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The moderating role of social capital for late-career management intervention effects on older employees' work engagement

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Abstract

Despite increasing interest in supporting older workers' motivation, retention, and well-being at work, knowledge about how social networks at work may affect the efficacy of training interventions among older employees is scarce. These social ties are an important source of resources for older workers' careers. This study examined the characteristics of older workers' personal social networks as boundary conditions for the effects of late-career management intervention on work engagement. Data were used from an earlier randomized controlled trial (RCT) in which senior employees (mean age of 58 years) participated in a peer group-based training intervention and were asked to complete follow-up surveys at baseline, post-intervention, and after 6 months (Vuori et al., 2019, Journal of Vocational Behavior, 115: 103327). The results showed that older workers' social ties at higher organizational levels (upper reachability) and the number of social ties at work moderated the effect of the intervention on work engagement. Specifically, the intervention aimed at enhancing employees' personal resources improved work engagement for senior employees with few or no social ties at work with whom they could discuss important matters, and for those with social ties at higher organizational levels. However, the relationship quality between older workers and their leaders showed no moderation effect. This study encourages human resources professionals to consider the social network characteristics and peer learning of older workers when providing training to enhance their work engagement.

KEYWORDS
boundary conditions, intervention, leadership, older workers, RCT, social capital, social networks, work engagement

1 | INTRODUCTION

There has been increased research attention and practical interest in work organizations to support older workers' motivation, retention, and well-being at work. The main reason for this is the changing age demographics, which cause accelerating retirement in the next few years and a labor shortage in many industries. In the European Union, for example, the number of workers aged 55+ almost doubled between 2004 and 2019 (Eurostat, 2020). Thus, work organizations must find effective ways to support and prolong the working careers of older employees (e.g., Economist Intelligence Unit, 2014).

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Consequently, there has been an increase in the number of intervention studies investigating the effects of training on older employees' career and well-being outcomes, such as work ability (de Boer et al., 2004), retirement (Goine et al., 2004), perceived age discrimination (Vuori et al., 2019), work engagement (Strijk et al., 2013; Vuori et al., 2019), and health (Hughes et al., 2011).

For successful workplace interventions, it has been argued that understanding both their main effects and the organizational and social contexts of their implementation is crucial. This is because these contexts may, in many ways, enhance or hinder the implementation of the intervention and the transfer of knowledge and skills to everyday work (e.g., Nielsen & Miraglia, 2017). Earlier research has shown the important role of the social environment at work, such as supervisor support, in enhancing training effectiveness and the transfer of the skills learned through training to the actual job (e.g., Hammer et al., 2019; Smith-Jentsch et al., 2001). However, there is a lack of research on how the social context of older workers at work may strengthen or hinder intervention effects on their work attitudes and behaviors (e.g., Truxillo et al., 2015). Nonetheless, older employees may encounter challenges concerning their workplace social environment that could impede training effectiveness and implementation. For example, they may receive less support in training, mentoring, and career counseling than their younger colleagues (e.g., Cleveland & Shore, 1992; Finkelstein et al., 2003).

We examined the extent to which older workers' social networks and leadership connections moderated the effect of a late-career management intervention on their work engagement. We utilized data obtained from a randomized controlled trial (RCT) (Vuori et al., 2019) that aimed to enhance older workers' personal resources (i.e., late-career management preparedness). This included improving employees' self-efficacy beliefs about seniority skills, work ability, employability, and preparedness for dealing with career-related challenges (Ajzen, 1991; Bandura, 1986) and setbacks (e.g., age discrimination; Meichenbaum, 2007). The intervention training was based on peer learning and included assignments and peer discussions on how to mobilize support from social ties. The participants were also encouraged to share their work goals, formulated during training, with their supervisors. Through a six-month follow-up, Vuori et al. (2019) examined the intervention's direct and mediation effects on older employees' work engagement and showed that late-career management preparedness mediated the intervention effect on work engagement.

As an outcome variable, we focused on work engagement, which refers to a positive state of mind characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Work engagement was chosen because it has been shown to be particularly important for older workers' work motivation. Accordingly, older workers' disengagement with work has been found to increase once they start to approach retirement age (Damman et al., 2013). Moreover, high work engagement has been associated with many important outcomes at work, such as more positive work attitudes, better job performance, and organizational citizenship behavior (for a review, see Christian et al., 2011). Despite increased interest in examining the antecedents of older workers' work engagement, such as training (e.g., Strijk et al., 2013), work characteristics (Goštautaite & Bučiuniene, 2015), and job crafting (Kooij et al., 2020), research on evidence-based human resources (HR) practices to enhance work engagement and the social context in which they are implemented is scarce, particularly among older employees (e.g., Pak et al., 2019; Truxillo et al., 2015).

Drawing on social capital theory (e.g., Burt, 2005; Lin, 2001), we examined older workers' social networks and leader relationships as key resources that could moderate the effect of training intervention on work engagement. Social capital theory argues that beyond formal roles and related social exchanges, such as those between a leader and a follower, informal networks also influence how and with whom employees communicate and share resources (e.g., Burt, 2005; Lin, 2001). Thus, we focused on older workers' personal work and career-related relationships, particularly those involving discussions about their careers and occupational futures. These kinds of social ties may provide important resources, such as information, advice, and sponsorship (e.g., Seibert et al., 2001). Furthermore, we focused on both the structural and relational dimensions of social capital (Nahapiet & Ghoshal, 1998). The *structural dimension* refers to the network structure and the accessibility of its members, which influence the available resources (e.g., Burt, 1992). We examined this structural dimension of social capital through upper reachability—that is, the ties at higher organizational levels and the number of connections at work with whom one can discuss important matters (Lin, 2001). The *relational dimension* refers to the quality of interpersonal network relations, including tie strength, which influences access to network-based resources and, importantly, the ability to mobilize these resources; in other words, the willingness of those network ties to respond positively to resource requests. We examined the quality of older workers' network relations through the strength (closeness) of the ties (Granovetter, 1973, 1983). In addition, because formal leaders typically play an important role in the implementation of an intervention at work (e.g., Hammer et al., 2019), such as when they "play an active role as 'interpretive filters of HRM [human resources management]'" (Nishii & Paluch, 2018, p. 320), we also examined older employees' relationships with their formal leaders (e.g., Graen & Uhl-Bien, 1995).

