

**Later Life Work: Individual, Job, and Organizational Factors
for Retirement Timing and Work Beyond Normal Retirement Age**

Von der Fakultät Wirtschaftswissenschaften
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- Wöhrmann, A. M., Brauner, C., & Michel, A. (2020). Working time preferences and early and late retirement intentions. *Chronobiology International*, 37, 1283-1286. <https://doi.org/10.1080/07420528.2020.1806291>
- Fasbender, U., Wöhrmann, A.M., Wang, M., Klehe, U.-C. (2019). Is the future still open? The mediating role of occupational future time perspective on the effects of career adaptability and aging experience on late career planning. *Journal of Vocational Behavior*, 111, 24-38. <https://doi.org/10.1016/j.jvb.2018.10.006>
- Wöhrmann, A. M., Pundt, L., & Deller, J. (2018). Complementing AAI at the Meso Level: The Silver Work Index. In A. Zaidi, S. Harper, K. Howse, G. Lamura, & J. Perek-Białas (Eds.), *Building evidence for active ageing policies: Active ageing index and its potential* (pp. 75-94). Palgrave MacMillan. https://doi.org/10.1007/978-981-10-6017-5_5
- Wöhrmann, A. M., Fasbender, U., & Deller, J. (2017). Does more respect from leaders postpone the desire to retire? Understanding the mechanisms of retirement decision-making. *Frontiers in Psychology*, 8, Article 1400. <https://doi.org/10.3389/fpsyg.2017.01400>
- Wöhrmann, A. M., Fasbender, U., & Deller, J. (2016). Using work values to predict post-retirement work intentions. *Career Development Quarterly*, 64, 98-113. <https://doi.org/10.1002/cdq.12044>
- Büsch, V., Zohr, K., Bruschi, M., Deller, J., Schermuly, C. C., Stamov-Roßnagel, C., & Wöhrmann, A. M. (2015). Wer möchte im Ruhestand weiterarbeiten? Muster von Weiterbeschäftigungsneigungen bei 55- bis 70-Jährigen. In N. F. Schneider, A. Mergenthaler, U. M. Staudinger, & I. Sackreuther (Eds.), *Mittendrin? Lebenspläne und Potenziale älterer Menschen beim Übergang in den Ruhestand* (pp. 181-193). Opladen: Barbara Budrich. eISBN:978-3-8474-0287-9. https://www.bib.bund.de/Publikation/2015/pdf/Mittendrin-Lebensplaene-und-Potenziale-aelterer-Menschen-beim-Uebergang-in-den-Ruhestand.pdf;jsessionid=9F08462AFC618E5CCA46BC8D3FE9F4D8.1_cid380?_blob=publicationFile&v=1
- Mergenthaler, A., Wöhrmann, A. M., & Staudinger, U. M. (2015). Produktivitätsspielräume der 55- bis 70-Jährigen: Kohortenunterschiede, Cluster und Determinanten. In N. F. Schneider, A. Mergenthaler, U. M. Staudinger, & I. Sackreuther (Eds.), *Mittendrin? Lebenspläne und Potenziale älterer Menschen beim Übergang in den Ruhestand* (pp. 217-251). Opladen: Barbara Budrich. eISBN:978-3-8474-0287-9. https://www.bib.bund.de/Publikation/2015/pdf/Mittendrin-Lebensplaene-und-Potenziale-aelterer-Menschen-beim-Uebergang-in-den-Ruhestand.pdf;jsessionid=9F08462AFC618E5CCA46BC8D3FE9F4D8.1_cid380?_blob=publicationFile&v=1
- Pundt, L., Wöhrmann, A. M., Deller, J., & Shultz, K. (2015). Differential predictors of post-retirement life and work satisfaction. *Journal of Managerial Psychology*, 30, 216-231. <https://doi.org/10.1108/JMP-08-2012-0250>

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List of Scientific Publications for the Cumulative Habilitation

The overview of the cumulative habilitation thesis is based on the following publications. Copies of the original publications can be found in the appendix to this document. All publications have been written in the context of my research at the Leuphana University of Lüneburg, Germany, and the Federal Institute for Occupational Health (BAuA) in Dortmund, Germany, after submission of my doctoral thesis in August 2013. The contributions were published following a peer-review process in international journals and in edited books.

- Wilckens, M., **Wöhrmann, A. M.**, Adams, C., Deller, J., & Finkelstein, R. (2020). Integrating the German and US perspective on organizational practices for later-life work: The Later Life Work Index. In S. Czaja, J. Sharit, J. James, & J. Grosch (Eds.), *Current and emerging trends in aging and work* (Chapter 4). New York: Springer.
- Wilckens, M., **Wöhrmann, A. M.**, Deller, J., & Wang, M. (2020). Organizational practices for the aging workforce: Development and validation of the Later Life Workplace Index. *Work, Aging, and Retirement*. Advance online publication. <https://doi.org/10.1093/workar/waaa012>
- Wöhrmann, A. M.**, Brauner, C., & Michel, A. (2020). Working time preferences and early and late retirement intentions. *Chronobiology International*, 37, 1283-1286. <https://doi.org/10.1080/07420528.2020.1806291>
- Fasbender, U., **Wöhrmann, A.M.**, Wang, M., Klehe, U.-C. (2019). Is the future still open? The mediating role of occupational future time perspective on the effects of career adaptability and aging experience on late career planning. *Journal of Vocational Behavior*, 111, 24-38. <https://doi.org/10.1016/j.jvb.2018.10.006>
- Wöhrmann, A. M.**, Pundt, L., & Deller, J. (2018). Complementing AAI at the Meso Level: The Silver Work Index. In A. Zaidi, S. Harper, K. Howse, G. Lamura, & J. Perek-Białas (Eds.), *Building evidence for active ageing policies: Active ageing index and its potential* (pp. 75-94). Palgrave MacMillan.
- Wöhrmann, A. M.**, Fasbender, U., & Deller, J. (2017). Does more respect from leaders postpone the desire to retire? Understanding the mechanisms of retirement decision-making. *Frontiers in Psychology*, 8, Article 1400. <https://doi.org/10.3389/fpsyg.2017.01400>
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- Büsch, V., Zohr, K., Bruschi, M., Deller, J., Schermuly, C. C., Stamov-Roßnagel, C., & **Wöhrmann, A. M.** (2015). Wer möchte im Ruhestand weiterarbeiten? Muster von Weiterbeschäftigungsneigungen bei 55- bis 70-Jährigen. [Who would like to continue working in retirement? Patterns of willingness to continue working among 55 to 70 year olds]. In N. F. Schneider, A. Mergenthaler, U. M. Staudinger, & I. Sackreuther (Eds.), *Mittendrin? Lebenspläne und Potenziale älterer Menschen beim Übergang in den Ruhestand* [In the middle? Life plans and potential of older people in the transition to retirement] (pp. 181-193). Opladen: Barbara Budrich.
- Mergenthaler, A., **Wöhrmann, A. M.**, & Staudinger, U. M. (2015). Produktivitätsspielräume der 55- bis 70-Jährigen: Kohortenunterschiede, Cluster und Determinanten [Productivity margins of 55 to 70 differences: Cohort differences, clusters and determinants]. In N. F. Schneider, A. Mergenthaler, U. M. Staudinger, & I. Sackreuther (Eds.), *Mittendrin? Lebenspläne und Potenziale älterer Menschen beim Übergang in den Ruhestand* [In the middle? Life plans and potential of older people in the transition to retirement] (pp. 217-251). Opladen: Barbara Budrich.
- Pundt, L., **Wöhrmann, A. M.**, Deller, J., & Shultz, K. (2015). Differential predictors of post-retirement life and work satisfaction. *Journal of Managerial Psychology*, *30*, 216-231. <https://doi.org/10.1108/JMP-08-2012-0250>

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1. Introduction

In the light of demographic change, prolonging working lives has become a central governmental goal in most OECD countries as it can help reduce social expenditures but also ensure sufficient labor supply to stay competitive. These countries have therefore changed their retirement policies to manage increased costs of their aging population (OECD, 2017). In Germany, for example, not only the normal retirement age, which is the age for eligibility for full governmental old-age retirement pension, is currently increasing from the age of 65 to the age of 67 but the government also ceased to financially support partial retirement. At the same time pension levels are decreasing. Thus, the financial need to continue working until old age pension eligibility age was increased. Indeed, the labor force participation rate of older age groups in Germany increased substantially over the course of the conduction of the studies on later life work I will present here: The labor force participation rate of 60 to 64 year old adults in Germany increased from 39 % in 2009 to 62 % in 2019 (Statistisches Bundesamt, 2021a). Also, the group of people in Germany who work beyond 65 years of age has been growing constantly. In 2019, 18 % of the 65 to 69 year olds were still working, compared to 8 % ten years earlier.

