1996; Kenny, Mannetti, Pierro, Livi, & Kashy, 2002) to test our hypotheses. The APIM acknowledges the non-independence of individuals nested within dyads and can be used to simultaneously model both actor and partner effects (Bakker & Xanthopoulou, 2009; Hahn, Binnewies, & Dormann, 2014; Hahn & Dormann, 2013; Halbesleben & Wheeler, 2015).¹

To estimate the APIM, we followed the structural equation modeling (SEM) framework using path analysis (Garcia, Kenny, & Ledermann, 2014). We tested all our hypotheses in the same path analytic model. To account for the non-independence of dyad members, we specified dyadic covariances for the independent variable (i.e., knowledge receiving) and for the error terms of mediators (i.e., need fulfillment at work) and the dependent variable (i.e., intention to remain; Ledermann, Macho, & Kenny, 2011). To test the significance of the indirect effects specified in Hypotheses 3 and 4, we used Monte Carlo bootstrapping method to create 95 percent confidence intervals (CI) around the point estimates of the indirect effects to account for possible deviations from normality of

parameter estimates (Preacher & Hayes, 2008). Data analyses were performed with the package *lavaan* in R version 3.5.3 (R Core Team, 2017).

Results

Table 1 displays the means, standard deviations, and intercorrelations of the studied variables. To establish the empirical distinguishability of our multi-item measures, we ran confirmatory factor analyses (CFA). We compared our ten-factor model (younger workers' knowledge receiving, autonomy need fulfillment at work, competence need fulfillment at work, relatedness need fulfillment at work, intention to remain, and older workers' knowledge receiving, autonomy need fulfillment at work, competence need fulfillment at work, relatedness need fulfillment at work, intention to remain) to a six-factor model (younger workers' knowledge receiving, need fulfillment at work, and intention to remain, and older workers' knowledge receiving, need fulfillment at work, and intention to remain). The ten-factor model ($\chi^2 = 919.99$, $df = 620$, $p < .01$, CFI = .91, RMSEA = .06, SRMR = .07), in which autonomy, competence, and relatedness need fulfillment at work were modeled as separate factors, fit the data significantly better than the six-factor model ($\chi^2 = 1350.66$, $df = 650$, $p < .01$, CFI = .79, RMSEA = .09, SRMR = .09; $\Delta\chi^2 = 430.67$, $\Delta df = 30$, $p < .001$).²

Hypotheses Tests

As can be seen in Table 2 and Figure 2, Hypothesis 1a, 1b, and 1c were supported as actor knowledge receiving was positively associated with younger workers' autonomy need fulfillment ($\gamma = 0.21$, $SE = 0.11$, $p = .048$), younger workers' competence need fulfillment ($\gamma = 0.21$, $SE = 0.10$, $p = .034$) and younger workers' relatedness need fulfillment ($\gamma = 0.30$, $SE = 0.12$, $p = .010$). To further substantiate these findings, we compared our hypothesized model in which the actor effects differed for older and younger workers, with a constrained model in which the actor effects were set to be equal for older and younger coworkers. Supporting our hypotheses, we found that our hypothesized model fit significantly better than the constrained model ($\Delta\chi^2 (3) = 8.01$, $p = .046$).

We also found support for Hypotheses 2a, 2b, and 2c as partner knowledge receiving was positively associated with older workers' autonomy need fulfillment ($\gamma = 0.30$, $SE = 0.09$, $p = .001$), older workers' competence need fulfillment ($\gamma = 0.25$, $SE = 0.07$, $p < .001$), older workers' relatedness need fulfillment ($\gamma = 0.19$, $SE = 0.09$, $p = .031$). To further substantiate these findings, we compared our hypothesized model in which the partner effects differed for older and younger workers, with a constrained model in which the partner effects were set to be equal for older and younger coworkers. Supporting our hypotheses, we found that our hypothesized model fit significantly better than the constrained model ($\Delta\chi^2(3) = 9.43$, $p = .024$).³