We aim to make the following contributions to the literature. First, we respond to a call in the HR literature to examine how the social environment at work could strengthen or attenuate the effects of development and training practices among employees. In other words, "a major research opportunity for HRM researchers could thus be to explore how embeddedness in immediate and distant social contexts (direct and indirect social relations) influences employees' attitudinal and behavioral responses to HR practices" (Kaše et al., 2013, p. 478; see also Bannya et al., 2023; Hollenbeck & Jamieson, 2015; Soltis et al., 2018). An additional contribution is that we leveraged both social network and leader perspectives to examine boundary conditions for intervention effects, as earlier research has typically capitalized on one relational perspective in a study when examining the social environment as a moderator of training effects (Soltis et al., 2023).[1]

Furthermore, by arguing that older workers' social and leader relations may moderate their response to late-career intervention training, we address the lack of research on how the workplace social context of these employees may enhance or hinder intervention effects on their work attitudes and behaviors (e.g., Truxillo et al., 2015). This lack of knowledge concerning the social context of intervention and training implementation is unfortunate, as this kind of "normative data on 'what works for whom' … provide essential guides to effective practice" (American Psychological Association, 2006, p. 278). We also contribute to the work engagement literature by addressing the overlooked aspect of boundary conditions in social contexts (Knight et al., 2017), although social relationships have been theorized as a major antecedent of work engagement (Kahn, 1990).

Finally, we contribute to the social capital literature by examining both how social resources, or network-based resources, may enhance the effects of career intervention on work engagement and how older workers who have limited access to network-based resources may benefit from late-career intervention (see Ceci & Papierno, 2005). On the one hand, it has been suggested that "training interventions will be more effective if employees have a training support network within which they can discuss their newly acquired knowledge and have a social environment in which they feel comfortable trying out their new skills" (Hollenbeck & Jamieson, 2015, p. 371). On the other hand, older employees with few or low-quality workplace social relations may be in particular need of intervention training to increase their resource access and consequently work engagement, because social resource scarcity may decrease engagement (Knight et al., 2017). Social capital theory and research have mainly focused on the positive effects of social networks, while the negative and unintended consequences of networks—such as people having unequal access to network-based resources—have garnered less attention (Kwon & Adler, 2014; Lin, 2001; Portes, 1998).

1.1 | Social capital: access to and mobilization of network-based resources

Social capital theory (e.g., Burt, 1992; Lin, 2001) emphasizes that individuals' positions in social networks have significant consequences on their ability to access and mobilize resources, such as knowledge, influence, and support, through network ties (for a review, see Burt, 2005; Kwon & Adler, 2014; Lin, 2001). In other words, these kinds of social resources, or social capital, consist of resources from other network members, who decide whether to share them with another person. Previous research has also shown that social resources have positive effects on people's career success, adjustment to work, and job performance (e.g., Burt, 2005; Seibert et al., 2001). Furthermore, as noted above, social capital scholars have focused on both the structural and relational dimensions of social capital when examining the use of network-based resources (e.g., Nahapiet & Ghoshal, 1998). First, in examining the *structural dimension* of social capital, scholars have focused on "how and whom you reach" via network ties (Burt, 1992). This structural dimension of social capital refers to network structure, such as whether closed or open networks provide access to adequate resources (e.g., Burt, 2005) and the positions of network contacts in social structures (e.g., Lin, 2001). Social resources theory in particular (Lin, 1982; for a review, see Lin, 2001) argues that network-based resources depend on who you contact through said networks. In other words, this theory suggests that a contact's position in an organizational hierarchy defines the kind of resources accessible through the network. For example, the higher the network contact's position in the hierarchy, the higher the amount of resources available in that network. Upper reachability indicates network contacts' status or position in the focal hierarchy and is often indicated by their place in the organizational hierarchy, their occupational prestige, or their socioeconomic status (Lin, 2001).

Although social capital theory and research have focused on the positive effects of access to network-based resources, some scholars have also noted the negative and unintended consequences of networks, such as "the same … ties that bring benefits to members of a group commonly enable it to bar others from access" (Portes, 1998, p. 15). Similarly, older workers do not comprise a homogenous group in terms of their social resources but have variable access to such resources. For example, research findings indicate that unequal access to networks increases over the course of life (Volker, 2020). Furthermore, studies indicate that older adults may have fewer social ties at work than younger employees (for a review, see Wrzus et al., 2013) and thus may have fewer social resources for supporting their work engagement. Accordingly, some older employees may run the risk of lacking important social ties at work for crucial discussions, which may hinder their access to support and collegiality.

Second, besides the structural dimension of social capital, research has focused on its *relational characteristics*, which refer to the quality of relations with network ties (e.g., Nahapiet & Ghoshal, 1998). A central concept in the network literature to describe the quality of relationships has been tie strength, indicating the presence of either weak or strong ties in the network (Granovetter, 1973). Specifically, strong ties, such as friendships, are typically motivated to provide support and resources (Granovetter, 1983; Seibert et al., 2001), as they are characterized by closeness and reciprocity—that is, high tie strength. Instead, weak ties, such as friends of friends, are typically less motivated to provide resources because these relationships are characterized by lower closeness and reciprocity (i.e., low tie strength) than strong ties (Granovetter, 1983). Furthermore, the quality of the working relationship between older employees and their formal leaders may also be important for the successful mobilization of resources at work. Specifically, according to leader–member exchange theory, a high-quality working relationship between a leader and a follower is characterized by mutual trust, respect, and obligation (Graen & Uhl-Bien, 1995) and is "more collegial than hierarchical when leader and follower exert high levels of incremental influence" (Boyd & Taylor, 1998, p. 15). In other words, a high-quality working relationship between a leader and a follower can also be seen as a "stronger tie" (see Sparrowe & Emery, 2015), and thus a leader is motivated to provide resources to the employee.

