

Handbook of the Psychology of Aging

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Aging in the Work Context

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INTRODUCTION

In this chapter, we discuss the interplay between work and the psychological aspects of aging. There are of course many ways in which people can “work,” that is, be productive, in terms of their intellectual, emotional, and motivational outputs (cf. Staudinger, 1996, 2008). We focus specifically on work in the

form of paid employment and to a lesser extent on post-retirement volunteering. The influence of the employment context on adult development (e.g., cognition, personality) has received increasing attention as one of the major contextual influences of adult life. Reciprocally, the relationship between age or aging, respectively, and employment outcomes (i.e., productivity) has increased in importance for companies and policy makers in light of falling birth rates and lengthened life spans.

THE PROCESS OF AGING IN THE WORK CONTEXT

As lifespan psychologists, we take the view that aging is a lifelong process that does not suddenly begin (or end) at any particular age. Also, the aging process is *multidirectional* as well as *multidimensional*. In contrast to traditional conceptualizations of aging which conceive of human development as characterized by gains and advances in functioning up to a certain age and then by losses, we take the view that development at all times — including adulthood and even into old age — is characterized by *selective age-related adaptation* (Baltes, 1987). Individuals select (consciously or not), where to direct and invest their resources, within the various constraints posed by biology as well as their social environment. Please note that “selection” refers not only to conscious decisions such as whether or not to work or which career to pursue, but also how resources are invested within any given context. Here we consider not only resource investment in outcomes like task performance but also the wider notion of *psychological productivity* (Staudinger, 1996, 2008), which turns our attention to the whole of an individual’s intellectual and emotional, as well as motivational outputs. According to this framework, intellectual productivity refers to problem solving, creating and

sharing ideas, and giving advice. Emotional productivity consists of the ways that people contribute to their own and other's emotional well-being; for example, through their vitality, lust for life, and good humor even in the face of difficult life circumstances (i.e., resilience), or through their capacity for comforting and sympathizing with others. Motivational productivity consists of the ways that people inspire others, for instance, by being a role model or offering support to others in the attainment of their goals. In addition to different forms of productivity, different returns or currencies of productivity can also be distinguished. Money is the return most broadly discussed in our society but other returns such as subjective well-being, motivating others, and increasing social connectedness are crucially important but are less easily measurable. Acknowledging this wider psychological notion of productivity and providing for contexts that facilitate its different facets may represent an important contribution to developing a society for all ages.

How people direct their resources (again, consciously or not) results in selective gains, maintenance in some selected domains, and losses in others. As the effects of individual "choice" and varying contexts accumulate across adulthood (e.g., cumulative advantages and disadvantages, Dannefer, 2003), it is perhaps not surprising that between-person variability on any number of outcomes tends to *increase* across adulthood until very old age (Nelson & Dannefer, 1992). In other words, chronological age becomes less and less informative with increasing age (e.g., Staudinger & Kocka, 2010). While historically much of the research on work and age has focused on cross-sectional comparisons between age groups, to describe "older workers" as a homogenous social group can be misleading given the increasing diversity of age trajectories. Furthermore, there is no dichotomy between "older" and "younger" workers (see also Kessler et al., in press). Therefore, one of the aims of this chapter is to consider the work-related research alongside theories and research on the *aging process* as continuous, multidimensional, and multidirectional. By taking a lifespan view, we would like to emphasize that how people age is — within biologically set limits — malleable and not determined.

WORK AS AN IMPORTANT DEVELOPMENTAL CONTEXT: THE EFFECT OF WORK EXPERIENCES ON ADULT DEVELOPMENT

Work and Cognitive Development

Much research has been devoted to understanding the role of the work context — specifically, the degree of cognitive stimulation adults encounter within their

work environments — in predicting concurrent and later patterns of cognitive functioning. Overwhelmingly, the most common hypothesis informing research on the relationship between the work context and cognitive development is some derivation of the use-it-or-lose-it or the disuse hypothesis (Denney, 1984). According to this theory, changes in cognition typically observed with increasing age are at least in part caused by disuse of certain skills and abilities. Earlier considerations of the use-it-or-lose-it/disuse hypothesis typically did not differentiate between the need to practice skills to maintain competence from the need to be continuously faced with new, optimally discrepant cognitive challenges to support cognitive development throughout adulthood and old age (lack of new challenge hypothesis). This latter aspect has received more attention in more recent work that also incorporates the neurophysiological level.

Biologically speaking, these two aspects of the hypotheses; that is, disuse and the lack of new challenges, are consistent with human and animal studies showing that exposure to complex, mental challenges resulting from activity engagement and environmental conditions can stimulate changes in the brain that are beneficial for cognitive functioning — specifically, the generation of new dendritic branches and more synapses (e.g., van Praag et al., 2000). These processes create more "cognitive reserve," which enhances the brain's ability to compensate for age-related decline (e.g., Kramer et al., 2004). According to the scaffolding model of cognitive functioning (e.g., Park & Reuter-Lorenz, 2009), the brain adaptively uses compensatory scaffolding (finding alternative pathways, building new pathways) in response to challenge (when the "normal" pathway is blocked). While this process is not unique to any particular age, as the number of "neural insults" increases as the result of the biological aging process (e.g., brain volume shrinks, loss of dopaminergic receptors), scaffolding processes become more important for maintaining cognitive functioning toward later phases of the life span.

