Harnessing the Potential of Older Workers through Relationships at Work: Social Support, Feedback, and Performance

Abstract

With the aging of the global workforce, it is crucial to deepen our understanding of how to keep older workers healthy, motivated, and productive. In this research, we integrate job design with socioemotional selectivity theory to propose that social job characteristics relate to employee performance differently for older and younger workers. Specifically, in a three-wave survey (*N*=454), we tested employee age as a moderator of the relationships between *receiving* social support and feedback at work, and performance, as well as *giving* social support and feedback at work, and performance. The results showed that, in general, both receiving and giving social support and feedback are associated more strongly with the performance of older than younger workers. The findings provide important theoretical implications for the study of aging and work; they also offer practical applications for creating workplaces in which older workers can reap the benefits of social relationships to remain productive.

Keywords: aging workforce, job design, social support, feedback, performance.

Greater longevity and lower birth rates are causing the population to age worldwide with workers aged 55 or more becoming the fastest growing workforce segment (United Nations, 2019; U.S. Bureau of Labor Statistics, 2013). At the same time, fewer younger workers are entering the job market, and the potential workforce is expected to shrink by 10 percent between 2020 and 2050 (OECD, 2005), leading to severe labor shortages (World Economic Forum, 2011). These changes in the workforce composition pose challenges to human resource managers who need to ensure that older workers remain healthy, motivated, and productive across longer career spans. Age-related human resource management practices, including job redesign, have been proposed as a means to better manage the aging workforce and discourage retirement-related turnover (Armstrong-Stassen, 2008; Dychtwald, Erickson, & Morison, 2006). However, redesigning jobs to retain and motivate older workers requires an understanding of how their needs and expectations differ from those of their younger counterparts.

Research on job design applied to the aging workforce has focused mostly on task and knowledge characteristics of the job, such as skill variety, autonomy, or job complexity (Ng & Feldman, 2015; Zacher & Frese, 2009; Zaniboni, Truxillo, & Fraccaroli, 2013). Less attention has been paid to how older workers are affected by *social job characteristics*, such as interdependence, feedback, or social support (Morgeson & Humphrey, 2006). This is especially surprising given findings from socioemotional selectivity theory (SST; Carstensen, Isaacowitz, & Charles, 1999), which show the importance of close social relationships for older individuals in particular.

In the current research, we use SST as a theoretical framework to propose that two social job characteristics – social support and feedback – are differently associated with the performance of older versus younger workers. While social support refers to the assistance and

advice individuals receive on the job (Karasek et al., 1998), feedback from others refers to information that individuals receive regarding their performance at work (Morgeson & Humphrey, 2006). Unlike prior research investigating age differences resulting from the "receiving side" of social support and feedback (Bouville, Dello Russo, & Truxillo, 2018; Wang, Burlacu, Truxillo, James, & Yao, 2015), we investigate the effects of both *receiving* and *giving* social support and feedback. As research on generativity shows that older workers have greater needs to give back and help others (e.g., Kooij & Van De Voorde, 2011), the "giving side" of social support and feedback should be especially relevant for older employees.

We focus on both in-role and extra-role performance as outcomes. In-role performance refers to behavior directed toward formal tasks, duties, and responsibilities (Williams & Anderson, 1991), while extra-role performance refers to activities that, although essential for organizational effectiveness, are discretionary and not recognized by the reward system (Organ, 1988). Whereas in-role and extra-role performance can have different antecedents (e.g., MacKenzie, Podsakoff, & Ahearne, 1998), prior research reveals that both are positively associated with feeling socially connected in the workplace (Lee, Mitchell, Sablynski, Burton, & Holtom, 2004); thus, we focus on both types of performance for greater breadth.

Finally, in the current research we do not use a specific cut-off point to distinguish younger from older workers because such a practice has no scientific underpinning (Schultz & Adams, 2007); moreover, comparing artificially created age groups is likely to cause biases, neglect age differences within age groups, and lower the precision of effect sizes (Bohlmann, Rudolph, & Zacher, 2018). Instead, we operationalize employee age as a continuous variable following methodological recommendations for research on work and aging (Bohlmann et al., 2018) and assume the corollary 'the higher the age, the older the employee'.

We aim to make three contributions to the literature. First, we extend research on the effects of social job characteristics, responding to a recent article that mapped 100 years of research in job design and identified social job characteristics as an important avenue for future research (Parker et al., 2017) given the increasingly social nature of jobs (Grant & Parker, 2009). Our research advances knowledge on the relationships between social job characteristics and work outcomes, and how these relationships vary as a function of individual differences. Second, while previous research on social job characteristics has tended to focus on well-being outcomes (Humphrey, Nahrgang, & Morgeson, 2007), we focus on an important behavioral outcome: performance. Although research has shown a positive relationship between age and extra-role performance (e.g., Ng & Feldman, 2008), mixed and complex results on the relationship between age and in-role performance (e.g., Ng & Feldman, 2008; Sturman, 2003) suggest that different factors may influence the in-role performance of older versus younger workers. Third, and most importantly, we investigate the effects of social job characteristics in light of workforce aging. We build upon and empirically test propositions put forth by the lifespan perspective on job design by Truxillo, Cadiz, Rineer, Zaniboni, and Fraccaroli (2012). Thus, with the current research, we shed light on the important moderating role of age in the relationships between social job characteristics and work outcomes.

Our work contributes to the human resource management field by informing managers about the potential benefits of social interactions in the workplace as a practice that can boost motivation and performance of an increasingly older and age-diverse workforce. Because we sample employees of all ages, our work provides insights into the management of both older and younger workers.

Theory and Hypotheses

Socioemotional Selectivity Theory

Lifespan developmental psychology focuses on how and why individuals change over the life course in terms of physical, cognitive, and socioemotional development, and views development as a continuous, dynamic, and multidimensional process (Baltes et al., 1980). Several lifespan development theories have been proposed for the study of aging and work (for a review, see Rudolph, 2016), including SST (Carstensen et al., 1999).

SST focuses on how the awareness of the passage of time can influence socioemotional goals. As individuals age, their perception of time changes from time since birth to remaining time in life. When time is perceived as expansive (i.e., when people are younger), the motivation for having contact with others is more instrumental and focused on gaining knowledge to enhance long-term career opportunities. When time is perceived as limited (i.e., when people are older), the focus shifts from the future to the present, and the motivation for social relationships shifts to short-term goals, such as social connectedness and emotion regulation (Carstensen et al., 1999). As a result, younger people tend to pursue more diverse and numerous social relationships from which future career benefits can be derived, while older people tend to pursue fewer and closer, high-quality social relationships that contribute to their emotional well-being (Carstensen, 1995). As social relationships are prominent in today's jobs, insights from SST can help organizations to design jobs that fulfill the different socioemotional goals of younger and older workers.