Our overall argument is that these structural dimensions (upper reachability and the number of social ties at work with whom important matters can be discussed) and relational characteristics (tie strength and relationship quality with the leader) of social networks may also moderate the effect of late-career management interventions on older workers' work engagement, as they shape older employees' ability to access and mobilize resources at work.

1.2 | Hypotheses

Older workers' access to social resources, such as information, advice, and sponsorship, through network contacts in higher organizational positions (upper reachability), may help them implement personal work goals and knowledge gained through intervention training. Earlier research has shown that social capital or resources, as indicated by upper reachability, are related to role and job learning (Morrison, 2002) and to receiving career mentoring and support (Seibert et al., 2001; for a review, see Eby et al., 2013).

Furthermore, social capital theory argues that there are two phases involved in reaping the benefits of network-based resources: access to networks and the mobilization of network-based resources through network ties (Lin, 2001). For example, previous research has shown that, although people have access to networks, they may not mobilize or use these network-based resources (e.g., Bensaou et al., 2014). However, with intervention training, older workers can be motivated to mobilize the resources to which they have access through network contacts. During the intervention training reported here, older workers discussed and planned how to utilize their networks to seek support for their careers and work (Vuori et al., 2019). Thus, the mobilization of network-based resources, such as sponsorships provided by network contacts at higher organizational levels (Seibert et al., 2001), may also be beneficial for older employees to transfer the skills and knowledge that they acquire during intervention training to their work. We argue that network resources, as indicated by upper reachability, may be an important avenue for older employees to seek support and sponsorship, which enhances the effect of intervention designed to facilitate individual resources. Therefore, upper reachability strengthens the effect of the intervention on work engagement.

> **Hypothesis 1.** The positive effect of late-career management intervention on work engagement will be moderated by upper reachability, such that the effect is stronger at higher levels of upper reachability.

Furthermore, we argue that older employees with few or no social connections at work to discuss important work-related issues may benefit from intervention training, as evidenced by increased work engagement. Specifically, older workers without personally important relationships at work risk poor access to workplace social resources due to a lack of higher level contacts in the organization and are likely to be deprived of supportive relations with coworkers and colleagues. Furthermore, these relationships with colleagues are important for a sense of being valued (Farh et al., 2021) and collegiality at work (Gersick et al., 2000). In turn, being valued by colleagues and collaborating with them can "heavily influence one's potential to obtain day-to-day respect and enjoyment at work" (Gersick et al., 2000, p. 1039). Indeed, research indicates that when older employees have satisfying relationships at work, they report higher work engagement (Avery et al., 2007).

However, unlike older employees with supportive coworkers, those with few or no personally important social ties at work may need intervention training that encourages proactive behaviors, such as developing social ties for support and collegiality, to enhance their work engagement. Previous research indicates that older adults may be more susceptible to social isolation at work (for a review, see Maurer, 2001) and thereby have fewer social ties that could support their work engagement. For example, older workers may be reluctant to ask for support or advice from others at work because of age norms that set expectations regarding from whom it is appropriate to seek information and support. Such expectations that with age come more knowledge and expertise, and thus older individuals should provide rather than seek support and knowledge (e.g., Burmeister et al., 2018). Furthermore, older professionals are less motivated to form long-term relationships with new colleagues (Walsh et al., 2018). Similarly, the theory of socioemotional selectivity argues that older adults typically focus on fewer social ties than younger ones (Carstensen et al., 1999).

Thus, older professionals with no or only a few colleagues with whom they can discuss important matters at work, which implies less collegiality and fewer supportive ties, are particularly likely to benefit from intervention training that provides peer support and learning regarding how to be proactive and develop resources and collegiality at work, as indicated by increased work engagement.

> **Hypothesis 2.** The positive effect of late-career management intervention on work engagement will be moderated by the number of social ties at work such that the effect is stronger for individuals with fewer social ties at work.

We further argue that tie strength, such as closeness between older workers and individuals in their networks, moderates the effects of intervention training on work engagement. Specifically, we suggest that older professionals with weaker ties—that is, lower tie strength with network contacts—benefit from intervention training and related peer group support because weaker ties are less likely to provide support and older professionals themselves are less likely to ask for support from weak ties.

The literature indicates that stronger ties, meaning higher tie strength, are typically more strongly motivated to provide support than weaker ties, as the former are characterized by closeness and reciprocity (Granovetter, 1983; Seibert et al., 2001). Conversely, weaker ties are associated with lower motivation to provide information and support than stronger ties (e.g., Seibert et al., 2001). Previous

research has indicated that older professionals rely more on a small circle of close people than younger professionals do (Wrzus et al., 2013). Therefore, older workers with predominantly weaker network ties may have less support available at work and may be less inclined to ask for support from their connections than those with stronger ties. Such employees may particularly benefit from intervention training, which can motivate and empower them to develop their resources to capitalize on their own skills and strengths, as well as to develop their relationships at work.

> **Hypothesis 3.** The positive effect of late-career management intervention on work engagement will be moderated by tie strength in the network such that the effect is stronger at lower levels of tie strength in the network.

Finally, in a similar vein, we argue that older employees with low-quality relationships with their leaders may particularly benefit from late-career interventions, because poor working relationships with formal leaders may hinder the mobilization of resources at work (Scandura & Graen, 1984). Specifically, older workers' intervention training focuses on how to work with their supervisors to develop tasks and roles (Vuori et al., 2019). For example, older employees could proactively ask for advice on how to modify their tasks and work-time arrangements to support their well-being and motivation. Furthermore, by being proactive with their supervisors, older workers could receive help in implementing the knowledge acquired during intervention training. Earlier research has shown that supervisor support is related to many aspects of training effectiveness, such as acquiring knowledge and skills (for reviews, see Bell et al., 2017). Additionally, supportive leadership enhances the transfer of skills learned through training to the actual job (Smith-Jentsch et al., 2001). Older employees' motivation for training and development also benefits from supervisor support (van Vianen et al., 2011).

