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Successful Aging at Work

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ABSTRACT

The expression successful aging at work and related terms such as active, healthy, and productive aging at work are frequently used by organizational researchers and practitioners. However, there are no concrete definitions or theoretical frameworks that explain their meaning, assumptions, and underlying processes. In this paper, I first review conceptualizations of successful aging in the fields of gerontology and life span psychology. Second, I propose a working definition of successful aging at work based on four key elements: criteria, explanatory mechanisms, facilitating and constraining factors, and temporal patterns. I distinguish successful aging at work from usual and unsuccessful aging and from other age-related developments in the work context. Third, I introduce a theoretical framework organized around 5 principles on intraindividual age-related change over time, person and contextual mediators and moderators, and work outcomes. Fourth, I review theoretical and empirical research on age in the workplace published in the past decade through the lens of the proposed theoretical framework. Finally, I conclude this paper by outlining suggestions for future research on successful aging at work, including methodological considerations.

> Like goodness, truth, and other human ideals, successful aging may appeal more than it illuminates. It is an image that attracts human interest, but defies easy or consensual definition.
>
> (Ryff, 1982, p. 209)

The workforces in many countries are aging, and policy makers and organizations are increasingly trying to retain older employees as long as possible. In this context, the expression *successful aging at work* and related terms such as *active*, *healthy*, and *productive aging at work* have become popular among organizational researchers and practitioners. For instance, successful aging at work has been characterized as "a useful organizing structure" for research on age in the workplace (Hansson, DeKoekkoek, Neece, & Patterson, 1997, p. 209). Others have described successful aging at work as "an integrative concept in the field in that it encompasses a wide array of issues, from work and family balance [...], to employee development [...], to occupational health [...]" (Shultz & Adams, 2007, p. 308).

Despite the general endorsement and widespread use of the expression *successful aging at work*, its concrete meaning, assumptions, and underlying processes remain unclear. Frequently, the term is used to describe any positive work outcome of older employees, regardless of the age-related processes and conditions that led to that outcome and regardless of the research design used to investigate age-related topics. However, given the long tradition of research on successful aging in the fields of gerontology and life span psychology (for a review, see Martin et al., in press), it would be unfortunate if the phenomenon remained merely a poorly understood construct in research on aging in the workplace and an all-encompassing buzzword in organizational practice.

The goal of this paper, therefore, is to move forward research and practical applications related to aging at work by developing a concrete working definition of successful aging at work. In addition, I aim to introduce a theoretical framework of successful aging at work that is organized around five principles on intraindividual age-related change over time, person and contextual mediators and moderators, and work outcomes. Overall, I intend to contribute to the literature by demonstrating how previous research on age in the workplace can be viewed through a new and potentially useful conceptual lens and by offering a working definition and theoretical framework to guide future research on successful aging at work.

In the following, I first review central elements of successful aging research in the fields of gerontology and life span psychology. Based on this review, I propose a working definition of successful aging at work and distinguish the concept from usual and unsuccessful aging and from other age-related developments in the work context. Third, I outline the theoretical framework and five associated guiding principles for research on successful aging at work. Fourth, I review theoretical and empirical research on the role of age in the workplace published over the past decade in relation to the theoretical framework. Finally, I conclude the paper by outlining a number of suggestions for future research on successful aging at work, including methodological considerations.

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SUCCESSFUL AGING IN GERONTOLOGY AND LIFE SPAN PSYCHOLOGY

The term *successful aging* was first introduced in the 1950s by researchers interested in human development (Birren, 1958; Gumpert, 1954; Havighurst & Orr, 1955). Long before the birth of the positive psychology movement, research on successful aging represented a novel and rather optimistic way of thinking about old age and the aging process, which, until then, were predominantly associated with negative connotations of physical and cognitive decline, depression, dependency on others, and costs to society. Researchers began to acknowledge that, with increasing age, many individuals still have access to personal and contextual resources that allow them to maintain relatively high levels of functioning and well-being and to continue to make contributions to others and society. For instance, Havighurst (1961), one of the pioneers in the field, noted:

> A theory of successful aging is a statement of the conditions of individual and social life under which the individual person gets a maximum of satisfaction and happiness and society maintains an appropriate balance among satisfactions for the various groups which make it up—old, middle-aged, and young, men and women, etc. (p. 8)

Four central elements are present in the extensive and multifaceted literature on successful aging in the fields of gerontology and life span psychology published over the past six decades: (a) criteria for successful aging; (b) explanatory mechanisms that account for relationships between age and successful aging criteria; (c) facilitating and constraining factors that impact on the relationships between age, age-related mechanisms, and successful aging criteria; and (d) temporal patterns of age-related changes in mechanisms and successful aging criteria. Table 1 summarizes the four central elements of successful aging research, major theoretical perspectives and concepts, and empirical evidence.

Criteria for Successful Aging

One of the main questions researchers interested in successful aging have attempted to answer is "*what* is successful aging?" (Freund & Riediger, 2003, p. 601). Success can be broadly defined as the attainment of favorable, desired, or intended outcomes (Pruchno, Wilson-Genderson, & Cartwright, 2010). Researchers in gerontology and life span psychology traditionally distinguish between subjective and objective criteria for successful aging. This dichotomy is sometimes used to differentiate criteria by content (e.g., well-being vs. physical health) and sometimes by the way criteria are measured (e.g., self-report vs. diagnosis by physician). As subjective criteria for successful aging, early research primarily focused on subjective (or hedonic) well-being and perceived adjustment to life challenges. Examples include measures of ego integrity (i.e., the evaluation of one's life as satisfying and fulfilling; Erikson, 1950), life satisfaction (Neugarten, Havighurst, & Tobin, 1961), and attitudes toward one's own aging (Lawton, 1975).

Later research additionally included measures of psychological (or eudaimonic) well-being (e.g., perceived opportunities for continued personal advancement; Freund & Baltes, 1998). Ryff (1989) argued that psychological well-being outcomes constitute better subjective criteria for successful aging as they are more "age-sensitive"; that is, on average, individuals experience age-related declines in these criteria, whereas indicators of subjective well-being tend to be more stable or even increase with age (cf. Keyes, Shmotkin, & Ryff, 2002; Staudinger & Kunzmann, 2005). Thus, individuals who maintain or improve their psychological well-being with age compared to the average downward trend are considered to be aging successfully. Another category of subjective criteria was proposed by Baltes and Carstensen (1996), who conceived successful aging outcomes in relative terms as "the attainment of goals which can differ widely among people and can be measured against diverse standards and norms" (p. 399).

Other researchers in gerontology and life span psychology have favored more objective criteria for successful aging, such as medical diagnoses of diseases. These criteria gained considerable popularity in the 1980s, when Rowe and Kahn (1987) published a seminal paper on the distinctions between normal, usual, and successful aging. They argued that individuals aging "normally" (i.e., free from physical and mental pathology) could be further categorized into those following the average or normative age-related trend in an objective outcome (i.e., "usual aging"), those following a more favorable than average age-related trend (i.e., "successful aging"), and those following a less favorable than average age-related trend (i.e., "unsuccessful aging"). Rowe and Kahn (1987) suggested that interindividual differences in person factors (e.g., genetics and lifestyle factors) and contextual factors (e.g., autonomy and social support) impact on individuals' developmental trajectories in objective outcomes.

In a later paper, Rowe and Kahn (1997) explicitly defined successful aging as the simultaneous presence of three objective outcomes: a low probability of disease and disability, maintenance of high physical and cognitive functioning, and continued engagement in social and productive activities. Rowe and Kahn's (1987, 1997) conceptualization of successful aging represented an important milestone in this research area because it acknowledged the considerable heterogeneity in objective outcomes among older people. Moreover, it suggested that interventions could be used to enhance those person and contextual factors that explain these interindividual differences. However, researchers that advocate the use of subjective criteria for successful aging argued that older people's perceptions should also be taken into account (e.g., Phelan, Anderson, Lacroix, & Larson, 2004). Rowe and Kahn's (1997) approach has also been criticized for mixing processes and outcomes, for placing too much emphasis on individual control over outcomes, and for neglecting historical, cultural, structural, and social factors (Cheng, 2014; Katz & Calasanti, in press; Scheidt, Humpherys, & Yorgason, 1999; Stowe & Cooney, in press).

Studies on the prevalence of successful aging outcomes have shown that more older people perceive themselves to be aging successfully than classifications based on objective criteria would suggest (see Table 1; Depp & Jeste, 2006; McLaughlin, Connell, Heeringa, Li, & Roberts, 2010; Montross et al., 2006; Strawbridge, Wallhagen, & Cohen, 2002). Some researchers have therefore argued that both subjective and objective criteria should be used to assess the outcomes of successful aging. For instance, Glass (2003) suggested that the psychosocial tradition (which focuses on subjective criteria) and the biomedical tradition (which focuses on objective criteria) are complementary. Pruchno and colleagues (2010) developed and tested a two-factor model of successful aging with a subjective and an objective component. The objective component includes assessments of chronic

Table 1 Successful Aging Research in the Gerontology and Life Span Psychology Literatures: Summary of Central Elements, Theoretical Perspectives, Main Concepts, and Empirical Evidence