Despite the intuitive appeal of the use-it-or-lose-it/optimal challenge hypotheses, this literature has been criticized on the basis of methodological concerns that render many of the findings inconclusive (e.g., Ghisletta et al., 2006; Salthouse, 2006). For instance, support for the use-it-or-lose-it/optimal challenge hypotheses has typically been based on cross-sectional studies that cannot appropriately distinguish between the selection effects that attract more able people to more stimulating activities and environments from any causal effects of cognitive stimulation on cognitive functioning. Furthermore, many studies have failed to account for important covariates such as gender, socioeconomic status, and health (see Salthouse, 2006 for a review of the problems in this literature).

Recent analyses have made more conclusive suggestions about possible causal links between cognitive

stimulation at work and cognitive development. Building on their seminal work, Schooler and colleagues used structural equation modeling on longitudinal data to demonstrate that the self-directedness of work (a combined measure of job complexity, routinization, and the closeness of supervision) affected intellectual functioning 20 years later more than intellectual functioning affected self-directedness (these analyses were controlled for age, gender, race, and education; Schooler et al., 2004). Analysis of data from approximately 1000 World War II veterans revealed that higher levels of intellectual demands and human interaction at work (retrospectively assessed) were associated with higher cognitive status after controlling for early adulthood intelligence, age, and education (Potter et al., 2007). Interestingly, results suggested that there was an aptitude by context interaction such that individuals with lower initial intelligence in young adulthood derived greater benefit from intellectually demanding work. Longitudinal data from the Maastricht Aging Study indicated that older people (average age 61, range 50–85 years) with mentally demanding jobs (currently or formerly) had lower risks of developing cognitive impairment three years later (1.5% vs. 4% for individuals with high and low mental work demands, respectively). This relation was independent of intellectual abilities at baseline as well as age, sex, education, smoking, physical activity, alcohol, depression, family history of dementia, and disease (Bosma et al., 2003). Similarly, a study of Swedish twins found that the work complexity of an individual's predominant lifetime occupation, and in particular, the complexity of the work with other people and with data (as opposed to things), predicted the incidence of dementia and Alzheimer's disease (AD) among adults aged 65 to 100 controlling for age, gender, and education (Andel et al., 2005). While the precise causal pathways responsible for the relationship between cognitive stimulation in the work context and cognitive development remain unclear, overall evidence suggests that intellectual engagement and cognitive stimulation, which can be fostered by a cognitively stimulating work context, does indeed promote more successful cognitive aging (see also Hertzog et al., 2009).

In consideration of the biological mechanisms thought to underlie the disuse and optimal challenge hypotheses, we would like to suggest that distinguishing between novel processing and other kinds of cognitive stimulation may be useful in teasing out the different mechanisms behind any possible effect of cognitive stimulation (at work) and cognitive development. In short, practice seems to help prevent the need for scaffolding (Park & Reuter-Lorenz, 2009), whereas optimal levels of mental challenge support better scaffolding. Likewise, it would seem that more complex jobs with regard to the skills practiced may support the maintenance of a wider range of already established pathways (i.e., crystallized abilities), whereas

it is particularly the encountering of *novel situations* (at different levels of complexity) – at work and in general – that supports the maintenance of fluid abilities across adulthood (cf. Sternberg, 1985). In tentative support of this argument, the results of a 6-year longitudinal study of older adults (mean age 68.5 years, SD = 7.61), found that novel information processing was one of the few engagement domains (as opposed to engagement in, e.g., social or passive information processing activities) that significantly predicted less longitudinal decline in one indicator of cognitive speed (semantic decision) (Bielak et al. 2007).¹ In addition, retrospective self-reported novelty-seeking behavior (sample items: learning a new skill, getting a new experience) was negatively associated with the development of AD relative to a control group after controlling for education, occupational status, gender, age, and ethnicity (Fritsch et al., 2005). The novelty perspective may also explain why the complexity of social interactions encountered on the job, which may be related to a higher likelihood of continuously encountering novel aspects, seems to play a particularly important role in cognitive development relative to other aspects of complexity (e.g., motor skills, work with data; Andel et al., 2005; Finkel et al., 2009; Kröger et al., 2008).

