

**A Recipe for Successful Aging:
Playful Work Design and Other Key Ingredients**

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Abstract

This chapter explains how individuals can proactively shape their career trajectories as they age. Drawing on Job-Demands Resources theory and the aging literature, we develop the Dynamic and Adaptive Aging framework. Our framework proposes that successful aging is explained by resource accumulation and resource allocation to manage the demands associated with aging. We emphasize the role of proactive strategies, including playful work design, proactive vitality management, and job crafting, in determining trajectories. Such strategies enable people to sustain work engagement and motivation to work while also enabling them to thrive despite aging demands. We conclude that successful aging differs across people and settings and, therefore, necessitates a unique blend for each individual and situation. Yet, the most important principle we derive is that aging is not a predetermined path or a straight line. Aging is much more dynamic. Successful aging is something everyone can actively shape with each choice they make.

A Recipe for Successful Aging: Playful Work Design and Other Key Ingredients

Aging at work is a universal experience that brings both challenges and opportunities (Kanfer & Ackerman, 2004). As employees grow older, they bring a wealth of knowledge, wisdom, and relational connections—enabling them to overcome challenges that others may not. Yet, thriving in the later stages of a career requires more than merely showing up. It requires proactivity. In the present chapter, we argue that individuals who take charge of the experiential qualities of their tasks, proactively manage their vitality, and actively shape the boundaries of their occupational roles, significantly influence their trajectories as they age. Consider the long-term implications for an information technology specialist who creates fun and challenge even in mundane tasks like data entry, consistently manages their vitality by taking the stairs, and actively seeks out meaningful projects and connections. These increments accumulate over time. Proactive individuals do not just witness change as they age – they actively shape it. In doing so, they not only become invaluable to the organization but also resilient to the demands of aging. This is what we consider successful aging.

Successful aging at work implies recovering and maintaining the ability and motivation to continue working (Kooij et al., 2020). The trajectory of individuals that deviates positively from the average trajectory is considered to be successful (Zacher, 2015). In the present chapter, we draw on the principles of Job-Demands Resources (JD-R) theory (Bakker, Demerouti, et al., 2023; Bakker & Demerouti, 2017) and the aging at work literature (Kanfer & Ackerman, 2004) to develop the Dynamic and Adaptive Aging framework that explains why and how individuals can age successfully at work (see Figure 1). Specifically, we propose that proactive aging at work enhances work outcomes and not only protects against the demands of aging but can also stimulate growth, based on the principles of resource accumulation and resource allocation. While these ingredients represent the core principles of our framework, we emphasize the importance of recognizing individual and situational variations. Although such variation is often seen as a challenge in science, as it complicates broad generalizations, we believe it is essential to understanding why and how people age successfully.

We consider proactive strategies such as playful work design (Bakker & Scharp, 2024; Scharp et al., 2023), proactive vitality management (Bakker, Petrou, et al., 2020; Op Den Kamp et al., 2018), and job crafting (Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001) to be crucial ingredients in the recipe for proactive aging. While this list of proactive work strategies is not exhaustive, each strategy captures unique dimensions of the lived experience and has distinct implications for aging at work. We position these strategies in relation to *volatile* resources and demands as well as *crystalized* resources and demands in addition to life events and increasingly taxing tasks to predict successful aging. We use “volatile” to refer to fleeting personal and situational experiences that dissipate over time and can facilitate goal achievement, psychological integrity, and social well-being (Ten Brummelhuis & Bakker, 2012). In contrast, “crystalized” defines personal and situational aspects that (a) have accumulated over time and (b) are resilient against shrinkage but open to growth. For instance, as social capital, responsibilities, and knowledge are developed over time, they become stable assets that can be continuously leveraged. While these aspects are firmly established, they are not static. They can expand and deepen with time.

Importantly, crystalized resources can be used to leverage changes and deal with demands that arise. Proactive strategies are especially relevant for aging as they have unique implications for various resources and demands (see Figure 2), such as vitality and time (volatile personal resources), receiving help from a colleague and immediate task feedback (volatile situational resources), knowledge, expertise, and emotional intelligence (crystalized personal resources), social capital and job security (crystalized situational resources),

learning, cognitive load, and rumination (volatile personal demands), unanticipated workload, tensions (volatile situational demands), health issues, personal standards, and perfectionism (crystalized personal demands), high expectations and responsibilities (crystalized situational demands).

Our aim in this chapter is to contribute to the literature on aging in four ways. First, we develop a dynamic and temporal framework of resources and demands that can explain differences in (un)successful aging at work. This is significant because it captures the dynamic short-term and long-term nature of how individuals shape the process of aging over time. Our Dynamic and Adaptive Aging framework, therefore, complements existing frameworks on aging in relation to self-started behaviors (Kooij, 2015; Kooij et al., 2020) and temporal processes (Zacher, 2015). Second, we discuss three important proactive strategies (i.e., playful work design, proactive vitality management, and job crafting) and build on the principles of the Selective Optimization with Compensation (SOC) model (Baltes & Baltes, 1990; Heckhausen et al., 2010). This framework provides a useful lens for understanding how individuals can maintain and promote their functioning using proactive strategies. Third, we highlight temporal and situational differences in the use of proactive strategies in relation to successful aging at work. Although individuals are central to our framework, we underscore the role of organizations in facilitating proactive aging and, therefore, successful aging. Organizations and their leaders play a critical role in providing the right environment for employees to thrive over time.

