

## Managing aging workers: a mixed methods study on bundles of HR practices for aging workers

Dorien T.A.M. Kooij<sup>a\*</sup>, Paul G.W. Jansen<sup>b</sup>, Josje S.E. Dikkers<sup>c</sup> and Annet H. de Lange<sup>d</sup>

*<sup>a</sup>School of Social and Behavioral Sciences, Department of Human Resource Studies, Tilburg University, Tilburg, The Netherlands; <sup>b</sup>Faculty of Economics and Business Administration, Department of Management and Organization, VU University Amsterdam, Amsterdam, The Netherlands; <sup>c</sup>Human Resource Management, University of Applied Sciences Utrecht, Utrecht, the Netherlands; <sup>d</sup>Faculty of Social Sciences, Department of Work and Organizational Psychology, Radboud University Nijmegen, Nijmegen, The Netherlands*

Since abilities and motives change with age and common human resource (HR) practices might be less suitable for aging employees, scholars and practitioners are currently challenged to find new ways of managing aging workers and motivating them to continue working. Therefore, this mixed methods study builds on literature on lifespan development and literature on HR practices in proposing four new bundles of HR practices for aging workers: accommodative, maintenance, utilization and development HR bundles. Since we draw on separate bodies of literature to propose new constructs, we use a mixed methods design in order to triangulate our findings. The proposed HR bundles were explored with a qualitative interview study among HR managers, line managers and employees in the Dutch construction sector, and tested with a quantitative survey study among Dutch government workers. Both studies confirmed that HR practices for aging workers can be classified into accommodative, maintenance, utilization and development HR bundles of practices.

**Keywords:** aging workers; (bundles of) HR practices; mixed methods study

### Introduction

Since workforces are aging in developed countries (United Nations 2007), organizations need to understand how they can manage their older workers in order to utilize and retain their potential value (Ng and Feldman 2008; Truxillo and Fraccaroli 2013). Earlier research has revealed that work-related motives and abilities change with age (e.g. Rhodes 1983; Warr 2001; Kanfer and Ackerman 2004; Kooij, De Lange, Jansen, Kanfer and Dikkers 2011; Kanfer, Beier and Ackerman 2013). Moreover, several researchers (e.g. Armstrong-Stassen and Schlosser 2011; Bal, Kooij and De Jong 2013) have questioned whether universally applied human resource (HR) practices are appropriate to motivate and retain older workers. As a result, scholars have started to focus their attention on HR practices directed at motivating and retaining older workers. Typically, these studies have taken an employer perspective and propose appropriate HR practices to employ older workers (e.g. Paul and Townsend 1993), or examine available HR practices for the retention of older workers within companies (Remery, Henkens, Schippers and Ekamper 2003). Recently, studies have started to take an employee perspective by examining the effect of HR practices on older workers' intentions to remain in the organization or by examining how the influence of HR practices on worker attitudes changes with age (e.g. Conway 2004; Armstrong-Stassen and Ursel 2009; Kooij, Jansen, De Lange and Dikkers 2010; Kooij et al. 2013).

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\*Corresponding author. Email: [t.a.m.kooij@uvt.nl](mailto:t.a.m.kooij@uvt.nl)

These two types of studies (from an employer and employee perspective) have resulted in several HR practices that are considered particularly (but not exclusively) beneficial for older workers' motivation and retention. These are, among others, flexible work schedules, participation, extended career interruptions and reduced workloads. However, few studies (e.g. Armstrong-Stassen and Schlosser 2011) theoretically underpin why these HR practices are beneficial for older workers. Most of these studies use general theories, such as social exchange theory (Armstrong-Stassen and Ursel 2009) or perceived organizational membership (Armstrong-Stassen and Schlosser 2011), to argue that HR practices influence the retention of older workers. However, some of the practices suggested as beneficial for older workers, such as participation and training, can be considered high commitment HR practices, which are supposed to elicit organization commitment among *all* employees (Wood and De Menezes 1998), both young and old. In contrast, other HR practices – such as reduced workloads – may be particularly beneficial to the commitment of *older* workers only but are as such not theorized upon in existing literature on HR practices.

Therefore, this study aims at using more 'age-sensitive' and employee-centered lifespan theories to: (1) review and (re)structure previous research on HR practices considered particularly beneficial for older workers; and (2) integrate these practices with more general high commitment HR practices by introducing and testing bundles of HR practices for aging workers. Thus, in this study, we take an employee perspective and we support a contingency (i.e. taking individual worker characteristics, such as age, into account) rather than a universalistic view on HRM (i.e. proposing that the same high commitment HR practices will elicit positive work-related attitudes irrespective of individual worker characteristics; Delery and Doty 1996).

Based on the lifespan theory of Selection Optimization and Compensation (SOC; Baltes, Staudinger and Lindenberger 1999), which briefly proposes that individuals strive to achieve four different lifespan goals throughout their lives, we will argue that HR practices can be bundled in four HR bundles for aging workers: accommodative, maintenance, utilization and development HR practices. As such, we draw on separate bodies of literature (i.e. literature on lifespan development and on HR practices) to propose new constructs (i.e. accommodative, maintenance, utilization and development HR bundles). Edmondson and McManus (2007) labeled this 'intermediate theory research' (positioned between mature and nascent theory research) and argued that such studies 'frequently integrate qualitative and quantitative data to help establish the external and construct validity of new measures through triangulation' (p. 1165). In line with this type of research, we apply a mixed methods design to explore and test our hypothesis concerning the four HR bundles for aging workers. Johnson, Onwuegbuzie and Turner (2007, p. 123) define mixed methods research as:

the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.

Since our goal is to triangulate our findings, we use a convergent parallel design (Onwuegbuzie and Collins 2007; Creswell and Plano Clark 2011). This design is characterized by a concurrent timing of the qualitative and quantitative study during the same phase of the research process, which are mixed during the results stage to form the overall interpretation. This design is thus useful for comparing results from one type of data with those of another (Creswell, Plano Clark, Guttman and Hanson 2003; Stentz, Plano Clark and Matkin 2012).