Labor force participation rates of younger age groups, however, are much higher (50 to 54 years: 89 %; 55 to 59 years: 82 %; own calculations based on Statistisches Bundesamt, 2021b). This indicates that a large share of employees still leaves the labor force before normal retirement age. The labor force participation rate of 60 to 64 year old men (67 %) is higher than that of women (57 %), and of the high-skilled (74 %) it is higher than of the low skilled (45 %; Statistisches Bundesamt, 2021a). These findings point to the complex and heterogeneous nature of retirement entries. Aspects such as societal norms, private life obligations, the motivation of employees, but also their work ability and employment possibilities determine their retirement timing. Thus, labor force participation of older employees until and also beyond normal retirement age (hereafter referred to as *later life work*) is the result of many factors at macro (society, politics), meso (family, job, and organization), and micro (individual) levels (e.g., Wang & Shultz, 2010). For example, at the individual level, the sociodemographic background and employees' health but also their needs and values and other psychological factors play an important role for retirement intentions. These micro level aspects may interact with factors on other levels, such as contextual factors of the work environment including employment characteristics, job characteristics, and human resource policies and practices. Achieving a better fit between individuals' needs and abilities on the hand and job characteristics and employment opportunities through appropriate organizational framework conditions on the

other hand could promote later life work as well as successful transitions to retirement. Extending the knowledge on individual and organizational factors that foster later life work as well as their interplay could therefore inform political, societal, organizational and individual action.

As outlined above, the choice to continue working until or even beyond retirement is a function of the interplay of factors on micro, meso, and macro levels (e.g., Wang & Shultz, 2010). Research within this area has grown significantly over the last years. I contribute to this line of research with the studies conducted within the scope of this cumulative habilitation thesis. More specifically, the aim of the research presented here is to add to the literature on later life work with the investigation of individual (micro level) as well as job and organizational (meso level) factors that have the potential to contribute to prolonged working lives. I was guided by the general research interest on how individual, job, and organizational factors contribute to later life work, and more specifically to retirement timing and work-related activities beyond normal retirement age. Thus, my research was directed by the following research questions: (1) What is the work activity potential of older people in Germany and what characterizes different types of later life work potential? (2) Which role do individual psychological factors such as personality, values, and beliefs play in the context of later life work? (3) How do specific job characteristics interact or align with individual psychological factors with regard to later life work? (4) What characterizes a holistic organizational approach to later life work that helps the alignment of the work environment to older workers' (individual) needs and abilities?

Overview of the Cumulative Habilitation Thesis

Following this introduction, I give an overview on the theoretical framework of my research in **Chapter 2** ("Theoretical Background"). I describe the conceptualization of later life work before I go into multilevel antecedents of later life work and present key theoretical approaches to a person-environment fit perspective of later life work. In the following four chapters, I present ten studies corresponding to the ten scientific publications that constitute the basis of the cumulative habilitation thesis. None of the studies was conducted by myself solely, but they were all a collaborative effort of several authors. However, to enhance readability, I refer to the presented studies as *my research* in this context.

In **Chapter 3** ("Later Life Work: Work Activity Potential") I present research on the extent as well as different types of later life work potential in Germany to describe the context for most of my research. With the studies presented here, I also intend to provide answers to

the research question on the later life work potential in Germany and the characteristics of different later life work potential constellations. Mergenthaler, Wöhrmann, and Staudinger (2015; referred to as Study 1) provide information on the activity potentials of older individuals in Germany regarding employment, but also regarding informal engagement such as volunteer work. In a second study, Büsch, Zohr, Bruschi, Deller, Schermuly, Stamov-Roßnagel, and Wöhrmann (2015; referred to as Study 2) more specifically investigate later life work intentions of older adults in Germany with regard to employment arrangements in work beyond retirement age. In both studies, specific groups are identified through cluster analyses and investigated in more detail with regard to sociodemographic aspects but also organizational and psychological factors.

In **Chapter 4** (“Later Life Work: Individual Psychological Factors”) the role of stable as well as malleable individual psychological factors for later life work is explored in two studies. Thus, with the studies presented in this chapter, I contribute to the research question on the role of individual psychological factors in the context of later life work. The focus is on psychological factors specific to the work context. Wöhrmann, Fasbender, and Deller (2016; referred to as Study 3) investigated work values as antecedents of intentions to engage in different types of later life work beyond retirement age. In another study, Fasbender, Wöhrmann, Wang, and Klehe (2019; referred to as Study 4) investigated the mediating role of occupational future time perspective in the relationship of career adaptability and aging experience with later life career planning.

In **Chapter 5** (“Later Life Work: Job Characteristics Corresponding to Older Workers’ Needs and Abilities”) I present three studies exploring the interplay of individual factors and job characteristics for later life work to address the research question on the interaction or alignment of specific job characteristics with individual psychological factors with regard to later life work. Wöhrmann, Fasbender, and Deller (2017; referred to as Study 5) investigated the underlying mechanisms through which respectful leadership is related to retirement timing intentions including the possibly moderating role of occupational self-efficacy. The other two studies focus on the fit of working conditions with employees’ needs and abilities in the context of later life work. First, I present a study, in which the effect of person-environment fit regarding working hours and work demands on retirement timing intentions was explored (Wöhrmann, Brauner, & Michel, 2020; referred to as Study 6). In the other study, Pundt, Wöhrmann, Deller, and Shultz (2015; referred to as Study 7) examined the relationship of personal motivational goals and corresponding occupational task characteristics with the life and work satisfaction of working retirees.

Chapter 6 (“Later Life Work: A Holistic Organizational Approach”) reports the development of the Later Life Workplace Index (LLWI) as a multidimensional tool to holistically assess organizational practices and working conditions targeted at the promotion of later life work through the maintenance and enhancement of older employees’ health, work ability, and motivation. With the LLWI, I intend to provide an answer to the research question on the characteristics of a holistic organizational approach to later life work that helps the alignment of the work environment to older workers’ (individual) needs and abilities. We developed the LLWI in a multistep procedure beginning with the development of the qualitative framework in the German context (Wöhrmann, Pundt, & Deller, 2018; referred to as Study 8) and its qualitative extension to the U.S. context (Wilckens, Wöhrmann, Adams, Deller, & Finkelstein, 2020; referred to as Study 9). Afterwards, we developed items for the measure in German language and validated the final instrument (Wilckens, Wöhrmann, Deller, & Wang, 2020; referred to as Study 10). Finally, in **Chapter 7** (“General Discussion”) I discuss the contributions, implications, and limitations of my research presented here.

2. Theoretical Background

2.1 Conceptualization of Later Life Work

Focusing on later life work, the research presented here reflects a positive image of age with an active aging perspective. According to the World Health Organization (2002) active aging is “the process of optimizing opportunities for health, participation and security to enhance the quality of life of aging people” (p. 12). The expression *later life work* also signals this active, productive component as opposed to focusing on the expression *retirement*, which is rather connotated with passive withdrawal from the labor force. However, there is a variety of conceptualizations of retirement that include later life work.

Research and theoretical reasoning over the last decades have conceptualized later life work processes and decision making in many ways (Wang & Shi, 2014; Wang & Shultz, 2010). In their overview, Wang and Shi (2014) provide three psychological conceptualizations of retirement, in which they classify different approaches in research and theory: (1) retirement as decision making, (2) retirement as an adjustment process, and (3) retirement as a career development stage. (1) Retirement as decision making emphasizes the motivated choice of employees to withdraw from work-related behaviors based on information about themselves, their work-environment as well as their nonwork-environment. (2) Retirement as an adjustment process emphasizes the transition from employment to retirement as well as postretirement development in life. Finally, (3) retirement as a career development stage emphasizes continued potential for different career paths in retirement life. These different conceptualizations of retirement also reflect the variety of definitions of retirement. Not only at least eight different definitions of retirement can be identified (Denton & Spencer, 2009), the operationalization of retirement timing in research studies is even more manifold (Fisher, Chaffee, & Sonnega, 2016). It therefore has to be noted that research findings may differ dramatically according to the conceptualization and definition of retirement (Wang & Shi, 2014).