The Recipe for Successful Aging at Work

Dynamic and Adaptive Aging

Aging gives rise to intraindividual changes that constitute losses and gains (Kanfer & Ackerman, 2004). As individuals age, they may experience a decline in cognitive and physical abilities, such as information processing speed (Salthouse, 2012) and overall fitness (Ng & Feldman, 2013). At the same time, individuals tend to gain crystallized knowledge and skills as time passes (Kanfer & Ackerman, 2004). The Selection, Optimization, and Compensation model proposes that successful aging involves adaptive regulation strategies aimed at maximizing gains while minimizing losses (Baltes & Baltes, 1990; Moghimi et al., 2017). People can maximize the gains-to-losses ratio by prioritizing specific goals (selection), by acquiring, refining, and using resources to achieve certain goals (optimization), and by substituting for the loss of resources by acquiring and using new or previously unused resources (compensation; Freund & Baltes, 2000). Similarly, the motivational theory of lifespan development (Heckhausen et al., 2010) suggests that individuals can invest resources to achieve their goal (selective primary control), employ strategies focused on the self to fully commit to a goal (selective secondary control), find alternative paths to attaining a goal (compensatory primary control), or disengage from a goal to protect resources and reengage with another goal (compensatory secondary control). Finally, the socioemotional selectivity theory (Carstensen, 1992, 2021) proposes that as time horizons shorten, individuals shift their goals from exploration and knowledge-building toward emotional well-being. These self-regulation theories form the essential ingredients in our recipe, providing the base upon which we build our framework for understanding aging.

From Volatile to Crystalized Resources and Demands

Our Dynamic and Adaptive Aging framework (Figure 1) proposes that successful aging refers to maximizing personal and professional growth by actively managing and leveraging resources. First, proactive aging refers to the intraindividual processes through which employees (1) maintain and create volatile resources and challenges and (2) accumulate crystalized resources. Volatile resources refer to transient aspects proximate to the self or of the situation that can facilitate goal achievement, resilience, growth, or social well-being (Bakker, Demerouti, et al., 2023; Ten Brummelhuis & Bakker, 2012). Time, attention,

physical energy, information processing capacity, and short-term memory capacity exemplify volatile resources proximate to the self, whereas affiliative events, feedback loops, and attentional pull are volatile resources embedded in situations (Beal et al., 2005). We define volatile demands as transient aspects situated in the self or the environment that are taxing but, once overcome, can spur volatile resources. This conceptualization builds on dynamic perspectives underscoring that chronic demands are phenomenologically different from volatile demands (Bakker, 2015; Weiss & Cropanzano, 1996). While chronic demands are exhausting, volatile demands can facilitate focus and investment. Examples of demands that can spur resources when overcome but become straining when consistent are information processing, striving, novel events, and deadlines. In contrast, crystalized resources constitute enduring assets that individuals accumulate and develop over time. These resources resist shrinkage but remain open to growth and continued use—for instance, knowledge, social networks, status, and self-efficacy.

Second, aging demands constitute aspects of the self or the environment that increase over time and require additional physical, cognitive, and emotional effort. Examples of aging demands include physical or cognitive decline and major negative life events. As individuals age, they may appraise jobs as more demanding if these jobs require physical fitness and continuous cognitive processing, such as manual labor and multitasking (Warr, 1994). We define crystalized demands as aspects of the self and the environment that accumulate over time and resist shrinkage but remain open to expansion. Namely, as people age, they are likely to accrue responsibilities across domains and major life events (Neal & Hammer, 2017; Zacher, 2015; Zacher et al., 2014). For instance, individuals may develop more caretaking responsibilities in addition to additional obligations at work. Finally, major life events constitute disruptive occurrences that represent significant life changes, which can be positive (e.g., promotion, marriage) and negative (e.g., passing away of a loved one, divorce, illness; Luhmann et al., 2012). While the list is not exhaustive, the examples of aging demands illustrate that they are unlikely to shrink but remain open to increases.

Resource Accumulation and Resource Allocation

In addition to proactive aging and aging demands, the Dynamic and Adaptive Aging framework incorporates two core principles that explain successful aging. Resource accumulation ($\int$) constitutes the first principle, which describes the process through which individuals gather, build, and crystalize personal, social, and situational resources (cf. Hobfoll et al., 2018; Parker et al., 2019). We use the $\int$ symbol to describe this pathway because in mathematics, the integral ($\int$) describes the summation of small, incremental quantities across a certain interval. The second principle, resource allocation (ϕ), refers to the strategic mobilization of resources in response to aging demands. We use the ϕ symbol to represent resource allocation because it relates to the golden ratio, symbolizing balance, harmony, and proportion. These are key elements in strategically using resources. We use these symbols because these pathways are not simply described by more (+) or less (–) of an entity.

The principle of resource accumulation ($\int$) explains how individuals accrue and crystalize personal and situational resources. This implies that successful aging does not start late in one's career. Instead, successful aging is a lifelong process where efforts to facilitate small changes in growth accumulate. Similarly, in business, the Kaizen (改善) principle describes how employees' continuous, incremental efforts to improve work processes can yield organizational competitive advantage over time (Ohno & Bodek, 2019; cf. Junker et al., 2023). Indeed, while a single gym session may temporarily invigorate an individual, it is the consistent effort over time that enables the crystalization of those efforts into overall fitness and health. This reasoning also applies to how playful work design, proactive vitality management, and job crafting can facilitate volatile resources and challenges, helping to crystallize them.