> **Hypothesis 4.** The positive effect of late-career management intervention on work engagement will be moderated by the relationship quality with the leader such that the effect will be stronger at lower levels of relationship quality with the leader.

2 | METHODS

2.1 | Sample

This study was based on the same randomly assigned field experimental study (RCT) examined by Vuori et al. (2019), although we used many different measures and addressed different hypotheses in this study. The intervention study began in 2014, and the intervention phase ended in the summer of 2016. Seventeen organizations in Finland participated in the study: six private enterprises, two state organizations, and nine municipal organizations. Organizational contacts recruited study participants via information leaflets, promotional slides, and email advertisements. The most effective recruitment channel for the organizations was a personal email invitation to employees over 55. Although the recruiting advertisements included a description of the age criteria to participate (i.e., 55+), a few younger persons also participated. Participation was voluntary, and neither the research group nor the contact persons selected any candidates.

To participate in the study, the participants had to provide their written informed consent and return the baseline assessment questionnaire that included background questions and social network and leadership measures (Time 1 [T1]) to the researchers. They were allowed to fill in the questionnaires and participate in the study during their paid work hours. The participants' ($n = 699$, T1) mean age was 58.1 (SD = 2.78), and most (79.4%) of them were women. High school or vocational education was the highest form of education among 32.9% of the sample. Most of the participants (68.0%) worked in the public sector, and the rest (32%) worked in the private sector. A more detailed description of this "Work Engagement for Senior Employees" group intervention can be found in Vuori et al. (2019).

2.1.1 | Randomization procedure, experimental design, and follow-ups

The 699 eligible respondents were randomly divided into the intervention group (i.e., group training) ($n = 359$) and the comparison group ($n = 340$). This randomization was carried out separately by two researchers for each participating organization, and the results of the randomization were sent to the participating organizations. The participants in the intervention group were invited to take part in the group training during their work hours, and printed reading material was sent to the homes of the comparison group members. The reading material provided general career and health-related information.

Immediately after the intervention, a follow-up questionnaire (Time 2 [T2]), was sent to the homes of all participants. These T2 questionnaires were returned by 340 (94.7%) members of the intervention group and 314 (92.4%) members of the comparison group. To obtain long-term follow-up data on the effects of the intervention, a third questionnaire was sent (Time 3 [T3]), 6 months after the intervention. These questionnaires were returned by 342 (95.3%) participants from the intervention group and 314 (92.4%) participants from the comparison group. In total, all three questionnaires were completed by 627 (89.7%) participants. As our focus was on the participants' social networks, we excluded 16 participants (11 from the intervention group and 5 from the control group) who did not name any network ties in the T1 survey. We also examined our hypotheses by including these 16 participants in the analyses, and the results were similar to the analyses in which these participants were treated as missing data.

2.1.2 | Intervention training description

In every organization, the intervention started with training for a co-trainer team of at least two trainers. The trainers were typically personnel from the HR departments of the organizations, but some

industrial safety delegates were also trained. The trainers were nominated by the participating organizations. After their own training, the trainers contacted the study participants who had been randomized into the intervention group in their organization and invited them to participate in 16-h group-based training. Most of the training was carried out through four 4-h workshops over a two-week period. In some organizations, the training was implemented more intensively and completed in two full days. The study included 31 intervention workshops in total. The central aim of the training was for the participants to learn and acquire concrete "tools" from other participants in the workshops, which could also help them translate the more subjective beliefs and preparedness effects into "real-world" effects. At the end of the program, the participants set concrete goals (i.e., a developmental plan) for their future and planned how and when they would reach them. They also shared this plan with their supervisors.

The group training principles played an important role in the intervention, and the training employed active teaching and learning methods. This means that the trainers utilized the participants' own career knowledge as the starting point for the learning process instead of traditional lecturing. Accordingly, the training was designed to be participant-centered rather than trainer-centered. Furthermore, the intervention was designed such that the active participants, together with the skilled trainers, could build trust and create a supportive learning environment that would enable the participants to support and learn from each other (Price et al., 1998).

Regarding the intervention content (see Vuori et al., 2019), the exercises were related to the areas of late-career management self-efficacies: seniority skills, work ability, and perceptions about employability. In the exercises on *seniority skills*, the participants considered, for example, how to be assertive with respect to age discrimination, how to highlight their own skills, strengths, and occupational experiences, and how to better share experience-based knowledge with colleagues. The exercises aimed at *maintaining and promoting work ability* included questions on how to develop oneself in one's job, manage one's own career during organizational changes, improve networking, obtain social support, and stay active and in good health. In the exercises focusing on *strengthening one's confidence in one's employability*, the participants focused on their self-efficacies and the possibilities of finding interesting new tasks within their organizations or elsewhere.

The intervention program also included exercises related to *preparation against career setbacks*. Accordingly, the participants shared their experiences of setbacks and barriers during their late careers and empathized with the feelings these experiences aroused. After the discussions, the participants suggested plausible solutions to these setbacks and barriers. Finally, they practiced these solutions in small groups (Price et al., 1998).

2.2 | Measures

2.2.1 | Social networks and leadership (T1)

At Time 1, the participants were asked, "With whom have you discussed important matters related to your work, career, retirement, or occupational future in general?" They could answer by naming up to five individuals in their network (see Merluzzi & Burt, 2013). It has been suggested that relationships involving informal discussions should be included in the examination of social networks (Burt, 1997). On average, the participants named 3.9 network ties (SD = 1.31). The participants were then asked to evaluate each named network connection using different questions. Based on these questions, we constructed the following variables: *Tie strength* was the mean of the ratings for all the named network connections for the question, "How close do you feel to this person?" (1 = not at all, 5 = very close) (e.g., Seibert et al., 2001); *upper reachability* was measured by the number of network connections indicated as being positioned higher in the organizational hierarchy than the participant (e.g., Seibert et al., 2001); *number of social ties in the organization* indicated how many named network contacts were working at the respondent's organization.