Job Characteristics and Employee Age

Research on job design has focused on how different characteristics of jobs affect employee behavioral outcomes such as performance, turnover, and absenteeism, and

psychological outcomes such as job satisfaction and work motivation (Fried & Ferris, 1987). Whereas earlier conceptualizations of job design have focused mostly on task-related job characteristics (e.g., autonomy, skill variety, feedback from the job; Hackman & Oldham, 1976), more recent conceptualizations go beyond these task-related characteristics, to include knowledge, physical, and social job characteristics, with the latter including social support and feedback from others (Morgeson & Humphrey, 2006).

Research has recently begun to investigate age differences in the relationships between job characteristics and employee attitudes and behaviors. In a conceptual paper, Truxillo et al. (2012) used both socioemotional selectivity theory and selective optimization and compensation theory to propose a lifespan perspective on job design. Specifically, they proposed that different job characteristics might influence workers' satisfaction, engagement, and performance differently depending on their age. Several empirical studies have since tested age as a moderator of the relationships between task and knowledge characteristics of the job and work outcomes (e.g., Ng & Feldman, 2015; Zacher, Dirkers, Korek, & Hughes, 2017).

Far fewer studies have examined how employee reactions to *social* job characteristics might depend on age. Some exceptions include recent work by Fazi, Zaniboni, Estreder, Truxillo and Fraccaroli (2019), who investigated whether age moderates the relationships between interdependence and interaction outside the organization (social characteristics), and job satisfaction and engagement. Two studies examined social support and feedback, as do we, but focused solely on the receiving side: Bouville et al. (2018) examined employee age differences in the relationship between receiving social support and absenteeism, and Wang et al. (2015) investigated employee age differences in the relationship between receiving feedback from others and reacting to feedback. As noted earlier, in the current research, and based on SST, we

propose that *both* receiving and giving social support and feedback are differently associated with the performance of older versus younger workers (see Figure 1).

Social Support, Performance, and Employee Age

Although most research on social support at work has focused on its benefits in reducing effects of job demands on stress (e.g., Viswesvaran, Sanchez, & Fisher, 1999), social support should also contribute to higher performance. Receiving assistance and advice from others increases personal initiative (Ohly et al., 2006), and provides opportunities for workers to learn from each other (Berman et al., 2002), and to clarify work roles, all of which positively impact in-role performance (Griffin et al., 2007). Receiving social support, a valuable form of social exchange that can impact how the employment relationship is viewed, should also trigger reciprocal positive behaviors towards co-workers and the organization, in the form of extra-role performance (Blau, 1964; Gouldner, 1960).

Additionally, receiving social support has also a relational function: it contributes to the development of high-quality relationships, which are especially important to the motivation of older employees. Because older individuals perceive their futures as constrained in terms of time, they attach greater importance to meaningful social relationships from which they derive short-term social connectedness and emotional intimacy (Carstensen et al., 1999). Related research has shown that relationship fit with coworkers contributes more to the job satisfaction of older than younger workers (Robson & Hansson, 2007) and that social relationships at work contribute to the successful adaptation of workers as they grow older and advance in their careers (Westerman & Yamamura, 2007). Similarly, a lack of social support is related to emotional exhaustion for older but not younger workers (De Lange et al., 2006), and has been identified as a barrier to older workers' participation in the workforce (Fraser, McKenna, Turpin, Allen, & Liddle, 2009).

In sum, receiving social support should contribute to the satisfaction of relational needs that are important drivers of older individuals' motivation (Carstensen et al., 1999), and this increased motivation should lead to higher in-role and extra-role performance of older than younger workers (Gagné & Deci, 2005).

H1: Age moderates the positive relationships between receiving social support and a) in-role and b) extra-role performance, such that the relationships are stronger for older than younger workers.

Although research on social support has tended to focus on the benefits of *receiving* social support, recent studies have also proposed benefits of *giving* social support (Inagaki & Orehek, 2017). We argue that such benefits are stronger for older than younger workers' performance for three reasons. First, older workers have greater generativity needs (e.g., Kooij & Van De Voorde, 2011), defined as behaviors pertaining to caring for and guiding others, and helping society and future generations (McAdams, de St Aubin, & Logan, 1993). Generativity needs are positively associated with employee age and can be satisfied by giving social support to others. Second, older individuals are especially motivated by maintaining meaningful social relationships (Carstensen et al., 1999) and providing social support to others is a way to satisfy such needs, as it increases feelings of social connection with the recipient of support (Inagaki & Orehek, 2017). Finally, older workers should also be more skilled than younger workers in providing social support: they are generally less neurotic and more agreeable (e.g., McCrae et al., 1999), and engage more in strategies that enhance positive social experiences (Luong, Charles, & Fingerman, 2011). Because opportunities to give social support to others should increase older workers' motivation by the satisfaction of generativity and relational needs (Carstensen et al., 1999; Kooij & Van De Voorde, 2011), this increased motivation should trigger extended effort to

fulfil work tasks and responsibilities and greater desire to help the organization (Blau, 1964; Gagné & Deci, 2005).

H2: Age moderates the positive relationships between giving social support and a) in-role and b) extra-role performance, such that the relationships are stronger for older than younger workers.

Feedback, Performance, and Employee Age

Feedback has been shown to improve in-role performance (Kluger & DeNisi, 1996) because feedback provides opportunities to learn how to perform the job more effectively (Berman et al., 2002) and to negotiate and define roles with people who hold expectations about the performance (Graen, 1976). Feedback is also positively related to extra-role performance because it increases organization-based self-esteem (Haider et al., 2019), person-organization fit, and organizational commitment (Peng & Chiu, 2010). Drawing upon SST and research on generativity, we suggest that receiving versus giving feedback will differently affect the performance of older versus younger workers.

On the one hand, there are reasons why *receiving* feedback from others should more strongly contribute to the in-role and extra-role performance of younger workers. Because younger workers perceive time as more expansive, they view social interactions as opportunities to acquire knowledge to achieve long-term growth (Carstensen et al., 1999). Related research has found that younger workers are more motivated than older workers when they receive knowledge (Burmeister, Wang, & Hirschi, 2020), and they value the quality of feedback more strongly than older workers (Wang et al., 2015). Receiving feedback should be less valued by older employees who might have already achieved higher levels of job skills due to extended work experience and therefore might prefer to be more autonomous in carrying out their work

(Truxillo et al., 2012), have lower growth needs (Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011), and value social interactions more for their relational than instrumental value (Carstensen et al., 1999). Thus, receiving feedback should signal to employees that the organization is investing in their long-term professional advancement, which should especially motivate younger workers to reciprocate with stronger effort to fulfill tasks and responsibilities but also to help the organization, in order to nurture a long-term relationship of mutual investments (Blau, 1964; Gouldner, 1960).

H3: Age moderates the positive relationships between receiving feedback and a) in-role and b) extra-role performance, such that the relationships are stronger for younger than older workers.