The second principle, resource allocation (ϕ), involves the strategic use of crystallized resources to address aging-related demands. These resources are essential for overcoming obstacles and fostering successful aging, while failure to utilize them effectively may hinder this process. Crystallized resources can help buffer against or promote growth from aging demands in various ways. For example, physical tasks or cognitive processing may become more taxing with age, but individuals who maintain physical fitness and cognitive flexibility will adapt more effectively than those who do not (Loprinzi et al., 2023). Similarly, as responsibilities accumulate and crystallize, an individual's knowledge, skills, and social capital become increasingly important to navigate them successfully. Life events such as job transitions, the death of a loved one, or a divorce also become more likely with increasing age and can disrupt life trajectories. However, individuals with sufficient crystallized resources—such as strong social networks—are better equipped to buffer these negative effects and maintain their effectiveness. Moreover, these resources can enable personal growth by helping individuals create deeper relationships, discover new passions, and develop greater self-awareness (Tedeschi & Calhoun, 2004; Wrzus et al., 2013).

Fundamental to these principles are proactive self-regulation strategies—self-started cognitive and behavioral efforts to manage internal and external resources (cf. Bakker, Demerouti, et al., 2023; Lazarus, 2006). We argue that proactive self-regulation strategies such as playful work design, proactive vitality management, and job crafting facilitate resource accumulation and increase the ability to allocate resources effectively (see Figure 1). They are essential ingredients in the recipe for successful aging. While these strategies share a common core in proactive self-regulation, they have unique nesting, mechanisms, and foci. Hence, we anticipate that individuals who skillfully blend a variety of these strategies will experience more successful aging in terms of increased work engagement, strong motivation to continue working, meaningful career progression, and workability than their less proactive counterparts. Ultimately, successful aging may further stimulate proactive aging processes.

Cooking with Proactive Self-regulation Strategies as Ingredients

In cooking, each dish requires a unique blend of ingredients, along with specific sequences and quantities for adding them to the pan. We use this analogy to describe how we may cook with proactive self-regulation processes to serve various dishes fundamental to successful aging. In the recipe described below, we draw on the insights of various other frameworks (or cookbooks) related to aging, including prioritizing goals (selection), acquiring and effectively using resources for goal attainment (optimization), and adapting to losses by acquiring and strategically using resources (compensation; Baltes & Baltes, 1990; Moghimi et al., 2017). This also includes the importance of adaptive engagement and disengagement to manage goals (Heckhausen et al., 2010) and adjusting to the shift of importance towards emotional well-being as time horizons shorten (Cartensen, 1992, 2021). Most aging frameworks stress the importance of self-regulation. Successful aging implies the ability to stay engaged with work, be motivated to continue working, experience meaningful career progression, and workability despite aging demands. In the present chapter, we posit that playful work design, proactive vitality management, and job crafting enable individuals to select, optimize, compensate, and effectively disengage with goals over time.

Playful Work Design

Playful work design is a relatively recent addition to the proactive work approaches proposed by JD-R theory (Bakker, Demerouti, et al., 2023; Bakker, Scharp, et al., 2020; Bakker & Scharp, 2024). Despite the ubiquity of play throughout life and across domains, systematic research on play at work has been scarce (Celestine & Yeo, 2021; Petelczyc et al., 2018). Perhaps this stems from the popular belief that play and work constitute polar opposites that are mutually exclusive (Dandridge, 1986). A more nuanced and realistic way of conceptualizing play is to consider it as a flexible but specific mindset and behavioral

approach to performing activities (Csikszentmihalyi, 1975; Mainemelis & Ronson, 2006)—including work activities. Building on this stream of research and the work design literature (Bakker, Demerouti, et al., 2023; Parker et al., 2017), we defined playful work design as “the proactive cognitive-behavioral orientation aimed at fostering and challenge during work activities through creating, seeking, and resolving surprises and complexities” (Scharp et al., 2023, p. 515).

Our research identified two playful work design clusters that captured the duality of play Huizinga (1938) described using the ancient Greek terms *παιδιά* (*paidiá*), meaning playful, childlike, and fun, and *ἀγών* (*agón*), referring to struggle, contest, and competition. We labeled these clusters as designing fun and designing competition. *Designing fun* refers to the proactive integration of ludic play, such as humor, fantasy, narratives, and creativity, with work activities to create forms of lighthearted positive affect, including amusement, fun, and entertainment. Examples of designing fun include a doctor who uses humor and imagination to explain a medical procedure to a child – making it more fun for everyone involved. Similarly, a lawyer who imagines an amusing narrative that explains the charge for a client is designing fun. A programmer who annotates their code with quirky and humorous elements is another example. Additionally, researchers writing a chapter on successful aging might consider aligning their ideas with a playful analogy, like cooking, to design their task to be more engaging and more fun.

The proactive integration of agonistic play, such as striving, segmenting tasks into micro-objectives, keeping score, and testing predictions during tasks, is a process known as *designing competition* (Scharp et al., 2023). This approach creates positive affective states linked to skill stretching, including a sense of achievement, drive, and challenge. A pilot who strives to time their announcement with the landing, a surgeon who approaches the surgery as a puzzle to solve, an IT professional striving to beat their record of tickets finished in a day, and a copywriter who keeps score and challenges themselves to find more errors than in the previous assignment all exemplify designing competition. These examples illustrate that playful work design is not about adding more to your plate; playful work design is about finding ways to engage with the work you already have to spark interest, fun, and excitement.