Thus, we will test our hypothesis by conducting two studies. We will perform a qualitative, multiple case study by conducting interviews and focus groups with HR and line managers and younger and older workers with both (physically heavy) blue-collar jobs and white-collar (management) positions in the Dutch construction sector. With this qualitative study, we aim to answer two research questions: (1) which HR policies and practices for older workers do companies use? and (2) how do HR managers, line managers and employees bundle these HR practices? The interviews and focus groups were conducted to examine whether the goals of the HR practices included in one HR bundle are indeed the same. We selected the construction sector for this qualitative study because this sector is characterized by physically demanding jobs, an aging workforce and reduced inflow resulting in a tight labor market at the time our study was conducted (CBS Statline [Statistics Netherlands]). Consequently, companies in the construction sector are likely to have made more progress in implementing HR practices aimed at motivating and retaining their older workers (Midtsundstad 2011). Concurrently, we performed a quantitative survey study among Dutch government workers to examine to what extent HR practices are offered in bundles that correspond to the four lifespan goals of individual employees by testing the four HR bundles with a confirmatory factor analysis (CFA) of the perceived availability of HR practices.

#### ***Lifespan theories: what can we learn about older workers?***

When people age, they will experience both personal gains and personal losses. Gains involve, for example, gains in general knowledge, and losses refer, for example, to deteriorating physical abilities (Warr 2001; Kanfer and Ackerman 2004). Since these losses will outnumber gains in older age, the lifespan theory of SOC (Baltes et al. 1999) proposes that people use different strategies to simultaneously maximize gains and minimize losses. To maximize gains people *select* attainable outcomes or goals and *optimize* their resources to reach these outcomes. To minimize losses people *compensate* for these losses by investing their remaining resources in counteracting these losses. With these strategies, individuals strive to achieve three different lifespan goals: growth (i.e. reaching higher levels of functioning), maintenance (i.e. maintaining current levels of functioning or returning to previous levels of functioning) and regulation of loss (i.e. functioning adequately at lower levels; Baltes et al. 1999).

The importance of these three different types of goals changes over the lifespan. Since a number of losses, in fluid intelligence for example, increasingly occur among older workers, SOC theory argues that allocation of resources aimed at growth will decrease with age, whereas allocation of resources used for maintenance and regulation of loss will increase with age (Baltes et al. 1999). This proposition is supported by Freund (2006), who found that goal focus shifts from emphasizing promotion in young adulthood to emphasizing maintenance and prevention in later adulthood (see also Kanfer and Ackerman 2004; Ebner, Freund and Baltes 2006). Although these studies define older adults as adults older than 60, Super's (1957) Career Development Model similarly proposes that employees pass through three stages aimed at growth and maintenance (i.e. trial, establishment and maintenance) *in their career* before they start detaching from work (and thus focus on prevention or regulation of losses). In sum, lifespan theories distinguish three motives, growth motives, motives for maintenance and motives for regulation of loss, that shift in importance over the lifespan.

As a result, it might be the case that certain 'universal' HR practices (i.e. aimed at development) are less appropriate for older workers. Indeed, several studies (Finegold,

Mohrman and Spreitzer 2002; Conway 2004; Kooij et al. 2010, 2013) found that the association between HR practices, on the one hand, and job satisfaction and affective commitment, on the other, changes with age. Conversely, alternative HR practices which are often not included in previous research might be more appropriate for older workers. Examples are 'accommodative' HR practices, such as semi-retirement or part-time work, which are specifically aimed at 'sparing' (i.e. giving fewer obligations and more privileges to) workers (Remery et al. 2003).

### *HR policies and practices for older workers*

Although studies that focus on HR practices for particularly older workers suggest many HR practices as beneficial for older workers (Paul and Townsend 1993; Remery et al. 2003; Rau and Adams 2005; Saba and Guerin 2005; Armstrong-Stassen 2008a), we agree with Armstrong-Stassen and Schlosser (2011, p. 320) that 'much of this literature is atheoretical and prescriptive in nature'. In addition, this literature focuses on HR practices, whereas the wider literature on HR practices is more and more concerned with HR *bundles* (Jiang, Lepak, Hu and Baer 2012; see also Gardner, Wright and Moynihan 2011). Moreover, these HR practices are under-researched in the HR domain and not integrated in existing literature on HR practices. Therefore, we aim to integrate HR practices for older workers within existing research on HR practices and structure these HR practices by categorizing them into theoretically meaningful HR bundles.

According to MacDuffie (1995), an HR bundle is a set of interrelated and internally consistent HR practices built around an organizational logic (see also Guest, Conway and Dewe 2004). Although we agree that an HR bundle consists of internally coherent and consistent HR practices, since employee perceptions of these HR practices will lead to desirable work outcomes (Guest 2011), we will bundle these HR practices departing from an employee perspective. In line with Toh, Morgeson and Campion (2008), we differentiate HR bundles by the goal of the HR practices. Following Kooij et al. (2010, 2013), we will use the lifespan goals of SOC theory to classify HR practices into HR bundles that meet the needs or goals of aging individuals.

Kooij et al. (2010) performed a meta-analysis of 83 studies to examine the influence of age on associations between high commitment HR practices and work-related attitudes. They distinguished two bundles of HR practices based on the goals to which individuals allocate their resources according to lifespan theories (Baltes et al. 1999): a bundle of *development* HR practices that are related to growth and help individual workers to achieve higher levels of functioning (such as training and internal promotion), and a bundle of *maintenance* HR practices that help individual workers to maintain their current levels of functioning in the face of new challenges, *or* to return to previous levels after a loss (such practices include job security and flexible work schedules).