On the other hand, there are reasons why *giving* feedback to others should contribute more strongly to the performance of older workers. When giving feedback to others, either during formal feedback practices (e.g., performance appraisal) or through informal feedback moments, employees engage in social interactions. Such moments should strengthen the social relationships that are particularly important to older individuals' well-being (Carstensen et al., 1999). Also, providing feedback that can help others improve their performance is a generative behavior (McAdams et al., 1993). Such behaviors are more common among older workers (e.g., Kooij & Van De Voorde, 2011), who feel a greater need to help future generations. Research on knowledge sharing has also found that older workers are more motivated than younger workers when they provide knowledge (Burmeister et al., 2020). Finally, older workers should also be more skilled than younger workers in providing feedback to others, because of their accumulated experience, emotional stability (McCrae et al., 1999), and better conflict management skills (Yeung et al., 2015). As opportunities to provide feedback contribute to the satisfaction of

generativity and relational needs that are particularly important to older workers' motivation (Carstensen et al., 1999; Kooij & Van De Voorde, 2011), the increased motivation should prompt older workers to engage more strongly in role-related tasks but also to display greater discretionary behaviors to help their organization.

H4: Age moderates the positive relationships between giving feedback and a) in-role and b) extra-role performance, such that the relationships are stronger for older than younger workers.

Method

Procedure

Data were collected as part of a larger project examining age differences in work attitudes and behaviors[1], using a time-lagged design with three online surveys, spaced one week apart. We chose a one-week time lag because of recent methodological recommendations to use "shortitudinal" designs (Dormann & Griffin, 2015). We temporally separated the measurement of moderator (age; wave 1), predictors (receiving and giving social support and feedback; wave 2), and outcome variables (in-role and extra-role performance; wave 3) to alleviate concerns of common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012).

Participants

Participants were recruited through Amazon Mechanical Turk (MTurk), a crowdsourcing platform (for details regarding panel quality, see Buhrmester, Kwang, & Gosling, 2016). Our sampling unit consists of individuals living in the US and that were currently employed in a job outside of MTurk. We followed best practices for online panels (Aguinis, Villamor, & Ramani,

[1] In the current study, age is the only variable collected at wave 1, along with the control variables. Examples of other variables collected in the larger project but not used in this study include, for instance: growth need strength at wave 1, organizational justice dimensions at wave 2, and organizational commitment at wave 3. The present paper represents the first use of the dataset, thus the variables are not reported in previous publications.

2021): we recruited only participants with a 99% approval rate on prior MTurk tasks, and we excluded participants who failed attention checks in the surveys. Participants received US $0.50, $0.75, and $2.50 for the three surveys, respectively.

In the first wave, we recruited 605 participants. To ensure a similar number in all age groups (following recommendations by Bohlmann, et al., 2018), we used Cloudresearch panels (Litman, Robinson, & Abberbock, 2017), which allowed us to recruit a convenience age-stratified sample of 201 participants aged 18-34, 202 participants aged 35-49, and 202 participants aged 50 or over. From 605 initial responses, three were deleted for either failing the attention check or responding the same for all the measures. In the second wave, from the 602 wave 1 participants, 520 completed the survey (an 86% response rate). Of those, four were deleted because they failed the attention check. In the third wave, from the 516 wave 2 participants, 458 completed the survey (an 89% response rate). Of those, four were deleted (two participants failed the attention check and one completed the survey twice), leaving a final sample of 454 participants[2]. The mean age was 42.62 (SD = 12.86). Age ranged from 18 to 76 and 43.8% of participants were male. On average, participants had 21 years of work experience and worked 38 hours per week. Participants' occupations were diverse, with the most represented occupations including office workers (14.3%), engineers and high-tech professionals (11.5%), educators (8.1%), manufacturing and sales workers (7.7%), and finance professionals (7.0%). In terms of education, 19.2% had up to high school, 16.7% had community college,

[2] We followed Goodman and Blum's (1996) recommendations to test whether participant attrition led to non-random sampling. We conducted binary logistic regressions with a dichotomous dependent variable classifying participants as stayers (i.e., those who responded to the three questionnaires) or leavers (those who left at Time 2 or Time 3). Results indicated age as a predictor of attrition (B = -0.223, SE = .020, $Wald$ = 121.839, p < .001). We followed up by comparing the means on the T2 variables between stayers and leavers with independent samples t-tests. Results showed that the means of social support received, social support given, feedback received, and feedback given are not significantly different between stayers and leavers. Thus, attrition does not influence our variables of interest.

44.5% had university, and 19.6% had graduate school. Finally, in terms of annual income, 22.7% earned less than $30,000, 50.4% earned between $30,000 and $69,999 and 26.9% earned more than $70,000.

Measures

All items were answered on a Likert scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*) except where noted.

Social support received. We used the "positive job-related social support received" four item-scale from Bowling, Beehr, and Swader (2005). We focused on positive support because, according to SST, older people are motivated by positive and high-quality social relationships (Carstensen et al., 1999). Therefore, we considered that this specific type of social support would impact performance more strongly for older versus younger employees. Items included "My coworkers talk to me about how this organization is a good place to work" (α=.94).

Social support given. We used the "positive job-related social support given" four-item scale from Bowling et al. (2005), including "I talk to my coworkers about how this organization is a good place to work" (α=.96).

Feedback received. We used the three-item scale from Morgeson and Humphrey (2006), including "I receive a great deal of information from my manager and coworkers about my job performance" (α=.92).

Feedback given. We adapted the three-item scale above for feedback received by replacing "receive" with "provide" and "my job performance" with "their job performance." We also replaced "my coworkers and manager" with "my coworkers", as we were concerned that it might be less common to give feedback to managers than coworkers. Items included "I provide a great deal of information to my coworkers about their job performance" (α=.97).

In-role performance. We used the seven-item scale from Williams and Anderson (1991). The items were preceded by "How frequently do you intend to engage in the following behaviors at work, in the next two weeks" and included "Perform tasks that are expected of me" and "Adequately complete assigned duties" (α=.78). The items were presented on a Likert-type scale from 1 (*Never*) to 7 (*Very often*).

Extra-role performance. We used Lee and Allen's (2002) eight-item scale of organizational citizenship behaviors towards the organization. The items were preceded by "How frequently do you intend to engage in the following behaviors at work, in the next two weeks" and included "Attend functions that are not required but that help the organizational image" (α=.92). The items were presented on a Likert-type scale from 1 (*Never*) to 7 (*Very often*).

Age. Age was measured as chronological age (number of years since birth).

Control variables. Data were collected on gender (0=female, 1=male), organizational tenure (in years, ranging from 0 to 49), education (1=Below high school to 5=Graduate school), and income (1=Less than $30,000 to 9=over $100,000) for use as covariates in the regression analyses. We controlled for the effect of gender given past research indicating that women are higher in interdependent self-construal while men are higher in independent self-construal (Cross & Madson, 1997), which could result in differences between women and men in the levels of feedback and social support provided, and in the reactions to feedback and social support received. Following methodological recommendations for the study of work and aging (Bohlmann et al., 2018; North, 2019), we also controlled for the effects of age-related constructs (organizational tenure, education, and income), as they are typically correlated with age and thus may confound the effect of age and serve as alternative explanations for the findings.