One approach to incorporate different definitions of retirement is reflected in the temporal process model of retirement (Wang & Shi, 2014; Wang & Shultz, 2010) where different stages relevant in the retirement process are outlined, which are (1) retirement planning, (2) retirement decision making, and (3) retirement transition and adjustment. When retirement is still rather distal, in the phase of retirement planning (1), individuals gather information on and start envisioning and discussing options regarding their retirement life. When retirement becomes more proximal, in the phase of retirement decision making (2), different options are weight against each other to come to decisions regarding retirement timing and activities. Here,

amongst others, the perceived person-environment fit plays an important role for early and late retirement decisions. Finally, in the phase of retirement transition and adjustment (3), daily activities have to be newly arranged and become accustomed to. These activities include leisure activities and care activities but can also include voluntary or different forms of paid work activities. Paid work activities in retirement are often referred to as bridge employment reflecting that the job bridges the transition from regular employment to full retirement. It can take many forms ranging from continued employment for the same employer with the same or a reduced number of working hours or on the basis of consultancy or service contract, over working for another employer, to working self-employed and becoming an entrepreneur (for a taxonomy of bridge jobs see Beehr & Bennett, 2015).

The different conceptualizations of retirement as well as the different stages in the retirement-process acknowledged in theory and research reflect the temporal and activity-related variability of retirement. Work activities and retirement determine each other to a certain extent, but it has to be noted that retirement does not necessarily equal a complete withdrawal from the labor force. Thus, research on different stages of the retirement-process is mostly research on later life work at the same time. I define later life work as follows:

Later life work is defined as work activities of older adults just before and beyond normal retirement age, and it includes paid employment but also voluntary work.

This definition of later life work aligns with the life course perspective, or more specifically life-span, life space theory of careers (Super, 1990) in a way that later life work includes the final phase of occupational development in the maintenance phase (from age 50), the reduction in work activities in the disengagement phase (decelerating from age 60), as well as the phase of life career re-engagement (Chen, 2011). Although the stages have been tied to certain ages and roles in the original theory, this may not hold due to the increasing heterogeneity of concepts regarding later life work and retirement.

The temporal process model of retirement outlined above (Wang & Shi, 2014) provides a valuable framework for the study of later life work. The bottom box of Figure 1 gives an overview on different aspects of later life work intentions, planning and consequences that I addressed in my research. *Later life work planning* is part of the retirement planning phase in the temporal process model of retirement. It captures the engagement in planning activities with regard to later life work, such as getting information or discussing plans with others. Intentions with regard to later life work timing as well as later life work activities are part of the decision-making phase. *Later life work timing intentions* reflect the preferences regarding the timing of

later life work such as preferred early, on-time, or late retirement relative to normal retirement age as well as more specifically, the preferred retirement age. *Later life work activity intentions* reflect individuals' intentions to engage in later life work at all or in specific types of later life work activities such as becoming self-employed. *Later life work activity* includes the actual paid employment of older adults as well as voluntary activities. Finally, *later life work consequences* describe aspects such as satisfaction in later life work. Consequences of later life work beyond normal retirement age are part of the retirement transition and adjustment phase. Later life work consequences before retirement age, however, could rather be regarded antecedents of retirement decision making.

2.2 Multilevel Antecedents of Later Life Work

Stages in the retirement process and consequently in later life work are the result of an interplay of multiple factors at different levels. Conceptual models such as the multilevel model of retirement (Wang & Shi, 2014; Wang & Shultz, 2010) and the model of retirement timing (Fisher et al., 2016) therefore propose antecedents on macro, meso, and micro levels. They include aspects regarding the individual at the micro level, regarding work and family factors at the meso level, and regarding socioeconomic factors at the macro-level. Antecedents on the macro level include aspects such as rules, regulations, support systems, and norms regarding retirement as well as economic conditions. Antecedents of the individual retirement process on the meso level include the work context with different job and organizational factors as well as the nonwork life context such as family factors. Examples are caregiving responsibilities and the employment status of the partner as well as human resource practices regarding retirement or job characteristics. The individual level includes individual attributes such as demographics, financial aspects, and health as well as psychological factors such as personality, needs, and values.

Based on these conceptual models, the individual retirement process is a function of the interplay of various factors on different levels (e.g., Wang & Shi, 2014; Wang & Shultz, 2010). This multilevel perspective can serve as an overarching theoretical framework for research on antecedents of different stages in the retirement process and is therefore applied to the research on later life work presented here. Figure 1 provides an overview on aspects on different levels considered in the conducted studies. *Societal factors* as well as *family factors* were not the focus of the conducted research, but were still addressed in some studies. The main focus of the reported studies were the *individual factors* as well as *job and organizational factors*. Among individual factors, key study variables were psychological factors covering values and beliefs

at the interface of the individual and their work, occupation or career. Regarding job and organizational factors, job characteristics as well as age-friendly human resource policies and practices were focused on. While some studies focus on aspects on one level (e.g., organizational factors), others explicitly investigate the interplay of factors from different levels (e.g., personal motives and job characteristics). All the reported aspects were researched in at least one of the studies presented in the following chapters.

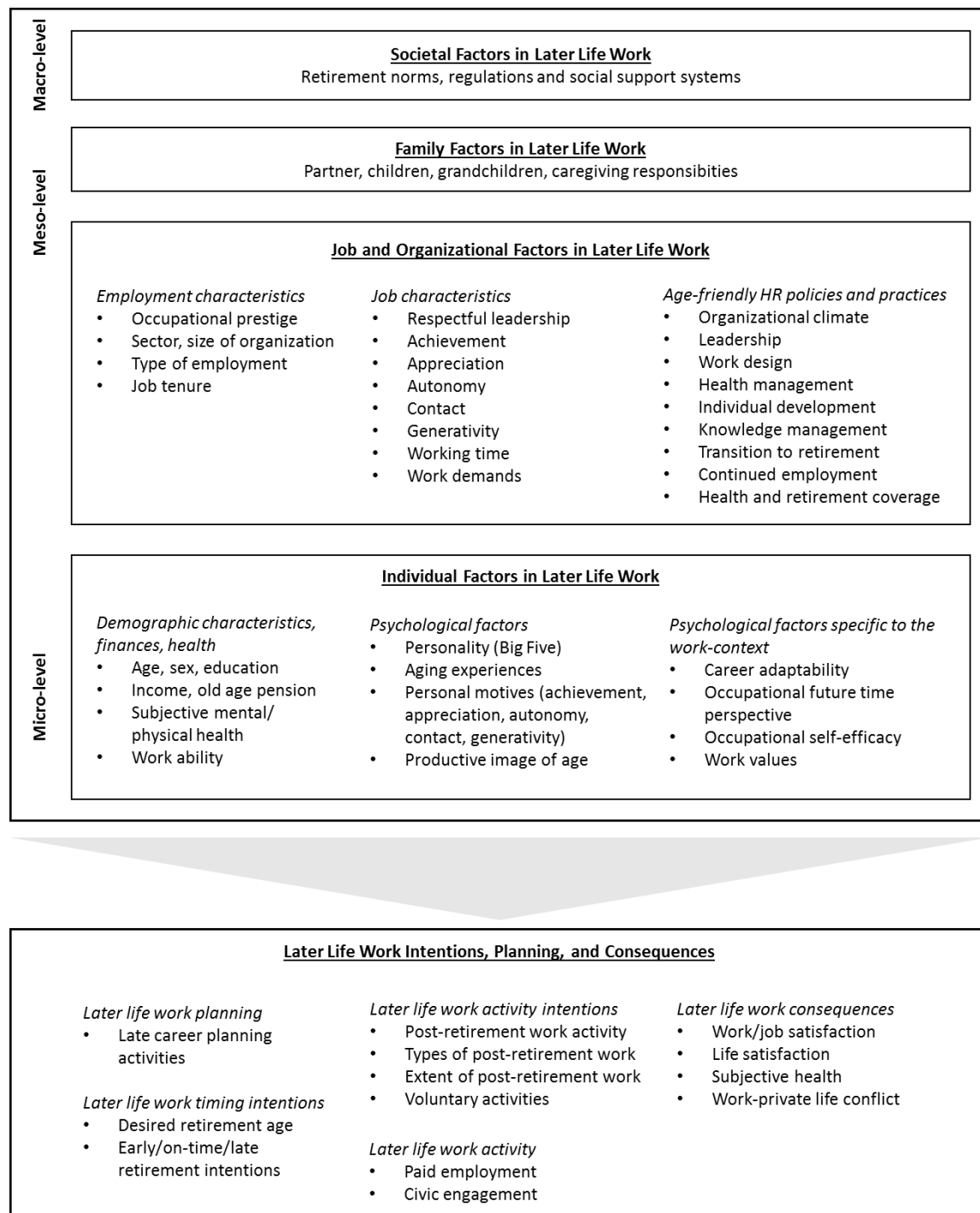


Figure 1. Overview of factors in later life work considered in the scope of the cumulative habilitation thesis.