A third possible bundle of HR practices for older workers, not distinguished in Kooij et al.'s (2010) study, is suggested by Zaleska and De Menezes (2007). In their article, Zaleska and De Menezes (2007) aimed to explore specific development HR practices for older workers, among others. Therefore, they distinguished between the more traditional upward-focused HR practices, such as formal training, challenging jobs and promotion also distinguished by Kooij et al. (2010), and HR practices aimed at lateral development in order to increase employability and flexibility, such as job rotation, special projects and lateral job moves. Furthermore, they argued that the latter HR practices, aimed at lateral development, are particularly important for older workers. In support of this reasoning, Shkop (1982) found that older managers continue working when they can

modify their job (e.g. enrich their jobs with special assignments such as consulting or training younger employees) or change jobs. Similarly, Conway (2004) proposed that employees in the maintenance career stage are concerned not only with maintaining their self-concept, but also with maintaining interest in the job and seeking greater opportunity for involvement.

We can also link this bundle of HR practices aimed at lateral development to the lifespan goals mentioned earlier. Although Baltes et al. (1999) distinguish three life goals to which individuals allocate their resources (i.e. growth, maintenance and regulation of loss), they subdivide maintenance in maintenance *and* recovery: 'The function of maintenance, including recovery (resilience)' (Baltes 1997, p. 369). Consequently, instead of *maintaining* the current level of functioning by dealing with losses (e.g. in health), we argue that HR practices aimed at lateral development help older workers to *recover* from a loss or to *return* to previous levels of functioning after a loss, by removing job demands that have become unachievable from the job and replacing them with other demands that *utilize* already existing, but not yet necessarily applied, individual resources (e.g. experience). Consequently, we denote this bundle 'utilization HR practices'.

A fourth possible bundle of HR practices for older workers, also not distinguished in Kooij et al.'s (2010) study, is suggested by studies examining the availability of HR policies and practices for older workers within companies. These studies (e.g. Taylor and Walker 1998a,b; Remery et al. 2003) have found that the most widely implemented form of HR practices for older workers are *accommodative* ones that typically reduce older workers' work demands, such as additional leave and demotion. These HR practices help individual workers to function adequately at lower levels of job demands, and thus help attain the lifespan goal 'regulation of loss'.

In sum, based on lifespan theories and earlier research, we distinguish four bundles of HR practices for aging workers: *development* HR practices are practices that help individual workers to reach higher levels of functioning (e.g. training); *maintenance* HR practices are practices that help individual workers to maintain their current levels of functioning in the face of new challenges (e.g. flexible work schedules); *utilization* HR practices are practices that help individual workers to return to previous levels of functioning after a loss, by removing job demands that have become unachievable for an employee from the job and replacing them with other demands that *utilize* already existing, but not yet necessarily applied, individual resources (e.g. lateral job movement); and *accommodative* HR practices are practices that organize adequate functioning at lower levels when maintenance or recovery is no longer possible (e.g. less physically demanding posts) (see also Remery et al. 2003). In sum, we hypothesize:

*Hypothesis 1:* HR practices for aging workers can be bundled into accommodative, maintenance, utilization and development HR practices.

## Method

### Research design

We employed a convergent, parallel mixed methods research design (e.g. Onwuegbuzie and Collins 2007; Creswell and Plano Clark 2011) combining both qualitative and quantitative methods to study our research question. Studies adopting this type of design collect and analyze the quantitative and qualitative data concurrently. We choose this design in order to compare results from one type of data with those of another (Creswell et al. 2003; Stentz et al. 2012).



### *Qualitative study*

We conducted a case study in order to (1) explore HR policies and practices for older workers within companies and (2) determine how HR managers, line managers and employees bundle these HR practices. According to Eisenhardt (1989; Eisenhardt and Graebner 2007), *case study* research is especially appropriate if one wants to extend theory when the existing theory is not sufficiently formulated (intermediate theory research). In addition, a *multiple* case study design allows for replication logic (Yin 1984), in which each case serves to confirm or reject the inferences drawn from previous cases.

### *Data collection*

Following Eisenhardt's (1989) advice to select cases representing extreme situations and polar types, we selected four companies from within the Dutch construction sector (including the electrical sector) for the qualitative study. Extreme cases are desirable when extending theory because the dynamics being studied are more visible than they would be in another context (Eisenhardt 1989). We selected the construction sector as a source for our cases because this sector is characterized by physically heavy work and, at the time of the study, a tight labor market, stimulating companies in this sector to implement HR policies and practices aimed specifically at retaining their older workers (Midsundstad 2011). To include more and less successful companies, polar types were represented by two companies with successful HR policies and practices for older workers (i.e. Cases 1 and 3 which were identified as 'best practices' by a taskforce set up by the Dutch government) and two companies with no specific HR policies and practices for older workers (Cases 2 and 4).

The data for each case were collected using face-to-face interviews with an HR manager and a line manager, through focus-group discussions with employees (in Case 1 we conducted five focus groups) and from studying documents on HR policies.<sup>1</sup> In the interviews, we asked questions such as 'what is the HR strategy of this organization?', 'is there a specific policy for older workers?', 'which HR practices are applied to older workers?' and 'which HR practices do you use to manage older workers?' Earlier studies that examined the availability of HR policies and practices for older workers within companies focused particularly on the views of (HR) managers, thereby excluding employees themselves (e.g. Remery et al. 2003). We also interviewed employees because social exchange theory (Blau 1964; Eisenberger, Hungtington, Hutchison and Sowa 1986) and signaling theory (Bowen and Ostroff 2004) argue that HR practices affect employees by supporting them, or by functioning as 'signals' of the organization's intentions toward them, suggesting that particularly employees' perceptions of HR practices are relevant. Another reason why it is important to examine HR practices as perceived by employees is that formal company policies, for instance on nondiscrimination, and *actual* practices may differ significantly (Khilji and Wang 2006). The implementation of actual practices for older workers is largely influenced by the attitudes of (HR) managers, who have been found to hold stereotypical views of older workers (Taylor and Walker 1998a; Greller and Simpson 1999). Finally, HR managers, line managers and employees might perceive or experience the goals of HR practices differently. Therefore, we examine the availability of HR policies and practices for older workers as perceived by HR managers, line managers and employees themselves. Further, we included both younger and older employees to ensure that we would identify all HR practices offered to older workers, also the HR practices that older workers might consider as a right they are entitled to instead of as an HR practice (e.g. additional leave).