Analytical Strategy

We assessed the reliability of measures and conducted confirmatory factor analyses (CFA). To test our hypotheses, we first computed each variable as the average of its items (composite score). After, we standardized predictors and control variables, and conducted eight hierarchical multiple regression analyses using SPSS 25 – four for each criterion variable. In each hierarchical regression, we included in the first step the control variables (gender, organizational tenure, education, and income) and the predictors (social support/feedback received/given and age), and we included in the second step the interaction term[3]. We also conducted the regressions without the control variables following best practice recommendations (Bernerth & Aguinis, 2016), and the pattern of results remained unchanged. We followed up significant interactions with Johnson-Neyman (JN) plots using CAHOST (Carden, Holtzman, & Strube, 2017). We opted to use JN plots instead of more traditional simple slopes plots (Aiken & West, 1991) because while simple slopes tests require interactions to be plotted at arbitrary values of the moderator, the JN technique shows for which values of the moderator the effect of the focal predictor on the criterion is significant (Carden et al., 2017). Thus, instead of plotting interactions at specific age values, the JN technique allows the full range of age to be plotted (18-76). Additionally, the confidence bands show at what ages the relationships are significant, as well as how the magnitude of the relationships change with increasing age.

Results

Measurement Assessment

Table 1 presents means, standard deviations, Cronbach's alpha, and correlations. To ensure discriminant validity, we conducted CFA. We first estimated a 6-factor model (i.e., social support received, social support given, feedback received, feedback given, in-role performance

[3] Given the sizable correlation between age and tenure, we checked for multicollinearity in all models. Tests indicated that multicollinearity was not a concern.

and extra-role performance), which provided good fit to the data, x^2 (*df* = 335) = 915.723, *p* < .001, CFI = 0.95, RMSEA = 0.06, SRMR = 0.05. All the scale items loaded significantly onto the expected latent construct (standardized factor loadings ranged from .35 to .97). Given the sizable correlation between social support received and given, and between feedback received and given, we also estimated a four-factor model (i.e., social support received and given, feedback received and given, in-role performance, and extra-role performance), which fit the data less well, x^2 (*df* = 344) = 1940.341, *p* < .001, CFI = 0.87, RMSEA = 0.10, SRMR = 0.07, Δx^2 = 1024.618, Δ*df* = 9, *p* < .001. Additionally, given the sizable correlation between social support received and feedback received, and between social support given and feedback given, we estimated another four-factor model (i.e., social support and feedback received, social support and feedback given, in-role performance, and extra-role performance), which also fit the data less well, x^2 (*df* = 344) = 2964.474, *p* < .001, CFI = 0.78, RMSEA = 0.13, SRMR = 0.08, Δx^2 = 2048.751, Δ*df* = 9, *p* < .001. Finally, we estimated a one-factor model (Harman's single-factor test), which also fit the data less well, x^2 (*df* = 350) = 5840.134, *p* < .001, CFI = 0.54, RMSEA = 0.19, SRMR = 0.15, Δx^2 = 3899.793, Δ*df* = 6, *p* < .001, reducing the likelihood that common method variance is an alternative explanation for our findings.

INSERT TABLE 1 HERE

Hypothesis Tests

H1 proposed that age moderates the positive relationships between social support received and a) in-role and b) extra-role performance, such that the relationships are stronger for older than younger workers. The interaction between age and social support received predicting in-role performance was not significant (*B* = 0.043, *SE* = .033, *t* = 1.331, *p* = .18) (see Table 2). Thus, H1a was not supported. The interaction between age and social support received predicting

extra-role performance was significant (B = 0.131, SE = .052, t = 2.521, p = .012). As depicted in Figure 2, the relationship between social support received and extra-role performance is significant at all ages and becomes stronger with increasing age, providing support for H1b.

INSERT TABLE 2 AND FIGURE 2 HERE

H2 proposed that age moderates the positive relationships between social support given and a) in-role and b) extra-role performance, such that the relationships are stronger for older than younger workers. The interaction between age and social support given predicting in-role performance was significant (B = .087, SE = .033, t = 2.685, p = .008) (see Table 3). As depicted in Figure 3, the relationship between social support given and in-role performance becomes significant only from the age of 43 and the strength of the relationship increases with increasing age, providing support for H2a. Furthermore, the interaction between age and social support given predicting extra-role performance was significant (B = .178, SE = .050, t = 3.582, p < .001). As depicted in Figure 4, the relationship between social support given and extra-role performance is significant at all ages and becomes stronger with increasing age, providing support for H2b.

INSERT TABLE 3 AND FIGURES 3 AND 4 HERE

H3 proposed that age moderates the positive relationships between feedback received and a) in-role and b) extra-role performance, such that the relationships are stronger for younger than older workers. The interaction between age and feedback received predicting in-role performance was significant (B = .065, SE = .031, t = 2.074, p = .039) (see Table 4). However, contrary to our predictions, Figure 5 shows that the relationship between feedback received and in-role performance becomes significant only from the age of 40 and the strength of the relationship increases with increasing age. Furthermore, the interaction between age and

feedback received predicting extra-role performance was not significant (B = .081, SE = .055, t = 1.467, p = .14). Thus, neither H3a nor H3b were supported.

INSERT TABLE 4 AND FIGURE 5 HERE

H4 proposed that age moderates the positive relationships between feedback given and a) in-role and b) extra-role performance, such that the relationships are stronger for older than younger workers. The interaction between age and feedback given predicting in-role performance was significant (B = .086, SE = .031, t = 2.780, p = .006) (see Table 5). As depicted in Figure 6, the positive relationship between feedback given and in-role performance becomes significant only from the age of 53 and the strength of the relationship increases with increasing age, supporting H4a. Furthermore, the interaction between age and feedback given predicting extra-role performance was significant (B = .149, SE = .057, t = 2.600, p = .010). As depicted in Figure 7, the relationship between feedback given and extra-role performance is significant at all ages and becomes stronger with increasing age, providing support for H4b.

INSERT TABLE 5 AND FIGURES 6 AND 7 HERE

Discussion

We investigated whether receiving and giving social support and feedback are associated with in-role and extra-role performance differently for older and younger workers. Our data provided support for most of our hypotheses. First, *receiving social support* was positively associated with extra-role performance more strongly for older than younger workers (supporting H1b), but it was not associated with in-role performance, regardless of employee age (contrary to H1a). Second, *giving social support* to others was positively associated with both in-role and extra-role performance more strongly for older than younger workers (supporting H2a and H2b) – indeed the relationship with extra-role performance was only significant for older workers. In

terms of *receiving feedback*, we did not find support for H3a and H3b. We predicted that receiving feedback should be more strongly related to performance for younger than older employees. However, in the case of in-role performance we observed a stronger relationship for older employees, and in the case of extra-role performance the relationship was not influenced by employee age. Finally, *giving feedback* to others was more strongly and positively associated with both in-role and extra-role performance for older than younger workers (supporting H4a and H4b), and the relationship with in-role performance was only significant for older workers.