Theoretical Perspectives	Main Concepts	Empirical Evidence
Central Element I: Criteria for successful aging		
Subjective criteria for successful aging (Baltes & Carstensen, 1996; Erikson, 1950; Havighurst, 1961; Ryff, 1989)	Individuals evaluate their own life and aging experiences. Distinction between subjective well-being (e.g., life and aging satisfaction) and psychological well-being (e.g., perceived advancement and growth).	Prevalence estimates of successful aging among older adults in terms of subjective well-being criteria range from 50% (Strawbridge et al., 2002) to over 90% (Montross et al., 2006).
Objective criteria for successful aging (Rowe & Kahn, 1987 1997)	Criteria are defined by researchers and objectively assessed. Rowe and Kahn's (1997) criteria are (a) low probability of disease and disability, (b) maintenance of high cognitive and physical functioning, and (c) engagement in social and productive activities.	Prevalence estimates of successful aging among older adults in terms of objective criteria range from less than 12% according to Rowe and Kahn's (1997) criteria (McLaughlin et al., 2010) to 36% according to broader criteria sets (Depp & Jeste, 2006).
Combination of subjective and objective criteria for successful aging (Glass, 2003; Pruchno et al., 2010)	Pruchno et al.'s (2010) two-factor model of successful aging includes an objective component (having few chronic diseases, ample functional ability, and little or no pain) and a subjective component (aging and life satisfaction).	A multidimensional model including objective and subjective criteria was supported by confirmatory factor analyses (Pruchno et al., 2010).
Central Element II: Explanatory mechanisms		
Age-related changes over time in person and contextual factors (Baltes, 1987; Heckhausen et al., 2010; Wohlwill, 1970)	Age-related gains, losses, reorganization, and developmental emergence of person factors. Age-related quantitative and qualitative changes in life circumstances. Person and contextual factors, as well as their interactions, are thought to account for relationships between age and important life outcomes.	Substantial evidence regarding age-related changes in person factors such as cognitive abilities and health (Salthouse, 2012), personality (Roberts & Mroczek, 2008), and socioemotional functioning (Charles & Carstensen, 2010). Comparatively less research on age-graded opportunities and constraints (Heckhausen et al., 2010).
Central Element III: Facilitating and constraining factors		
Personal resources for successful aging (Neugarten, 1972)	Personal resources typically investigated include income, education, health, social networks, personal autonomy, personality traits, and cognitive functioning.	Personal resources have positive and moderate main effects on subjective criteria for successful aging (Baltes & Lang, 1997; Jopp & Smith, 2006).
Action-regulatory successful aging strategies (Baltes & Baltes, 1990; Brandtstädter & Renner, 1990; Schulz & Heckhausen, 1996)	Prominent frameworks are (a) the model of selective optimization with compensation (Baltes, 1997), (b) the model of assimilative and accommodative coping (Brandtstädter & Renner, 1990), and (c) the life span model of successful aging (Heckhausen & Schulz, 1995).	The use of successful aging strategies is positively related to subjective criteria for successful aging (Freund & Baltes, 1998 2002; Heckhausen et al., 2010), particularly when personal resources are low (Freund, 2008; Jopp & Smith, 2006).
Central Element IV: Temporal patterns		
Between-person (e.g., cognitive, physical, and social activities) and contextual characteristics (e.g., enriched living environments) as modifiers of intraindividual age-related changes in cognitive functioning over time (Hofer & Piccinin, 2010) and the principle of differential preservation (Salthouse, 2006)	Individual differences in level and rate of age-related changes over time. The "use it or lose it" hypothesis predicts that being intellectually active weakens age-related cognitive decline across the adult life span (Salthouse, 2006), and the "cognitive enrichment" hypothesis predicts positive effects of engagement in intellectual, physical, and social activities on cognitive functioning at different points of the adult life span, and particularly in old age (Hertzog et al., 2009).	Most research has focused on old and very old adults, and very few longitudinal studies across the adult life span exist. Based on the criterion of an interactive effect of age and intellectual activity on cognitive functioning, Salthouse (2006) concluded that so far there is a general lack of support for the "use it or lose it" hypothesis. Hertzog and colleagues (2009) concluded that, across shorter time periods, intellectual, physical, and social activities can prevent age-related cognitive decline and have cognitive enrichment effects.

diseases, functional ability, and pain, and the subjective component comprises individuals' evaluations of their aging and life experiences. They showed that the two components are positively related but distinct and that people can age successfully on both, only one, or neither of the components.

Explanatory Mechanisms

The second central element in the literature on successful aging subsumes the age-related mechanisms (or mediators) that account for relationships between age and successful aging criteria (Cheng, 2014). Gerontologists and life span psychologists have long acknowledged that chronological age is insufficient as an explanatory variable (Baltes, Reese, & Lipsitt, 1980). For instance, Wohlwill (1970) argued that instead of treating age as an independent variable, it should "be incorporated into the dependent variable in developmental studies, by defining the latter in terms of specified aspects or parameters of the function describing the changes which occur over age for a given behavioral variable" (p. 49). He further suggested that researchers should directly examine the person-related and contextual mechanisms that cause age-related variability in important life outcomes. Echoing the perspective of Wohlwill (1970) and other developmental scholars, Birren (1999) wrote that "chronological age is not the cause of anything … [it] is only an index" (p. 460).

The life span psychology perspective proposes that the aging process coincides with multidirectional changes in person and contextual factors over time and across the adult life span, which, in turn, influence individuals' experiences, behavior, and successful aging outcomes (Baltes, 1987; Heckhausen, Wrosch, & Schulz, 2010). Age-related changes in person factors may be positive (gains), negative (losses), and curvilinear (gain followed by loss and vice versa); in addition, person factors may be reorganized or emerge across the life span (Baltes, 1987). For instance, it is well documented that information processing capabilities decline with age, whereas experience-based knowledge and judgment are relatively stable or improve across the adult life span (Salthouse, 2012). There is also evidence of age-related changes in personality (Roberts & Mroczek, 2008) and socioemotional functioning (Charles & Carstensen, 2010). Finally, there are age-graded changes in external opportunity structures and constraints, particularly in the domains of education, work, and family life (Heckhausen et al., 2010). These changes in contextual factors may be quantitative (i.e., linear or curvilinear) or qualitative (e.g., emergence of opportunities and constraints at different points of the life span).

Facilitating and Constraining Factors

The third central element of successful aging research comprises the facilitating and constraining person and contextual characteristics that influence the relationships between age, age-related mechanisms, and outcomes (i.e., moderators). These factors help answer the question "*how* do people age successfully?" (Freund & Riediger, 2003, p. 601). Early research in this area focused primarily on the availability or lack of personal resources for successful aging. For instance, Neugarten (1972) proposed that resources such as income, education, physical and mental health, cognitive functioning, social relationships, personal autonomy, and personality characteristics are important predictors of life satisfaction in old age. Empirical research showed that the availability of personal resources is positively and moderately related to both objective and subjective criteria for successful aging (Baltes & Lang, 1997; Jopp & Smith, 2006).

In the 1990s, life span psychologists developed three influential models that focus on the action regulation strategies people can use to achieve successful aging, particularly when their resources dwindle with age. The common idea of these models is that people can have an active role in shaping their developmental trajectories. First, Baltes and Baltes (1990) suggested that the use of selection, optimization, and compensation (SOC) strategies enables individuals to maintain relatively high levels of functioning and well-being despite inevitable age-related losses. The main idea of the SOC model is that individuals who actively select goals, optimize their pursuit of these goals, and compensate for factors that may impede goal achievement, make better use of their available resources, maximize gains and minimize losses, and consequently age more successfully than those who do not use SOC strategies (Freund & Baltes, 2002).

Second, Brandtstädter and Renner (1990) developed the model of assimilative and accommodative coping, which proposes that, in times of critical life transitions, individuals influence their development consistent with their personal preferences (i.e., assimilative coping) and adjust their personal preferences consistent with contextual constraints (i.e., accommodative coping). Research has shown that with increasing age and age-related declines in some areas of functioning, individuals tend to use the latter form of coping more than the former (Brandtstädter & Renner, 1990). Finally, based on their life span theory of control, Schulz and Heckhausen (1996) defined successful aging as the development and maintenance of primary control (i.e., behaviors that align the environment with individuals' needs) with increasing age. Individuals who age successfully are thought to sustain high levels of primary control through secondary control mechanisms which, similar to the SOC model, involve processes of goal selection, optimization, and compensation in the context of environmental opportunities and constraints (Heckhausen & Schulz, 1995; Heckhausen et al., 2010).

Temporal Patterns

The fourth central element of successful aging research involves the patterns of age-related changes in mechanisms and criteria over time, which need to be demonstrated in order to draw conclusions about successful aging. Life span scholars have argued for several decades that research on successful aging should take a developmental perspective and examine the impact of individual differences and contextual characteristics on both the level and rate of age-related changes over time (Hofer & Piccinin, 2010; Ryff, 1982; Schulz & Heckhausen, 1996).

One theoretical discussion that contributed to a better understanding of the construct of successful aging in this regard was initiated by Salthouse (2006). He contrasted the notion of *differential preservation* (i.e., the extent to which an outcome is maintained across the adult life span depending on the level of a third variable) with the notion of *preserved differentiation* (i.e., the extent to which differences between people in an outcome that are due to a third variable are maintained with increasing age). For instance, the "use it or lose it" hypothesis proposes that people who regularly engage in intellectually stimulating activities may be in a better position to slow down their age-related cognitive decline compared to people who do not engage in these activities and thus follow a steeper trajectory of cognitive decline with age (i.e., differential preservation; Salthouse, 2006). In statistical terms, cognitive exercise influences the slopes but not necessarily the intercepts of age-related change in cognitive functioning in this situation. Alternatively,

everyone may experience the same rate of cognitive decline with age but start out at different levels of cognitive functioning (i.e., preserved differentiation; Salthouse, 2006). In statistical terms, people in this situation differ in their intercepts but not in their slopes of age-related change in cognitive functioning.

A temporal pattern of differential preservation is consistent with the notion of successful aging that is discussed in this paper, whereas a pattern of preserved differentiation is not consistent with this notion. While Salthouse (2006) focused on the influence of cognitive exercise (as a third variable) on age-related trajectories of cognitive functioning, he noted that the conceptual distinction between differential preservation and preserved differentiation

> also applies to many discussions of the concept of 'successful aging,' because before attributing individuals' current status to dynamic processes of aging, it is important to consider their status at earlier ages. Only if there is evidence that people have differed in their rates of aging does it seem appropriate to characterize them as having 'aged' successfully, as opposed to having been successful at every stage in their lives. (p. 70)

Salthouse's (2006) argument implies that when researchers observe heterogeneity in an outcome within a group of older adults, high levels in the outcome do not necessarily constitute successful aging because the processes that led to this outcome are unknown. On the one hand, certain facilitating personal or contextual factors that were continuously available across an individual's life span could have contributed to the high levels in the outcome variable later in life (i.e., a temporal pattern of differential preservation, which is consistent with the notion of successful aging). On the other hand, it may be possible that the differences between people in the outcome were already present at earlier stages of the life span (i.e., a temporal pattern of preserved differentiation) and therefore do not constitute successful aging.