To test Hypothesis 3, we examined the indirect effects of actor knowledge receiving on younger workers' intention to remain via younger workers' (a) autonomy, (b) competence, and (c) relatedness need fulfillment at work. The estimated mediating effect through autonomy need fulfillment was 0.14 (95% CI [.002, 0.314]), thus supporting Hypothesis 3a. We did not find support for Hypothesis 3b, as the 95 percent CI [-.043, .122] of the indirect effect through competence need fulfillment included zero. However, Hypothesis 3c was supported as the estimated mediating effect through relatedness need fulfillment was 0.07 (95% CI [0.003, 0.178]).

Finally, we tested Hypothesis 4. The estimated mediating effect of partner knowledge receiving through autonomy need fulfillment was 0.12 (95% CI [.019, .264]), providing support for Hypothesis 4a. Hypothesis 4b was not supported because the 95 percent CI [-.045, .158] of the indirect effect via competence need fulfillment included zero. However, the estimated mediating effect through relatedness need fulfillment at work was 0.07 (95% CI [.001, .152]), thus providing support for Hypothesis 4c.

Discussion

In this study, we aimed to decipher the different avenues through which older and younger employees generated motivational benefits from knowledge transfer. We found that

the alignment between employee age and roles in knowledge transfer elicited motivational effects: Actor knowledge receiving generated motivational benefits for younger employees, while partner knowledge receiving generated motivational benefits for older employees.

Theoretical and Practical Implications

The results of our study have three main theoretical implications. First, our integration of SDT (Deci & Ryan, 1985) with SST (e.g., Carstensen, 2006) advances the understanding of different antecedents of need fulfillment at work from a life span perspective. We move beyond the insights that contextual characteristics, such as autonomy and competence support, are beneficial for need fulfillment (Gagné, 2003; La Guardia & Patrick, 2008) and demonstrate that engagement in knowledge transfer as a specific work behavior can be need fulfilling. Importantly, we further advance insights on antecedents of need fulfillment by substantiating the claim that the avenues through which individuals fulfill their needs change across the life span (Ryan & Deci, 2000). To date, we only knew that cross-cultural differences might affect the need fulfillment process (Deci et al., 2001). By showing that younger workers find actor knowledge receiving more need fulfilling and motivating, while older workers find partner knowledge receiving more need fulfilling and motivating, we provide novel insights into the extent to which age as an individual difference variable shapes the avenues for need fulfillment.

Second, we advance research on knowledge transfer by suggesting that motivation is not only an important predictor of knowledge transfer but can also be an outcome. To date, researchers have focused on understanding motivation as one of the primary predictors of knowledge transfer (Chen, Chang, & Liu, 2012; Quigley, Tesluk, Locke, & Bartol, 2007; Siemsen, Roth, & Balasubramanian, 2008). Going beyond this research, our study points to the theoretical plausibility that employee motivation may also be an outcome of knowledge transfer. By adopting a motivational perspective, we also expanded the current focus on an information-processing perspective to understand the cognitive benefits of knowledge

transfer (Marlow, Lacerenza, Paoletti, Burke, & Salas, 2018; Mesmer-Magnus & DeChurch, 2009; Okhuysen & Eisenhardt, 2002; Srivastava, Bartol, & Locke, 2006). Our findings suggest that knowledge transfer may fulfill psychological needs of age-diverse workers, such that our understanding of knowledge transfer may be incomplete when only focusing on its cognitive benefits.

Third, we also contribute to the mentoring literature by deciphering how the involvement in knowledge transfer, as a specific component of mentoring, can facilitate motivational benefits for older and younger employees. As knowledge reception and learning was traditionally assumed to be a natural outcome of mentoring (Lankau & Scandura, 2007), the mentoring literature did not elaborate on the different aspects of knowledge transfer. In addition, research on the role of age in mentoring relationships has been scarce (Finkelstein, Allen, & Rhoton, 2003; Ghosh, 2014), and how life span-related differences in goal priorities might shape mentoring and its outcomes had yet to be considered. With our findings, we inform the mentoring literature by providing an age-sensitive view on the influence of knowledge transfer on motivational benefits for both older and younger employees.