The interviews and focus groups were conducted in 2007. In total, we interviewed 4 HR managers and 4 line managers and conducted focus-group discussions involving 31 male employees (11 younger, mean age = 39.2, and 20 older, mean age = 58.1, than age 50; see also Stroh and Greller 1995; Warr 2000; Remery et al. 2003) in different types of jobs (e.g. construction workers, project manager, engineer). Of these employees, 12 employees worked in Case 1, 9 worked in Case 2, 7 worked in Case 3 and 3 employees worked in Case 4. Participants were selected by the HR manager or, as in two cases, consisted of the company's works council. The semi-structured, face-to-face interviews and focus groups consisted of open questions and lasted for one to one and a half hours. In two companies, the interviews and focus groups were conducted by two people; one researcher handling the interview questions and the other recording and taking observations (Eisenhardt 1989). Two of the eight interviews plus all the eight focus groups were tape-recorded, transcribed and imported into *Atlas.ti*, together with the notes from the other interviews.

#### *Data analysis*

To identify (bundles of) HR practices for older workers, we used thematic content analysis (Boyatzis 1998) in the qualitative study. Thematic content analysis is used to categorize the data according to key themes (i.e. HR practices) and main themes (i.e. bundles of HR practices). The most important theme consisted of the HR practices for older workers mentioned and experienced by the participants, which we labeled in *Atlas.ti* (e.g. 'during your last years [working for the company], you get a mentor or coaching role', 'at 55 you are entitled to work 4 days a week'). Subsequently, we categorized these HR practices into main themes based on the goals of these HR practices as mentioned in the quotes of HR managers, line managers and employees (e.g. 'we shouldn't have to work overtime anymore, but it still happens. *You are not protected*'). The first three authors were involved in this categorization process. When multiple goals were mentioned for an HR practice, we mentioned and reconciled this in the 'Results' section. Finally, we related these categories or bundles of HR practices to our core concepts (e.g. accommodative HR bundle).

#### *Quantitative study*

##### *Data collection*

Data for the quantitative study were collected through a survey among employees of the Dutch Ministry of Transport, Public Works and Water Management. We selected this government organization to test our hypothesis concerning the four HR bundles for aging workers because of the different subunits (e.g. making policy, maintaining infrastructure and inspection) consisting of a broad range of job positions (e.g. white-collar workers, managers, lockkeepers, inspectors, operators, etc.) within the organization. In 2007, a questionnaire was distributed to 2602 of the 12,097 Ministry employees, resulting in 1170 respondents (a response rate of 45%). Nonresponse analyses revealed that nonrespondents and respondents did not differ significantly on age, educational level, management position, part of the organization, satisfaction and gender. After a listwise deletion, the complete sample of respondents consisted of  $N = 944$  respondents without missing values on the central research variables. Compared to the deleted respondents with missing values, these respondents did not differ on any of the research variables. They were mostly male (76%), working full-time (85%), with a bachelor degree or higher (72%), an average company tenure of 14.6 years ( $SD = 10.3$ ), an average job tenure of

5.3 years ( $SD = 6.5$ ) and an average age of 44 years ( $SD = 9.0$ ). Our sample was representative for the whole population of employees of the Ministry; in our sample 76% were male workers compared to 74.4% in the whole population. With respect to age, in our sample the age distribution was  $\leq 34 = 18\%$ ;  $35-44 = 32\%$ ;  $45-54 = 36\%$ ;  $55-64 = 14\%$  compared to  $\leq 34 = 17\%$ ;  $35-44 = 33\%$ ;  $45-54 = 34.5\%$ ;  $55-64 = 15.5\%$  in the whole population.

### Measures

We included 23 high commitment HR practices (mainly aimed at younger workers, such as promotion) and 'age-related' HR practices (mainly aimed at older workers, such as prolonged career interruption; Paul and Townsend 1993; Remery et al. 2003; Armstrong-Stassen 2008b; Claes and Heymans 2008). In line with suggestions by Boselie, Dietz and Boon (2005), we prespecified our HR bundles by conceptually distinguishing between bundles of development, maintenance, utilization and accommodative HR practices based on SOC theory (Baltes et al. 1999) and earlier studies (Remery et al. 2003; Zaleska and De Menezes 2007; Kuvaas 2008; Gellatly, Hunter, Currie and Irving 2009; Kooij et al. 2010, 2013). These HR bundles are reported in Table 1.

Following the majority of studies on HR practices (Boselie et al. 2005), we measured the availability or presence of HR practices by asking employees to indicate whether the company offers them these practices (e.g. 'Does your company offer you the possibility to work part-time?'). Response options were yes, no or don't know. Although this is a self-report measure of perceptions of HR practices, by measuring the presence with a yes–no scale, we tried to measure HR practices as objectively and factual as possible to make sure that perceived HR practices were not influenced by the overall feelings of satisfaction with the organization (Wright et al. 2001). We took the total number of yes responses in an HR bundle as a measure of the perceived availability of that bundle (MacDuffie 1995).

### Data analysis

We expect that the HR practices within the HR bundles reinforce each other in fulfilling employees' goals (i.e. adding a mentoring task to the job is more effective in fulfilling the goal to be utilized if the job is redesigned), and as such are positively synergistic (Delery 1998). According to Chadwick (2010), the presence of positive synergistic bundles of HR practices can be tested by covariation methods such as CFA. Therefore, to test the bundles

Table 1. Four bundles of HR practices in government organization.