2.3 Theoretical Approaches to a Person-Work Fit Perspective of Later Life Work

The temporal process model of retirement and the multilevel model of retirement (Wang & Shi, 2014; Wang & Shultz, 2010) provide an overarching framework for my research. They incorporate a large variety of specific theoretical approaches. Many theories have been used and developed to explain later life work, and in particular stages in the retirement process and employment beyond retirement age (for overviews see Wang & Shi, 2014; Wöhrmann, Pundt, & Deller, 2017). Several of these theories provide the theoretical basis for specific research questions examined in the studies presented here. Two theoretical approaches that are applicable to several of my studies are the theory of work adjustment (Dawis & Lofquist, 1984), which takes on a person-environment fit perspective, and socioemotional selectivity theory (Carstensen, 2006) as a more specific motivational theory supporting the person-environment fit perspective from a life-span developmental perspective. Both theories link individual preferences with job and organizational conditions, and therefore provide feasible theoretical approaches to study the interplay of individual and job and organizational factors regarding later life work.

Person-environment fit perspective. As pointed out, employees' retirement decision-making is based on available information about themselves, their work-environment as well as their nonwork-environment. The perceived supplementary or complementary fit of these factors as well as the attractiveness of the work-environment compared to the non-work alternative may play an important role for early and late retirement decisions (Hayward, Grady, Hardy, & Sommers, 1989; Wang & Shi, 2014). According to the theory of work adjustment (Dawis & Lofquist, 1984), career decisions are based on the fit of a person and their working environment. These decisions can be made by the employer or by the employee based on the satisfaction of the employer with the employee and on the satisfaction of the employee with the work environment. If an employee experiences a decrease in person-environment fit at work, this can result in an adjustment of the working conditions but it can also motivate the employee to take on another job or to retire. This misfit can be due to the work demands not fitting the own abilities anymore ("demands-abilities misfit"), or the characteristics of the work environment not fitting the individual's needs and preferences ("needs-supplies misfit"; e.g., Edwards, Caplan, & Van Harrison, 1998). The importance of person-environment fit in the context of later life work is also addressed in the process model of successful aging (Kooij, Zacher, Wang, & Heckhausen, 2020). In this model, it is reasoned that macro, meso, and micro level factors affect the demands-abilities or needs-supplies fit. The anticipated or experienced fit in turn facilitates successful aging at work, which is the "proactive maintenance of, or adaptive

recovery (after decline) to, high levels of ability and motivation to continue working among older adults” (p. 345). Successful aging can be regarded as an antecedent or even a prerequisite for engagement in later life work. The person-environment fit perspective provides an important theoretical explanation for retirement decisions as well as for the type of activities that are conducted in later life (e.g., Wang & Shultz, 2010).

Socioemotional selectivity theory. The person-environment fit perspective is complemented by socioemotional selectivity theory (Carstensen, 2006). According to this theory, individuals select and pursue goals based on their future time perspective. If they perceive their remaining time in life as limited, goals shift from taking on new endeavors and exploration to experiencing positive emotional states and relationships with close social partners. Thus, perceiving remaining time and opportunities in life as increasingly limited may result in the decision to retire, especially, if the work activity does not provide emotionally meaningful experiences and close social contacts. Furthermore, perceived remaining time and opportunities regarding the professional life also play a role in this context (Zacher & Frese, 2009). If individuals experience their occupational future time perspective as endless, they are more likely to plan future work-related activities and less likely to develop retirement intentions. Future time perspective develops over the lifespan and is shaped by antecedents on the micro and meso levels, such as health, job characteristics, and organizational framework conditions (e.g., Henry, Zacher, & Desmette, 2017).

3. Later Life Work: Work Activity Potential

Before looking specifically into individual psychological, job, and organizational aspects playing a role for later life work in the following chapters more closely, this chapter deals with activity potentials and continued employment intentions of the 55- to 70-year old persons in Germany. Thus, this chapter gives insights to the societal setting where most of my research was conducted.

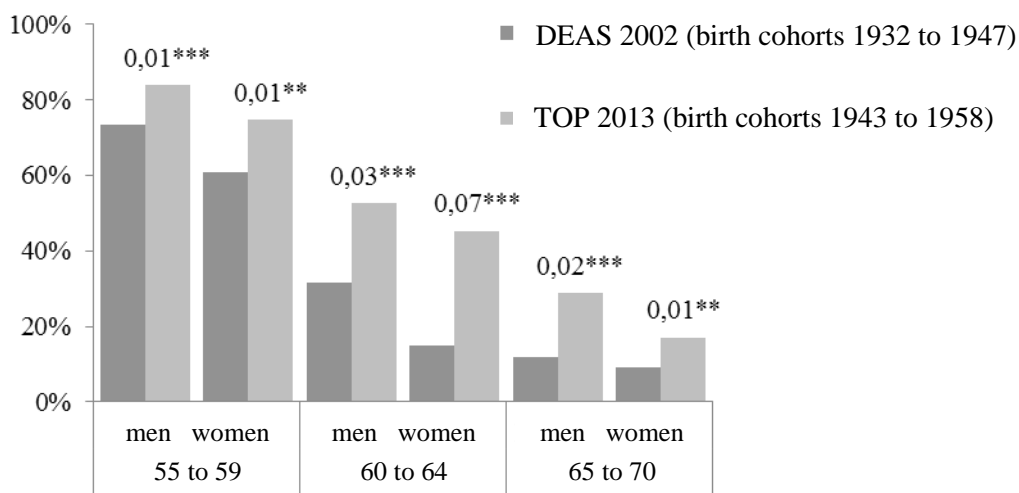
The research presented in this chapter was conducted as part of an interdisciplinary cooperation project of the Federal Institute for Population Research in Germany and different universities which I participated in. The Transitions and Old Age Potential (TOP) study focuses on the labor market potential of older people as well as retirement transitions (for more specific information see Schneider, Mergenthaler, Staudinger, & Sackreuther, 2015). It is a representative panel study of older people in Germany born 1942 to 1958. In this chapter, findings from the first survey wave conducted in 2013 are presented. In this wave, 5,002 randomly selected participants aged 55 to 70 took part in computer-assisted standardized telephone interviews.

In Chapter 3.1 activity potentials of older individuals in Germany regarding employment, but also regarding informal engagement such as volunteer work are explored in the light of current activities and available resources (Study 1: Mergenthaler, Wöhrmann, & Staudinger, 2015). Chapter 3.2 deals with continued employment intentions beyond retirement age and the preferred continued employment arrangements (Study 2: Büsch, Zohr, Bruschi, Deller, Schermuly, Stamov-Roßnagel, & Wöhrmann, 2015). In both chapters, specific groups are identified through cluster analyses.

3.1 Work Activity Potentials of Older People in Germany

The aim of my first study was to explore the scope of older people's employment and voluntary activity as well as their intentions to continue or to take up such an activity in the future. To investigate older people's work activity potentials, we (Mergenthaler et al., 2015) took a three step approach. First, we conducted cohort comparisons to describe the development of activity potentials over time and to gauge the extent of current activity potentials. Then, we conducted a cluster analysis to determine types of activity potentials by including actual activities, intentions, and resources. In a last step, the relationships of sociodemographic, socioeconomic, and personal characteristics with the different activity potential types were investigated.