In order to claim that there is evidence of successful aging, Salthouse (2006) argued that it is necessary to demonstrate significant interaction effects of age and person or contextual factors on outcomes. In contrast, if only main effects of age and/or person and contextual factors on outcomes within a specific age group are shown, there is no evidence of successful aging. Based on his Age × Mental Activity criterion and a review of mainly his own cross-sectional research findings, Salthouse (2006) concluded that there is a "lack of empirical evidence for the idea that the rate of mental aging is moderated by amount of mental activity" (p. 68).

Researchers who do not use Salthouse's (2006) stringent Age × Mental Activity criterion for successful (cognitive) aging and who reviewed a broader body of literature have arrived at more optimistic conclusions. Based on a comprehensive review of training, intervention, and longitudinal studies on the "cognitive enrichment" hypothesis, Hertzog, Kramer, Wilson, and Lindenberger (2009) concluded that, all in all, engaging in intellectual, physical, and social activities can prevent cognitive decline over relatively short periods of time (e.g., 1 or 2 years) and lead to meaningful improvements in cognitive functioning at different points of the adult life span, including old age. These researchers further argued that the available evidence shows that the extent to which people engage in intellectual, physical, and social activities can influence whether their level of cognitive performance rises or falls within their current age-related "zone of possible functioning" (p. 1; i.e., positive or negative plasticity). However, Hertzog and colleagues (2009) also acknowledged that challenges in the empirical investigation of cognitive enrichment effects (e.g., ruling out alternative explanations, examining maintenance of effects over time) render the available evidence "far from definitive" (p. 41).

Active, Healthy, and Productive Aging

Many developmental scholars agree that subjective and objective criteria, age-related explanatory mechanisms, facilitating and constraining factors, and temporal patterns constitute central elements of research on successful aging. At the same time, a lively debate on what exactly constitutes successful aging, which specific criteria should be used to evaluate it, as well as its concrete underlying processes, conditions, and temporal patterns, continues in the fields of gerontology, life span psychology, and life course sociology (e.g., Bowling, 2007; Depp & Jeste, 2006; Freund & Riediger, 2003; Haase, Heckhausen, & Wrosch, 2013; Ouwehand, de Ridder, & Bensing, 2007; Phelan & Larson, 2002; Steverink, Lindenberg, & Ormel, 1998). Moreover, numerous labels have been used to describe different facets of the phenomenon. While most researchers have used the "appealing" umbrella term "successful aging" (cf. Ryff, 1982), several variations of this theme exist, each seeming to depend on the specific criterion for success under investigation. For instance, research on sustained levels of activity (e.g., engagement in learning or social activities) among older adults has referred to "active aging" (Boulton-Lewis, Buys, & Lovie-Kitchin, 2006), research on older adults' physical and mental health has referred to "healthy aging," "aging well," or "sustainable aging" (Peel, McClure, & Bartlett, 2005), and research on older adults' productive engagement has referred to "productive aging" or "effective aging" (Morrow-Howell, Hinterlong, & Sherraden, 2001).

TOWARD A DEFINITION OF SUCCESSFUL AGING AT WORK

Inspired by influential reviews by Warr (2001), Farr and Ringseis (2002), and Kanfer and Ackerman (2004), research on the role of age in the workplace has substantially increased over the past decade. This includes numerous primary studies as well as several books (e.g., Hedge & Borman, 2012; Shultz & Adams, 2007) and meta-analyses (e.g., Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011; Ng & Feldman, 2008, 2010). In addition, organizational psychologists have proposed life span perspectives on job performance (Ng & Feldman, 2013b; Warr, 1993), job design (Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012), occupational health and well-being (Scheibe & Zacher, 2013), and person–environment fit (Zacher, Feldman, & Schulz, 2014).

The focus of most research on aging at work published over the past decade was on usual aging, that is, longitudinal studies on average age-related trends or cross-sectional studies on differences between younger and older employees. Most studies in the latter category are implicitly or explicitly based on the assumption that the observed age differences are caused by intraindividual age-related changes over time and across the working life span (cf. Ng & Feldman, 2013b). Several meta-analyses and primary studies have also explored factors that moderate the associations between age and work outcomes; however, the findings were typically not interpreted in relation to the notion of

successful aging at work (for two exceptions, see Abraham & Hansson, 1995; Zacher & Frese, 2011).

In their comprehensive qualitative review of studies on age in the workplace, Hansson and colleagues (1997) acknowledged the distinction between usual and successful aging and the potentially important influences of third variables on age-related trajectories in work outcomes. In contrast, the findings of some previous studies using the label "successful aging at work" are not consistent with the notion of successful aging at work developed in the current paper. Typically, these studies focused on specific "successful aging at work" criteria or strategies exclusively among older employees instead of investigating interactive effects of age and person and/or contextual factors on work outcomes. For example, Robson, Hansson, Abalos, and Booth (2006) suggested that successful aging at work consists of older employees' self-reported adaptability and health, positive relationships, occupational growth, personal security, and achievement of personal goals (for related research, see also Cheung & Wu, 2013; Robson & Hansson, 2007).

Based on the four central elements of research on successful aging in the fields of gerontology and life span psychology, I argue that a concrete definition of successful aging at work should include the following four components. First, research on successful aging at work should focus on both subjective and objective outcomes that are relevant and important to employees and organizations, such as work motivation, job performance, turnover, job attitudes, and occupational health and well-being (*criteria for successful aging at work*). Second, research on successful aging at work should develop and test assumptions regarding intraindividual age-related changes in successful aging criteria over time and across the working life span (*temporal patterns*). Third, research on successful aging at work requires the investigation of age-related mediators that account, at least partially, for associations between employee age and work outcomes (*explanatory mechanisms*). Finally, research on successful aging at work should examine how person and/or contextual factors interact with age in predicting mediators (i.e., first stage moderation) and, directly or indirectly through the mediators, work outcomes.

These factors should help explain observed heterogeneity among older employees but not necessarily among younger employees (*facilitating and constraining factors*). That is, employees are aging successfully at work if they deviate positively from the average age-related trajectory of the work outcome over time due to the availability of facilitating factors and the lack of constraining factors. In contrast, employees are aging unsuccessfully if they deviate negatively from the average age-related trajectory of the work outcome over time. I offer the following working definition:

> *Successful aging at work* involves a comparison of employees' intraindividual age-related trajectories of a work outcome over time and across the working life span with other employees' age-related trajectories of the same outcome. Employees whose trajectories deviate positively from the average trajectory are aging successfully at work, whereas employees whose trajectories deviate negatively are aging unsuccessfully at work. The average trajectory (usual aging) may be stable, positive, negative, or curvilinear over time. The intraindividual associations between employee age and work outcomes can be explained by person mediators, contextual mediators, and/or their interactions. The interindividual differences that emerge over time between employees who are aging successfully, usually, and unsuccessfully with regard to specific work outcomes can be explained by person moderators, contextual moderators, and/or their interactions. Variations of the term successful aging at work, such as active, healthy, effective, and productive aging at work, refer to the specific work outcome of interest.

To further elucidate this definition, Figure 1 presents schematic illustrations of three intraindividual age-related trajectories that allow conclusions about successful aging at work and three intraindividual trajectories that do not allow such conclusions. Figure 1A and E is adapted from Salthouse (2006) and represents the concepts of differential preservation (i.e., successful and unsuccessful aging) and preserved differentiation (i.e., neither successful nor unsuccessful aging), respectively. The *y*-axis in all figures represents a positive work outcome, such that the higher employees' scores, the higher their work-related success (e.g., task performance, job satisfaction). In Figure 1A–C, employees following the solid-line trajectories are aging successfully at work, whereas the dotted lines constitute usual aging at work and the dashed lines constitute unsuccessful aging at work. The main difference between the three figures is that the usual aging trend is zero in Figure 1A, positive in Figure 1B, and negative in Figure 1C.

An example for the situation depicted in Figure 1A is provided by meta-analytic research showing a near-zero relationship between employee age and task performance (Ng & Feldman, 2008). Usual aging at work in this case involves stability in task performance across the working life span. However, the cognitive demands of a job may influence whether employees age successfully at work (Kanfer & Ackerman, 2004). In jobs that primarily require high levels of fluid intelligence (e.g., fast processing of rapidly changing information), employees' task performance may decrease with age due to age-related losses in rapid processing ability (Salthouse, 2012). Thus, employees in these jobs should generally age unsuccessfully at work with regard to task performance. In contrast, jobs that primarily require high levels of crystallized intelligence (e.g., experience-based knowledge and judgment), employees' task performance may improve with age due to age-related improvement in crystallized intelligence. Employees in these jobs should generally age more successfully with regard to task performance.

An example for the situation illustrated in Figure 1B is provided by meta-analytic research showing a generally positive relationship between age and job satisfaction (Ng & Feldman, 2010). In this case, a generally positive age-related trajectory in job satisfaction—which Ng and Feldman (2010) argued can be explained by changing socioemotional priorities with age (cf. Charles & Carstensen, 2010)—represents usual aging at work. Only those employees who experience a steeper than average increase in job satisfaction across the working life span are aging successfully, whereas employees who experience either an increase that is less steep than the average trajectory, no change, or a decrease in job satisfaction across the working life span are aging unsuccessfully. The differences in age-related trajectories may, for instance, be caused by work environment characteristics such as autonomy or by person characteristics such as goal orientation or action regulation strategies (Truxillo et al., 2012).

Figure 1. Age-related trajectories that represent successful and unsuccessful aging at work (solid and dashed lines in panels A–C) and age-related trajectories that do not represent successful aging at work (panels D–F). Solid lines represent age-related trajectories at high levels of a moderator variable, dotted lines represent average age-related trajectories, and dashed lines represent age-related trajectories at low levels of a moderator variable.