In addition, our findings have relevant implications for practitioners. First, being involved in knowledge transfer with age-diverse coworkers seems to contribute to the retention of both older and younger workers. Managers should therefore facilitate knowledge transfer between age-diverse coworkers by creating opportunities for interaction. Specifically, managers can establish training formats during which older and younger workers learn jointly, thereby benefiting from each other's non-redundant knowledge (Gerpott et al., 2017). Second, as meaningful differences seem to exist between older and younger workers with regard to whether actor or partner knowledge receiving elicits the most pronounced motivational benefits, managers can use this insight to assign workers to age-specific roles during knowledge transfer and mentoring to facilitate their retention. For example, older and younger workers who have been identified as key talents and knowledge

holders and who might be at risk of leaving the organization, can be brought together in age-diverse learning tandems.

Limitations and Future Research Directions

Our findings need to be interpreted in light of the study's limitations. First, we only included knowledge receiving but not knowledge sharing to operationalize knowledge transfer. We measured knowledge receiving rather than knowledge sharing because knowledge receiving is a more valid indicator of the successful completion of the knowledge transfer process (Cabrera et al., 2006; Wilkesmann et al., 2009). Nonetheless, future research could advance our study by collecting data on knowledge sharing and receiving and by testing whether these two elements of the knowledge transfer process elicit complementary effects.

Second, the strategy that we used for sampling might limit the generalizability of our findings. In particular, student-generated samples tend to produce smaller effect sizes compared to other convenience samples (Wheeler, Shanine, Leon, & Whitman, 2014), which implies that the reported effect sizes might have been underestimated. In addition, we cannot rule out the possibility that self-selection bias might have affected our results. However, the reduced variance associated with a possible selection bias would mean that our study represents a more conservative test of our hypotheses due to the potential range restriction of variable values. Future research may alleviate these concerns by employing different sampling strategies, for example, by randomly selecting two age-diverse coworkers from the same work unit.

Third, even though we used a time-lagged design, our results do not allow us to make causal statements about the relations between knowledge receiving, need fulfillment at work, and intention to remain. Future research should employ experimental designs in which knowledge transfer is manipulated (see for example Černe, Nerstad, Dysvik, & Škerlavaj,

2014), and subsequent effects on need fulfillment at work and intention to remain are examined, to verify the causality argued for in this study.

Fourth, our insights into the effects of motivational benefits of knowledge transfer in interactions of age-diverse coworkers need to be replicated. For example, the indirect effects via competence need fulfillment were non-significant in our study. Future research needs to replicate our results to verify the extent to which all three basic psychological needs explain the motivational benefits derived from knowledge transfer. We hope that our findings encourage researchers to further explore the ways in which interactions among age-diverse coworkers influence work-related outcomes.

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Footnotes

¹In the APIM framework, each variable (e.g., knowledge receiving) can elicit two type of effects: An *actor effect* represents the effect of person's X variable on that person's Y variable (e.g., younger workers' knowledge receiving on younger workers' need fulfillment at work), while a *partner effect* represents the effect of a partner's X variable on the person's Y variable (e.g., older workers' knowledge receiving on younger workers' need fulfillment at work). In this study, this means that the variable knowledge receiving, assessed from both younger and older dyad members, elicits four different effects on need fulfillment at work (i.e., two actor effects: younger workers' actor knowledge receiving on younger worker's need fulfillment, older workers' actor knowledge receiving on older worker's need fulfillment; and two partner effects: younger workers' partner knowledge receiving on older worker's need fulfillment, and older workers' partner knowledge receiving on younger worker's need fulfillment).