To conduct the cohort comparison, TOP data from 2013 were compared with a subsample of the German Ageing Survey (DEAS) from the year 2002 including only 55 to 70 year old participants (1,062 out of a total of 3,084 persons). The analyses showed higher labor force participation rates across age groups in the TOP data compared to the DEAS data (Figure 2). For example, the labor force participation rates of women aged 60 to 64 and of men aged 65 to 70 more than doubled. Higher activity rates were also found regarding informal activities including voluntary work and care work in the family. The increase in activity rates shows that activity potentials were utilised to a greater extent in 2013 compared to 2002. Several developments may have contributed to this trend, such as a more active image of old age in society, abolishment of incentives for early retirement and creation of more flexible conditions in the transition to retirement, increase in higher education, and improvement in general health conditions.



Source: Base sample DEAS 2002 (n=1.111); TOP 2013 (n=4.957), weighted data; row percents; results of ANOVA (general linear model); effect size: partial eta-squared (η^2); **: $p < .01$, ***: $p < .001$; analyses by Federal Institute for Population Research.

Figure 2. Employment of 55 to 70 year old individuals in Germany by sex and age (adapted from Study 1: Mergenthaler et al., 2015)

To determine a typology of activity potentials, we conducted a cluster analysis in which current activities, intentions regarding the uptake or expansion of activities, and resources were included. Current activities as well as inclinations for activities comprised of employment, civic engagement, and voluntary activities in the family environment. Resources included individual antecedents (subjective health, education, productive image of old age) and socioeconomic conditions (income level, job prestige). The analysis revealed six types of activity potentials: the employed ($N = 781$; 17 %), the inclined to continue employment ($N = 690$; 15 %), the civic

engaged ($N = 652$; 14 %), the family engaged ($N = 646$; 14 %), the inclined to volunteer ($N = 659$; 14 %), and the unambitious ($N = 1,206$; 26 %). The last four types are characterized by no current employment. The clusters *the employed* and *the inclined to continue employment* are both characterized by current employment but differ completely with regard to the intentions for continued employment in retirement. Figure 3 displays the description of *the inclined to continue employment* compared to a mean of all other clusters.

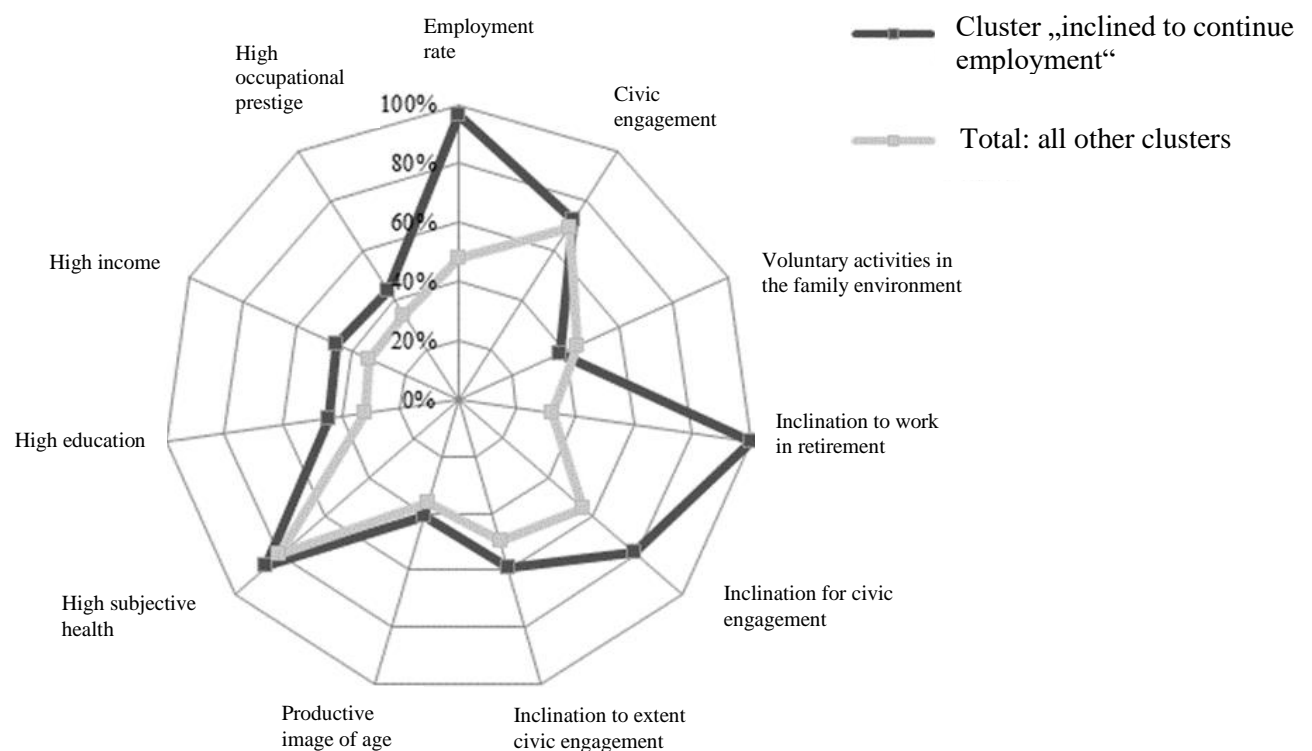


Figure 3. Activities and intentions in the cluster “inclined to continue employment” (adapted from Study 1: Mergenthaler et al., 2015)

Besides the great extent of work activity (96 % working with a mean of 41 working hours per week), this group is also characterized by comparably high intentions to take up civic engagement, and a great extent of resources including the highest education, income level, job prestige, and health compared to the other clusters. This may partly be due to the group being relatively “young” and “male” compared to other clusters. Regarding their personality, values for openness were high, which could support the realization of their activity intentions. Values for agreeableness and neuroticism were relatively low. Thus, these findings indicate that personality factors play a role for the type and extent of engagement beyond socioeconomic status. Multinomial logistic regression analysis largely supports these findings and indicates

that different variables regarding sociodemographic aspects, family, health, and personality increase the probability to belong to an active cluster compared to *the unambitious*. While men were more likely than women to belong to clusters related to paid employment, women were more likely than men to belong to clusters related to unpaid activities. Generally, younger age, high job prestige, good subjective health, and conscientiousness were beneficially related to the extent of current and intended activities. The findings are in line with extensive research on the relationship of sociodemographic aspects as well as health with retirement timing (e.g., Fisher et al., 2016) and with rather scarce research on personality and retirement timing, which found low values in conscientiousness to be related to impending retirement (Löckenhoff, Terracciano, & Costa, 2009).

Especially the group *the inclined to continue employment* has great activity potentials because of their inclinations for work engagement but also voluntary engagement as well as their resources. This interplay of different productive activities is rather specific to this group while the other activity clusters are rather characterized by a selected engagement in a specific area. While this study gave insight to activity potentials among 55 to 70 year old adults in Germany, my next study focuses on the subgroup of the 55 to 70 year old adults with activity intentions regarding continued employment in more detail.

3.2 Patterns of Continued Employment Intentions of Older People in Germany

In Study 2, we (Büsch et al., 2015) explored patterns of intentions regarding continued employment beyond normal retirement age in the TOP data. To this end, we conducted cluster analyses including the extent of post-retirement work intention, the preferred extent of working time, and the desire to continue working for the current employer with regard to this intended employment as structuring variables. The subsample included 911 individuals, who indicated that they could imagine to continue paid work in retirement (either *rather* or *very good*). In a second step, we investigated mean differences (analyses of variance and χ^2 -tests) between the different clusters regarding sociodemographic, individual, work-related, and family-related factors.

The cluster analyses revealed four different patterns of continued employment intentions: the determined ($N = 315$; 35 %), the changers ($N=251$; 28 %), the steady ($N=239$; 26 %), and the ambitious ($N=106$; 12 %). Figure 4 gives an overview of the four clusters.