Figure 1C presents a situation that can be exemplified by research showing a generally negative relationship between employees' age and their focus on opportunities, that is, how many new goals and possibilities they expect in their future at work (Zacher & Frese, 2009, 2011). Usual aging at work is, in this case, represented by a moderately negative trajectory across the working life span. Employees who maintain a relatively high focus on opportunities over time, or even become more focused, are aging successfully at work, whereas employees who show steeper than average declines in their focus on opportunities over time are aging unsuccessfully at work. With regard to potential moderators of the generally negative association between age and focus on opportunities, Zacher and Frese (2009, 2011) showed that employees in jobs of high complexity and control are better able to maintain their focus on opportunities at higher ages than employees in jobs with low complexity and control. They further showed that the use of action regulation strategies (SOC; Baltes & Baltes, 1990) can help employees in less complex jobs maintain a relatively high focus on opportunities at higher ages.

Figure 1D–F depicts age-related trajectories in work outcomes across the working life span that do not allow conclusions about successful or unsuccessful aging at work. Figure 1D and E illustrates the notion of preserved differentiation (Salthouse, 2006), whereby differences between employees in work outcomes that existed already at a young age were preserved across time; there are no interaction effects of age and person and/or contextual factors on work outcomes. Thus, employees following the solid-line trajectories in these figures are not aging successfully at work, even though they possess the highest levels of individual or contextual resources (or the lowest levels of constraints) and they experience or achieve positive work outcomes at higher ages. The slopes of their age-related trajectories do not differ from employees with medium and low levels of resources, and they have been the most successful in terms of the work outcomes at every age compared to other employees. By the same token, employees following the dashed-line trajectories in these figures are not aging unsuccessfully at work, despite possessing the lowest levels of resources (or the highest levels of constraints) and experiencing low levels in work outcomes at higher ages. Again, the slopes of their trajectories do not differ from the other employees, and they have always been the least successful with regard to work outcomes. The main difference between the figures is that the average age-related trajectory in Figure 1D is positive, whereas that in Figure 1E is negative.

Finally, Figure 1F depicts a situation in which interindividual differences exist among younger employees but disappear as employees' age increases. Even though this situation involves an interaction effect of age and person and/or contextual factors on the work outcome, it constitutes neither successful nor unsuccessful aging at work as there is no heterogeneity among the older employees that can be explained by moderator variables. Thus, research evidence consistent with this situation has implications for younger employees but not for older employees and successful aging at work. A number of examples may help illustrate this situation, which is frequently found in organizational research on age. A meta-analysis by Shirom, Gilboa, Fried, and Cooper (2008) found that the negative relationship between role ambiguity and job performance became weaker with increasing age; thus, role ambiguity better predicted job performance of younger employees than that of their older counterparts. Another example is a study by Bertolino, Truxillo, and Fraccaroli (2011), which showed that proactive personality was more strongly positively related to training motivation, perceived career development from training, and training behavioral intentions among younger employees. In other words, proactive personality better predicted training outcomes of younger employees, thus precluding inferences about successful aging at work.

Besen, Matz-Costa, Brown, Smyer, and Pitt-Catsouphes (2013) examined interactions among employee age, job characteristics, and core self-evaluations in predicting job satisfaction. They found that the positive relationships between skill variety, autonomy, and social support on the one hand and job satisfaction on the other hand became weaker with increasing age. Thus, job characteristics better predicted job satisfaction of younger compared to older employees. Finally, work by Innocenti, Profili, and Sammarra (2013) showed that human resource development practices more strongly positively predicted job satisfaction and affective commitment of younger employees. Similar results were found by Kooij and colleagues (2013) for the association between development practices and job attitudes. Overall, these studies suggest that certain person and contextual characteristics are more important for younger employees' work outcomes. These findings are important given that organizations also have an interest in motivating, developing, and retaining their younger employees; however, the findings are not consistent with the definition of successful aging at work proposed in this paper.

THEORETICAL FRAMEWORK OF SUCCESSFUL AGING AT WORK

Based on the working definition of successful aging at work, as discussed earlier, I developed a theoretical framework to further illuminate how age-related mediating mechanisms and the interplay between age and facilitating and constraining factors influence subjective and objective successful aging criteria over time and across the working life span (Figure 2). The framework is organized around five principles regarding the relationships among employee age, age-related person and contextual mediators, person and contextual moderators, and work outcomes.

Employee Age and Work Outcomes

In this section, I present the first two principles of my theoretical framework of successful aging at work. The first principle focuses on intraindividual age-related changes in criteria over time and across the working life span. Chronological age is a measure of the time a person has lived since birth and constitutes the most frequently used

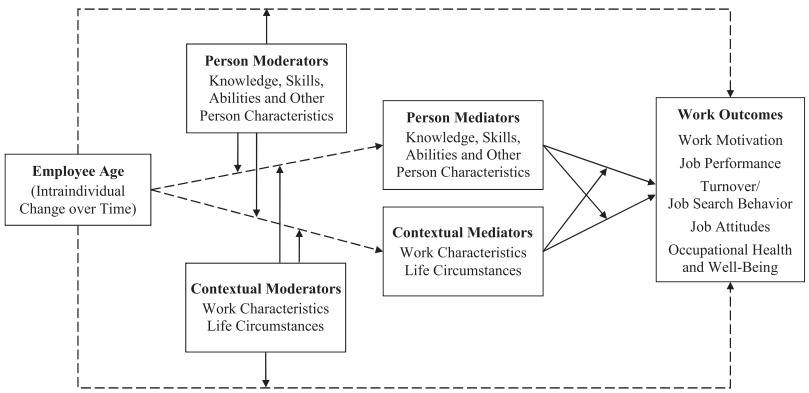

Figure 2. Theoretical framework of successful aging at work. Dashed arrows indicate that employee age is not a causal variable; instead, the theoretical framework focuses on intraindividual age-related changes in person and contextual mediators as well as work outcomes over time and across the working life span.

operationalization of age in psychology and the organizational sciences (Schwall, 2012). Chronological age is easily assessed and well understood by most people and is therefore widely used by organizational practitioners and policy makers (Settersten & Mayer, 1997). In longitudinal research on successful aging in the work context, there is no alternative to the use of chronological age, as the aging process and longitudinal research designs share the same underlying metric (i.e., units of time such as months or years; Hofer & Piccinin, 2010). Consistent with the life span developmental perspective on successful aging (Ryff, 1982; Schulz & Heckhausen, 1996), "employee age" in Figure 2 refers to intraindividual age-related change over time.

Principle 1: Research on successful aging at work requires theoretical assumptions about intraindividual age-related changes in criteria over time and across the working life span.

The second principle of my theoretical framework focuses on the nature of criteria for successful aging at work and their relationships with age. The theoretical framework includes five broad categories of work outcomes that are relevant and important to employees and organizations: work motivation, job performance, turnover and job search behavior, job attitudes, and occupational health and well-being (Figure 2). These outcomes include both subjectively assessed outcomes (e.g., employee ratings of their own motivation, performance, attitudes, and well-being) and outcomes that can be assessed more objectively by utilizing personnel data or peer and supervisor ratings (e.g., performance, turnover, and occupational health). Thus, the work outcomes depicted in the framework are consistent with research in gerontology and life span psychology suggesting the use of both subjective and objective criteria for successful aging (Pruchno et al., 2010). Importantly, the list of work outcomes presented here is not exhaustive; the framework does not preclude the addition of further relevant subjective or objective outcomes in the future.

The relationships between employee age and these work outcomes are likely to be mediated and moderated by several person and contextual factors. As a result, the overall relationships between age and work outcomes (i.e., usual aging at work) can be zero, positive, negative, or curvilinear (e.g., U-shaped). An overall zero association between age and a work outcome may result from positive and negative countervailing mediating effects that neutralize each other's effect on the work outcome. For instance, the average relationship between age and task performance is close to zero (Ng & Feldman, 2008), but the relationship is assumed to be mediated by intraindividual age-related changes over time in multiple factors, including cognitive abilities, personality, and goal orientations (Kanfer & Ackerman, 2004; Ng & Feldman, 2013b).

Principle 2: Criteria for successful aging at work include both subjective and objective work outcomes that are valued by employees and organizations. The overall relationships between employee age and work outcomes (i.e., usual aging at work) can be zero, positive, negative, or curvilinear due to multiple mediating and moderating factors.

Person and Contextual Mediators

In this section, I describe the third and fourth principles, which focus on the role of person-related and contextual mediating mechanisms that account for relationships between employee age and work outcomes (Figure 2). The theoretical framework suggests that age is associated with person characteristics (e.g., knowledge, skills, abilities, and other factors such as personality, motivation, and interests) as well as work characteristics (e.g., task, job, team, organization, vocation factors) and life circumstances (e.g., family, hobbies, volunteering activities). With regard to person mediators, Kanfer and Ackerman (2004) suggested that the aging process is characterized by four developmental patterns in individual characteristics related to work outcomes: gains, losses, reorganization, and exchange. For instance, employees experience, on average, age-related losses in fast information processing abilities, age-related gains in experience-based knowledge and judgment, and age-related reorganization, exchange, and developmental emergence in personality characteristics, motives, life goals, interests, socioemotional experiences, and self-concept (Kanfer & Ackerman, 2004).

Consistent with Kanfer and Ackerman's (2004) framework, Ng and Feldman (2013b) reviewed evidence for intraindividual age-related changes in five categories of person characteristics relevant to work outcomes: cognitive abilities (e.g., age-related decreases in fluid intelligence and age-related maintenance or increases in crystallized intelligence), personality characteristics (e.g., increases in conscientiousness, emotional stability, and agreeableness with age), goal orientation (e.g., change from maximizing gains to preventing losses with age), socioemotional experience (e.g., increasing focus on positive and meaningful events with age), and health (e.g., decreases in physical health and stability or increases in mental health with age). Furthermore, there is evidence that some person characteristics develop in a curvilinear manner across the working life span or only emerge in middle or late adulthood. For instance, Desmette and Gaillard (2008) suggested that developmental shifts in age-related social identity (e.g., when an employee starts perceiving him- or herself as an "older employee") may predict employees' job and retirement attitudes. Age-related person mediators can influence work outcomes by themselves and in combination with contextual mediators (Figure 2). Specifically, work characteristics and life circumstances may strengthen or weaken the effects of age-related person factors on work outcomes. For instance, moving into a supervisory role or starting a family may weaken the generally positive effects of emotional stability on occupational well-being.