Work and Personality Development

In contrast to the hypothesis that personality past young adulthood is “set like plaster” (Costa & McCrae, 1994, 2006), an increasing number of studies have demonstrated that personality continues to develop across adulthood and even into old age (e.g., Donnellan & Lucas, 2008; Roberts & Mroczek, 2008; Roberts et al., 2006a; Staudinger, 2005). The work domain is thought to be one driver of adult personality change as adults learn and adapt to the demands of working life (e.g., Hogan & Roberts, 2004; Roberts et al., 2005; Schooler et al., 2004). The work context socializes adults by demanding certain behaviors and characteristics, for example, conscientiously completing tasks, attuning to others' needs and limiting social conflict. Over time these behaviors and characteristics become automatic and can subsequently “spill over” into other life domains. The extent to which an individual invests in his or her work role is thought to moderate the extent to which these socialization effects take place (cf. Ryff & Essex, 1992). In addition to a socialization effect, a selection effect also seems to play a role. The very characteristics that attract

¹Note though, that examples of novel information processing included completing income tax forms or playing bridge. It is questionable how “novel” this kind of processing actually is. While the brain must handle new *data* in such situations, the metacognitive structure of the task stays the same.

certain people to certain jobs (or particular contexts more generally) are the same characteristics most likely to change over time; for example, people who are more open to start with also tend to prefer jobs that are related to the encounter of continuously new situations, and thus increase in openness over time (e.g., Roberts & Robins, 2004). Importantly, the role of the work context as a driver of personality development tempers exclusively biological explanations of adult personality change (e.g., McCrae et al., 1999).

Personality Growth and Adjustment

When considering adult personality change, we have found it helpful to distinguish between two trajectories of positive personality development, that is, personality adjustment and personality growth (Staudinger & Bowen, 2010; Staudinger & Kessler, 2009; Staudinger et al., 2005; Staudinger & Kunzmann, 2005). *Personality adjustment* refers to successful adaptation to contextual demands arising from history-graded, age-graded, and idiosyncratic developmental contexts (Staudinger & Kessler, 2009). Indicators of personality adjustment include subjective well-being as well as the indicators of social adaptability like the Big Five (Costa & McCrae, 1992) traits neuroticism/emotional stability, conscientiousness, and agreeableness. Noting that positive personality development has other dimensions that are not captured by positive feelings or everyday competence, we have defined *personality growth* to involve advances in self and world insight and increases in the complexity of emotion regulation (degree of affective differentiation, tolerance of the coactivation of positive and negative emotions) as well as the motivation to optimize not only one's own well-being, but also that of others (cf. Staudinger & Kessler, 2009). All three components need to be simultaneously realized for personality growth to occur. An important correlate and/or antecedent of personality growth is the Big Five dimension of openness to new experience indicating an individual's interest to pursue the kind of novel, challenging contexts that increase the likelihood to be confronted with new experiences, which in turn are prone to challenge extant insights into self and life. Loevinger's (1997) measure of ego development is a performance indicator of personality growth.

Work Experiences and Personality Adjustment

Many indicators of personality adjustment have been related to work experiences. Earlier research demonstrated that working and succeeding in work robustly leads to increases in adjustment-related personality dimensions such as self-confidence, norm adherence, independence, and responsibility (Clausen & Gilens, 1990; Elder, 1969; Kohn & Schooler, 1978; Roberts, 1997). More recent longitudinal findings have also

shown that increases in work satisfaction are associated with increases in measures of emotional stability (Roberts & Chapman, 2000; Roberts et al., 2003; Scollon & Diener, 2006). Two recent studies by Roberts and colleagues (2003, 2006b) have linked increases in personality adjustment in young adulthood to investment in and rewards from the work context. Job satisfaction, social status, and financial reward as well as the degree to which individuals reported investing in their jobs moderated the degree to which typical developmental patterns in indicators of personality adjustment took place between ages 18 and 26. For example, young adults in jobs that provided higher status, more satisfaction, and more financial security decreased faster in neuroticism and increased faster in communal positive emotionality (cf. agreeableness; Roberts et al., 2003). In contrast, young adults who invested less in their work role tended to *increase* in neuroticism and maintain initial levels of constraint (cf. conscientiousness), *contrary* to typical developmental patterns in young adulthood (Roberts et al., 2006b). Although only young adults participated in the two studies previously cited, we find the results relevant as aging is a *lifelong process* that does not suddenly begin after one has reached advanced age.

Control beliefs are important predictors of adjustment across the life span, including health (e.g., Chapter 11, this volume). The degree of freedom with which an employee is allowed to self-determine his or her job content or approach (i.e., job autonomy and work control) has important influences on more global control beliefs (Huyck, 1991; Kivett et al., 1977; Kohn & Schooler, 1973; Wickrama et al., 2008). Longitudinal analysis of middle-aged men indicated that changes in work control affected changes in personal control, which in turn predicted self-reported health ten years later — independent from baseline levels of work control and global personal control (Wickrama et al., 2008). Low work control has been directly associated with indicators of (lacking) adjustment such as depression (Mausner-Dorsch & Eaton, 2000) as well as physical health (Wickrama et al., 2005).