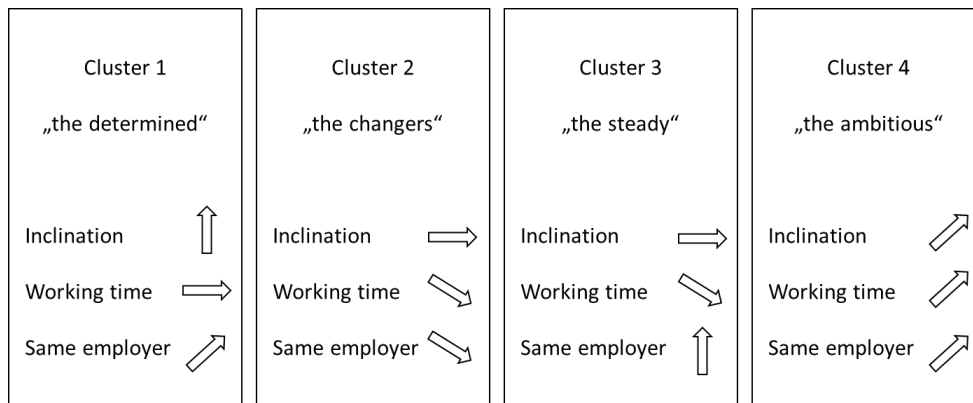


Figure 4. Patterns of continued employment intentions (adapted from Study 2: Büsch et al., 2015).

The determined are characterized by the determination to continue working in retirement (100 % very good) compared to *the changers* and *the steady* (100 % rather). However, most of *the ambitious* also have strong post-retirement work intentions (64 % very good). *The changers* are characterized by the intention to work for another employer (57 %), to become self-employed (13 %) or to work for their current employer as a self-employed (30 %). Opposed to this, *the steady* want to continue working for their current employer keeping their status as dependent employee (100 %). Finally, *the ambitious* would like to work comparably high numbers of working hours per week (31 hours; mean across all groups was 17 hours). Compared to the other clusters, *the ambitious* have the highest mean age, the largest share of men, the highest share of self-employed, and they work most hours per week. *The steady* somewhat depict the opposite pole. They are mostly female, work the least hours per week, and work for an employer in a small or medium sized company. Within the group of *the steady*, the largest share of civil servants can be found. They often work in large companies, have the longest job tenure, and the fewest grandchildren. *The determined*, finally, have the most grandchildren and the shortest job tenure compared to the other clusters. The four clusters did not differ with regard to their health. However, again, some evidence for the role of personality was found. *The ambitious*, and *the determined* had higher values in openness than *the changers* and *the steady*.

The group of older individuals who would like to continue working beyond their normal retirement age provides substantial societal and economic potential. However, individuals with post-retirement work intentions are not a homogenous group and this study gave insight into subgroups with different needs with regard to type and extent of continued employment. This study, again, showed that it is important, to include internal psychological factors when it comes to decision making regarding continued employment. Differentiating older individuals with

continued employment intentions according to their personality helps to link it to occupational and task characteristics. This allows to determine the expected fit between a person and the occupational environment but also helps to formulate specific recommendations regarding continued employment to fit the individual.

3.3 Interim Conclusion: Later Life Work Potential

In this chapter, the potential of later life work in Germany was investigated. More specifically, in two studies, I addressed my first guiding research question related to the determination of work activity potential in Germany as well as the characteristics of different types of later life work potential. Drawing on representative data of 55- to 70-year olds in Germany, first, types of activity potentials, and second, patterns of employment arrangements regarding work activity beyond normal retirement age were determined. The findings give insights to the heterogeneous concepts of later life work as well as concepts for later life in general. Investigating correlates of the different activity potential clusters helps determine groups of individuals that are more likely than others to engage in certain types of later life work activities. In line with earlier research, the findings show that related to societal norms age and gender are important antecedents of later life work activities. Further, individual resources related to socioeconomic status such as income and education as well as health are important. Thus, later life work potentials reflect inequalities in life opportunities to some extent. For example, while those *inclined to continue employment* are mostly men with high education, income, occupational prestige, and health, the *unambitious* are mostly older women with comparable low socioeconomic status and health. However, the individual's family situation as well as their personality also play a role in this context.

In sum, the findings show that there are different groups of older individuals with different later life work activity potentials. These different potential types have antecedents on micro (individual), meso (family, job and organizational), and macro (societal) levels. Thus, the findings empirically support the multilevel model of retirement (Wang & Shi, 2014; Wang & Shultz, 2010), but also extend it by providing evidence for certain clusters or types of later life work potentials. The findings also give several indications on actions that could promote later life work. On the one hand, the findings show that the maintenance of a high and healthy quality of life seems to be an important precondition for the realization of old age potential. Thus, finding ways to compensate for different opportunities in life that disadvantage certain groups could help overcome inequalities and create potential for later life work activity. Inequalities in later life health that result from differences in socioeconomic status are mediated by

occupational activities to a large extent (e.g., Borchert, 2008). Thus, for example, primary prevention strategies through health promoting working conditions as well as supporting occupational health management provide possibilities for scopes of action. Furthermore, the heterogeneity of later life concepts based on individual priorities and abilities has to be accepted. They range from a complete withdrawal from all activities to active aging with the desire to even extent work-related activities. To acknowledge the temporal and activity related variability of retirement and thus the design of later life work one-size-fits all approaches regarding later life work and the transition to retirement have to be overcome. More flexible pathways should be developed that allow transition and activity concepts that fit the preferences and the life situations of older adults and also promote the use of the available activity potentials at the same time. This can be impacted by how politics and society view later life potentials and develop norms and regulations. However, providing necessary framework conditions in organizations that allow healthy aging at work but also flexible design of later life work are also important to enhance the fit of individuals and organizations. Some of these aspects is the aim of the following chapters.

4. Later Life Work: Individual Psychological Factors

Several factors on the individual level are relevant factors in the timing of retirement. While health, economic, and demographic factors have been identified as antecedents of retirement timing, psychological factors are also important (e.g., Chapter 3 in this manuscript; Fisher et al., 2016; Wang & Shultz, 2010). These include personality, attitudes towards aging and retirement, motivation, needs, and values amongst others. In the following, I present two studies (Study 3 and Study 4) focusing on the role of psychological factors related to the work context for later life work. Both studies focus on work engagement beyond normal retirement age. In Chapter 4.1, I give an overview of Study 3, in which we (Wöhrmann, Fasbender, & Deller, 2016) investigated work values as antecedents of intentions to engage in different forms of post-retirement work in a sample of more than 1000 older white collar and blue collar employees of a logistics company in Germany. In Chapter 4.2, I present Study 4, in which we (Fasbender, Wöhrmann, Wang, & Klehe, 2019) investigated the mediating role of future time perspective in the relationship of career adaptability and aging experience with late career planning in a two-wave study of older workers in the United Kingdom. While work values reflect a rather stable construct, future time perspective is rather flexible and age-related (e.g., Henry et al., 2017; Cate & John, 2007).

4.1 Work Values

Work values can serve as guiding principles for the selection, evaluation, and justification of vocational behaviour. They can be clustered into self-transcendence (values related to altruism and relationship), self-enhancement (values related to salary and prestige), conservation (values related to security and authority) and openness to change (values related to diversification, task variety, change of work environment, and autonomy; Schwartz et al., 2012). Protean career theory states that individual work values provide the core of career-related decision making (e.g., Briscoe & Hall, 2006; Hall, 2002; Wang & Shi, 2014). More specifically, work values are expressed in work-related activities and reflect personal identity. Thus, individuals try to establish a congruence between their values and the organizational environment for their well-being. If their work values correspond to certain forms of later life work engagement, they may develop according career intentions. These include paid work intentions such as continuing to work for the same employer, working for another employer, or self-employed work but also voluntary work activities. Thus, in my third study, we (Wöhrmann et al., 2016) aimed to investigate whether older employees' work values could serve as predictors of different later life work activity intentions. To this end, 1071 older blue-collar and

white-collar workers of a logistics company in Germany completed questionnaires. The study's findings based on structural equation modelling are presented in Table 1, and they indeed showed the importance of work values for later life work intentions. Work values explained additional variance in all types of later life work intentions compared to age, sex, education, and work ability.

Table 1

Relationships Between Work Values and Post-Retirement Work Intention Types (Study 3: Wöhrmann et al., 2016)

Work Value	Voluntary	Paid work intentions		
	work intention	Same-	Other-	Self-
Self-transcendence	+ ✓	+ ✓	+ ✓	+ ✓
Self-enhancement	— ✗	+ ✗	+ ✗	+ ✗
Conservation	— ✓	+ ✗	— ✓	— ✓
Openness to change	+ ✓	ô ✓	+ ✗	+ ✗

Note. +: Hypothesized positive relationship; ô: Hypothesized negative relationship;

✓: Hypothesis supported; ✗: Hypothesis not supported.