Relationship quality with the leader was measured using an eight-item scale (leader–member exchange; Graen & Uhl-Bien, 1995; $\alpha = 0.94$). The original scale included seven items, but based on earlier literature (e.g., Bauer & Green, 1998), one item of the scale ("Do you know where you stand with your leader… do you usually know how satisfied your leader is with what you do?") was split into two separate items ("I usually know where I stand with my supervisor" and "I usually know how satisfied my supervisor is with me"). The participants rated all the items using the same scale (1 = strongly disagree, 7 = strongly agree).

2.2.2 | Work engagement (T1, T2, and T3)

Work engagement was measured using the nine-item Utrecht Work Engagement Scale (e.g., "I feel bursting with energy while working") (Schaufeli et al., 2006). The rating scale ranged from "0 = never" to "6 = daily." The reliability estimates (α) were 0.95 (T1), 0.96 (T2), and 0.96 (T3).

2.2.3 | Control variables

We controlled for late-career management preparedness (T2; e.g., "How confident are you that you can change your work tasks when you want to?"; $\alpha = 0.86$), as it has been shown to mediate intervention effects on work engagement in a previous study (Vuori et al., 2019). In addition, we used age, gender, and organizational tenure as control variables. The results reported below are similar with and without these variables and we removed nonsignificant control variables from the model.[2]

2.3 | Statistical analyses

We first examined changes in work engagement over time using latent growth modeling (LGM) in the structural equation modeling framework (e.g., Bollen & Curran, 2006). The three work engagement

variables for Time 1, Time 2, and Time 3 were used as indicators for the two latent growth factors of intercept and slope. The intercept factor indicated the initial level of work engagement at Time 1, while the slope factor indicated changes in work engagement between Time 1 and Time 3. LGM aims to model individual differences in the changes in the focal variable over time. In other words, LGM is used to examine whether there are changes over time (i.e., the mean of the slope factor) and whether there are individual variations in these changes over time (i.e., the variance of the slope factor). Furthermore, the measures used in LGM should show measurement invariance over time (e.g., Bollen & Curran, 2006), and the measurement invariance of work engagement was reported in a previous study (Vuori et al., 2019). We then examined the extent to which the covariates related to changes in work engagement. We regressed the slope factor of work engagement on the control variables, career preparedness (T2), intervention status, relation quality with leader, characteristics of social networks (number of ties in the organization, tie strength, and upper reachability), and the interaction terms between relation quality with leader and the intervention status, as well as between the characteristics of networks and the intervention status. We also controlled for the initial level of work engagement. In addition, we set paths from intervention status, relationship quality with leader, and the characteristics of the social networks to career preparedness, and a path from career preparedness to change in work engagement (slope factor). Thus, we examined whether the characteristics of older workers' social networks and leader relations moderate the direct effects of the intervention on work engagement when the mediator effect, that is to say, career preparedness, was controlled for (Hayes, 2015).

We used Bayesian estimation with non-informative priors (e.g., Zyphur & Oswald, 2015) with the current data to examine the moderator effects of social networks' structural and relational characteristics. Bayesian estimation seems to provide accurate moderator estimates (Zhang & Wang, 2017). For example, the distribution of the parameter estimates of the interaction effect is usually not normal (Zhang & Wang, 2017), and Bayesian estimation does not require this normal distribution assumption, as is the case with maximum likelihood estimation. Furthermore, we mean-centered these variables and formed interaction terms with the intervention status and used ±1 SD to plot significant interaction effects. An important indicator of model fit related to Bayesian estimation is "the posterior predictive *p*-value (PPP)" (Asparouhov & Muthén, 2010), "which reflects the proportion of times that the observed data are more probable than the generated data" (Zyphur & Oswald, 2015, p. 402).

Missing data patterns were evaluated. Participants with missing measurement points showed no differences in background characteristics and work engagement from those who responded to all measurement waves (Vuori et al., 2019). Thus, we also considered participants who did not respond to all follow-up surveys. We also examined variations in work engagement between organizations using multilevel modeling. The results indicated that there was no statistically significant variation between organizations with regard to work engagement (ICC = 0.03 [T1], 0.01 [T2], and 0.003 [T3]). Thus, we did not further examine organization-level variations in our analyses. We used the Mplus program to run the statistical analyses (Muthén & Muthén, 1998-2017).

3 | RESULTS

Table 1 shows the descriptive statistics of the main study variables. In addition, we examined the baseline differences in these variables between the intervention and control groups and found that the intervention group reported higher work engagement (M = 4.77; SD = 1.03 vs. M = 4.59; SD = 1.16; $p < 0.05$) and a higher number of social ties in the organization (M = 2.01; SD = 1.36 vs. M = 1.80; SD = 1.22; $p < 0.05$) than the control group at T1.

The examination of work engagement over time indicated that a nonlinear slope could be needed to describe changes in work engagement. Thus, we evaluated latent growth models with both linear and nonlinear slope factors. As we had only three measures of work engagement over time, we analyzed nonlinear changes by letting work engagement at T2 be a free time score; that is, this loading on the slope factor was freely estimated. The results showed that the linear model failed to converge, as the residual variance for work

TABLE 1 Descriptive statistics and intercorrelations among the main study variables.