Several factors give us confidence in our findings. Following methodological recommendations from Bohlmann et al. (2018), we operationalized employee age as a continuous variable instead of comparing artificially created age groups, recruited a similar number of workers across age groups to guarantee age variance in our sample, and controlled for age-related constructs, such as organizational tenure, education, and income. In addition, to reduce concerns regarding common method bias, we temporally separated the assessment of moderator, predictor, and criterion variables (Podsakoff et al., 2012).

Implications for Research

Our research has several important theoretical implications. We extend knowledge about effects of social job characteristics, which have received less scholarly attention than task and knowledge job characteristics (Oldham & Hackman, 2010; Morgeson & Humphrey, 2006). Although research on social job characteristics has tended to focus on their consequences for well-being (Humphrey et al., 2007), our research suggests that social support and feedback affect not only well-being (which in turn may affect performance, e.g., Wood et al., 2012) but may also directly affect performance.

We also investigate how social support and feedback might affect performance

differently depending on employee age. More specifically, we build upon the conceptual work by Truxillo et al. (2012) and Cadiz, Rineer, and Truxillo (2019) who proposed that job characteristics that fulfill emotion regulation goals (including receiving and giving social support, and giving feedback) would be more beneficial to older workers, while job characteristics that fulfill knowledge acquisition goals (including receiving feedback) would be more beneficial to younger workers. We provide empirical support for most of these ideas, with two exceptions.

First, we found that receiving social support was positively related with extra-role performance more strongly for older employees, but it was not related with in-role performance for any employees (regardless of age). It seems that receiving assistance and advice from others prompts workers to reciprocate with increased motivation to help others and the organization (which is aligned with social exchange theory; Blau, 1964) – and this is especially the case for older workers (which is aligned with SST; Carstensen et al., 1999) –, but not necessarily through extended effort directed at one's job tasks and responsibilities. Although receiving advice and assistance might help to clarify work roles and to learn from each other which should impact in-role performance (Griffin et al., 2007), our measure of social support received focused only on "positive support" (i.e., sharing positive aspects of the job and organization). It might be that a measure of "negative support" would be more strongly associated with in-role performance as sharing and discussing negative aspects of the job and organization could prompt employees to resolve those negative situations, thus increasing in-role performance.

Second, we found that receiving feedback was not associated with extra-role performance while it was positively and more strongly associated with in-role performance for older than younger workers. Unlike social support, the content of feedback should be specifically related to

one's job tasks and responsibilities (and thus more likely to increase one's knowledge on how to improve in-role performance), and less seen as a valuable form of social exchange (and thus less likely to trigger reciprocal positive behaviors in the form of extra-role performance). Surprisingly, the association with in-role performance was stronger for older than younger workers. This might be justified by younger workers lower existing knowledge structures that are necessary to integrate new knowledge (Grand et al., 2016) and older workers' greater accumulated knowledge (Salthouse, 2012) that should facilitate the decoding and integration of new information (Fasbender, Gerpott, & Unger, 2021).

Our results also show that employee attitudes and behaviors are not only affected by *receiving* social support and feedback from others at work, as commonly investigated in the job design literature (e.g., Morgeson & Humphrey, 2006), but also by *giving* social support and feedback to others at work. While not all of the hypotheses related to *receiving* social support and feedback were supported, those pertaining to *giving* social support and feedback were supported, which further establishes the satisfaction of generativity needs as an important factor associated with older workers' performance. Additionally, our findings contribute to the broader feedback literature, which traditionally has focused on performance effects of *receiving* (but not *giving*) feedback. Our findings also contribute to the broader social support literature that has similarly traditionally focused on the benefits of *receiving* social support and has recently called for research on the benefits of *giving* social support (Joly, Kong, & Kim, 2020).

Finally, by using SST as a theoretical framework, we heed recent calls for more theory-driven research on lifespan processes in the work context (Bohlmann et al., 2018) that builds on and extends previous findings (Rudolph, 2016). Our findings support SST assumptions that high-quality relationships in the workplace are especially important to older workers (Carstensen et

al., 1999) by showing that in a work environment with high social support and feedback, the levels of self-reported in-role and extra-role performance are mostly higher for older than younger employees.

Implications for Practice

When it comes to motivating older workers, managers should not focus only on the task-related characteristics of jobs but also on creating a positive work environment fueled by interaction among employees. Research has shown that older workers are often victims of discrimination at work, including social exclusion (North & Fiske, 2016). There are several ways in which organizations can counteract these phenomena and provide opportunities for the development of meaningful social relationships. First, organizations can foster collaboration and interdependence among age-diverse employees through the development of team projects. Also, informal moments to socialize that include employees of all ages can be organized, such as company social events, in-person or remotely. Second, formal feedback meetings that build rapport can be incentivized, trained, and monitored. Third, older workers can be encouraged to be involved in initiatives that satisfy their generative needs, such as mentoring programs. In the case of reverse-mentoring, in which both the older and younger employee provide and receive knowledge and guidance, older employees can even upgrade their skills (Murphy, 2012).

Nonetheless, we offer two caveats to these practical implications. First, social job characteristics are only one aspect of job design, and in our research their effects were studied in isolation from other non-social job characteristics. This means that the existence of social support and feedback, although important for the performance of older workers, might not necessarily compensate for the absence of other job characteristics. Second, the need to retain and motivate senior talent is likely to depend on occupation, industry, country, and public policy.

Current policies to prolong working lives might change in response to economic crises, employment rates, or migration fluctuations (Ramos & Lacomblez, 2005).

Limitations and Future Research Directions

Our research also has limitations. First, all variables were assessed by self-report and by using similarly designed measures (i.e., Likert scales) which might prompt concerns regarding common method bias, even when temporally separating the measurement of predictors and outcomes. Future research should include other sources (Podsakoff et al., 2012). Specifically, employee performance could be evaluated by the supervisor or using objective data. Our measure of in-role performance showed skewed performance ratings with a mean score of 6.49 out of 7 (standard deviation of only 0.66). Although overevaluations of performance are common due to egocentric bias (Harris & Schaubroeck, 1988), they could have attenuated the associations with social support and feedback. Also, the regressions predicting in-role performance had lower R^2 values than the regressions predicting extra-role performance, which can be a reflection of the restricted range of in-role performance, along with the absence of more relevant predictors of in-role performance, such as autonomy (Humphrey et al., 2007). It is also important to note that although data were collected in three waves, our design also does not allow causal conclusions to be drawn. Future research should use experimental or quasi-experimental designs to do so.

Second, when measuring feedback and social support given and received, we (incorrectly) assumed that all participants had co-workers. Participants' occupations were diverse, with most representation from office workers, engineers, educators, manufacturing and sales workers, and finance professionals, all occupations in which the existence of coworkers can be assumed. However, future research should confirm whether participants had co-workers and exclude participants without. Also, the measure we used to assess feedback received includes

feedback received from both supervisor and peers. As these sources might have different effects on performance, future research should investigate age differences in responses to managerial versus peer feedback. In addition, when measuring feedback received, we did not control for the age of the feedback-provider. Considering that receiving feedback from an older versus a younger supervisor might produce different effects (Perry, Kulik, & Zhou, 1999), future research should also account for the age of the feedback-provider. Further, the measure used to assess feedback given refers to feedback given to coworkers, and it does not differentiate their job level. Future research should also investigate age differences in the feedback given to coworkers holding different job levels (e.g., subordinates versus peers) by employees holding different job levels (e.g., managers versus non-managers) as job-level of both the feedback-provider and the feedback-receiver might influence the frequency and quality of feedback given.