Work Experiences and Personality Growth

Generally, the development of personality growth has received much less attention than personality adjustment, a pattern likewise reflected in the work literature. In a rare study that investigated the relationship between the work context and personality growth, women's ego development over time was associated with uninterrupted, successful work experiences (Helson & Roberts, 1994). Some studies have investigated work and the development of general wisdom. General wisdom has been defined as an expertise in the fundamental pragmatics of life permitting exceptional insight and judgment involving complex and

uncertain matters of the human condition including its developmental and contextual variability, plasticity, and limitations (e.g., Baltes & Staudinger, 2000). Contextual conditions thought to facilitate the development of general wisdom include extensive exposure to and experience with a wide range of human conditions and mentor-guided practice in dealing with difficult life issues (Charness, 1989; Salthouse, 1991, see also Staudinger et al., 2006). With some exceptions (e.g., theologian, judge, clinical psychologist), such conditions are not characteristic of most work contexts. In two cross-sectional studies, clinical psychologists displayed higher levels of general wisdom-related performance than comparison groups from nonsocial service academic professions (Smith et al., 1994; Staudinger et al., 1992). Still, it is important to note that advances in general wisdom (i.e., world-insight) may not necessarily correlate with advances in *personal wisdom* (i.e., self-insight), which is more relevant for our discussion of personality growth (cf. Mickler & Staudinger, 2008).

Trajectories of personality growth in recent cohorts tend to stagnate after young adulthood (Staudinger & Bowen, 2010; Staudinger & Kessler, 2009). However, we underline that the developmental trajectories we currently observe are in part the product of the contexts in which current cohorts are aging. Theoretically, more universally applicable features (as opposed to the stringent contextual characteristics described in the previous paragraph) of the workplace could also facilitate personality growth. For example, positions with supervising responsibilities may be conducive to above-average confrontation with dilemma situations that need to be resolved. Changing work contexts across the life span such that novel experiences are a continuous part of the work life (irrespective of the level of qualification) may foster the reconsideration of earlier life experiences. In addition, contextual demands to critically consider alternative viewpoints – for instance, within diverse work teams – may stimulate a broadening of self- and world-insight (cf. Staudinger & Bowen, 2010). In particular, the workplace has the potential to provide an arena for intergenerational interactions that under certain conditions can stimulate personality growth. Experimental research has shown that interactions between older and younger adults in which older adults share their expertise can stimulate advances in indicators of personality growth (i.e., emotional complexity), as well as improve older adults' fluid cognitive functioning (Kessler & Staudinger, 2007).

AGING AND WORK OUTCOMES

Demographic changes including the rising median age of workers and the need to increase the proportion of older workers in the labor force have stimulated many

studies on the relationship between age and various work outcomes such as performance. Within the organizational literature, researchers distinguish between task performance and “non-core” dimensions of work performance such as attendance, innovation, and helping behaviors (i.e., *organizational citizenship behavior*). On the one hand, the well-documented decreases in fluid cognitive abilities and physical strength have given rise to concerns about the ability of older adults to maintain task performance. On the other hand, it has often been argued that older workers' greater experience can improve performance or at least compensate for age-related declines in some areas of functioning.

A recent meta-analysis of 380 studies found that age was largely unrelated to core task performance as indicated by supervisor-ratings, self-ratings, and objective measures (Ng & Feldman, 2008). Indeed, a wide range of research supports the idea that older adults can successfully compensate for decrements in cognitive mechanics by drawing on pragmatic resources (e.g., Bäckman & Dixon, 1992). This idea is supported by the results of a recent study of manufacturing employees, which demonstrated that the negative effect of age was canceled out by a positive effect of job tenure on objective task performance as indicated by the number of errors (in this study the authors controlled for the selectivity bias of early exit from the labor force; Börsch-Supan & Weiss, 2007).

On an individual level, the relationship between age and task performance is likely mediated by many factors. In particular, the extent to which task performance is affected by age seems to be mediated by occupational demands on fluid abilities, job-related knowledge, motivation, and physical strength (e.g., Kanfer & Ackermann, 2004; Warr, 2001). All else held equal, age has little and most likely even positive effects on job performance within occupations that depend more on crystallized abilities and social demands (e.g., salesperson, teacher), which are normatively stable well into old age, rather than within occupations that depend more upon more fluid abilities (e.g., air traffic controller) or physical abilities (e.g., manual laborer; Skirbekk, 2008). Indeed, professional experience, in the sense of practice (see above) does not seem to compensate for age-related changes in the cognitive mechanics. For instance, practice as an architect or as a graphic designer did not appear to transfer to a compensation of age-related declines in spatial visualization and visual memory performance, respectively (Lindenberger et al., 1993; Salthouse, 1991). Age decrements tend to be smaller when more complex cognitive processes can be supported by environmental cues and aids, such as personal memos and computer programs that remind people of the appropriate steps to be taken to tackle a problem (Warr, 2001).