<i>Development</i> ( $M = 2.73$ )	<i>Maintenance</i> ( $M = 5.83$ )	<i>Utilization</i> ( $M = 2.88$ )	<i>Accommodative</i> ( $M = 4.26$ )
Career planning	Compressed work week	Lateral job movement	Additional leave
Development on job	Ergonomic adjustment	Participation	Demotion
Promotion	Flexible benefits	Second career	Early retirement
Regular training	Flexible working times	Task enrichment (knowledge transfer)	Exemption from working overtime
	Performance appraisal		Prolonged career interruption
	Performance pay		Reduced workload
	Working from home		Working part-time/semi-retirement



of HR practices in the quantitative study, we performed a multigroup CFA (Jöreskog and Sörbom 1996). A multigroup CFA tests the multigroup invariance in measurement models. Parameters (e.g. factor loadings) can be constrained to be equal across the groups, or they can be allowed to be estimated to different values in the different groups (and be unconstrained). Since the value of the chi-square test is also computed across groups, it is possible to test whether a model upon which a constraint is imposed fits the data significantly worse than the model without this constraint (the first model is nested within the latter). We divided our sample into three age groups based on the distribution of age in the sample ( $\leq 40$  years, 41–50 years,  $> 50$  years). Thus, by conducting the multigroup CFA, we test whether different age groups are offered similar bundles of HR practices. This is important because we aimed to integrate HR practices considered particularly beneficial for older workers with more general high commitment HR practices considered beneficial for all workers. Because a CFA is not possible with dichotomous variables, we first calculated tetrachoric correlations based on the cross-tabulations between the perceived availability of all HR practices (Glöckner-Rist and Hoijsink 2003; Uebersax 2006). We follow Bollen and Long (1993) as well as Hu and Bentler (1998) in using multiple indices of fit, including the Comparative Fit Index, the Non-Normed Fit Index, the Goodness of Fit Index (all three preferably  $\geq 0.95$ ) and the Root Mean Square Error of Approximation (preferably 0.06 or lower) (Byrne 2001).

## Results

### *HR policies and practices for older workers in the qualitative study*

The study of company documents revealed that Cases 1 and 3 developed formalized HR policies for older workers. The most prominent was the so-called ‘on-time’ policy in Company 1, in which older workers are encouraged to remain with the company (on a part-time basis) in order to transfer their knowledge to younger workers. Further, the collective labor agreement contained HR policies that offer special accommodation for older workers including the ‘4-day-working-week’ policy through which workers aged 55 and over can work four days per week, additional leave and exemption from working overtime or shift work. Table 2 summarizes which HR practices for older workers were present according to the HR manager, line manager and/or employees for each case. This table reveals that there is some consensus concerning existing HR practices for older workers within and between the companies. More specifically, six HR practices are present in all four companies and four HR practices are present in three of the four companies. Further, both an HR or line manager and employees agree on the presence of six HR practices in Case 3, five HR practices in Case 1 and three HR practices each in Cases 2 and 4. It is interesting to note that the employees in Cases 1 and 3 (which are the best practice companies) mentioned more HR practices for older workers than the HR or line manager, whereas in Cases 2 and 4 the HR and line manager mentioned more HR practices for older workers. This finding suggests that Cases 1 and 3 have a greater number of actual HR practices than official HR policies. Comparing the HR practices identified in the four cases to those suggested in the literature, the practices of taking employees’ physical limitations into account in work planning and the earlier mentioned on-time policy were additional to those mentioned in the literature.

### *Bundles of HR practices for older workers in the qualitative study*

Table 3 reveals that, in line with our hypothesis, HR managers, line managers and employees distinguished between four approaches toward older workers in their

Table 2. HR policies and practices for older workers as identified by HR managers, line managers and/or employees for each case in the construction sector.

<i>HR practices</i>	<i>Case 1</i>			<i>Case 2</i>			<i>Case 3</i>			<i>Case 4</i>		
	<i>H</i>	<i>L</i>	<i>E</i>	<i>H</i>	<i>L</i>	<i>E</i>	<i>H</i>	<i>L</i>	<i>E</i>	<i>H</i>	<i>L</i>	<i>E</i>
Additional leave			✓	✓					✓	✓		
<i>Adjusted planning</i>		✓	✓				✓	✓	✓	✓	✓	✓
Courses (update)			✓									✓
Demotion				✓ <sup>a</sup>	✓ <sup>a</sup>							
Development on-the-job			✓									
Early retirement				✓						✓		
Exemption from working overtime	✓		✓									
Health check			✓	✓			✓	✓		✓		
Job movement		✓	✓	✓	✓	✓	✓	✓	✓	✓		
Job redesign			✓									
Mentoring	✓		✓		✓	✓	✓		✓	✓	✓	✓
<i>On-time policy</i>	✓		✓									
Participation									✓			
Part-time work/4-day-working-week policy			✓	✓	✓	✓	✓		✓	✓	✓	✓
Performance appraisal						✓						
Reduced workload					✓			✓	✓			✓
Safety or health training			✓				✓	✓	✓			✓
Training			✓		✓				✓	✓		

Note: ✓ = HR practice is identified by the HR manager ('H'), the line manager ('L') or employees ('E') in this case; italic HR practices are not mentioned in the literature.

<sup>a</sup> Only for older white-collar workers or managers.

companies. We identified these four approaches based on the goals of the HR practices according to HR and line managers and employees. First, HR and line managers and employees talked about developing older workers, mentioning terms such as learning new things, upward mobility and ambition, when they discussed practices such as training and on-the-job development. Next, they mentioned practices aimed at maintenance (particularly of health), such as health checks, health training and courses to update skills, mentioning terms such as updating knowledge, prevention and sustainability. Further, they talked about utilizing the existing experience, know-how and competences of older workers, mentioning terms such as experience, valuable, knowledge, knowledge transfer, qualities, potential, utilizing and usage, when they discussed HR practices such as job movements (to jobs that better utilize older workers' skills) and mentoring roles. Finally, they talked about protecting and accommodating older workers, mentioning terms such as protection, accommodating, sparing, being no longer able, physical inability, taking it easy, less demanding and taking a step back, when they mentioned practices such as reduced working hours, exemption from shift working, reduced workloads and demotion.