In line with our hypotheses, self-transcendence work values were consistently positively related to all types of later life work intentions. Thus, older workers, to whom an interest in the benefits of others is important, are inclined to engage in work-related activities of any kind as this corresponds their internal values. Surprisingly, self-enhancement work values were negatively related to same employer work later life work intentions and unrelated to the other forms of later life work intentions. Thus, self-enhancement values do not hinder older employees from a later life engagement in voluntary work. However, although paid later life work would increase their income, it does not seem to be sufficiently appealing to those with higher self-enhancement values. Several factors could come into play here, such as lower perceived status and prestige of post-retirement work compared to pre-retirement work. Conservation work values were negatively related to voluntary, other employer, and self-employed later life work intentions, but unrelated to same employer later life work intentions. These findings indicate that older workers with higher conservation work values are more inclined to adhere to the traditional concept of retirement reflecting a complete withdrawal from the labor force. However, regarding the continuation of work for the same employer, other factors, such as loyalty, may come into play at the same time. Finally, older workers with higher

openness to change work values were more likely to have later life work intentions regarding voluntary work, and less likely to have later life work intentions regarding the continued work engagement for their current employer. Surprisingly, higher values for openness to change were unrelated to the intention to work for another employer or to become self-employed. A possible explanation is that these workers might prefer non-work activities to classical work activities.

Study 3 adds to the understanding of individual, and more specifically psychological, factors for later life work. Work values are a stable construct related to individual's identity and therefore constitute one of the drivers of career decision making. Certain work values seem to correspond with certain types of later life work intentions. Thus, they may help explain and predict engagement in later life work. From a practical point of view, the identified combinations of work values and type of later life work activity intention could support organizational workforce planning and choice of individual career paths. Therefore, the findings of this study have implications for organizations who would like to employ their employees beyond normal retirement age as well as for career and retirement counsellors. Finally, despite the strengths of the study, for example using a large sample with a high share of blue-collar workers, the study has several limitations. As study findings are only correlational, no causal inferences can be drawn, and the investigated later life work intentions do not necessarily reflect later life work behaviour. Thus, in Study 4, which I present next, we take a closer look at later life work planning reflecting actual behaviour based on longitudinal data.

4.2 Abilities, Experiences, and Beliefs

According to constructive career theory (Savickas, 2013), people rely on their identity or self-concept to construct their career and to make informed decisions (Del Corso & Rehffuss, 2011). As described above, work values are a rather stable construct reflecting a persons' identity that play a role in the later life career decisions of older workers. However, more flexible aspects that shape a persons' identity—such as abilities, experiences and beliefs—may also play an important role for later life work. In a nutshell, from a career construction and life-span development perspective, in my fourth study, we (Fasbender et al., 2019) investigated the relevance of career adaptability and aging experiences as individual antecedents for shaping late career planning. We assumed occupational future time perspective to serve as a central mechanism of older workers' career construction. Late career planning is the engagement in activities to plan for later life work, such as discussing plans regarding work beyond normal

retirement age with the supervisor or collecting information on later life work (Wöhrmann, Deller, & Wang, 2013, 2014).

According to career construction theory (Savickas, 2013) people construct their careers by relying on psychosocial resources such as their ability to adapt their career but also by connecting their past experiences with their current situation to plan for a preferred future. Thus, they integrate life-long development experiences into their career by reflecting on their experiences and thus interpret and adapt to an environment (“adaptive responding”). Career adaptability is a core psychosocial resource that is important for career adaptation and success. It denotes the degree to which people feel innately curious, responsible for, in control of, and confident about managing their own careers (Savickas, 2013). In our study (Fasbender et al., 2019), we therefore argue that career adaptability supports older workers in planning later life work. Further, the personal experience of getting older can play a role for later life work. The internal comparison of how life has changed during the ongoing aging process can be expressed in experienced gains and losses. Here, four dimensions of ageing experiences can be distinguished: physical loss, social loss, personal growth, and gaining self-knowledge.

We investigated the underlying psychological mechanism in the relationships of career adaptability and aging experiences with late career planning. More specifically, we assumed that career adaptability and aging experiences shape older workers’ beliefs about how much time and opportunities they have left in their professional life. These beliefs are subsumed under the construct occupational future time perspective, an age-related, flexible, and cognitive-emotional construct that changes over time (Carstensen, 2006; Cate & John, 2007; Zacher & Frese, 2009; Chapter 2.3). If older workers perceive their remaining time and opportunities as endless, planning for later life work even beyond normal retirement age should become more likely. If they perceive it as limited, withdrawal from the labour force and thus full retirement become the more likely option.

To investigate occupational future time perspective as an underlying psychological mechanism to help understand how workers construct their late careers, we used two-wave longitudinal survey data (3-months time lag) from a sample of 800 older workers based in the United Kingdom. We applied a structural equation modelling technique. Indeed, career adaptability indirectly affected late career planning via occupational future time perspective. And above and beyond career adaptability, the aging experiences personal growth and physical loss seem to be important antecedents of older workers’ beliefs about their remaining professional time and opportunities. They were indirectly related to late career planning via occupational future time perspective. Physical loss, which is characterized by lower levels of

fitness and energy, decreasing physical abilities, and difficulties in coping with physical demands (Steverink, Westerhof, Bode, & Dittmann-Kohli, 2001) can remind older workers that their time may be limited as may be their ability to continue working. Personal growth, such as learning new skills, improving capabilities and increasing levels of self-worth (Wurm, Tesch-Römer, & Tomasik, 2007) reflects a future-oriented and optimistic way of experiencing the aging process. This positive outlook raises the awareness of the professional opportunities still available. Thus, the experiences that come along with getting older can play a critical role in shaping how older workers see their occupational future. The aging experiences social loss (e.g., decline of social contacts, loneliness, feelings of being less needed; Fasbender, Deller, Wang, & Wiernik, 2014; Stevering et al., 2001) and gaining self-knowledge (e.g., accumulating knowledge about oneself and being more relaxed about things, accept weaknesses or disabilities while embracing strength or abilities), however, did not shape older workers' occupational future time perspective.

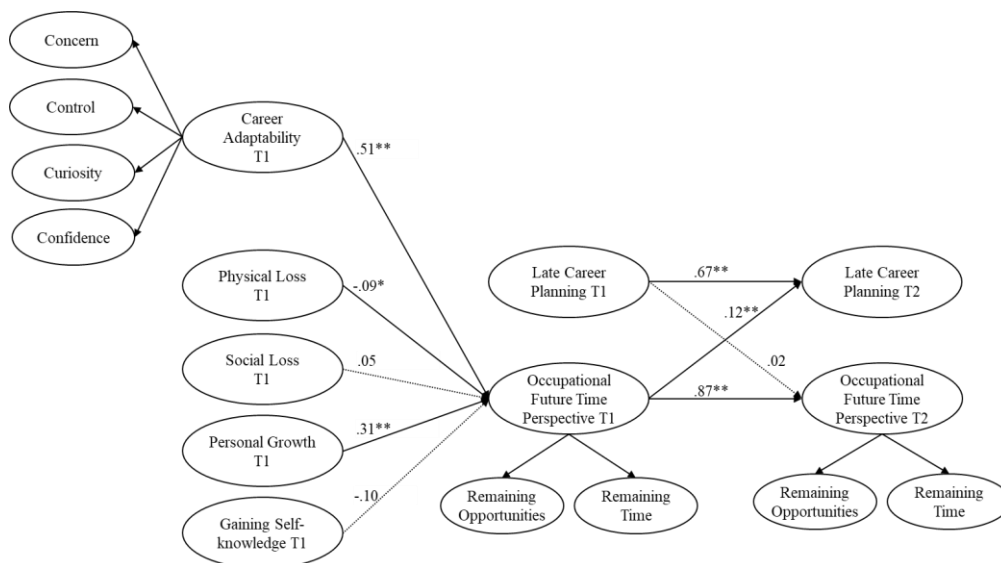


Figure 5. Results of structural equation modeling with standardized coefficients (Study 4: Fasbender et al., 2019); * $p < .05$, ** $p < .01$.