As opposed to the overall null relationship between age and task performance, age has generally been positively associated with a range of work-related

outcomes beneficial for employers (Ng & Feldman, 2008). Specifically, age was related to increased attendance, safety performance, and organizational citizenship behaviors (e.g., helping colleagues, not complaining about trivial matters, trying to improve group performance) and negatively associated with counterproductive work behaviors (e.g., workplace aggression, substance use, tardiness). Interestingly, the relationship between age and organizational citizenship behaviors was stronger in longitudinal studies than in cross-sectional studies, indicating that developmental effects and not only cohort differences underlie the relationship (Ng & Feldman, 2008). As organizational citizenship behaviors seems to benefit group and organizational effectiveness (Podsakoff et al., 2000), the positive correlation between age and organizational citizenship behaviors represents one potential benefit of employing older workers.

The research reviewed in this section underlines the importance of considering multiple dimensions of what is considered “productive” performance. Overall, older workers’ productivity can be expected to reveal itself in a contribution to the whole group in the form of experience passed on to others and contribution to a less-stressful and supportive climate, rather than individual task performance (e.g., Kessler et al., in press). Still, we emphasize that group-level trends (old vs. young) say little about how *individuals* — given the increasing variability in developmental trajectories with increasing age — will age within individual work contexts.

FOSTERING POSITIVE RELATIONSHIPS BETWEEN AGING AND WORK: FURTHER TRAINING, ATTITUDES TOWARD OLDER WORKERS

Two factors have been particularly prominent in the recent literature concerning factors that moderate the ability of societies, companies, and individuals to foster positive relationships between aging and the work context: further training and attitudes toward older workers.

Further Training

Lifelong learning and thereby bolstering participation rates in further education has been offered as one solution to the challenge posed by an aging workforce. Intervention research has shown that adults of all ages can benefit from training in terms of increased levels of cognitive functioning (e.g., Ball et al., 2002). Indeed, a representative, 24-year longitudinal study of American men revealed a positive association between participation in post-educational training of any kind and cognitive functioning (Short Portable Mental

Status Questionnaire) in older adulthood, independent of the respondent’s formal education, race, age, income, occupational status (blue/white collar), and health (Wight et al., 2002). This study suggested that further training can have a compensatory effect: In old age, those with initially low levels of formal education who received subsequent training had comparable levels of cognitive functioning as those with the highest initial levels of formal education. Training also has positive effects for firms. It has also been associated with higher organizational commitment and job satisfaction (Mikkelsen et al., 1999) as well as productivity increases on the industry and firm levels (Dearden et al., 2005; Zwick, 2002).

Further training can help ameliorate and prevent employees’ (especially older employees’) knowledge from becoming outdated. This may be especially important for updating employees’ technological skills. Technology clearly has become an integral part of the workplace, but age has been found to be negatively related to both technology use and breadth of computer use (e.g., Czaja et al., 2006). In this study, technology use was mediated by self-efficacy and anxiety, signaling that training, particularly with regard to technology, needs to focus on building confidence in addition to skill.

Current rates of participation in adult education vary widely across the Organisation for Economic Cooperation and Development (OECD) member countries (e.g., from <10% to over 35%; OECD, 2009a). Importantly, in all countries, the most qualified adults participate in more training than the less qualified. This indicates a pattern of accumulated disadvantage (e.g., Dannefer, 2003), such that those with fewer educational qualifications also subsequently participate less in the learning activities, which could potentially compensate for initially lower qualifications (cf. Wight et al., 2002). Furthermore, the discrepancy between the participation rates of older relative to younger employees has been the focus of much attention. Sweden is the only country in the OECD in which 55 to 64 year olds participate in as much training as 25 to 34 year olds (OECD, 2009a). In most other countries, the participation rates of older working age adults are well below half that of younger working age adults. Multiple factors are thought to underlie the age discrepancies, including ageist attitudes of managers who make training decisions and older workers’ attitudes (e.g., reduced self-efficacy, reduced motivation), as well as higher costs and reduced incentives for both the firm and the older employee to invest in further training (e.g., Wooden et al., 2001).

Attitudes Toward Older Workers

Despite a lack of evidence that age is systematically and generally related to job performance (e.g., Ng & Feldman, 2008), older workers continue to face

negative attitudes (e.g., Gordon & Arvey, 2004). Often just as workers are entering the zenith of their careers, they are already considered less flexible, less energetic, and at greater health risk as well as slower, less creative, and disinterested in training, but also more reliable and loyal (see Posthuma & Campion, 2009 for a review of age stereotypes in the workplace). Negative attitudes about older workers are thought to affect recruitment patterns as well as promotion and training decisions.