For all but one HR practice the same single goal (i.e. developing, maintaining, utilizing or accommodating) was mentioned. For performance appraisal, however, two goals, development (e.g. 'they ask you whether you want to do a training') and maintenance (e.g. 'you can indicate that you are not feeling well') goals were mentioned. Nevertheless, since the goal of performance appraisal when specifically talking about older workers was maintenance, we categorized performance appraisal in the maintenance bundle. Further, in talking about the HR practices, it became clear that many HR practices are offered rather reactively, so only when older workers were lacking knowledge or were not functioning

Table 3. Quotes illustrating the various HR bundles in construction sector.

<i>Development HR practices</i>	<i>Maintenance HR practices</i>	<i>Utilization HR practices</i>	<i>Accommodative HR practices</i>
Development on the job 'Every project requires different things [competences]. If I'm not experienced in those things, I keep developing' (Project engineer, age 60, Case 1)	Courses '... because of the changing technology, employees need courses to update their knowledge' (HR manager, Case 1)	Job movement 'Nowadays I do back-office work; I'm assisting the general manager and I support and coach the project managers. I know all this from 36 years of experience. Now, I no longer feel unappreciated, because I'm doing a useful job' (Advisor, age 59, Case 1)	Adjusted work planning 'When the burden is too heavy (which is often the case for older workers), we respond immediately; such workers (with back problems for example) no longer work on the heavy foundations, but more on completion tasks' (HR manager, Case 3)
Training 'To give an example; in a few months we will start building solar panels for the US market. This is something really different, so I have already attended a few courses to learn all about this' (Project engineer, age 60, Case 1)	Health check 'We carry out preventive health checks on our employees' (HR manager, Case 2)	Job redesign 'In the asphalt crew, they [older workers] can get other tasks, for example on the steam-roller' (Line manager, Case 2).	Additional leave '... and that [additional leave] refreshes me mentally and physically' (Mason, age 56, Case 3)
	Performance appraisal 'If their (older workers) performance was not good they would have known by now, so don't bother them with performance appraisal' (Line manager, Case 4) Safety and health training 'We also have other courses, such as a course on ergonomics, which focuses solely on the physical aspects. Very sustainable' (Carpenter, age 35, Case 3)	Mentoring 'I like it that they give you the role of coach as you age ... I like being utilized like that, it's a sort of appreciation, I guess' (Assembly leader, age 58, Case 1) On-time policy 'If you continue to work, you get a few vacation days extra, and a mentoring or coaching task' (Executor, age 60, Case 1)	Demotion 'Demotions are applied to reduce the demands on older workers' (HR manager, Case 2)  Early retirement 'Employees can stop working at 60' (HR manager, Case 4)

(Continued)

Table 3 – continued

<i>Development HR practices</i>	<i>Maintenance HR practices</i>	<i>Utilization HR practices</i>	<i>Accommodative HR practices</i>
		<p>Participation</p> <p>‘They want to involve older workers. We have a lot of knowledge. You should use that’ (Advisor, age 59, Case 1)</p>	<p>Exemption from working overtime and shift work</p> <p>‘We shouldn’t have to work overtime anymore, but it still happens. You are not protected’ (Technician, age 60, Case 1)</p> <p>Part-time retirement/4-day-working-week policy</p> <p>‘Workers use the 55 + policy to protect themselves’ (HR manager, Case 3)</p> <p>‘You begin to realize that you’re at the end of the line and that was my motive to accept the offer [working part-time], to protect myself’ (Technician, age 60, Case 1)</p> <p>Reduced workload</p> <p>‘When the employee is physically impaired, the physical burden should be reduced, by looking at the type of job and possible adjustment’ (Line manager, Case 3)</p>

anymore. Particularly, for both job movement and job redesign, it seems that the reason to offer older workers these HR practices was often to accommodate them. However, since the HR practices were aimed at utilizing older workers (i.e. at doing different tasks or moving to different jobs to recover to the previous level of functioning instead of regulating losses at a lower level of functioning), they were categorized as utilization HR practices. Table 4 summarizes these four HR bundles.

#### ***Bundles of HR practices for older workers in the quantitative study***

Table 5 reports the results of the CFA of the quantitative study. This table reveals that the four-factor model yields the best fit across the three age groups. In Model M0, the four-factor model (as represented in Table 1) is fitted for all three age groups. Further, we tested models in which factor loadings (M1), error variances (M2) and factor covariances (M3) are subsequently set invariant across the three age groups. The  $\chi^2$  differences relative to the change in the number of *df* were not statistically significant when factor loadings, error variances or factor covariances were set invariant across the three age groups. Furthermore, the other fit indices showed that these parameters were highly similar for all three age groups. This suggests that the four-factor structure of HR practices fits the data well and is robust or invariant across age, and so that different age groups are offered similar bundles of HR practices. Additionally, all modification indices in this model are lower than 22, suggesting that this model is one of the best models.

We also compared the four-factor model with a one-factor model in which all HR practices mentioned in Table 1 loaded on one factor (M4); a two-factor model in which the HR practices labeled development and utilization HR practices in Table 1 loaded on one factor and the HR practices labeled maintenance and accommodative HR practices in Table 1 loaded on one factor (M5); and a three-factor model in which the HR practices labeled development and utilization HR practices in Table 1 loaded on one factor, the HR practices labeled maintenance HR practices in Table 1 loaded on one factor and the HR practices labeled accommodative HR practices in Table 1 loaded on one factor (M6). Factor loadings, error variances and factor covariances were invariant across the three age groups in these models. Table 5 reveals that the four-factor model fits the data significantly better than these one-, two- or three-factor models, and thus that the hypothesized factor structure is supported. In sum, according to employees, HR practices are offered in bundles that correspond to the four lifespan goals of employees, and these bundles are the same across age groups.