Third, our models assumed linear relationships. However, the predicted slope in Figure 6 suggests a negative association between feedback given and in-role performance for individuals below age 30 and a positive association between feedback given and in-role performance for individuals above age 53. It might be that younger employees lack the experience and the social skills needed to provide feedback to others, but it might also be that these results are an artefact of the specified model forcing a linear association. Future research should investigate the relationships studied using curvilinear (i.e., U shaped) models as many age-related variables change in a nonlinear fashion over time (Bohlmann et al., 2018).

Fourth, we conducted eight multiple regression models to test our hypotheses, four for each dependent variable. Some scholars would argue that because there is a risk of obtaining significant findings by chance as the number of statistical tests performed increases, researchers should undertake corrections to *p*-value to prevent Type I errors. However, a recent analysis of

empirical practice has shown a lack of consensus about when and how to apply corrections for multiple testing (for a discussion, see García-Pérez, 2023). Additionally, it is quite difficult to detect interaction effects in correlational research using multiple regression which might instead increase Type II errors, i.e., incorrectly concluding that no interaction effects exist when they indeed exist in the relevant population (e.g., Aguinis, 1995; Rogers, 2002). Given these factors, we decided to maintain the conventional cut-off *p*-value for interpreting our results. Nonetheless, caution is warranted when interpreting our findings, in particular for H3a, which would have been deemed non-significant under a more conservative *p*-value.

Finally, our sample of MTurk employees from different organizations did not allow us to control for the effects of different performance management and feedback systems implemented in each organization, nor the extent to which such systems emphasize peer feedback and define the frequency and outcomes of feedback. Future research should investigate our hypotheses in specific occupations and organizations in which researchers can control for the effects of specific feedback systems. Additionally, our U.S. sample might limit cross-cultural generalizability of findings. The relationships studied should also be investigated in collectivistic countries, in which meaningful social relationships might be even more important to the motivation of workers, and especially of older workers. Therefore, our findings and contributions to theory and practice should be interpreted with caution as they may not generalize across occupations, organizations, and cultures.

Our findings suggest interesting avenues for future research. First, research should investigate age-related psychological mechanism(s) responsible for the moderating effect of age on the relationships between both social support and feedback and performance. According to SST, older individuals prioritize emotion regulation goals because they perceive limited time

available in the future (Carstensen et al., 1999). The roles of relatedness needs, emotion regulation goals, and future time perspective should all be investigated, in channeling the moderating effects of age in the relationships between social support and feedback and performance.

A second avenue for future research is to investigate the combined effects of multiple job characteristics on older versus younger workers' performance, including the interaction between social and non-social job characteristics (e.g., receiving social support and autonomy). This can increase understanding of when social job characteristics are more or less important to the performance of older workers and would help to finetune recommendations for human resource managers tasked with redesigning jobs to keep older workers motivated and productive.

Conclusion

The current study integrates job design with SST to propose how social job characteristics might be more important to performance depending on employee age. Specifically, we investigated the relationships between receiving and giving social support and feedback, and self-reported performance of older and younger workers. Associations between these two social job characteristics and performance were generally stronger for older than younger workers. Our findings contribute to research on job design and aging and can be used by managers and organizations to design jobs and create workplaces better suited to motivate an aging workforce.

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Table 1

Means, standard deviations, Cronbach's alpha, and correlations

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Age	42.62	12.86											
2. Gender[a]	0.56	0.50	.16**										
3. Education[b]	3.64	1.02	.01	-.06									
4. Income[c]	4.03	2.68	.02	-.19**	.33**								
5. Organizational tenure	7.74	7.60	.46**	.10*	.06	.23**							
6. Social support received	4.64	1.53	-.01	.03	.03	.13**	.11*	(.94)					
7. Social support given	4.71	1.65	.05	.06	.05	.13**	.12**	.85**	(.96)				
8. Feedback received	4.84	1.53	-.04	.05	-.06	.02	.10*	.60**	.57**	(.92)			
9. Feedback given	4.27	1.80	.03	-.02	-.04	.13**	.16**	.53**	.61**	.67**	(.97)		
10. Extra-role performance	4.91	1.28	.16**	.16**	-.03	.14**	.19**	.54**	.60**	.40**	.40**	(.92)	
11. In-role performance	6.49	0.66	.18**	.09*	-.03	-.02	.14**	.06	.09	.12*	.01	.22**	(.78)

Notes. $N = 454$. All correlations are Pearson's correlations except the correlations with gender (Spearman's rho). [a] 0 = female, 1 = male, [b] 1 = Below high school to 5 = Graduate school, [c] 1 = Less than $30,000 to 9 = over $100,000.

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 2

Moderated hierarchical regression analyses of social support received and age predicting in-role and extra-role performance

	In-role performance		Extra-role performance	
	Step 1	Step 2	Step 1	Step 2
Predictor	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Constant	6.490*** (.030)	6.491*** (.030)	4.909*** (.049)	4.910*** (.049)
Gender	.033 (.031)	.034 (.031)	.179*** (.050)	.182*** (.050)
Tenure	.049 (.036)	.039 (.036)	.057 (.057)	.026 (.058)
Education	-.014 (.032)	-.017 (.032)	-.093 (.052)	-.100* (.052)
Income	-.024 (.034)	-.020 (.034)	.131** (.055)	.142** (.055)
Age	.092** (.035)	.094** (.035)	.160** (.056)	.167** (.056)
Social Support Received	.038 (.031)	.040 (.031)	.667*** (.050)	.673*** (.049)
Age*Social Support Received		.043 (.033)		.131* (.052)
R^2	.045**	.049**	.346***	.355***
ΔR^2		.004		.009**

Notes. $N = 454$.

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 3

Moderated hierarchical regression analyses of social support given and age predicting in-role and extra-role performance

	In-role performance		Extra-role performance	
	Step 1	Step 2	Step 1	Step 2
Predictor	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Constant	6.490*** (.030)	6.487*** (.030)	4.909*** (.047)	4.901*** (.046)
Gender	.031 (.031)	.034 (.031)	.154** (.048)	.159** (.048)
Tenure	.048 (.036)	.032 (.036)	.054 (.055)	.021 (.055)
Education	-.015 (.032)	-.020 (.032)	-.105* (.050)	-.115* (.049)
Income	-.025 (.034)	-.021 (.034)	.127** (.052)	.134** (.052)
Age	.090* (.035)	.093** (.034)	.127** (.053)	.133* (.053)
Social Support Given	.050 (.031)	.055 (.031)	.738*** (.047)	.749*** (.047)
Age*Social Support Given		.087** (.033)		.178*** (.050)
R^2	.047**	.062***	.405***	.422***
ΔR^2		.015**		.017***

Notes. $N = 454$.