The endorsement of such attitudes appears to vary somewhat between countries. An international survey of 6,320 private sector employers in 21 countries indicated that there were considerable differences between countries in the age at which an employee was considered old, ranging from 44 years in Turkey to 60.4 years in Japan (Harper et al., 2006). Interestingly, these differences were unrelated to the population's median age, despite appearances given the two countries cited. Employers were asked to compare older and younger workers on a range of stereotypical characteristics (e.g., loyal, flexible, technologically oriented). On the whole, employers did not generally regard older employees less positively than younger workers, although employers did indeed tend to assign individual traits to either older (e.g., reliable, loyal) or younger workers (e.g., flexible, quick learners). Still, there was variation between countries: Employers' age attitudes were most positive in the UK and the United States (interestingly two countries with strong anti-age discrimination laws that may result in a stronger social desirability bias), and most negative in Turkey and Saudi Arabia.

Age stereotypes do not only vary between societies. Initial evidence from work on *age climate* – a construct capturing organization-specific age stereotypes – found that companies differed significantly with regard to how older employees within the company were regarded (Noack & Staudinger, 2010a). Age climate is assessed by asking respondents to indicate the extent to which adjectives related to work-related age stereotypes (e.g., productive, flexible, reliable) correspond with the image of older employees in their company. Responses are averaged to create an indicator of how favorably older employees are regarded within the company. The differences between companies' age climates concurred with differences in their personnel, knowledge, and health management practices regarding older workers. For example, in production companies with a more favorable age climate, older workers were hired directly from the labor market, tended to participate frequently in further education, and were offered preventive health training. On the individual level, more positive perceptions of the company's age climate coincided with higher levels of affective organizational commitment — indicating the emotional attachment to, identification with, and involvement in the organization — among the

company's older workers (Noack et al., 2010c) as well as lower turnover intentions among employees of all ages (Bowen & Staudinger, 2010). Furthermore, for workers age 40 and above, less positive perceptions of the age climate went along with lower self-reported work ability (Noack & Staudinger, 2010b).

Creating work environments that optimize work and developmental outcomes necessitates an *integrated* age management strategy that includes simultaneous attention to relevant issues like further training and age attitudes, alongside dynamic personnel practices that are cognizant of the fact that individuals' abilities, interests, and needs change over the course of their career. Because aging is a continuous, lifelong process, companies need to create work environments that support human development across the life span, as opposed to beginning interventions only once an employee has reached the age of 45 or 50 (Staudinger, 2007; Staudinger et al., 2008). For example, to most effectively use further training as a mechanism to buffer or compensate for cognitive decline, training should not be restricted to higher ages, although this is probably currently and for some years to come the life period that needs the most attention, given the rather low participation of over 55 years olds relative to younger adults (OECD, 2009a). Rather, training should become an integral part of (working) life *across* the life span, so that individuals do not fall out of the education loop. Indeed, previous further training predicts current participation in future training (e.g., Maurer et al., 2003). Likewise, fostering positive images of aging as well as a sense of internal control over attaining positive developmental outcomes needs to begin early on in the life span.

THE TRANSITION INTO AND AFTER RETIREMENT

Given the many ways in which working contributes to adult development, retirement (i.e., exit from the paid work context) also deserves some attention in our discussion of work and aging. Importantly, retirement is a transitional process as opposed to a sudden change in life. The process begins with thoughts about retirement, the development of a desire to retire, later followed by the decision and finally the actual act of retirement (Beehr, 1986).

Beginning in midlife, employees begin to place more emphasis on intrinsic rewards from work, such as a feeling of accomplishment, of learning and experiencing new things, and of doing something worthwhile (Penner et al., 2002). In a survey by the American Association of Retired Persons (AARP), 84% of older employees (45–74 years) indicated a desire to work even if they were financially set for life, and 69% said they planned to work into their retirement years

(Montenegro et al., 2002). Older employees' reasons for continuing to work are wide ranging, including not only extrinsic benefits such as increased financial security and health care benefits, but also enjoyment and a sense of purpose as well as social participation (Hedge et al., 2006).

Older adults are increasingly seeking some sort of bridge employment that allows for gradual (as opposed to sudden) transition out of the work context. On the individual level, age and stress experienced at pre-retirement jobs seem to be predictive of choosing full retirement over bridge employment (Gobeski & Beehr, 2009). Full retirement can offer an escape from unpleasant work roles (e.g., Barnes-Farrell, 2003). Higher levels of education and better health led older workers to decide for continued involvement in paid work (Wang et al., 2008). While most employees who plan to work after retirement hope to build on their accumulated expertise by remaining in a line of work that is similar to their current occupation (Hedge et al., 2006), more than half of the retirees who take bridge jobs change occupation and/or industry, often accepting reduced wages and status in return for the flexibility of a bridge job (e.g., Feldman, 1994; Shultz, 2003). Whether an older worker seeks bridge employment in the same or a new line of work depends on the costs and benefits associated with that line of work. When intrinsic job characteristics, like autonomy, task identity, task significance, feedback, and skill variety were high in his or her previous line of work, the likelihood for continuing in a job similar to the career job was also high (Gobeski & Beehr, 2009). In contrast, higher job-related strain was predictive of taking a non-career bridge job.