²We also tested the measurement invariance of our measure across younger and older coworkers by comparing two CFA models. The first CFA model (i.e., the unconstrained model) allowed the factor loadings to differ for older and younger coworkers when specifying the ten-factor model. The second CFA model (i.e., the constrained model) fixed the factor loadings to be equal across older and younger workers when specifying the same model. The model fit for both the unconstrained model ($\chi^2 = 919.99$, $df = 620$, $p < .01$, CFI = .91, RMSEA = .06, SRMR = .07) and the constrained model ($\chi^2 = 932.97$, $df = 634$, $p < .01$, CFI = .91, RMSEA = .06, SRMR = .07) was satisfactory. The chi-square difference test demonstrated that the unconstrained model did not fit the data significantly better than the constrained model ($\Delta\chi^2 = 12.98$, $\Delta df = 14$, $p = .528$), thus providing evidence of measurement invariance between older and younger coworkers in age-diverse coworker dyads.

³We thank an anonymous reviewer for highlighting the need to further examine the influence of gender, dyadic gender difference, and dyad tenure. In particular, we encourage future research to examine how gender, dyadic gender difference, and dyad tenure, as important individual and dyadic characteristics, may shape the effects of knowledge transfer. First, in a supplemental analysis, we tested gender as a first-stage moderator and found that older female actors derived less motivational benefits from partner knowledge receiving. Second, as our Table 2 suggests, dyadic gender difference had sizeable effects on older workers' competence need fulfillment and their intention to remain. Third, while dyad tenure did not moderate the links between knowledge receiving and need fulfillment in another supplemental analysis, dyad tenure might moderate knowledge transfer's effects on other potential outcomes. It is important to note that the hypothesized actor and partner effects of knowledge receiving stayed robust regardless of whether or not controlling for gender, dyadic gender difference, and dyad tenure, or the additional interaction effects mentioned above.

Table 1

Means, Standard Deviations, and Intercorrelations of the Studied Variables

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Y Organizational tenure	3.78	3.49																
2. O Organizational tenure	16.21	11.82	.26**															
3. Y Partner as mentor	4.52	1.61	-.16*	.02														
4. O Partner as mentor	2.93	1.44	.01	-.06	-.04													
5. Dyad gender difference ^a	0.27	0.45	-.07	.01	-.01	.01												
6. Dyad tenure	4.15	5.32	.51**	.15	-.03	.05	-.10											
7. Y Knowledge receiving	5.49	1.13	-.18*	-.05	.54**	.01	-.01	-.08	(.86)									
8. O Knowledge receiving	4.81	1.20	.14	-.04	.17*	.27**	-.07	.11	.29**	(.87)								
9. Y Autonomy NF	5.29	1.12	.02	.07	.09	.17*	-.09	.11	.12	.05	(.88)							
10. O Autonomy NF	5.40	0.99	-.02	.05	.24**	-.05	-.08	.14	.32**	.14	.12	(.90)						
11. Y Competence NF	5.25	0.87	.05	.00	.09	.03	-.10	.11	.17*	.02	.62**	.07	(.83)					
12. O Competence NF	5.48	0.78	.02	.06	.18*	-.05	-.10	.07	.31**	.03	.12	.60**	.15	(.86)				
13. Y Relatedness NF	5.08	1.20	.11	.06	.15	.08	-.13	.03	.25**	.07	.33**	-.07	.37**	.04	(.85)			
14. O Relatedness NF	5.15	0.87	.03	.05	.09	.13	-.05	.11	.21**	.16	.06	.40**	.15	.41**	.10	(.78)		
15. Y Intention to remain	4.46	1.55	.06	.14	.14	.04	-.16*	.16*	.09	-.07	.55**	-.04	.40**	.13	.42**	.10	(.92)	
16. O Intention to remain	5.30	1.49	.04	.22**	.09	.04	.05	.18*	.05	.00	-.02	.40**	-.08	.36**	.03	.37**	.14	(.95)

Note. $N = 173$ dyads (346 individuals). Y = younger dyad member, O = older dyad member; NF = need fulfillment. ^a0 = “no dyadic gender difference”, 1 = “dyadic gender difference”. Cronbach’s alpha displayed on diagonal in brackets. * $p < .05$, ** $p < .01$.