	Variable	M	SD	1	2	3	4	5	6	7	8	9
1.	Tie strength T1	3.83	0.76									
2.	Upper reachability T1	0.53	0.73	−0.22**								
3.	Social ties in the organization T1	1.90	1.30	−0.33**	0.46**							
4.	Relationship quality with the leader T1	3.73	0.83	0.10**	0.16**	0.05						
5.	Intervention	0.52	0.50	0.03	0.02	0.07	−0.01					
6.	Work engagement T1	4.68	1.09	0.12**	0.04	0.06	0.29**	0.08*				
7.	Career management preparedness T2	3.52	0.52	0.12**	0.02	0.01	0.37**	0.12**	0.49**			
8.	Work engagement T2	4.66	1.14	0.09**	0.08*	0.07	0.24**	0.13**	0.83**	0.60**		
9.	Work engagement T3	4.64	1.18	0.11**	0.03	0.03	0.19**	0.12**	0.75**	0.52**		

Note: T1 = Time 1, T2 = Time 2, T3 = Time 3.
*$p < 0.05$; **$p < 0.01$.

engagement at T3 was negative. A negative residual variance usually indicates a misspecified model (e.g., Bollen & Curran, 2006). The nonlinear model was just identified and presented adequate estimates. We used a bootstrap estimator to estimate the confidence intervals for the model estimates of the growth factors (mean and variance). The results showed that the mean of the slope factor was negative but not significant (est. = −0.04, 90% CI = [−0.08, 0.03]), and the slope factor indicated individual variation in the changes in work engagement between T1 and T3 (est. = 0.37, 90% CI = [0.01, 0.83]). We also estimated the nonlinear LGM model separately in the intervention and control groups. Specifically, in the intervention group, there was no change in work engagement over time (est. = −0.01; 90% CI = [−0.07, 0.05]), but a slight decrease in work engagement was found in the control group over time (est. = −0.09; 90% CI = [−0.17, −0.005]).

We used a nonlinear growth model with Bayesian estimation to examine the moderator effects of the characteristics of social network and leader ties. The results showed that the difference between the observed and replicated X^2 values was significant (PPP < 0.001, 95% CI = [63.13, 111.27]; DIC = 5091.02), indicating a poor model fit (Asparouhov & Muthén, 2010). However, when we regressed the initial status of work engagement on control variables and the characteristics of social network and leader ties (T1), the model showed a rather good fit with the data (PPP = 0.21, 95% CI = [−10.16, 32.44]; DIC = 5017.83). The results reported below are similar with and without these paths in the model.

The results demonstrated that upper reachability moderated the intervention effects on work engagement (est. = 0.17, 95% CI = [0.06, 0.29]), that is, the credibility interval did not include zero, as displayed in Table 2. The simple slope analysis showed that the higher the upper reachability, the stronger the intervention effect on work engagement (+1 SD above mean, est. = 0.17, 95% CI = [0.07, 0.29]; −1 SD below the mean, est. = −0.01, 95% CI = [−0.11, 0.09]). Figure 1 illustrates this moderated relationship. This finding supports

TABLE 2 Model results of intervention effects on change in work engagement as moderated by social ties.

Dependent variable (DV): Slope of work engagement			
	Estimates		
	Estimate	SE	95% CI
1. Intercept (initial level of DV)	−0.16	0.06	[−0.26, −0.05]
2. Career preparedness	0.47	0.07	[0.32, 0.59]
3. Intervention	0.08	0.03	[0.01, 0.17]
4. Relationship quality with the leader	−0.14	0.04	[−0.23, −0.06]
5. Social ties in the organization	0.06	0.03	[0.01, 0.11]
6. Tie strength	−0.02	0.05	[−0.10, 0.08]
7. Upper reachability	−0.08	0.04	[−0.17, −0.01]
8. Intervention*Relationship quality with the leader	0.04	0.05	[−0.05, 0.15]
9. Intervention*Social ties in the organization	−0.10	0.04	[−0.18, −0.03]
10. Intervention*Tie strength	−0.03	0.06	[−0.16, 0.07]
11. Intervention*Upper reachability	0.17	0.06	[0.06, 0.29]

Abbreviations: CI, credibility interval; estimate, unstandardized coefficients; SE, standard error (standard deviation of the posterior distribution).

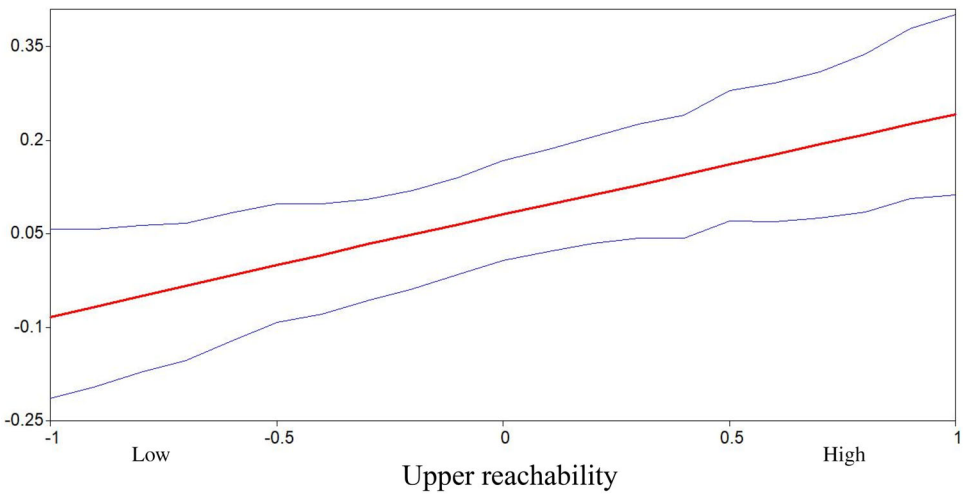

FIGURE 1 Moderating effect of upper reachability on the intervention effect on work engagement with lower and upper credibility intervals (95%).

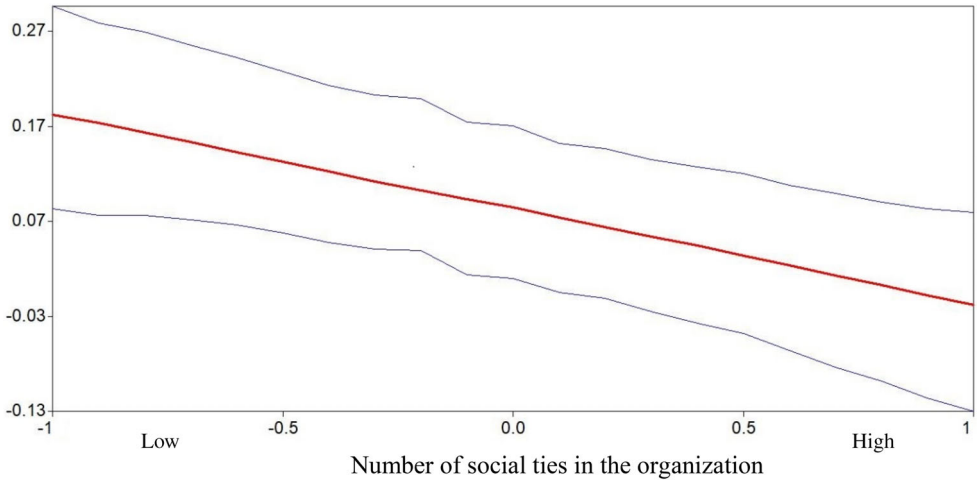

FIGURE 2 Moderating effect of the number of social ties in the organization on the intervention effect on work engagement with lower and upper credibility intervals (95%).