Principle 3: Employee age is associated with quantitative (i.e., positive, negative, and curvilinear) and qualitative changes (i.e., developmental emergence) in person factors that, by themselves or in combination with contextual factors, influence work outcomes.

Similar to age-related changes in person factors, age-related changes in employees' work characteristics and life circumstances (i.e., contextual factors) may be quantitative and gradual (i.e., positive, negative, and curvilinear) or qualitative (i.e., more or less sudden developmental emergence). In their life span perspective on person–environment fit, Zacher, Feldman, et al. (2014) identified four categories of age-related contextual factors that may, by themselves and in combination with person factors, influence work outcomes: job characteristics, social context, human resource practices and the broader organizational context, and work-family factors.

First, research suggests that employees' jobs become more demanding when employees transition from early to mid-career due to changes in

the number of tasks and the level of responsibility (Zacher, Jimmieson, & Bordia, 2014). Second, age-related expectations, stereotypes, and rewards in the social context may change as employees get older, and these contextual factors could, in turn, influence work outcomes (Posthuma & Campion, 2009). Third, age-related changes in human resource practices (e.g., training opportunities and performance evaluation standards) and the broader organizational culture and climate may change with increasing age (Farr & Ringseis, 2002). Finally, research on age and work-family conflict suggests that employees in mid-career experience greater conflict with caregiving responsibilities (Neal & Hammer, 2007). For instance, Huffman, Culbertson, Henning, and Groh (2013) showed that work hours, family satisfaction, and the age of the youngest child explained the inverted U-shaped relationship between age and work-family conflict.

Principle 4: Employee age is associated with quantitative (i.e., positive, negative, and curvilinear) and qualitative changes (i.e., developmental emergence) in contextual factors that, by themselves or in combination with person factors, influence work outcomes.

Person and Contextual Moderators

The fifth and final principle of my theoretical framework focuses on the person and contextual moderators that may facilitate or constrain successful aging at work by causing either positive or negative deviations from the average age-related trajectory in work outcomes over time. These person and contextual moderators may or may not be related to employee age. As shown in Figure 2, person and contextual moderators may influence the overall relationships between age and work outcomes, the direct effects of age on person and contextual mediators, as well as the indirect effects of age on work outcomes (through the mediator variables). Specifically, person and contextual moderators can either strengthen or weaken the direct and indirect associations between age and work outcomes. As the temporal pattern of differential preservation proposed by Salthouse (2006) is a central element of research on successful aging, the moderating factors need to explain heterogeneity in work outcomes among older employees but not necessarily among younger employees.

Potential person moderators include resources such as positive traits and orientations, cognitive and physical abilities, as well as knowledge, skills, and action regulation strategies. In addition, person moderators may include constraints such as lack of knowledge, skills, abilities, and health problems. Potential context moderators may include job resources such as job autonomy, social support, and a positive organizational climate, whereas contextual constraints may include aversive social relationships, lack of autonomy, and job stressors. It is also possible that three-way interactions among employee age and person and contextual factors influence work outcomes (in the interest of simplicity, these higher-order interactions are not depicted in Figure 2). For instance, specific levels in certain person and contextual factors may need to be present for employees to age successfully with regard to a given work outcome. Hardly any empirical studies have so far investigated the possibility of such three-way interaction effects. One exception is a study by Zacher and Frese (2011), which showed that job complexity and the use of action regulation strategies (SOC; Baltes & Baltes, 1990) interact with age in predicting employees' perceptions of future work opportunities. Specifically, older employees in low-complexity jobs benefited more from using action regulation strategies than younger employees in low-complexity jobs as well as both younger and older employees in high-complexity jobs (see also Weigl, Müller, Hornung, Zacher, & Angerer, 2013).

Principle 5: In research on successful aging at work, person and/or contextual factors have to moderate the direct effects of age on work outcomes and/or the indirect effects of age on work outcomes (through person and/or contextual mediators). The interaction effects of age and the moderator variables have to explain heterogeneity in work outcomes among older employees but not necessarily among younger employees.

A REVIEW OF RESEARCH ON AGE IN THE WORKPLACE THROUGH THE LENS OF SUCCESSFUL AGING AT WORK

In this section, I review theoretical and empirical research published over the past decade on age in the workplace through the lens of the framework on successful aging at work outlined in the previous section. The papers were retrieved using computerized searches for combinations of terms such as age/aging/older, work/job/organization, and moderation/moderator/interaction. This review is structured according to the five categories of work outcomes specified in the framework (Figure 2). It is important to note that the empirical studies I review have mostly used cross-sectional research designs and thus assessed individuals of different age at only one point in time. Implicitly or explicitly, the underlying assumption of most of these studies was that intraindividual age-related changes over time and across the working life span are the cause of the observed differences between younger and older employees (cf. Ng & Feldman, 2013b). However, cross-sectional studies cannot rule out alternative explanations for the emergence of age differences (e.g., selection and cohort effects; Hofer & Piccinin, 2010). Thus, while the findings of the cross-sectional studies on age in the following review may be *theoretically consistent* with the definition and framework of successful aging at work proposed in this paper, they cannot provide *definite empirical evidence* of it.

Researchers need to assume the absence of selection and cohort effects in order for findings of cross-sectional studies on age to approximate intraindividual age-related changes over time (Li & Schmiedek, 2002). Figure 3, which was adapted from Li and Schmiedek (2002), illustrates these assumptions. The left panels show positive intraindividual changes in a work outcome over 10, 25, and 40 years for three cohorts of four employees each. The right panels show the same employees' cross-sectional age differences in the same work outcome when they are assessed in the year 2015. Figure 3A shows that when only interindividual differences in initial levels of the work outcome exist and selection and cohort effects are absent, the cross-sectional findings approximate intraindividual age-related changes well. Thus, when certain assumptions are met, cross-sectional age differences may be consistent with intraindividual age-related changes (Li & Schmiedek, 2002). In contrast, Figure 3B shows that age-related selection (or "healthy worker") effects may cause cross-sectional findings to underestimate intraindividual age-related changes. Figure 3C shows that if there are cohort effects that favor older employees, cross-sectional findings overestimate intraindividual age-related changes. Finally, Figure 3D shows that if there are cohort effects that favor younger employees, the direction of the cross-sectional findings is opposite to the intraindividual age-related changes. It is also important to note that cross-sectional findings are not only a function of

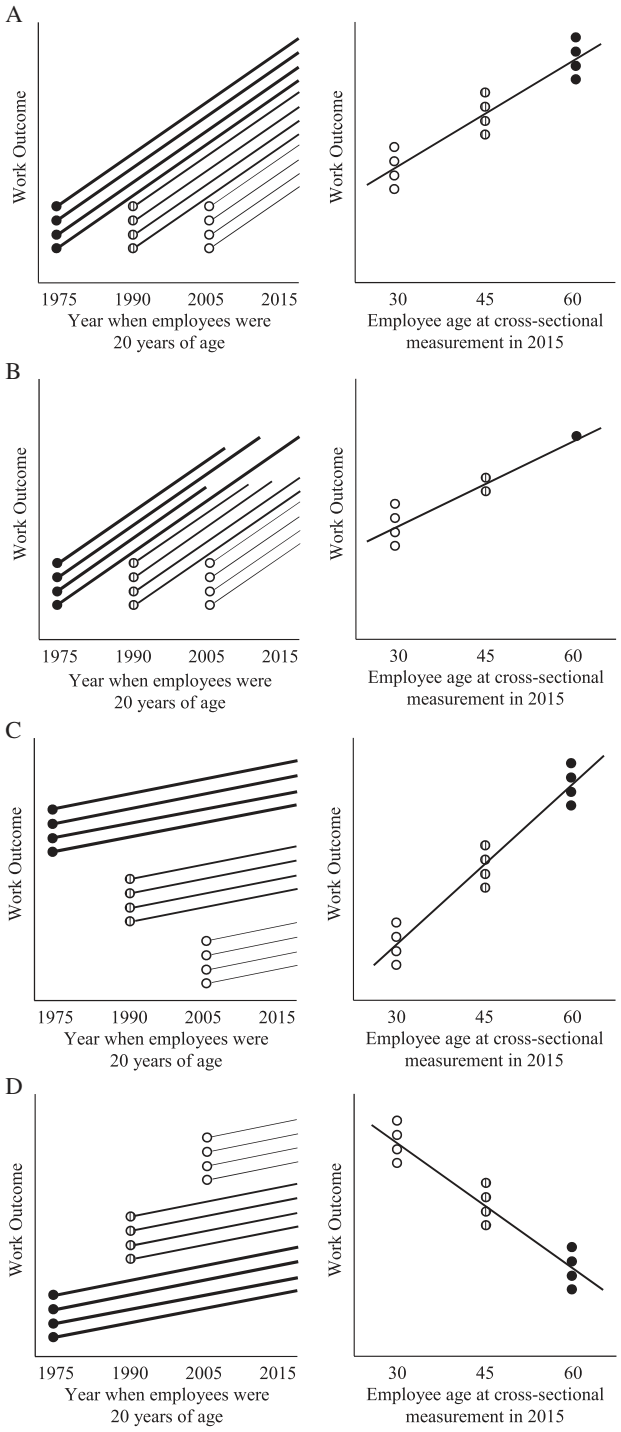

Figure 3. Possible relationships between intraindividual age-related changes over time and cross-sectional associations based on age differences (adapted from Li & Schmiedek, 2002).

initial individual differences and previous development in the work outcome (as depicted in Figure 3) but also of systematic short-term intraindividual variation and measurement error (Hofer & Piccinin, 2010).