Table 2

Hypotheses Tests Using Path Analysis to Estimate the Actor-Partner Interdependence Model

	Autonomy need fulfillment at work		Competence need fulfillment at work		Relatedness need fulfillment at work		Intention to remain	
	<i>Estimate</i>	<i>SE</i>	<i>Estimate</i>	<i>SE</i>	<i>Estimate</i>	<i>SE</i>	<i>Estimate</i>	<i>SE</i>
<u>Younger coworkers</u>								
Intercept	-.06	.10	-.02	.08	.05	.10	4.53**	.11
Organizational tenure	-.03	.04	.003	.03	.02	.04	.03	.03
Perception of partner as mentor	.09	.06	-.01	.06	.07	.07	.08	.07
Dyad gender difference	-.18	.21	-.13	.18	-.48	.26	-.30	.23
Dyad tenure	.06	.03	.04	.03	.05	.02	.02	.02
Actor knowledge receiving	.21*	.11	.21*	.10	.30*	.12	.01	.11
Partner knowledge receiving	.04	.07	-.03	.07	-.03	.08	-.20*	.09
Autonomy need fulfillment at work							.68**	.16
Competence need fulfillment at work							.13	.17
Relatedness need fulfillment at work							.25*	.11
R^2	.10		.10		.15		.42	
<u>Older coworkers</u>								
Intercept	-.001	.09	-.01	.07	-.08	.09	5.27**	.12
Organizational tenure	-.001	.01	.001	.01	-.003	.01	.02*	.01
Perception of partner as mentor	-.07	.06	-.02	.04	.09	.06	.07	.08
Dyad gender difference	-.13	.18	-.31*	.15	-.08	.17	.60**	.23
Dyad tenure	.01	.01	.02	.01	.01	.02	.01	.03
Actor knowledge receiving	.08	.07	-.06	.05	.02	.07	-.07	.12
Partner knowledge receiving	.30**	.09	.25**	.07	.19*	.09	-.15	.14
Autonomy need fulfillment at work							.40*	.16
Competence need fulfillment at work							.20	.19
Relatedness need fulfillment at work							.34*	.14
R^2	.15		.15		.08		.27	

Note. $N = 173$ dyads (346 individuals). * $p < .05$, ** $p < .01$.