To further understand what playful work design entails and to differentiate it from other proactive self-regulation strategies, it is fruitful to consider its nesting, mechanisms, and foci. In contrast to other proactive strategies, playful work design is nested within existing tasks and involves both cognitive and behavioral efforts to transform the experiential qualities without changing one’s role. By approaching a task as an opportunity for play and creating, seeking, and resolving surprises and complexities, people are able to shift focus and create intrinsically enjoyable experiences during task execution. Thus, playful work design is about the idiosyncratic interaction with *task elements* to create personally meaningful feedback loops. Hence, playful work design is possible in virtually every task and occupation, but how it exactly manifests can be remarkably different across people and situations. We conclude that while similarities exist between playful work design and other proactive self-regulation strategies, there are meaningful differences. Indeed, several studies indicate that playful work design is distinct from, and has incrementally predictive validity beyond, job crafting, personal initiative, and self-leadership (Bakker, Breevaart, et al., 2023; Bakker, Hetland, et al., 2020; Scharp et al., 2023)

Various studies have supported the two-dimensional factor structure of the playful work design instrument at the person level to assess differences between people (Scharp et al., 2023) and at the situation level to assess differences within persons across situations (Scharp et al., 2019). Moreover, the instrument has been validated in Dutch (Scharp et al., 2023), Italian (Caracuzzo et al., 2022), Hebrew (Dishon-Berkovits et al., 2024), Romanian (Tabirta & Virgă, 2024), and Turkish (Çağlın, 2024). Moreover, research indicates playful

work design is a naturally occurring phenomenon across countries including Norway (Bakker, Hetland, et al., 2020), China (Liu et al., 2023), Israel (Dishon-Berkovits et al., 2024), Pakistan (Khan, 2023), Vietnam (Hoang & Le, 2024), Taiwan (Chen & Choi, 2024), Indonesia (Savitri & Widyaningsih, 2024) in addition to the Netherlands, Italy, Romania, and Turkey.

Proactive Aging with Playful Work Design

For our framework, we are particularly interested in whether playful work design can help aging individuals mobilize resources and up-regulate energies—even in the face of adverse circumstances. Supporting this, research among individuals of all ages demonstrated that playful work design related to more informal learning, job effort (Scharp et al., 2023), work engagement (Scharp et al., 2019, 2021, 2022, 2023), vigor (Bakker & Van Wingerden, 2021), flow (Liu et al., 2023), basic need satisfaction (Bakker, Breevaart, et al., 2023; Scharp et al., 2022), uncertainty adaptability, ambidexterity (Hoang & Le, 2024), creativity (Liu et al., 2023; Scharp et al., 2019, 2023), and in-role and extra-role performance (Bakker, Hetland, et al., 2020; Caracuzzo et al., 2024; Dishon-Berkovits et al., 2024; Scharp et al., 2021, 2023). Moreover, the proactive use of playful work design decreased the negative consequences of agency hindrance job demands, communion hindrance job demands (Scharp et al., 2021), low time pressure (Bakker, Hetland, et al., 2020), rumination about COVID-19 (Bakker & Van Wingerden, 2021), boring work, and low levels of conscientiousness (Dishon-Berkovits et al., 2024), while its positive consequences were boosted by higher trait openness, playfulness (Scharp et al., 2019), and flow proneness (Liu et al., 2023).

Playful work design may enhance resource accumulation and allocation (Figure 1). Engaging in play is important, especially as we age. A systematic review found that playing games can improve executive functioning, reaction time, and processing speed (Xu et al., 2020). Similarly, engaging in play during work activities may benefit people as they age. Switching between patterns, finding amusing incongruities, and looking for humorous patterns during work activities may boost momentary creativity (designing fun), whereas consistently designing fun may help individuals maintain and grow cognitive flexibility over time (cf. Zhou et al., 2021). By designing fun in a meeting, individuals may uplift themselves and others. Yet, the consistent use of designing fun may crystalize affiliative moments into a closer network, friend, or mentor. This also applies to designing competition. At the episodic level, designing competition may promote drive, attentional pull, and striving, while consistently honing the ability to find challenges may lead to greater - crystalized - expertise and skills over time (Csikszentmihalyi, 1975). Moreover, various studies indicate that playful work design directly optimizes goal attainment and helps compensate for adverse circumstances (Bakker & Scharp, 2024). As such, playful work design may represent an important strategy to increase volatile resources and challenges in the short term and crystallize resources over time. By incorporating play with work, people do not merely make work more interesting; they are also potentially boosting learning and developing skills—crystalizing resources.

Designing fun and designing competition may also bolster the resource allocation principle. Already 50 years ago, Csikszentmihalyi (1975) argued that the ability to find opportunities for play is a meta-cognitive skill people can develop. In other words, the more we design fun and competition, the better we get at it. Hence, older employees who honed this meta-cognitive skill may be better at playful work design than younger employees. Moreover, they may especially know when to use playful work design. This can be useful since, as we age, more priority is placed on emotional goals instead of knowledge-building and exploration (Carstensen, 2021). Yet, job incumbents may still need to fulfill certain obligations. Developing the metacognitive skill of finding intrinsically rewarding aspects in whatever one does through consistent playful work design can help individuals navigate such

responsibilities and sustain work engagement (Csikszentmihalyi, 1975). As such, playful work design may help individuals maximize their gains-to-losses ratio by helping them to acquire, refine, and use resources to achieve goals (optimization) and substitute for the loss of resources (compensation; Baltes & Baltes, 1990). Moreover, this strategy can help us engage with other domains in addition to work, such as sports (Verwijmeren et al., 2024) and studying (Wang et al., 2023). Consistently integrating play into our activities across contexts can ultimately support sustained motivation and well-being as we age.