Company policies can affect the retirement process. For instance, corporate restructuring and downsizing by means of buyouts and layoffs has resulted in many older workers tending to retire earlier from their long-tenure, career jobs. Companies can also influence the retirement transition by providing roles and opportunities for older workers seeking bridge employment. For instance, companies can retain retired employees as internal consultants. Some companies recruit their retiring managers into a filial enterprise that provides consulting service at a high level (Deller et al., 2008). Other companies create alumni-networks and thus keep in touch with their retirees, which creates a similar potential for back-recruiting (cf. Staudinger et al., 2008). As one of the motives underlying post-retirement activities seems to be generativity (Deller et al., 2009), offering retiring employees the position of a mentor for incoming members of the company is just one of many ways how retirees can contribute to the work context.

Societal policies also affect the retirement process. For example, before recent retirement policy changes, the German federal government set strong incentives for companies to lay off their older employees, or

rather, to send them into early retirement by heavily subsidizing their severance pay. Even as recently as 2005, Germany spent 0.06% of its gross domestic product on early retirement programs with 1 in 450 workers in early retirement (OECD, 2009b). Furthermore, German policy creates a disincentive for older adults to continue working past pension eligibility, since a large proportion of any earned salary is deducted from state pension benefits. The situation is quite different in the United States, where there are no public incentives for early retirement. These policy differences are reflected in changes of the labor force participation rates of 55 to 64 year olds in the two countries. In both countries, the labor force participation of the above 55 year olds increased continuously from 1994 to 2008. However, the changes were much more pronounced among older men (53.1 to 67.2%) and women (28.3 to 50.6%) in Germany relative to the older men (65.5 to 70.4%) and women (48.9 to 59.1%) in the United States, where participation rates were already initially much higher (OECD, 2009b).

Retirement and Health

An important question regarding the transition into retirement regards its potential impact on physical and mental health (see Wurm et al., 2009 for a comprehensive review on the topic). With regard to physical health, empirical findings from longitudinal studies suggest that retirement per se neither harms nor benefits health (e.g., Ekerdt et al., 1983; Mein et al., 2003; Van Solinge, 2007). Pre-retirement unemployment, in comparison, was found to have significantly negative effects on physical health of participants in the Health and Retirement Study (Gallo et al., 2006). Similarly, there does not appear to be a straightforward relationship between retirement and indicators of mental health. Retirement has been found to be related to fewer depressive symptoms in some studies (e.g., Reitzes et al., 1996), while other studies found that the reduction of depressive symptoms was limited to only individuals retiring from highly prestigious positions (e.g., Mein et al., 2003) or found that retirement weakly increased depressive symptoms (James & Spiro, 2006). Generally, bridge employment has been found to be predictive of both retirement satisfaction and psychological well-being (Kim & Feldman, 2000).

Retirement may entail certain losses in terms of, for example, income, social interactions, status, and structure as well as meaning in life (cf. Havighurst et al., 1968). But retirement may also entail new opportunities, freedom, and independence after hierarchy, time demands, and other work-related strains cease (cf. Rosenmayr, 1983). The extent to which retirement *individually* represents losses and gains would seem to correspond with any potential changes in overall physical and mental health. Indeed, a study using data from the German Socioeconomic Panel

and growth mixture modeling identified three distinct trajectories of life satisfaction experienced during the retirement transition (Pinquart & Schindler, 2007). For most people, retirement predicted a small increase in life satisfaction. The second trajectory was characterized by an increase in life satisfaction immediately following retirement, against the backdrop of a relatively strong overall decline in life satisfaction in the years prior to and following retirement. This trajectory was particularly characteristic of retirees who had been unemployed immediately prior to retirement. The third trajectory was characterized by immediate post-retirement decline followed by a slow recovery. Relative to the first, most common trajectory, people in the latter two classes had fewer resources (e.g., socioeconomic status, physical health, married) for adapting to retirement. Interestingly, it seems that individuals may have a limited ability to predict their well-being after leaving work. In one study, older employees included in early retirement schemes initially tended to anticipate retirement as a reward. After one year, however, the majority of early retirees wanted to return to work, mostly in a part-time position and with more freedom in working arrangements (Aleksandrowicz et al., 2009).

In sum, there does not appear to be any general causal relationship between retirement and either physical or mental health. The effect of retirement on health seems to greatly depend upon individual preferences and pre-retirement working conditions as well as the individual's ability and resources to adapt to the new life stage. Changes in social status, social engagement, meaning in life, financial security, and even physical activity (Berger et al., 2005; Slingerland et al., 2007) may accompany the retirement process and probably to a great extent explain any effect of retirement on health. It is therefore critical in considerations of the effect of retirement on health to take into account post-retirement opportunities as well as individual resources (e.g., health, social network, openness to new experience) that can help people to mitigate any potential negative changes as well as profit from new opportunities that may accompany the retirement process.