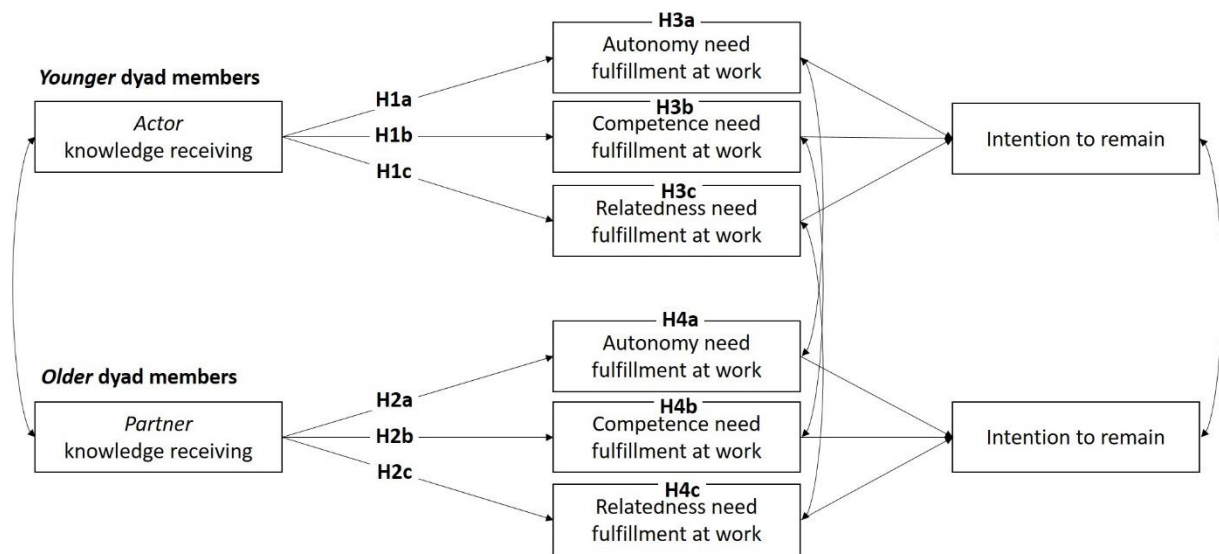


Figure 1. Conceptual Model

Notes. H = hypothesis. Double-headed arrows represent the modeling of dyadic non-independence in APIM. The following control variables were included but not displayed here to ease readability: organizational tenure, perception of partner as mentor, dyad gender difference, and dyad tenure.

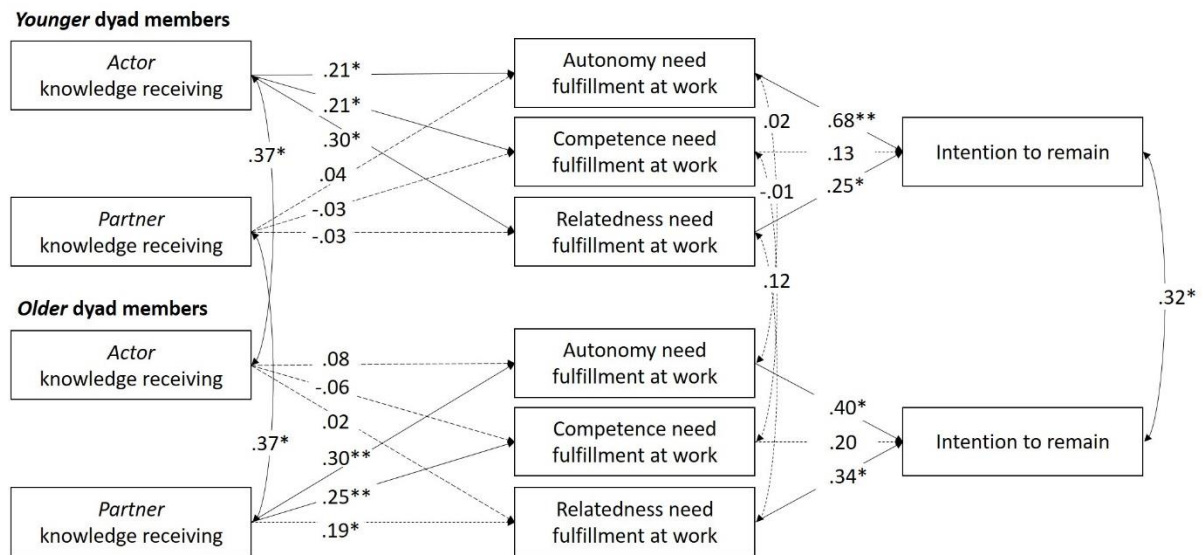


Figure 2. Coefficient Estimates of Actor-Partner Interdependence Model

Notes. Unstandardized coefficients are presented. The following control variables were included but not displayed here to ease readability: organizational tenure, perception of partner as mentor, dyad gender difference, and dyad tenure. Double-headed arrows represent the modeling of dyadic non-independence in APIM in the forms of covariances (for independent variables) or error covariances (for mediators and dependent variables). Dashed lines represent non-significant effects. * $p < .05$, ** $p < .01$.