Proactive Vitality Management

Another self-regulation strategy proposed by JD-R theory is proactive vitality management (Bakker, Demerouti, et al., 2023). This refers to the initiatives employees take to manage their volatile energetic, affective, and cognitive resources to optimize functioning at work (Op Den Kamp et al., 2018). Unlike organizational wellness programs, such as healthy lunches and gym memberships, this strategy is bottom-up and individualized, enabling employees to manage their energies according to their personal needs and preferences (Bakker, Petrou, et al., 2020). Individuals can accomplish this in a myriad of ways. For instance, a programmer may take a short break between coding tasks to ensure they can focus during the next work episode. Similarly, a graphic designer may aim to find inspiration for a project by visiting a museum of modern art. Another example is an engineer who uses noise canceling to minimize interruptions and background noise to focus on work. A consultant who decides to bed early and exercise before work because of an important presentation in the morning also exemplifies proactive vitality management.

Proactive vitality management is unique in several ways. First, proactive vitality management differs from recovery and replenishing activities such as breaks and social activities because of the clear, proactive component (Op Den Kamp et al., 2018). These (re)vitalizing moments do not happen to individuals due to routine or the initiative of others; they happen because individuals anticipate the expenditure of volatile resources. Second, in contrast to playful work design, proactive vitality management is not necessarily nested within tasks – the examples illustrate that it can occur during and outside of work episodes. Proactive vitality management is unique because it is not nested in any episode or domain. Third, the primary mechanism explaining why proactive vitality management facilitates change is by preserving, replenishing, and expanding volatile resources (Op Den Kamp et al., 2018). In other words, by proactively managing vitality, employees ensure they have a reservoir of volatile resources at their disposal to meet challenges. Finally, proactive vitality management focuses on improving one's physical and psychological state (Bakker, Petrou, et al., 2020). In this sense, individuals primarily focus on facilitating changes in *themselves* and less so in the environment. Empirically, research suggests that proactive vitality management is distinct from other strategies. Namely, proactive vitality management was only moderately correlated to expansive job crafting strategies and relaxation and unrelated to reduction crafting (Op Den Kamp et al., 2018).

The one-dimensional factor structure has been validated on the general and daily levels of analysis (Op Den Kamp et al., 2018). Thus far, the instrument has been validated in Dutch, English (Op Den Kamp et al., 2018), and Chinese (Ye et al., 2022). Moreover, research has been conducted in Germany (Op Den Kamp et al., 2023), Romania (Tisu et al., 2023), Pakistan (S. A. Khan et al., 2023), and Taiwan (Ni et al., 2022) in addition to the United States, Netherlands, and China.

Proactive Aging with Proactive Vitality Management

Recognizing when you expend resources and making sure you have them, is an effective self-regulation strategy. Proactive vitality management has been found to promote cognitive liveliness (Op Den Kamp et al., 2018), work engagement (Bakker, Petrou, et al., 2020; Op Den Kamp et al., 2018; Pap et al., 2022), informal learning (Hwang & Han, 2023),

mindfulness (Op Den Kamp et al., 2023), self-rated and objective creativity (Bakker, Petrou, et al., 2020; Op Den Kamp et al., 2020, 2023), health (Ye et al., 2022), work-home enrichment (Tisu & Virgă, 2022), meaning (Zhang et al., 2024), in-role performance (Op Den Kamp et al., 2018; Tisu et al., 2023), cognitive performance (Op Den Kamp et al., 2018) as well as reduced fatigue and exhaustion (Op Den Kamp et al., 2018; Tisu et al., 2023), and reduced absenteeism (Op Den Kamp et al., 2024). Moreover, the motivational potential is amplified by higher (vs. lower) learning goal orientation (Bakker, Petrou, et al., 2020), self-insight (Op Den Kamp et al., 2024), general strength use (Pap et al., 2022), and perceived organizational support (Hwang & Han, 2023). Another important finding for our framework is that proactive vitality management helps people deal with chronic health conditions (Op Den Kamp et al., 2024).

Thus, proactive vitality management may also facilitate fleeting volatile resources in the short run and crystalized resources in the long run (*resource accumulation*; See Figure 1). Taking the bike to work, going to bed earlier for an important meeting in the morning, and actively taking a short break to recover after a demanding work episode will enable a plentiful volatile resource pool to be sustained throughout the day and week. In the long term, these behaviors can significantly impact both physical and psychological health, as small changes in vitality accumulate. For instance, while short-term sleep deprivation makes individuals more vulnerable to stress, reduces quality of life, and increases cognitive deficits, long-term consequences include hypertension, cardiovascular disease, and colorectal cancer (Medic et al., 2017). Similarly, exercising before walking to work while reflecting can help solve problems by generating volatile resources that promote goal attainment. Regularly practicing proactive vitality management enables optimal, functioning, which has important long-term health-benefits and can lead to breakthroughs. This may also optimize goal pursuit and help compensate for potential losses in cognition and vitality over time (cf. Baltes & Baltes, 1990).