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Table 4.

Moderated hierarchical regression analyses of feedback received and age predicting in-role and extra-role performance

	In-role performance		Extra-role performance	
	Step 1	Step 2	Step 1	Step 2
Predictor	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Constant	6.490*** (.030)	6.493*** (.030)	4.909*** (.053)	4.912*** (.053)
Gender	.032 (.031)	.031 (.031)	.186** (.055)	.185** (.055)
Tenure	.042 (.036)	.029 (.036)	.058 (.062)	.041 (.063)
Education	-.009 (.032)	-.014 (.032)	-.063 (.057)	-.070 (.057)
Income	-.021 (.034)	-.014 (.034)	.199** (.059)	.207** (.059)
Age	.098** (.035)	.103** (.035)	.170** (.061)	.177** (.061)
Feedback Received	.078* (.031)	.074* (.030)	.496*** (.054)	.491*** (.054)
Age*Feedback Received		.065* (.031)		.081 (.055)
R^2	.055***	.064***	.229***	.232***
ΔR^2		.009*		.004

Notes. $N = 454$.

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Table 5

Moderated hierarchical regression analyses of feedback given and age predicting in-role and extra-role performance

	In-role performance		Extra-role performance	
	Step 1	Step 2	Step 1	Step 2
Predictor	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Constant	6.490*** (.030)	6.488*** (.030)	4.909*** (.053)	4.905*** (.053)
Gender	.034 (.031)	.036 (.031)	.206*** (.055)	.208*** (.055)
Tenure	.053 (.036)	.044 (.036)	.051 (.063)	.037 (.063)
Education	-.015 (.032)	-.024 (.032)	-.058 (.057)	-.071 (.057)
Income	-.019 (.034)	-.012 (.034)	.152* (.060)	.162** (.060)
Age	.089** (.035)	.095** (.035)	.137* (.061)	.145* (.061)
Feedback Given	-.003 (.031)	-.005 (.031)	.484*** (.055)	.481*** (.054)
Age*Feedback Given		.086** (.031)		.125* (.054)
R^2	.042**	.058***	.219***	.228***
ΔR^2		.016**		.009*

Notes. $N = 454$.

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

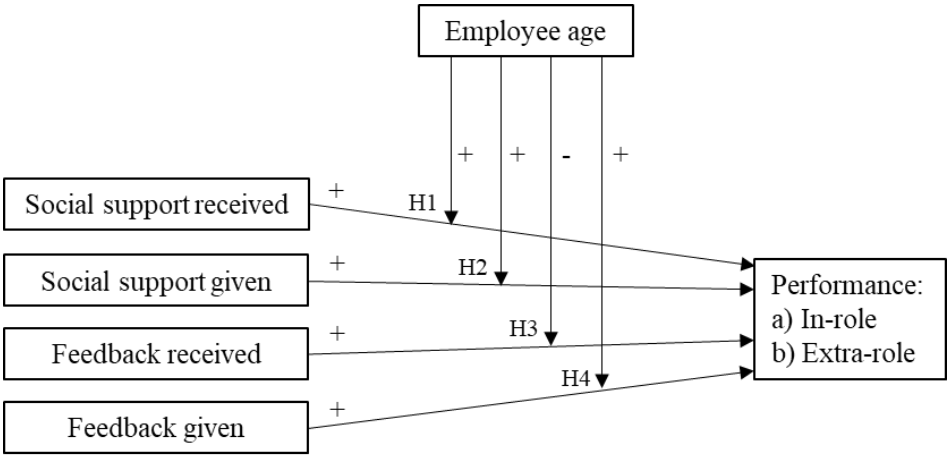

Figure 1. Summary of the proposed model.

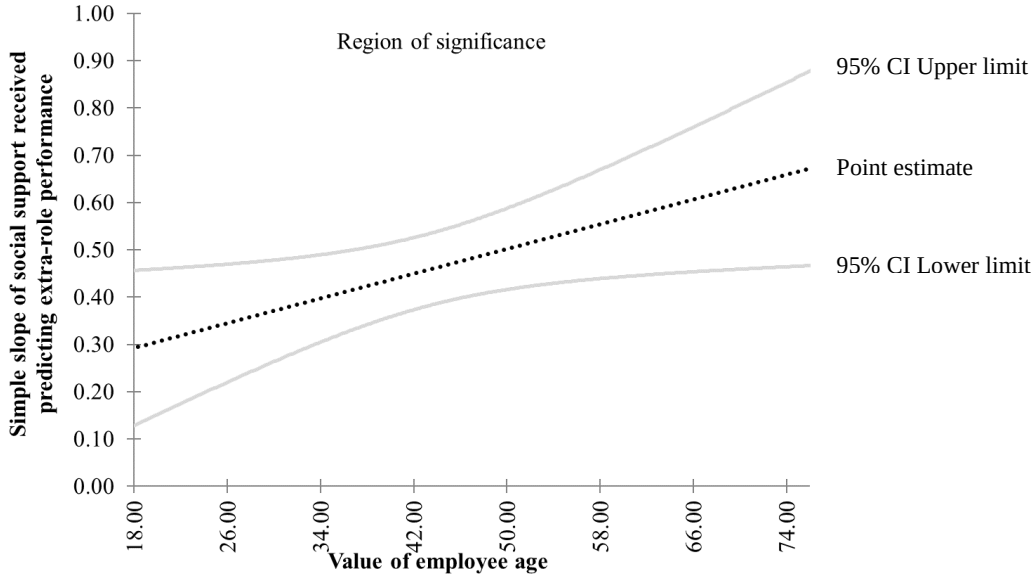

Figure 2. Johnson–Neyman regions of significance for the interaction effect of social support received and age on extra-role performance.

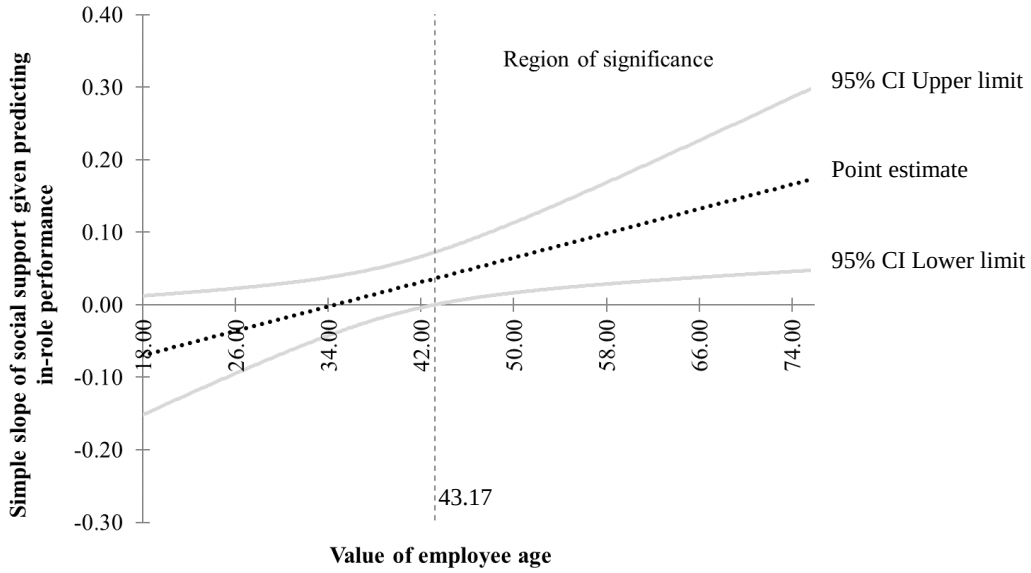

Figure 3. Johnson–Neyman regions of significance for the interaction effect of social support given and age on in-role performance.