Hypothesis 1. The results indicated that the number of social ties in the organization moderated the effect of intervention on work engagement, as shown in Table 2 (est. = −0.10, 95% CI = [−0.18, −0.03]). The simple slope analysis revealed that the lower the number of social ties in the organization, the higher the intervention effect on work engagement, supporting Hypothesis 2 (−1 SD below the mean, est. = 0.21, 95% CI = [0.10, 0.34]; +1 SD above the mean, est. = −0.05, 95% CI = [−0.18, 0.06]). We show this moderator effect in Figure 2. The results also showed that Hypothesis 3 was not supported, that is, tie strength did not moderate the intervention effects on work engagement; see Table 2. Finally, the results showed that the relationship quality with the leader did not moderate the intervention effects on work engagement, as shown in Table 2. Thus, Hypothesis 4 was not supported.[3]

4 | DISCUSSION

We examined the extent to which the structural and relational characteristics of social capital moderate the effect of a late-career management intervention on older employees' work engagement. To this end, we drew on a randomly assigned field experimental study (RCT; Vuori et al., 2019) for new research questions. First, we found that older workers with fewer social connections in their organization with whom they could discuss important matters reported greater benefits from this career management intervention, as indicated by their higher work engagement. Second, the results showed that older workers with social ties at higher organizational levels (upper reachability) exhibited higher work engagement as an upshot of the intervention. The results further showed that the strength or quality of one's social and leader ties did not moderate the effects of the late-career management intervention on work engagement.

4.1 | Theoretical contributions

Our study provides contributions to the intervention, older workers' work engagement, and social capital literature by empirically examining the role of the social environment as a boundary condition for intervention effects on work engagement. First, we conceptualized older employees' social environments through social capital theory, addressing the need to understand how their embeddedness in these environments influences how they respond to HR practices and training (Hollenbeck & Jamieson, 2015; Kaše et al., 2013; Soltis et al., 2018, 2023). Our results indicate that network relations and resources can distinguish employees who are likely to benefit from training that aims to enhance personal resources, such as self-efficacy beliefs related to career development. On the one hand, when employees have social resources at work (high upper reachability), these resources seem to enhance the intervention's impact on their work engagement. On the other hand, the results also indicate that an intervention training can offset a lack of social resources at work, as employees with few or no social relations at work (i.e., low social resources) reported higher work engagement after the intervention training. Thus, by examining employees' network ties and related resources, it is possible to identify subgroups that may respond positively to training and guide targeted intervention efforts (e.g., Nielsen & Miraglia, 2017).

Second, despite calls to examine "which aspects of work itself and the social environment produce the highest levels of attraction and engagement for older employees" (Taylor, 2018, p. 28), research has largely focused on aspects of older workers' work environment, such as work characteristics (Goštautaite & Bučiuniene, 2015), behavior, such as job crafting (Kooij et al., 2020), and personal resources, such as career preparedness (Vuori et al., 2019), as antecedents of work engagement. Although older workers' social environments have been theorized as major antecedents of work engagement (Kahn, 1990), they have attracted limited research (Truxillo & Brulacu, 2015). Research on the effects of interventions on work engagement in general has also paid little attention to boundary conditions in social environments (Knight et al., 2017). Our results indicate that effective intervention training for older workers should consider their network relations and access to network-based resources that support their implementation of the training and, consequently, their work engagement (cf. Soltis et al., 2018). Specifically, as noted above, the results showed that older workers with social ties at higher organizational levels (upper reachability) presented higher

work engagement as a result of the intervention than those with low upper reachability. A possible explanation is that peer learning-based intervention training might encourage older workers to mobilize network-based resources through their higher level contacts, which may provide resources—such as information and advice on how to capitalize on the lessons learned through the intervention.

Finally, although social capital research has mostly focused on the positive effects of social networks, some scholars have also noted their downsides, such as people having unequal access to network-based resources (Kwon & Adler, 2014; Lin, 2001; Portes, 1998). Similarly, our results indicate that older workers differ in their access to network-based resources, suggesting that they are not a homogenous group in this respect. We found that older adults with few or no social contacts at work with whom they could discuss important matters benefited from the intervention training, as indicated by their higher work engagement. This kind of social isolation may be detrimental to older workers in particular, as they need satisfying relationships at work to realize high work engagement (Avery et al., 2007). However, social learning and the mutual sharing of personal experiences in group-based interventions can be particularly beneficial to older employees with few or no important social relations at work. They may acquire new knowledge and social connections, developing their work and social environment, as reflected by increased work engagement. Additionally, informal social connections at work are an important avenue for acquiring support (e.g., Burt, 2005) and building collegiality (Gersick et al., 2000).