Proactive vitality management also has implications for resource allocation. Specifically, older employees who maintain overall fitness and cognitive flexibility may replenish resources faster through proactive vitality management than those who do not develop these crystalized resources. For instance, athletes who maintained overall fitness recovered faster after exerting themselves than those who did not (Borges et al., 2016). Similarly, individuals with higher endurance levels perform better on memory tasks after exercise than their less fit counterparts (Hottenrott et al., 2021). Therefore, we expect individuals who proactively and consistently keep a reservoir of volatile resources in their job, to be able to work more sustainably, and recover faster than those who keep working beyond their limits. In contrast, individuals who keep working beyond their limits will be more sensitive to loss cycles (Bakker, Demerouti, et al., 2023). Thus, especially in the long run, the consistent use of proactive vitality management may help people accumulate and allocate resources.

Job Crafting

Based on JD-R theory (Bakker, Demerouti, et al., 2023) and the work of Wrzesniewski and Dutton (2001), Tims and Bakker (2010) conceptualized job crafting as the initiatives employees take to change their job demands and job resources to increase the fit of their abilities and preferences with the job design (see also Demerouti & Peeters, 2018). Accordingly, when people perceive a misfit, they will be motivated to reduce it. This perspective represented an important shift in the discourse about job design (Parker et al., 2017). Rather than positioning employees as passive recipients of job characteristics, job crafting acknowledges that employees actively influence the content of their role. They can do this in various ways. Job crafting examples include a programmer who enrolls in a course about artificial intelligence to enhance their skills (increasing structural resources), a

salesperson seeking advice from colleagues on sales techniques (increasing social resources), an engineer volunteering for innovative projects (increasing challenging job demands), and a consultant trying to delegate an emotionally taxing client to a colleague (decreasing hindering job demands). Yet, as we discuss later, a lack of crystalized resources may constrain such efforts.

Several theoretical aspects of job crafting differentiate it from other self-regulation strategies. First, job crafting is nested in and pertains to the job. This differs from playful work design, which is nested in existing work activities and proactive vitality management, which is unique due to its non-nested nature. Second, job crafting aims to facilitate changes in person-job fit and meaningfulness by expanding or contracting employees' roles (Lazazzara et al., 2020; Tims & Bakker, 2010; Wrzesniewski & Dutton, 2001; Zhang & Parker, 2019). For instance, by avoiding or seeking out individuals or tasks, people change the boundaries of their roles. In contrast, playful work design is enacted during *existing* work activities such as tasks or meetings without altering the job's structure. Similarly, proactive vitality management has no implications for the content of one's job—only that employees manage their reservoir of volatile resources. Broadly speaking, job crafting is outwards-facing, proactive vitality management is inwards-facing, and playful work design is both inward- and outward-facing. An exception to this description is cognitive crafting (Wrzesniewski & Dutton, 2001), which refers to active efforts to expand or minimize the importance of the content of one's role (Zhang & Parker, 2019). Hence, this constitutes a form of cognitive coping or regulation through reappraisal that does not change aspects of the environment.

Proactive Aging with Job Crafting

Job crafting constitutes the first proactive self-regulation strategy contextualized by JD-R theory (Bakker, Demerouti, et al., 2023) - now over a decade ago (Tims & Bakker, 2010). Unsurprisingly, the body of literature is vast and continues to expand, encompassing a wide range of theoretical perspectives and empirical studies beyond the scope of this chapter. Several reviews and meta-analyses indicate that expansion-oriented job crafting is a valuable self-regulation strategy for improving a wide range of outcomes, including job satisfaction, work engagement, flourishing, creativity, and self- and other-rated job performance, as well as reducing turnover intentions and exhaustion (Lichtenthaler & Fischbach, 2019; Rudolph et al., 2017; Silapurem et al., 2024; Tims et al., 2022; Zhang & Parker, 2019). Reviews and meta-analyses indicate that behavioral interventions can help people learn how to craft their jobs (Demerouti et al., 2019; Demerouti & Bakker, 2024; Oprea et al., 2019).

Job crafting can significantly impact both volatile and crystallized resources (see Figure 1). Making small adjustments to one's job, such as taking on an additional project, can enthuse and reinvigorate an individual. Similarly, asking for assistance from a colleague can effectively conserve volatile resources like time and energy. Such actions are essential as they help individuals reconnect with their work and optimize their demands. Moreover, consistent job crafting may cultivate a role that aligns with one's personal interests, needs, and desires (Kooij et al., 2017). By regularly seeking development opportunities and building relationships, individuals may transform social moments into enduring connections, thereby developing a robust social network and expanding crystallized intelligence. Expansive job crafting, therefore, enables individuals to pursue goals effectively and increase gains (Kooij, 2015). Likewise, reducing hindering job demands—such as heavy lifting or complex cognitive tasks—can help individuals conserve resources, allowing them to compensate for losses in physical fitness and fluid intelligence (cf. Baltes & Baltes, 1990). Thus, by advocating for the type of work that individuals find most fulfilling, they may accumulate resources.

Finally, job crafting in a way to engage with new goals and disengage with old ones may especially be possible for those who have accumulated social capital, skills, and knowledge, whereas this may prove difficult for those who did not due to potential repercussions or limited opportunities (Bakker, 2015; Heckhausen et al., 2010; Tims & Parker, 2020). Crafting a job may even promote thoughts about quitting and looking for alternatives (Junker, Fong, et al., 2023), but the losses associated with this transition may depend on the crystalized resources. That is, the crystalized resources that people accumulate become important when people want to change their roles due to time horizons or major life events. For instance, a consultant who tries to delegate an emotionally taxing client to a colleague may only be able to do so if they have developed a strong relationship with that colleague. Similarly, as time horizons shorten, a professor may shift focus to emotional goals in addition to developing knowledge. Yet, such efforts may only succeed if individuals possess the necessary knowledge and skills. The same applies to job crafting in relation to major life events. Initiating changes in one's job to accommodate disruptive events may be a privilege reserved for those with sufficient social capital and status. Hence, job crafting is particularly useful in successfully engaging and disengaging with specific goals (selection), developing resources to achieve goals (optimization), and acquiring resources to substitute potential losses (compensation).