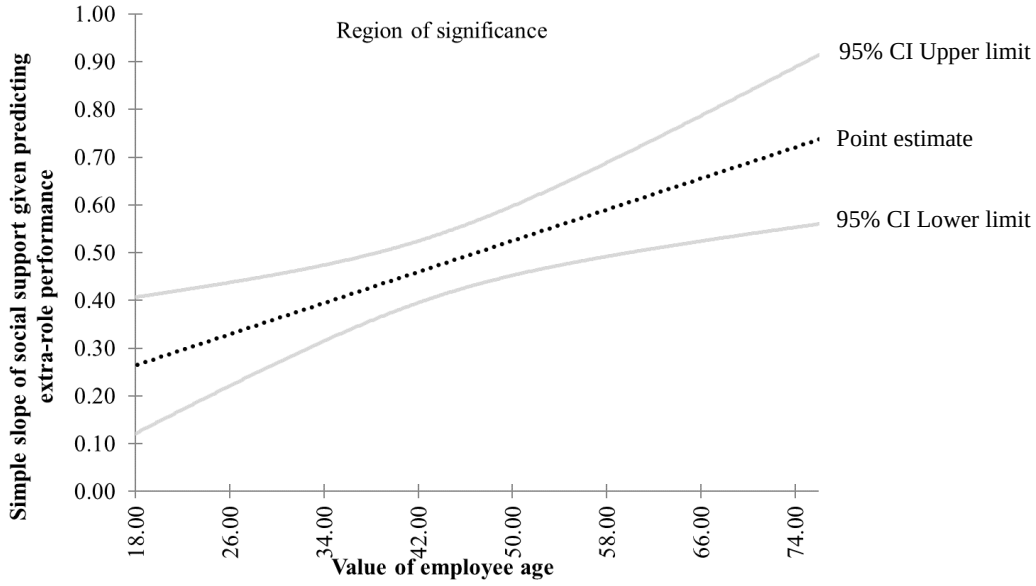

Figure 4. Johnson–Neyman regions of significance for the interaction effect of social support given and age on extra-role performance.

Figure 5. Johnson–Neyman regions of significance for the interaction effect of feedback received and age on in-role performance.

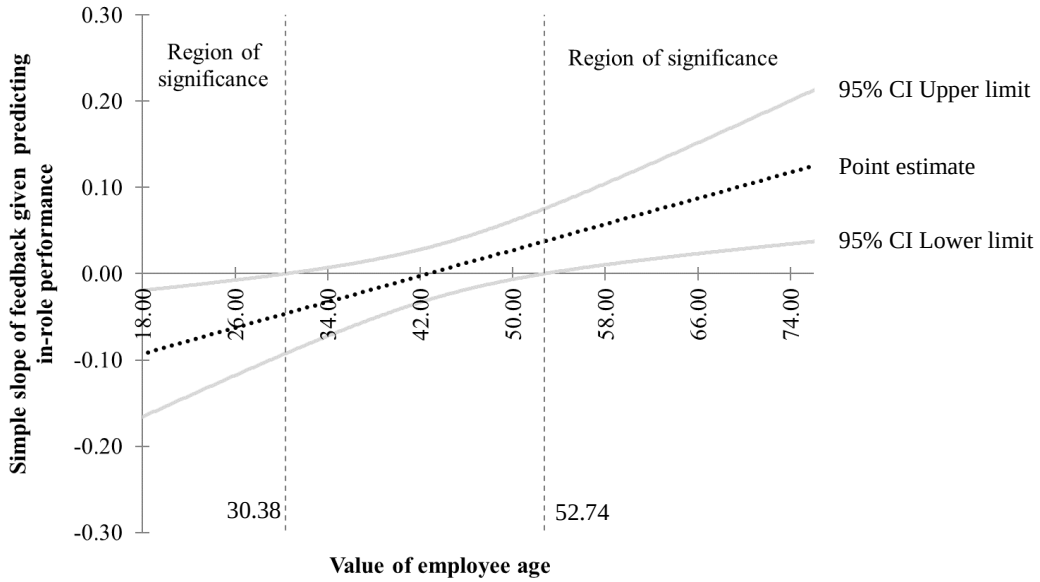

Figure 6. Johnson–Neyman regions of significance for the interaction effect of feedback given and age on in-role performance.

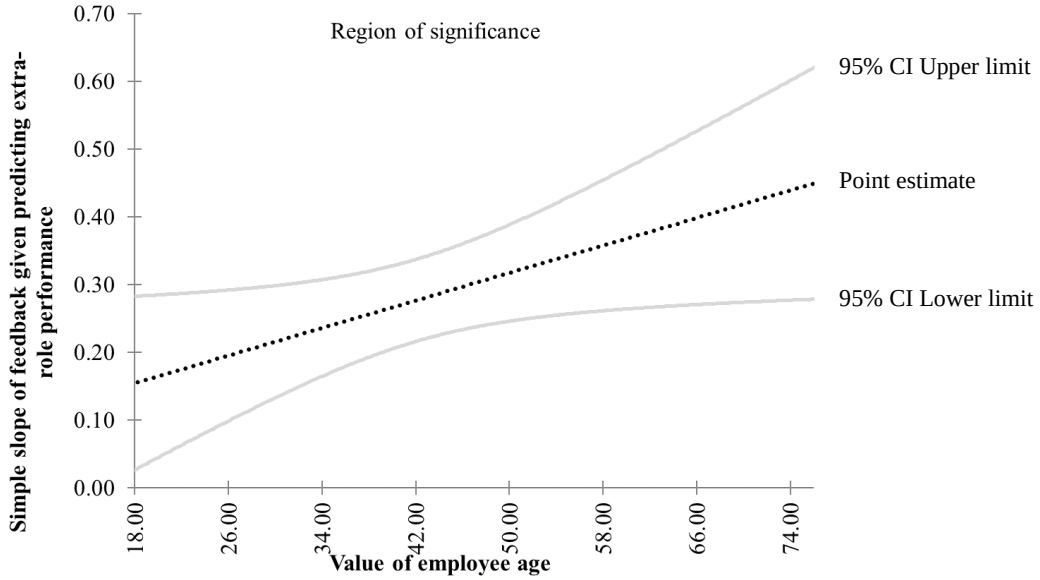

Figure 7. Johnson–Neyman regions of significance for the interaction effect of feedback given and age on extra-role performance.