Table 4. Four bundles of HR practices in construction sector.

<i>Development</i>	<i>Maintenance</i>	<i>Utilization</i>	<i>Accommodative</i>
Development on-the-job Training	Courses	Job movement	Additional leave
	Health checks	Job redesign	Adjusted work planning
	Performance appraisal	Mentoring	Demotion
	Safety and health training	On-time policy	Early retirement
		Participation	Exemption from working in shifts and doing overtime
			Semi-retirement
			Reduced workload



Table 5. Multigroup CFA testing the four-factor model of HR practices across three age groups and a one-, two- and three-factor model.

<i>Model</i>	$\chi^2$	<i>df</i>	<i>CFI</i>	<i>NNFI</i>	<i>GFI</i>	<i>RMSEA</i>	<i>Chi-square difference test</i>	
							$\Delta\chi^2$	$\Delta df$
Four-factor model								
M0	1097.7*	672	0.95	0.94	0.92	0.05		
M1 (factor loadings equal)	1139.07*	710	0.95	0.95	0.92	0.04	41.37	38
M2 (plus error variances equal)	1153.33*	756	0.95	0.95	0.92	0.04	14.26	46
M3 (plus factor covariances equal)	1165.05*	776	0.95	0.95	0.92	0.04	11.72	20
M4 (one-factor model)	1480.68*	780	0.79	0.80	0.88	0.07	315.63	4*
M5 (two-factor model)	1258.35*	781	0.94	0.94	0.91	0.05	93.3	5*
M6 (three-factor model)	1210.19*	779	0.95	0.95	0.91	0.04	45.14	3*

Note: GFI, Goodness of Fit Index; NNFI, Non-Normed Fit Index; RSMEA, Root Mean Square Error of Approximation; CFI, Comparative Fit Index.

\* $p < 0.001$ .

## Discussion

This mixed methods study aimed at extending the literature on HR practices for older workers by integrating this literature with existing literature on high commitment HR practices by using lifespan theories to bundle HR practices for aging workers. First, by means of a multiple case study, we found that the participating companies have few formalized HR policies for older workers: only two companies had company documents containing HR policies targeting older workers, and such a policy was hardly mentioned by HR and line managers, or by employees. However, HR and line managers and employees consistently indicated that HR practices for older workers did in practice exist within their companies (see also Leisink and Knies 2011).

Further, we argued and found both with this qualitative and the quantitative study that HR practices for older workers can be categorized in four HR bundles, based on the four goals of successful lifespan development as described by SOC theory (Baltes et al. 1999): (i) *development* HR practices, such as career planning, help individual workers to reach higher levels of functioning; (ii) *maintenance* HR practices, such as ergonomic adjustments, help individual workers to maintain their current levels of functioning in the face of new challenges; (iii) *utilization* HR practices, such as a second career, help individual workers to recover to previous levels of functioning after a loss; and (iv) *accommodative* HR practices, such as additional leave, help individual workers to function adequately at lower levels when maintenance or recovery is no longer possible. In addition, we found that HR practices are offered in these bundles according to employees.

Besides linking these bundles of HR practices to SOC theory, they can also be linked to previous studies on bundles of HR practices. Similar to our conceptualization of development HR practices as HR practices that help individual workers to reach higher levels of functioning, Kuvaas (2008) defined the perception of developmental HR practices as the degree to which employees perceive that their developmental needs are being supported by the organization's HR practices. Likewise, Zaleska and De Menezes (2007) talk about upward-focused HR practices, such as formal training, challenging jobs and promotion. We conceptualize maintenance HR practices as those that help individual workers to maintain their current levels of functioning in the face of new challenges.

Similarly, Kooij et al. (2013) and Gong, Law, Chang and Xin (2009) argued that maintenance HR practices are HR practices related to security, protection, safety and responsibilities.

We conceptualize utilization HR practices as those practices that help individual workers to recover to previous levels of functioning after a loss, by removing job demands that have become unachievable from the job and replacing them with other demands that *utilize* already existing, but not yet necessarily applied, individual resources. Utilization HR practices thus make use of employees' existing knowledge and experience, and as such develop employees differently than development HR practices aimed at increasing knowledge and skills. Similarly, Zaleska and De Menezes (2007) noticed that in addition to upwardly directed development (i.e. development HR practices), new forms of development, such as rotations and coaching, which they denoted 'lateral development' are becoming important, particularly for older, female and uneducated workers. These utilization HR practices also help employees in the maintenance career stage to maintain interest in their job and to seek greater opportunities for involvement (Conway 2004). Finally, we conceptualize accommodative HR practices as HR practices that help individual workers to function adequately at lower levels when maintenance or recovery is no longer possible. Similarly, Remery et al. (2003) introduced accommodative HR practices that spare older workers.

### *Theoretical implications*

With this mixed methods study, we aimed to contribute to the literature on HR practices for older workers and aging at work. First of all, our new categorization of HR practices for aging workers into four HR bundles provides a means to structure relevant HR practices that were suggested in earlier research (e.g. Paul and Townsend 1993; Remery et al. 2003; Armstrong-Stassen 2008a). This categorization also extends HR research in general because researchers increasingly recognize the limitations of studying isolated HR practices and point to the importance of studying theory-driven HR bundles (Toh et al. 2008; Chadwick 2010). Rather than bundling HR practices according to an organizational logic (MacDuffie 1995; Mendelson, Turner and Barling 2011) or HR function (Bailey, Berg and Sandy 2001), we bundled our HR practices according to a worker-specific characteristic: lifespan goals.