Other Considerations for Cooking

Several additional factors merit consideration. Proactive self-regulation strategies differ in terms of nesting, mechanisms, and foci (cf. Bakker & Scharp, 2024). Hence, much like how ingredients in a recipe can interact to enhance or weaken each other's flavor; various behavioral strategies can amplify or weaken each other's motivational potential. Namely, because strategies promote different types of resources, they may accentuate each other. For instance, in a daily diary study, Scharp et al. (2022) found that designing competition amplified the association between designing fun and work engagement. Similarly, individuals who craft their job may increase tasks that align with their interests and decrease those that do not. Yet, removing all tasks that do not interest an individual will be difficult, if not impossible. During those tasks, individuals who design fun and design competition may be better able to conserve their resources – enabling them to sustain engagement and performance throughout the day and for longer time periods. In addition, the compatibility of strategies may further depend on alignment with personal, situational, and temporal factors (Figure 2). This constitutes the inter- and intraindividual variation that makes generalizations difficult. Yet, aging is idiosyncratic. Hence, such variation is fundamental to explaining the trajectory of an individual across a lifetime as well as over the day.

The effectiveness of proactive self-regulation may further depend on the alignment with the individual and situation as well as the timing of initiatives. For instance, playful work design appears to especially boost energies when aligned with personality traits such as openness and playfulness (Scharp et al., 2019). Similarly, Op den Kamp and colleagues showed that proactive vitality management especially benefits individuals with more (vs. less) self-insight (2020, 2024). Similarly, situational factors can amplify the extent to which initiatives are adaptive. For instance, playful work design was especially important for work engagement and other-ratings of performance in the presence of high hindrance job demands and low work pressure (Bakker et al., 2020; Scharp et al., 2021). On the other hand, it is conceivable that task novelty and disruptiveness may impede people's ability to find opportunities for play and limit the effective implementation of playful work design. Finally, temporal factors such as the timing of strategies may significantly influence their effectiveness. For instance, while proactive self-regulation strategies can up-regulate energies, they also necessitate the investment of resources (Bakker & Oerlemans, 2019). Hence, proactive vitality management before other proactive self-regulation, such as playful

work design and job crafting may ensure individuals do not overstretch their capabilities. Especially in the long run, consistently overextending resources may burn individuals out, whereas the consistent management and allocation of resources may facilitate successful aging (Bakker, Demerouti, et al., 2023).

The Role of the Restaurant

Individuals are the cornerstone of our framework. Yet, just as the chef needs the tools and equipment provided by the restaurant to prepare dishes effectively, organizations play a crucial role in supporting effective aging at work. To foster successful aging, organizations should promote proactive aging by tailoring human resource practices to age groups, stimulating proactivity norms and providing training. It's about creating a supportive environment for Dynamic and Adaptive Aging. First, the types of HR practices that people need differ across ages. Therefore, organizations should adapt HR practices according to the age of employees. For instance, in a meta-analysis, Kooij and colleagues (2009) found that age influences the association of maintenance and developmental HR practices with job satisfaction and commitment. The authors showed that the association of maintenance HR practices, such as flexibility, information sharing, and teamwork, with job satisfaction and affective commitment increases with age, whereas developmental HR practices, such as promotion, become less important. Second, individuals should feel free and motivated to be proactive at work. Hence, the environment should provide positive feedback when individuals take initiative. For instance, norms for proactivity boosted the association between employee intrapreneurship and in-role performance (Junker et al., 2022). Lastly, organizations can support individuals by providing training to raise awareness of various proactive strategies and enhance their capacity to use them effectively. Such initiatives may consist of workshops, online courses, and internal campaigns.

Summary and Recommendations for Future Research

Aging is an inevitable part of life that brings about significant changes. While some aspects of life improve, others decline. The Dynamic and Adaptive Aging framework emphasizes that both flexibility (dynamic) and resilience (adaptive) are needed to successfully manage and navigate the evolving resources and demands as people age (Figure 1). In this chapter, we aimed to explain why some individuals age more successfully than others. Drawing on JD-R theory (Bakker, Demerouti, et al., 2023) and the aging literature (Baltes & Baltes, 1990; Carstensen, 2021; Heckhausen et al., 2010; Kanfer & Ackerman, 2004), we developed the Dynamic and Adaptive Aging framework proposing that proactive aging is fundamental in effectively managing aging demands. Proactive aging involves using self-regulation initiatives—such as playful work design, proactive vitality management, and job crafting—to accumulate ($\uparrow$) and effectively allocate various resources (ϕ). Proactive aging becomes crucial in the face of demands. Namely, succeeding as we age is not merely about surviving but leveraging crystalized resources to thrive despite them. Overcoming these challenges promotes successful aging, further crystalizes resources, and reinforces proactive aging.