Testing the interaction effects of age and facilitating and constraining factors on work outcomes with cross-sectional data is based on two additional assumptions (cf. Hertzog et al., 2009). First, this approach assumes that comparing employees with different levels in the facilitating and constraining factors can approximate how exposure to these factors influences intraindividual age-related changes in work outcomes over time. Second, it assumes that employees with high and low levels in a work outcome respond to the facilitating and constraining factors in a similar way. However, older individuals may require greater resources to maintain high levels in a work outcome than to maintain low levels in the same outcome (i.e., age-related changes in the "dose–response relationship"; Hertzog et al., 2009). In sum, findings based on cross-sectional data cannot provide definitive empirical evidence for successful aging at work but, when certain assumptions are met, they can be theoretically consistent with the notion of interindividual differences in intraindividual age-related changes across the working life span.

Work Motivation

Based on expectancy and life span theories, Kanfer and Ackerman (2004; see also Kanfer, Beier, & Ackerman, 2013) outlined a theoretical framework to explain relationships between employee age and work motivation. Their framework is consistent with the definition of successful aging at work, as they suggested a number of factors that may help employees maintain work motivation with increasing age. For instance, Kanfer and Ackerman (2004) argued that the cognitive requirements of a job moderate relationships between age and work motivation, such that employees in jobs that primarily require experience-based knowledge and judgment should age more successfully than employees in jobs that primarily require fast information processing. Next, I will review a meta-analysis and primary studies that have examined the relationship between age and work motivation, as well as moderators of this relationship.

With regard to person moderators, I identified three studies on employee attitudes and beliefs as moderators of the relationship between age and work motivation. First, Avery, McKay, and Wilson (2007) reported that satisfaction with older coworkers was more strongly positively related to job engagement among older employees. In contrast, the interaction between employee age and satisfaction with younger coworkers did not have a significant effect on job engagement. Second, Van Vianen, Dalhoeven, and De Pater (2011) examined moderators of the relationship between employee age and training motivation. They found that employees' beliefs about trainability and perceived developmental support as well as supervisors' favorable beliefs about older employees buffered the generally negative relationship between age and training motivation. Finally, Elias, Smith, and Barney (2012) examined interactions between age and attitudes toward technology in predicting work motivation. They found that attitude toward technology was more strongly positively related to intrinsic and extrinsic work motivation among older employees.

With regard to contextual moderators, a meta-analysis and two primary studies reported moderating effects of occupational and job characteristics on the relationship between age and work motivation. The meta-analysis found positive relationships between age and intrinsic work-related motives and negative relationships between age and growth, extrinsic, and security work-related motives (Kooij et al., 2011). Kooij and colleagues (2011) reported that these relationships were moderated by occupational group, such that the relationship between age and growth motives was positive among blue-collar workers, negative among white-collar workers, and nonsignificant among

managers. Similarly, they found a stronger positive relationship between age and intrinsic motives among blue-collar workers than among other occupational groups and a positive relationship between age and security motives only among white-collar workers.

A study by Boumans, de Jong, and Janssen (2011) showed that motivational job characteristics were more strongly positively related to work motivation among older employees. These authors concluded that employees require intrinsically challenging and fulfilling jobs to remain motivated with increasing age. Another study showed that characteristics of specific work tasks moderated the relationship between age and work motivation (Stamov-Roßnagel & Biemann, 2012). Specifically, age was positively related to work motivation when employees engaged in tasks that involved collaborating with others and using their knowledge and experience but not when they engaged in tasks that involved learning and personal development.

Job Performance

Warr (1993) developed a theoretical framework for investigating the interactive effects of employee age, work experience, and work characteristics on job performance. He proposed that the relationship between age and job performance is negative in jobs involving continuous and rapid information processing or heavy lifting, whereas the relationship between age and performance in jobs involving skilled manual or cognitive tasks can be buffered by employees' work experience. Furthermore, he suggested that the relationship between age and job performance is positive in jobs involving knowledge-based judgments without time pressure and that experience may further boost this relationship. In the past decade, Warr's (1993) ideas on interactive effects of age and person and contextual factors on job performance were extended by Kanfer and Ackerman (2004) and Truxillo and colleagues (2012).

Three studies examined person characteristics as moderators of the relationship between age and job performance. Using a cross-sectional survey and an experience sampling study, Yeung and Fung (2009) examined the interactive effects of age and the use of action regulation strategies (SOC; Baltes & Baltes, 1990) on job performance. Their survey results revealed that the use of compensation strategies was more strongly positively related to job performance among older employees. Moreover, the results of the experience sampling study showed that selection strategies were more strongly positively related to job performance among older employees. In a later study, the same researchers found that work-related social values were more strongly positively associated with job performance among older employees (Yeung, Fung, & Chan, in press). Weigl and colleagues (2013) examined interactive effects among employee age, job control, and the use of SOC strategies on supervisor ratings of employees' work ability (i.e., a performance-related concept that captures employees' ability to carry out their work with respect to physical and psychological job demands). They found that the generally negative relationship between age and work ability was weakest among employees with high job control and high use of action regulation strategies.

A larger number of studies have investigated contextual moderators of the age–job performance relationship. Using meta-analytic techniques, Ng and Feldman (2008) investigated bivariate relationships between age and 10 different forms of job performance, including task, training, organizational citizenship (OCB), creative, and counterproductive performance. These researchers found no significant relationships between age and task, training, and creative performance. However, they showed that, on average, older employees are more likely to show OCB and less likely to engage in counterproductive work behaviors than younger employees. Moreover, Ng and Feldman (2008) found that several sample (e.g., average age, age dispersion) and design characteristics (e.g., longitudinal vs. cross-sectional design, year of publication) moderated the relationships between age and different forms of job performance. One of the most remarkable findings of these analyses was that the relationship between age and OCB was more positive in low-complexity than high-complexity jobs, suggesting that employees in low-complexity jobs age more successfully with regard to OCB than employees in high-complexity jobs; the reasons for this moderating effect remain unclear however.

Three primary studies have examined the interactive effects of age and work characteristics on job performance outcomes. First, Costa and Sartori (2007) found that the generally negative relationship between age and self-rated work ability was weaker in jobs with high mental involvement, high job autonomy, and low physical demands. Second, Zacher, Heusner, Schmitz, Zwierzanska, and Frese (2010) showed that job complexity buffered the negative relationship between age and perceptions of future work opportunities, as well as the negative indirect effect of age on job performance (through perceptions of future work opportunities). Finally, Kooij and colleagues (2013) showed that human resource practices related to job enrichment were more strongly positively related to self-reported job performance among older employees.

Studies explicitly focusing on age and dimensions of job performance other than task performance are rare. For instance, only two studies examined the relationship between successful aging at work and creative and innovative performance. Binnewies, Ohly, and Niessen (2008) showed that age interacted with job control and support for creativity from coworkers and supervisors in predicting an objective measure of creativity at work. Specifically, age was positively related to creativity when job control was high and negatively related to creativity when job control and support for creativity were low. Ng and Feldman (2012) found that the relationship between age and innovative performance was positive among employees experiencing low levels of supervisor undermining as well as among employees with both high perceived supervisor undermining and a proactive personality. In contrast, the relationship between age and innovative performance was negative when perceived supervisor undermining was high and employees' proactive personality was low.

Turnover and Job Search Behavior

No conceptual framework has been developed to explain the relationships between employee age, turnover, and job search behavior. However, researchers have conducted a meta-analysis on age and voluntary turnover and several primary studies on age, turnover-related constructs, and job search behavior. Ng and Feldman's (2009) meta-analysis of studies published between 1990 and 2008 found that the average relationship between age and voluntary turnover was negative and weak, yet stronger negative relationships emerged when racial minorities were included in the sample, organizational tenure was high, and education level was low.

Four studies have investigated the moderating effects of work characteristics on the relationships between age and constructs related to turnover. First, Riordan, Griffith, and Weatherly (2003) found that two job status characteristics (i.e., pay level and part-time vs. full-time employment) moderated the relationship between age and withdrawal cognitions. Specifically, being employed full time (compared to part time) more strongly negatively predicted withdrawal cognitions among older employees than younger counterparts. Second, Bal, De Lange, Ybema, Jansen, and Van Der Velde (2011) hypothesized and found a three-way interaction between employee age, trust, and procedural justice perceptions in predicting actual turnover. Procedural justice was more strongly negatively related to turnover among older employees with high levels of trust. Third, Zaniboni, Truxillo, and Fraccaroli (2013) reported that skill variety was more strongly negatively related to turnover intentions among older employees. Finally, Vantilborgh and colleagues (2013) found that the level of organizational over-obligation (i.e., the organization's inducements are higher than the volunteer's contributions) was more strongly positively associated with turnover intentions among older volunteers than among younger and middle-aged volunteers.

So far, only very few studies have been conducted on the association between age and job search behavior (for reviews, see Klehe, Koen, & De Pater, 2012; Lievens, Van Hoye, & Zacher, 2012). De Coen, Forrier, De Cuyper, and Sels (in press) showed that re-employment self-efficacy was positively related to job search intensity among older job seekers. In two studies with older job seekers, Zacher (2013) and Zacher and Bock (2014) found that high levels of proactive personality buffered the generally negative relationship between job seekers' age and job search intensity and that the interaction effect of age and proactive personality on job search intensity was mediated by job seekers' future time perspective and job search self-efficacy.

Job Attitudes

Research on employee age and job attitudes suggests that usual aging at work involves a general improvement in job attitudes with increasing age. In a meta-analysis, Ng and Feldman (2010) showed that age was positively related to most job attitudes. Older employees had more favorable and less unfavorable job attitudes than younger employees for 27 out of 35 task-, person-, and organization-related attitudes. In their life span perspective on job design, Truxillo and colleagues (2012) argued that seven job characteristics, in combination with moderating person factors, such as use of action regulation strategies, work experience, health, and personality, may help employees maintain positive job attitudes such as job satisfaction with increasing age. Specifically, they proposed that job autonomy, task significance, problem-solving demands, skill variety, specialization, social support, and interdependence are more strongly positively related to job satisfaction, engagement, and performance among older employees. Moreover, they proposed that mediator variables such as psychological states, person–environment fit, and work motivation can explain these moderating effects.