This makes sense because many theories on the impact of HR practices (e.g. social exchange theory, Eisenberger et al. 1986) focus on subjective experiences at the individual level. In these theories, the basic idea is that HR practices affect employees by signaling the organization's intentions toward them, which employees will reciprocate through positive attitudes and behavior. This implies that employee reciprocation is related to the utility or value of HR practices to employees, which is determined by their work-related motives, goals or needs. Indeed, Marescaux, De Winne and Sels (2013) found that HR practices lead to basic needs satisfaction, which in turn results in affective commitment and work engagement. In this line of reasoning, every HR practice is potentially a high commitment HR practice; some HR practices are high commitment HR practices because they fulfill the accommodative needs of employees, others because they fulfill growth or development needs of employees. This idea reflects a contingency perspective that takes individual worker characteristics, such as age, into account rather than a universalistic perspective, which proposes that the same high commitment HR practices will elicit positive work-related attitudes irrespective of individual worker characteristics (Guest 2011).

Further, in this study we hypothesized and found that the four goals of lifespan development to which individuals allocate their resources according to SOC theory are suitable as a basis for bundling HR practices. This finding extends SOC theory to the contemporary work setting (see also Abraham and Hansson 1995) and indicates that lifespan theories are useful when studying or managing aging at work, and are thus potentially relevant to retain older workers.

### *Practical implications*

Our findings provide insights into how to manage older workers effectively by offering managers an overview of available HR practices that potentially help to retain older workers. Although official HR policies for older workers hardly existed in the companies studied in the case study, both employees and managers were able to mention several HR practices that were appropriate for older workers and that were available in the companies. HR managers should document any such good HR practices to ensure they become part of the official, structured HR policy, as this would help line managers and older workers to think more positively about the future of older workers within the company. Furthermore, both in the qualitative and quantitative study, employees and managers were able to distinguish four approaches toward aging workers (i.e. developing, maintaining, utilizing and accommodating older employees). Since the four approaches are aimed at realizing personal goals, our classification of HR practices may help HR managers to think about their HR policy, and line managers to think about which combinations of HR practices to implement. Since the literature on lifespan development demonstrates that goal focus changes with age – shifting away from growth and toward maintenance, recovery and regulation of loss (Ebner et al. 2006) – we would expect that development HR practices become less important, and that maintenance, utilization and accommodative HR practices become more important for older workers in general. Therefore, maintenance, utilization and accommodative HR practices would seem more important in managing older workers.

### *Limitations and future research*

Inevitably, this study has some limitations. First, although the bundling of HR practices based on the worker-centered contingency of aging is innovative, the distinction between the different bundles of HR practices is somewhat ambiguous. As Boselie et al. (2005) noted, there is no accepted theory for classifying various practices into different bundles or categories. So, as with other categorizations of HR, one could argue that some HR practices fit other bundles as well. For example, contrary to our bundle of development HR practices, Kuvaas (2008) operationalized developmental HR practices as career development, training opportunities and performance appraisal. These different categorizations might result from the different contents of the HR practices concerned. The qualitative study revealed, for example, that performance appraisal can not only be used to maintain performance by simply providing feedback on current performance, but can also be used to develop employees by comparing current performance to the performance needed for the next higher job position. The content of HR practices might vary for different companies and supervisors, but most importantly the experienced content and thus the experienced goal of HR practices might differ for individual workers. Some employees might use training to update their knowledge (i.e. maintenance), while other employees might use training to increase their knowledge (i.e. development). Although all modification indices of the CFA were lower than 22 and we think that the

four HR bundles represent the best model, future research should examine the specific content of the HR practices considered.

Second, we have limited ourselves to one sector and one public-sector company for our qualitative and quantitative study, respectively. Although we deliberately selected the construction sector as ‘an extreme case’ for the qualitative study (Eisenhardt 1989), and we included not only workers with physically demanding jobs but also white-collar workers and managers, female employees in other sectors, with less physically demanding jobs, might bundle HR practices differently. For example, the fast-changing, knowledge-intensive technology sector would also serve as an extreme case in a different way. Here, training is about updating knowledge and would thus fit better in the maintenance than in the development bundle. Although we also confirmed the four HR bundles in a survey study among Dutch government workers, future research should test these four HR bundles in a sample including more female workers and different companies in varying private sectors. These studies should also examine to what degree the HR bundles are context- or role-specific. Individual differences and situational factors might play a role in how employees and managers interpret various HR practices and how they cognitively link them with other practices to form HR bundles. Moreover, the associations of the four bundles with other variables (e.g. personal characteristics and work-related factors) should be examined in more detail. Post hoc analyses showed, for example, that organization tenure is positively associated with the perceived availability of maintenance HR practices.

Third, since both studies are cross-sectional, we do not know whether the bundles of HR practices are stable over time or how they evolve in general. A fourth and related shortcoming of this study is that we did not examine the effects of the HR bundles. Since earlier studies (e.g. Kooij et al. 2010, 2013) and SOC theory suggest that the influence of the HR bundles will change with age, future studies should examine whether and how the influence of these HR bundles on worker outcomes changes with age.

A final concern that we would like to raise here is our conceptualization of age. In our study, we have focused on chronological age as the operationalization of age. However, not all older workers will experience age-related losses. As such, chronological age may serve as a proxy for age-related processes, such as gains and losses, which influence work-related attitudes and behavior more directly (Kanfer and Ackerman 2004). Hence, other operationalizations of age, such as functional age, life stages and organization tenure, could also influence the bundling and effects of HR bundles (Sterns and Miklos 1995; Ng and Feldman 2008). Therefore, to examine the influence of age-related factors on the bundling of HR practices, future research should include other operationalizations of age as well.

In sum, in this mixed methods study, we identified four theoretically supported bundles of HR practices suitable for responding to changing needs and motives of the aging workforce. With this study we hope to have offered a structural tool for future studies on HR practices among aging workers, and new ways of managing aging workers and motivating them to continue working.

## Note

1. The full case study protocol can be obtained from the first author.

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