Post-Retirement Activities: Volunteering

In recent years, more and more older adults have been participating in volunteer activities. For instance, in Germany, participation in volunteer activities rose from 31% in 1999 to 37% in 2004 among 60 to 69 year olds (Gensicke et al., 2005). In Germany, the main areas of voluntary engagement for individuals age 60 and above are sports (e.g., trainer), religion (e.g., organizer of charity events), care-taking (of very young and old-old non-family members), structured leisure time activities (e.g., organizer of excursions for senior citizens), and culture

(e.g., manager or conductor of a choir) (Gensicke et al., 2005). Between 1999 to 2004, the areas of older adults' voluntary engagement became more diversified with a small but rapidly increasing participation also in other areas like citizens' initiatives, nature protection groups, politics, and labor unions. Still, volunteer participation rates vary widely between countries. In Europe, data from the second wave of the Survey for Health, Aging, and Retirement in Europe (SHARE) revealed that participation rates among individuals age 50 and above ranged between approximately 2 and 25% (Hank & Erlinghagen, 2009). Many more respondents had been engaged in volunteer activities during the month preceding the interview in Northern European countries as compared to Southern and Eastern European countries. This finding was interpreted to be consistent with differences between the welfare state regimes of these countries that seem to offer different incentives and opportunities for civic engagement (Hank & Stuck, 2008).

Data from the Berlin Aging Study (BASE) showed that post-retirement social participation is cumulative (e.g., Bukov et al., 2002) and demonstrates a high degree of continuity across the life span (e.g., Hank & Stuck, 2008; Maas & Staudinger, 2009). Individuals who volunteered during adolescence and early adulthood had a significantly higher likelihood to also volunteer as retirees. Educational and occupational resources predict the intensity of social engagement, over and above gender differences. In addition, age (i.e., being younger than 75), current health status, and having a stable partnership also seem to predict social engagement (Erlinghagen & Hank, 2006). Caro (2009) illustrated that for older adults — especially for the highly educated Baby Boomers — to contribute substantial amounts of their time to volunteering they might need specific opportunities that draw upon their individual experience and skills. Thus, systematic recruitment, placement, and training of volunteers may be helpful to fully profit from retiring workers' potentials and to provide older adults with meaningful roles in their post-retirement life.

Importantly, volunteering has been found to have positive consequences for older individuals. For example, volunteer work was significantly and positively related to quality of life in retirement and to retirement satisfaction (Kim & Feldman, 2000). Similarly, longitudinal data from the United States has shown that for individuals aged 60 years and older, volunteering was associated with higher levels of well-being (Morrow-Howell et al., 2003). In another study using U.S. panel data, a moderate amount of volunteering (about two hours per week) had a protective effect regarding older adults' self-reported health (Luoh & Herzog, 2002). In this longitudinal study based on a representative sample of older adults, the authors controlled for potential selectivity effects into volunteer activities by assessing objective health status at baseline.

A bi-directional relationship between health and volunteering emerged: While earlier self-reported health affected later volunteering activities, volunteering also reciprocally positively affected later health status. Such positive effects have been traced back to increases in self-esteem, strengthening of social networks and purpose in life (Morrow-Howell et al., 2003). In a recent experimental study, we demonstrated that older adult volunteers who participated in competence training as part of their volunteering activities, and also reported above median internal control beliefs, demonstrated continuous increases in openness to experience over a period of 15 months, in contrast to nonvolunteers as well as volunteers who did not receive the competence training (Mühlig-Versen & Staudinger, 2010). These results show that volunteering, in combination with certain internal resources (e.g., internal control, strategies to master the situation), can reverse the typical adulthood pattern of decreasing openness to new experience — an indicator of personality growth as previously described.

CONCLUSIONS AND FUTURE DIRECTIONS

In this chapter we have reviewed evidence that for better or worse, work experiences are one important source for adult development. Most of the evidence presented has referred to work in the sense of paid

employment and to some extent to work in the sense of volunteering, although many of the mechanisms and trends we have described are also more generally applicable to other forms of productive activity. We have also reviewed evidence that older workers and adult development can positively contribute to the work domain. This view becomes particularly apparent when one considers “productivity” in a wider sense, both within the work context (e.g., Ng & Feldman, 2008) as well as a notion of psychological productivity (Staudinger, 1996, 2008).

In line with a contextualistic perspective (cf. Baltes et al., 1980), we would like to emphasize that development — as we currently observe it — is not set in stone. The impressive plasticity of human development and aging needs to be taken seriously with regard to the construction of the work context and contexts more generally. Optimizing developmental outcomes — within the work and volunteer contexts, or in any context more generally — can be aided by taking a lifespan view of development as opposed to focusing only on older adults. More systematic intervention knowledge is needed to be in a position to construct work environments such that they not only prevent the exhaustion of an individual’s productivity but also develop and foster it across the life span. Of course, work is necessary to afford our living. But work (or activity to use a more neutral notion) also is one of the prime sources of meaning and well-being in an individual’s life. A society of longer lives may develop its potential to the fullest only if it succeeds in creating work contexts that support continued development into later adulthood.

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