Five empirical studies have examined how specific job characteristics moderate the relationships between age and job attitudes. First, Riordan and colleagues (2003) found that being employed full time resulted in a stronger positive relationship between employee age and job satisfaction than other working arrangements. Second, Zacher and Frese (2009, 2011) showed in two studies that job control, complexity, and action regulation strategies buffered the negative relationship between age and perceptions of future work opportunities. Third, Krumm, Grube, and Hertel (2013) drew on person–environment fit and socioemotional selectivity theories to examine the interactive effect of employee needs, organizational supplies, and age on job satisfaction. They found that older employees reported lower job satisfaction than younger employees when experiencing needs–supplies misfit. Finally, Bos, Donders, Schouteten, and Van der Gulden (2013) examined the interaction effects of age and several job characteristics on job satisfaction and need for recovery. They found that the relationships between feedback and job satisfaction and between task variety and need for recovery were moderated by age, such that the job characteristics were more strongly positively related to job attitudes among older employees.

Two meta-analyses suggested that there are moderating effects of broader organizational factors on the relationship between age and job attitudes. A meta-analysis by Bal, De Lange, Jansen, and Van Der Velde (2008) found that psychological contract breach was more strongly negatively related to job satisfaction among older employees. Another meta-analysis by Kooij, Jansen, Dikkers, and De Lange (2010) examined the interactions between age and human resource management practices in predicting job satisfaction and affective commitment. Their results showed that certain practices (e.g., performance management, information sharing, teamwork, and flexible work schedules) were more strongly positively related to job satisfaction and affective commitment among older employees than among their younger counterparts.

Occupational Health and Well-Being

Two recent theoretical papers have discussed successful aging with regard to occupational health and well-being. In their life span perspective on occupational stress and well-being, Scheibe and Zacher (2013) integrated the transactional model of stress with research on emotional aging. They proposed that age not only impacts on stressful work events encountered by employees but—through the person characteristics of emotion generation and regulation—also indirectly affects employees' appraisals of and reactions to these events (i.e., interaction effects). Zacher, Feldman, et al. (2014) combined the person–environment fit approach to stress with life span psychology research to develop a model that explains how the interplay between age-related changes in person and contextual factors can influence strain and well-being. In a meta-analysis on age and occupational health and well-being, Ng and Feldman (2013a) found that age was not significantly related to mental health and self-reported physical health but weakly positively related to objective measures of physical ill-health such as blood pressure, cholesterol level, and body mass index.

Five empirical studies on successful aging at work with regard to occupational health and well-being have been published in the past decade. First, Shultz, Wang, Crimmins, and Fisher (2010) showed that, among older employees, the availability of sufficient time to complete tasks and job autonomy buffered the positive relationship between deadlines and strain, and scheduling flexibility buffered the positive relationship between problem solving demands and strain. In contrast, only the availability of sufficient time to complete tasks buffered the positive relationship between problem solving demands

and strain among younger employees. Second, Matthews, Bulger, and Barnes-Farrell (2010) examined age as a moderator of the relationships among job stressors, social support, and perceptions of work-to-family and family-to-work conflict. Their results showed that job stressors were more strongly positively, and social support was more strongly negatively, related to perceptions of conflict among middle-aged and older employees than among younger employees.

Third, Mauno, Ruokolainen, and Kinnunen (2013) investigated interactive effects of age and different job stressors on occupational well-being (i.e., job and life satisfaction, vigor at work). They found that older employees were more negatively affected by high levels of job insecurity than younger employees. In contrast, younger employees were more negatively affected by high workload and work-family conflict. Fourth, Taylor, Mcloughlin, Meyer, and Brooke (2013) investigated the interactive effects among age, gender, and several work characteristics (i.e., supervisor consultation, "everyday discrimination," training, support, respect, meaningful work, and job insecurity) on job satisfaction and psychological well-being at work. While the relationships between most work characteristics and well-being outcomes did not vary systematically by age group, a few interesting interaction effects emerged. For instance, discrimination at work was more strongly negatively associated with psychological well-being among older than younger male employees. Finally, Besen, Matz-Costa, James, and Pitt-Catsouphes (in press) showed that personal control buffered the negative relationship between job demands and mental health among older employees. In contrast, job control buffered the negative relationship between job demands and mental health among younger employees with high but not with low personal control.

IMPLICATIONS FOR FUTURE RESEARCH

The literature review in the previous section describes findings that are consistent with the definition and theoretical framework of successful aging at work presented in this paper (Figure 2). In this section, I discuss ideas for future research regarding person and contextual mediators and moderators of relationships between age and work outcomes, the nature of work outcomes used as criteria for successful aging at work, the possibility of nonlinear relationships and developmental emergence, and the important role of longitudinal research designs in investigating successful aging at work. The following discussion of research implications is thus structured according to the five principles and main components of the theoretical framework (i.e., mediators, moderators, work outcomes, and intraindividual age-related changes over time).

Age-Related Person and Contextual Mediators

Developmental researchers have long acknowledged that age per se is insufficient as an explanatory variable and have suggested that a stronger focus be placed on age-related person and contextual mechanisms (Wohlwill, 1970). Unfortunately, the literature review has shown that very few studies have examined age-related mediators in addition to interaction effects. There is need of systematic study of multiple theoretically derived mediators of the relationships between age and work outcomes. When longitudinal data are available, researchers can investigate the relationships between age-related changes in mediator variables and age-related changes in work outcomes over time (Pitariu & Ployhart, 2010). Investigating multiple mediator models is important because research that merely shows the interaction effects of age and person and/or contextual characteristics on work outcomes cannot explain *why* some employees age more successfully at work than others.

Multiple mediator models can also be used to investigate the relative importance of different types of age-related mediators, including person and contextual characteristics. For instance, age-related changes in person factors such as emotion generation and emotion regulation are assumed to have an impact on occupational well-being (Scheibe & Zacher, 2013). However, work characteristics have also been shown to play a mediating role (Zacher, Jimmieson, et al., 2014). Importantly, multiple mediators should also be investigated if the overall relationships between age and work outcomes are zero because there may be multiple countervailing effects underlying such relationships. For instance, age-related increases in conscientiousness and experience-based judgment as well as age-related decreases in general mental ability and work-family conflict may, in combination, lead to a relatively constant level of task performance over time (cf. Ng & Feldman, 2008, 2013b).

Person and Contextual Moderators

Further systematic and theory-driven research is also needed regarding the moderators of the direct and indirect effects of employee age on work outcomes. Based on Salthouse's (2006) principle of differential preservation, I have argued that person and contextual moderators of the relationships between age, mediators, and work outcomes constitute crucial elements in research on successful aging at work. Future research should include multiple relevant person and contextual moderators as well as interactions between these moderators to assess their relative importance. Most of the studies reviewed in this paper examined only two-way interactions, with few exceptions (e.g., Ng & Feldman, 2012; Zacher & Frese, 2011). It is likely that certain person or contextual factors are more important for successful aging at work among specific subgroups of employees or in specific work or living circumstances. For instance, person moderators such as emotional stability or action regulation strategies could be more important in terms of successful aging at work when employees' work or life context does not provide them with many resources or is particularly demanding. In contrast, contextual moderators such as social and organizational support may help employees age successfully despite a lack of personal resources or high personal constraints (e.g., impaired physical health).

Future research on successful aging at work could also examine the relative importance of person moderators that vary in specificity as well as contextual moderators that are conceptualized at different levels. For instance, a better understanding is needed of the conditions under which more specific person factors (e.g., expert knowledge about a particular work task) contribute to successful aging at work compared to the conditions under which broader person factors (e.g., action regulation strategies) are important. It may be that the importance of different person moderators depends on the specificity of the criterion for successful aging at work. With regard to different levels of contextual moderators, researchers could examine task, job, team, organizational, and vocational characteristics that contribute to successful aging at work. For instance, the possibility of negotiating idiosyncratic deals at work (i.e., individualized work arrangements in relation to flexibility or personal development) may contribute to successful aging (Bal, De Jong, Jansen, & Bakker, 2012). Another example is intergenerational

exchanges in age-diverse work teams. These exchanges may pose both opportunities (e.g., for intergenerational facilitation) and threats (e.g., age stereotypes and discrimination) for successful aging at work (Rudolph & Zacher, in press).

Successful aging at work may further be influenced by age differences and associated psychosocial processes between leaders and their followers (Kearney, 2008; Perry, Dokko, & Golom, 2012). Further research could also examine such concepts as age diversity and age discrimination climates (Böhm, Kunze, & Bruch, 2014; Kunze, Böhm, & Bruch, 2011) as well as organizational age cultures for younger and older employees (Zacher & Gielnik, 2014) as moderators of relationships between employee age and work outcomes. Certain vocational characteristics (e.g., requirements and opportunities for updating of knowledge and skills) may also facilitate or constrain successful aging at work (Zacher, Feldman, et al., 2014). With regard to employees' living circumstances outside of the work context, contextual factors at multiple levels that could be investigated include close social relationships and family support, broader social networks and nonwork activities, community embeddedness, the availability of social security benefits, and whether aging is perceived as an opportunity or a liability in a society. More generally, future research may benefit from conceptualizing moderators in research on successful aging at work using a dynamic person–environment fit perspective, which considers the congruence and complementary nature of person and contextual moderators with age-related changes in person and work context factors (Feldman & Vogel, 2009; Perry et al., 2012; Zacher, Feldman, et al., 2014).