The results further showed that the strength of one's social ties did not moderate the effects of the late-career management intervention on work engagement. Specifically, we hypothesized that older workers with networks characterized by weak ties would benefit from the intervention because weak connections, such as friends of friends, are less motivated to provide support than strong ones, such as friends (Granovetter, 1983). A possible explanation for this result is that although weak ties may be less motivated to provide support, they may still share resources such as information. Previous studies have indicated that weak ties are related to access to network-based resources (e.g., Seibert et al., 2001). Contrary to our expectations, older employees with low-quality relationships with their leaders did not benefit from the late-career intervention—that is, the quality of their working relationships with their leaders did not moderate the intervention effects on work engagement. This finding may indicate that organizational factors may limit the effect of employee training on developing relationships with leaders and accessing related resources that promote engagement at work. Specifically, organizational context may constrain leaders' ability to respond to employees' training-induced increased efforts to develop this relationship (see Oc, 2018). Leaders' responses are important, because research indicates that leaders' attitudes and behaviors explain most of the variation in the quality of relations between them and their followers (Dulebohn et al., 2012). Thus, although training motivates employees to actively engage with their leaders, leaders might lack the resources to reciprocate and thus enhance employees' work engagement. For example, leaders with many subordinates may have lower quality relationships with them, as limited resources lead to reduced interaction (Green et al., 1996).

4.2 | Practical implications

The finding that older workers with few or no work-based social connections benefit from the intervention warrants focusing intervention and training efforts on this subsample. In organizations, a typical way to develop relationships and social integration at work is to participate in social events at work and socialize with coworkers. However, earlier research has indicated that social events and socialization at work predominantly foster relationships among demographically similar people (Dumas et al., 2013). Thus, if older employees are a minority group at work, their social integration may not benefit from social events that are planned for people of all ages. Specifically, as Leonard et al. (2008) reported, "the lower the relative proportion of group members in a social context, the higher the likelihood of within-group identification and friendship" (p. 574). In other words, when older employees are a minority group in the organization, age becomes a visible and salient characteristic that may divide people into groups, leading older adults to identify with and communicate primarily within their own age group (e.g., Zenger & Lawrence, 1989). In this kind of social environment, arranging activities among similarly aged people, as in the training reported here, is another option. Thus, besides organizing social events and training among people of different ages in which older employees can socialize and mutually share experiences with younger ones, an organization may also be warranted to support small peer group activities among people of the same age and encourage their mutual sharing of personal experiences and knowledge at work (cf. Burmeister et al., 2021). These peer group activities may encourage older workers to develop their social resources and collegiality at work, thus supporting their work engagement.

Furthermore, if older professionals have access to network-based resources, their motivation to capitalize on the same can perhaps be enhanced, considering that people may be reluctant to use network-based resources (Bensaou et al., 2014). Through peer group training, older workers may show increased activity in mobilizing network-based resources through their contacts at higher levels in the organization, which in turn could be reflected in their higher work engagement. Thus, older workers' social ties with people should be fostered at higher levels in the organization to support the implementation of learning and training in everyday work, as indicated by our results.

4.3 | Limitations and future research directions

Regarding the study's limitations, first, the self-reported nature of the measures may have led to method bias or variance—in other words, inflation of the estimates of the association between the study variables. However, our longitudinal research design aimed to mitigate the method bias problem (Podsakoff et al., 2003) by measuring the

predictor and outcome variables at different times. Furthermore, as the study design included both intervention and control groups, we controlled for baseline measures in our statistical analyses, which should further address method bias. Second, the sample comprised mostly women, which could limit the generalizability of the study results. Thus, these results need to be replicated with more heterogeneous samples.

Third, we used only one name generator ("discuss important matters") to elicit older workers' network ties, which may limit the range of reported relationships. In future studies, one could explore older workers' social networks more thoroughly using more name generators (e.g., advice-seeking, advice-giving, and friendship ties) to capture both professional and personal ties and their impact on training response. Furthermore, an important research question could be the extent to which older employees give and receive advice and whether being an advice giver or receiver makes a difference in the effect of intervention training. For example, research has shown that older employees' advice-giving rather than advice receiving is related to their feelings of competence and social belonging (Burmeister et al., 2020). In addition, providing advice leads to enhanced learning at work, as indicated by job performance (Shah et al., 2018).

Finally, future studies could further examine how leaders and the quality of their working relationships with older employees influence the implementation of intervention training. In fact, a recent review of leader–follower relations (LMX) among older employees yielded no practical recommendations due to limited research on the topic (Truxillo & Burlacu, 2015). For example, one could investigate whether leaders' perceptions of their working relationships with older employees moderate intervention outcomes on work engagement, because leaders' perceptions and behaviors are critical antecedents for the quality of these relationships (Dulebohn et al., 2012). Furthermore, planning and implementing leadership interventions to study how leader training in areas such as diversity management boosts older employees' motivation and engagement at work is advisable (e.g., Kulik et al., 2016).

5 | CONCLUSION

We capitalized on social capital theory to examine the extent to which older workers' social network and leader ties offer boundary conditions for the effects of late-career management intervention on their work engagement. We found that the fewer social connections that older workers had in their organization with whom they could discuss important matters, the more they reported benefiting from intervention training, as indicated by their higher work engagement. The results further showed that older workers with social ties at higher organizational levels exhibited higher work engagement as an upshot of the intervention. However, the relationship quality between older workers and their leaders showed no moderation effect. We hope that future studies will continue to look into the role of both social networks and leader relations in intervention training and its implementation at work.

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CONFLICT OF INTEREST STATEMENT

The authors have no known conflict of interest to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on reasonable request from the second author (Mervi Ruokolainen). The data are not publicly available due to privacy or ethical restrictions.

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ENDNOTES

[1] We thank an anonymous reviewer for pointing this out.

[2] We also created a variable to control for supervisors as a network tie in our analysis. That is, we calculated a dummy variable to indicate whether a supervisor was named as a network tie or not. The results showed that this dummy variable was associated with upper reachability ($r = 0.34$, $p < 0.001$) and relationship quality with the leader ($r = 0.13$, $p < 0.001$). When this control variable was included in the model to test our hypotheses, the results were similar to those reported below concerning moderator effects. For example, the estimate of moderator effect of upper reachability was 0.16, 95% CI [0.04, 0.29].

[3] We also examined three-way interactions (Dawson & Richter, 2006) to test the joint effect of relational dimensions of social capital (strength of ties and relationship quality with the leader), structural dimensions of social capital (upper reachability and the number of social ties in the organization), and intervention training on work engagement. The results showed that all three-way interaction terms were non-significant (all 95% CIs included zero).

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