Research Opportunities

We highlight several research opportunities for aging at work. First, future research may investigate the principles of resource accumulation and resource allocation through intensive longitudinal studies. Such studies could reveal how small changes—like those enabled by playful work design, proactive vitality management, and job crafting—facilitate resource accumulation and promote the transition from volatile to crystalized. Second, examining how individuals allocate resources in response to age-related demands would provide valuable insights for both individuals and organizations. That is, there is a need to understand the dynamic interplay between proactive strategies and personal, situational, and temporal factors. These insights would guide when to prioritize specific strategies, such as

playful work design or proactive vitality management, to maximize their impact. Finally, while the concept of “crystallization” generally implies growth, future research should investigate its potential dark side. Crystallized resources, including accumulated knowledge, might lead to decreased openness to new ideas, while crystallized demands without sufficient resources might lead to individuals feeling “locked into the job” (Feenstra-Verschure et al., 2024). Investigating these principles could provide a more nuanced understanding of how resources and demands shape aging trajectories in the workplace.

Conclusion

Just as a skilled chef blends the right ingredients, tools, and timing to prepare an excellent dish, successful aging at work relies on a combination of proactive self-regulation strategies, tailored to individual needs and organizational support. Like adjusting a recipe over time, individuals must continuously adapt and refine strategies in accordance with personal, situational, and temporal characteristics to foster resilience, work engagement, and growth. We hope our framework inspires many new dishes that contribute to successful aging.

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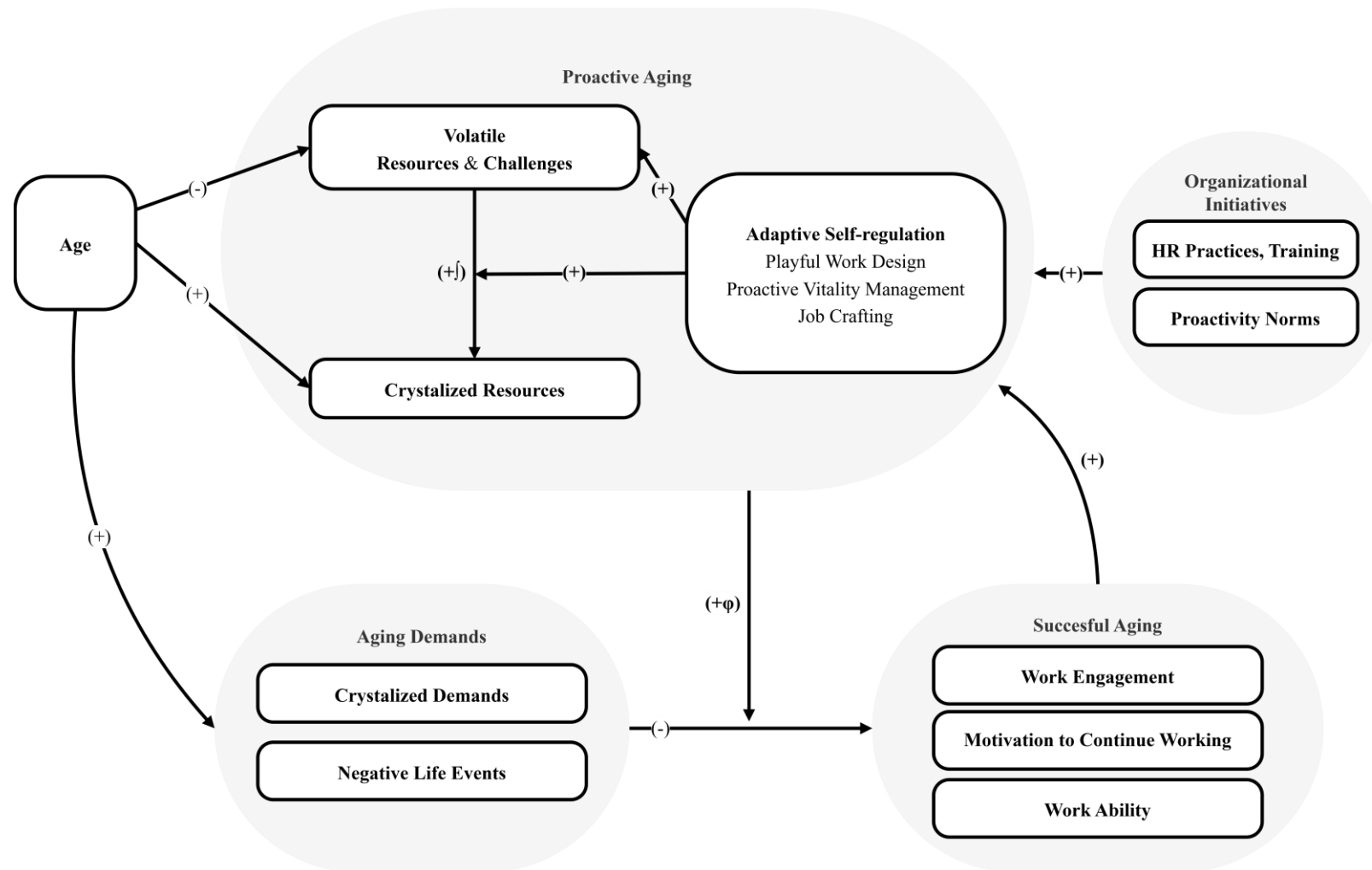
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Figure 1*The Dynamic and Adaptive Aging Framework*

Note. $\int$ = Resource accumulation. φ = Resource allocation.

Figure 2*Taxonomy of Volatile and Crystallized, Personal and Situational Resources and Demands*