Finally, the "moderation effect requirement" (i.e., Age × Facilitating and Constraining Factors) for successful aging advocated by Salthouse (2006) and in the current paper may be considered too stringent. For instance, Hertzog and colleagues (2009) argued that the absence of significant Age × Intellectual or Physical Activity effects on cognitive functioning does not imply that meaningful cognitive enrichment effects do not exist. Hertzog and colleagues (2009) suggested that the demonstration of the short-term effects of cognitive training and exercise interventions on older adults' cognitive performance also provides evidence of successful aging because these effects may help delay later cognitive decline and prevent negative consequences for individuals' functioning in society. Similar arguments could be made in support of cross-sectional research on successful aging at work that focuses exclusively on older employees' strategies and outcomes (e.g., Cheung & Wu, 2013; Robson & Hansson, 2007; Robson et al., 2006). However, longitudinal research designs and the moderation effect requirement can help rule out the alternative explanation that differences between "successful" and "unsuccessful" older employees merely reflect differences between employees that were already present at earlier stages of their careers and were preserved over time (cf. Salthouse, 2006).

Work Outcomes

Consistent with research in gerontology and life span psychology, I proposed that both subjective and objective work outcomes that are valued by employees and organizations can serve as criteria for successful aging at work. Similarly, Shultz and Adams (2007) noted that "how successful aging at work is defined for any given individual will depend on how he or she perceives the situation, as well as how he or she is perceived within the situation" (p. 308). Research using both types of criteria simultaneously is needed to understand under which conditions findings converge for subjective and objective work outcomes and under which conditions they differ (cf. Glass, 2003). For instance, research could investigate why some employees maintain high levels of job satisfaction with increasing age despite declines in objective performance. Conversely, some employees may age successfully with regard to objective work outcomes but feel increasingly dissatisfied and alienated at work.

Instead of exclusively examining a single criterion for successful aging at work or examining predictors of multiple separate outcomes, future research could also combine information from multiple outcome measures and employ a subgroup approach to age-related change trajectories (Morack, Ram, Fauth, & Gerstorf, 2013). Morack and colleagues (2013) demonstrated this approach in the gerontology literature by applying latent profile analysis to 8-year longitudinal data on cognitive, emotional, and social functioning. Their analyses resulted in four profiles of successful and unsuccessful aging: one group maintained overall functioning over time, one group was characterized by continuous low social functioning, one group had continuous low cognitive functioning but average emotional and social functioning, and one group showed declining cognitive functioning but stable emotional and social functioning over time. Future research could apply this approach to examining change trajectories in multiple work outcomes across employees' working life.

An additional interesting question with regard to the criteria for successful aging at work is whether these should be age related or "age-sensitive" (Ryff, 1989; Zacher & Frese, 2011). On the one hand, the definition and framework proposed in this paper do not require that, on average, criteria are positively, negatively, or not related to age (see Figure 1A–C). A moderator variable can explain heterogeneity in outcomes among older employees independent of the main effects of age, and the relationship between age and a given work outcome can be mediated even if the overall relationship is zero. On the other hand, evidence for successful aging at work may be found more easily if the criterion is "age-sensitive" in the sense that older employees naturally show greater heterogeneity in the outcome than younger employees. This idea is illustrated in Figure 4.

In Figure 4A, scores on the work outcome are evenly distributed across the working life span (in statistical terms, homoscedasticity is present). This distribution may be typical of job performance scores across the working life span. In contrast, scores on the more "aging-sensitive" work outcomes in Figure 4B–D have funnel-like shapes as the variance in scores increases with employee age (i.e., heteroscedasticity is present). An example illustrating the distribution depicted in Figure 4B, with an average relationship between age and a work outcome of zero, may be employees' beliefs about their age at retirement (e.g., it could be argued that employees who are motivated to work longer are aging more successfully). Younger employees may be more likely than older employees to form beliefs based on societal norms (e.g., typical retirement at age 65), whereas older employees' opinions may be based more strongly on their idiosyncratic work and life experiences and age-related changes in factors such as health and family situation. These factors should lead to greater variation in the distribution of expected retirement age scores among older employees.

An example of the distribution shown in Figure 4C, with a positive average age-related trend, may be employees' experiences of age discrimination. It is likely that most younger employees experience

Figure 4. Possible distributions of data on successful aging at work. Solid lines represent age-related trajectories at high levels of a moderator variable, dotted lines represent average age-related trajectories, and dashed lines represent age-related trajectories at low levels of a moderator variable.

relatively low levels of age discrimination but that both mean levels and heterogeneity in this outcome increase across the working life span due to age-related changes in employees' appearance, behavior, and sensitivity to age-related issues, as well as how they are perceived and treated by other people at work. Finally, a possible example of the situation in Figure 4D, which shows a negative average age-related trend, may be employees' perceptions of their work ability. Average scores on this outcome should be higher among younger employees and show general declines and increased heterogeneity with age due to different work experiences accumulated over time. In sum, the distribution of criteria for successful aging at work may change systematically with age due to actual age-related changes or age-related changes in employees' interpretation of subjectively assessed constructs.

Nonlinearity and Developmental Emergence

The relationships among age, mediators, and work outcomes can be curvilinear, and relevant age-related mediators and moderators can emerge at different points of the working life span—this also deserves attention in future research. For instance, researchers have suggested that the relationships between age and job performance and between age and occupational well-being are curvilinear, with middle-aged employees having lower or higher scores on these work outcomes (Ng & Feldman, 2008; Scheibe & Zacher, 2013). In addition, person factors such as the motivation to contribute to the next generation (i.e., generativity) may not become salient as age-related resources before mid-career (Clark & Arnold, 2008; Kooij & Van de Voorde, 2011; Zacher, Rosing, Henning, & Frese, 2011). The quantity and quality of certain work and family demands and resources is also likely to change with age (Huffman et al., 2013; Zacher, Jimmieson, et al., 2014), and significant life events such as job loss, work-related injuries, or expatriation may, due to their often unpredictable nature, constitute important threats or opportunities for successful aging at work (Klehe et al., 2012; Lievens et al., 2012).

Longitudinal Research

According to Salthouse (2006), the ideal study of successful aging at work would involve random assignment of participants to an experimental and a control group, strict control of the treatment, and monitoring of the outcome variable across the entire working life span. Such a study would provide support for successful aging at work if participants in the experimental group showed a more favorable age-related trend in the work outcome than participants in the control group. However, because such a research design is impractical and unethical, all research on successful aging at work has to be based on approximations of this ideal study design (Salthouse, 2006). An important step in this direction is to conduct more longitudinal research, as cross-sectional research designs do not allow definite conclusions about successful aging at work due to their inability to disentangle intraindividual age-related changes from the influences of different birth cohorts and "healthy worker" selection effects (Baltes & Nesselroade, 1979; Hofer & Piccinin, 2010).

Unfortunately, longitudinal studies—particularly those in which participants are assessed multiple times across several years and decades—are very expensive and time consuming. On the one hand, Wohlwill (1970) recommended that "those intent on quick results, or immediate gratification, might be better advised to stay clear of developmental-analytic research … or possibly to apply it to the study of faster maturing species such as Drosophilia" (p. 63). On the other hand, Ng and Feldman (2008) noted that "… in perhaps no area of organizational research is the legitimate barrier to longitudinal research greater than it is in the area of aging. … we believe that generic calls for more longitudinal research are not likely to influence researchers' design decisions in the case of age research and that more nuanced judgment calls are needed" (p. 406). One possible option with regard to the latter opinion is to develop theory-based hypotheses on successful aging at work and to initially test these hypotheses using cross-sectional data (while explicitly acknowledging the assumptions and limitations of this research design) and later replicate them when longitudinal data become available. As a first step in investigating successful aging at work, researchers could use the findings of cross-sectional research designs that can yield results theoretically consistent with the definition and framework of successful aging at work developed in this paper.

A second possibility is to use data from existing large-scale longitudinal archival data sets. Unfortunately, many of these data sets are still limited in the variables they include, particularly with respect to psychological variables. Third, as suggested by Ng and Feldman (2008), researchers could collect short-term longitudinal data across several years or periods involving critical career transitions from participants in different age groups. Fourth and finally, if such longitudinal data across several years are available, an interesting possibility is to combine such data with data from experience sampling or "measurement burst" designs that allow the mapping of the upper and lower limits of individuals' "zone of possible functioning" (Hertzog et al., 2009; Ram & Gerstorf, 2009).

A study in life span psychology that used such a combination of multi-time scale research designs showed that higher levels of cognitive plasticity, lower cardiovascular variability, and emotional diversity across a time period of 2 weeks were positively related to successful cognitive aging over 13 years (Ram, Gerstorf, Lindenberger, & Smith, 2011). Following from the idea of combining measurement burst and longitudinal research designs, it would be fascinating to develop and test theories on how short-term fluctuations in employee experiences and behaviors relate to long-term intraindividual age-related changes over time in work outcomes. For instance, it may be possible that employees who consistently use action regulation strategies on a daily basis age more successfully at work with respect to job performance than employees whose use of such strategies fluctuates more strongly across shorter periods of time.

In sum, due to the various methodological challenges inherent in empirical research on successful aging at work, scholars in this area should follow Hertzog et al.'s (2009) advice and gather evidence using multiple different research designs, including cross-sectional designs, experimental and intervention designs, as well as short- and long-term longitudinal designs.

CONCLUSION

In times of demographic change, workforce aging, and increased need to retain older employees as long as possible in the workforce, successful aging at work has become an increasingly popular concept among organizational researchers and practitioners. However, thus far, the topic may have "appealed more than illuminated" (cf. Ryff, 1982). Based on the rich, decade-old tradition of research on successful aging in the fields of gerontology and life span psychology, I have proposed a working definition and theoretical framework in this paper to guide future research on successful aging at work. I have presented five principles according to which future research needs to (a) develop and test hypotheses on intraindividual age-related changes in work outcomes over time and across the working life span, (b) focus on both subjective and objective work outcomes that are valued by employees and organizations as criteria for successful aging at work, (c) investigate age-related person mechanisms underlying the associations between age and work outcomes, (d) investigate age-related contextual mechanisms underlying the same, and (e) distinguish differential preservation from preserved differentiation effects by demonstrating significant interaction effects of age and person and/or contextual moderators on work outcomes. Based on these principles, a more differentiated understanding of successful aging at work will contribute to scientific progress and practical interventions related to this increasingly important topic.

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