This study adds to the understanding of psychological mechanisms underlying older workers' later life career construction. Occupational future time perspective seems to link experiences and adaptability with adaptive responding, that is planning for an active working life beyond formal retirement age. Thus, when aiming to motivate older workers to actively plan for a late career, changing their thinking about their remaining professional time and opportunities provide a direct way to later life work. Initiatives to make older workers aware of possibilities of later life work, nurturing a climate that values and supports later life work, and

identifying career opportunities that impose less physical demands reflect possibilities how organizations could foster occupational future time perspective.

4.3 Interim conclusion: Individual Psychological Factors

In this chapter, I presented Studies 3 and 4, in which we investigated the role of individual psychological factors—especially psychological factors specific to the work context. Amongst others, we examined work values as a rather stable psychological construct and occupational future time perspective as a rather malleable psychological construct with regard to later life work intentions and later life career planning, respectively. Thus, the studies contribute to my second guiding research question on the role of individual psychological factors such as personality, values and beliefs in the context of later life work. Both studies highlight that later life work is a result of a person and their perceived congruence with future activities. Rather stable aspects shaping a persons' identity, such as work values, but also more flexible beliefs about the occupational future that are shaped by past experiences, such as experienced gains and losses due to aging, and personal psychosocial resources, such as career adaptability, play a role for later life work.

These studies add to the understanding of individual psychological factors and therefore micro-level factors for later life work. Thus, they provide empirical support for the multilevel model of retirement (Wang & Shi, 2014; Wang & Shultz, 2010) and the model of retirement timing (Fisher et al., 2016). Furthermore, the findings indicate the importance of the fit of a person's abilities and convictions with the engagement in later life work. Older workers with positive aging experiences and personal resources regarding career adaptability are more likely to feel up to the demands placed on them in their work environment and therefore expect more time and possibilities awaiting them in their work life. Work values are a stable construct related to individual's identity and therefore constitute one of the drivers of career decision making. Certain work values seem to correspond with certain types of later life work activity intentions. Thus, they may help explain and predict engagement in later life work. From a practical point of view, the identified combinations of work values and type of later life work intention could support organizational workforce planning and choice of individual career paths.

However, it is not only the individual with their values, needs and beliefs that determines actual engagement in later life work. Environmental characteristics at the workplace may be just as important. Therefore, in the next chapter, the significance of job characteristics and their fit with individual needs and preferences for later life work is explored.

5. Later Life Work: Job Characteristics Corresponding to Older Workers' Needs and Abilities

As described in Chapter 4, individual psychological factors such as career adaptability, occupational future time perspective (Study 4: Fasbender et al., 2019), and work values (Study 3: Wöhrmann et al., 2016) play a role for retirement timing. But the environment in which the individual works cannot be neglected (e.g., Dawis & Lofquist, 1984; Wang & Shultz, 2010). If the work environment fits individual needs and is therefore perceived as attractive or pleasant, later life work becomes a good option. However, a work environment that does not fit individual needs or abilities, for example due to high physical strain or high workloads, may push older workers to exit the workforce (e.g., Hayward et al., 1989; Szubert & Sobala, 2005; Wang & Shultz, 2010). The aim of this Chapter is to shed more light on environmental antecedents of later life work by investigating the role of different job characteristics and their interplay with individual characteristics. More specifically, I will present three studies on the importance and fit of job (meso level) factors and individual (micro level) factors regarding older workers' later life work intentions and satisfaction. In Chapter 5.1, I describe Study 5, in which we (Wöhrmann, Brauner, & Michel, 2020) used a representative sample of nearly 8000 older employees in Germany to explore the effect of person-environment fit regarding working hours and work demands on early and late retirement intentions. Afterwards, I present my sixth study, in which we (Wöhrmann, Fasbender, & Deller, 2017) investigated underlying mechanisms through which respectful leadership is related to desired retirement age as well as the moderating role of occupational self-efficacy. To this end, we used a sample of more than 1000 older white-collar and blue-collar employees of a logistics company in Germany. Finally, in Chapter 5.3, I give an overview of Study 7, in which we (Pundt, Wöhrmann, Deller, & Shultz, 2015) examined the relationship of personal motivational goals and the corresponding occupational characteristics with life and work satisfaction in a sample of 661 retirees engaged in voluntary activities.

5.1 Y q t m " Q t i c p k | c v k q p " E q t t g u r q p f k p i " v q " Q n f g t " Y o

According to the theory of work adjustment (Dawis & Lofquist, 1984; see also Chapter 2), career decisions are based on the fit between individuals and their environment (job-related needs-supplies fit and job-related demands-abilities fit; cf., Edwards et al., 1998). If a misfit is perceived between one's preferences or abilities and the working conditions, this can result in an adaptation of the workplace or one's preferences but also in withdrawal behavior. Thus, if employees feel their job-related needs are unfulfilled, retirement intentions may become more

likely. Central job characteristics related to work organization are the design of working time as well as the workload. In Study 5, we (Wöhrmann et al., 2020) investigated how the fit of work organization with individuals' preferences and abilities relates to their retirement timing intentions. More specifically, we took a closer look at working hours, quantitative job demands, and qualitative job demands in this context. We assumed that employees, who perceive a misfit regarding their working hours in a way that they work more hours per week than they prefer, are more likely to express early retirement intentions and also less likely to express late retirement intentions compared to the intentions to retire at normal retirement age. However, for those, who would like to work more hours than they actually do, we assumed the opposite. Also, we investigated whether early and late retirement intentions were similarly related to a misfit of qualitative and quantitative work demands and individuals' abilities. Thus, on the one hand, we assumed a person-work environment misfit resulting in the older worker being overchallenged due to the work demands exceeding the abilities to result in a higher risk for early retirement intentions and a lower probability for late retirement intentions compared to normal retirement intentions. On the other hand, we assumed a person-work environment misfit being hallmarked by the older worker being underchallenged due to the abilities exceeding the workplace supplies or demands, to result in a higher probability for late retirement intentions and also a lower risk for early retirement intentions compared to normal retirement intentions.

We analyzed survey responses of 7,859 employees aged 50 to 65 years living in Germany. This sample constitutes a subsample of the BAuA-Working Time Survey (wave 1, conducted in 2015), a representative survey of 20,000 employees in Germany. Thus, the sample includes employees across professions and economic branches. Multinomial logistic regression analysis with early, regular (reference category), and late retirement as the three possible outcomes was applied.

The findings largely support our assumptions. Older workers who would like to decrease their working hours were more likely to prefer early retirement over normal retirement and less likely to prefer late retirement over normal retirement compared to those who were satisfied with their working hours (see Table 2). For employees who would like to work more hours, the opposite was the case. We also found employees who felt that they could not keep up with the quantitative work demands to be more likely to express early retirement intentions, while those who felt qualitatively underchallenged were more likely to intend to postpone retirement beyond their normal retirement age.

Table 2

Results of Multinomial Logistic Regression Analysis (Study 5: Wöhrmann et al., 2020)

Variable	Early retirement intention		Late retirement intention	
	OR	95% CI	OR	95% CI
Control variables				
Age	.94***	.93;.95	1.05***	1.03; 1.08
Gender (male)	.92	.82; 1.03	1.24*	1.01; 1.51
Education (high)	.95	.85; 1.06	1.61***	1.33; 1.95
No financial difficulties	1.08**	1.02;1.13	1.03	.94; 1.13
Work ability	.88***	.85; .90	1.14***	1.07; 1.21
Weekly working hours	1.00	.99; 1.01	1.02**	1.00; 1.02
Matching of work demands (ref. meet respective work demands)				
Quantitative work underload	1.07	.85; 1.34	1.30	.92; 1.84
Quantitative work overload	1.71*****	1.42; 2.05	.94	.61; 1.31
Qualitative work underload	1.09	.92; 1.29	1.59***	1.23; 2.06
Qualitative work overload	1.18	.82; 1.68	.95	.44; 2.07
Desired change in working hours (ref. no change desired)				
Less hours	1.83***	1.63; 2.05	.77*	.63; .95
More hours	.71***	.59;.85	1.83***	1.39; 2.42

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

This study gives an insight on the role of person-work environment fit, and more specifically on the fit of working hours and work demands, regarding retirement timing intentions. The study underlines that to counteract early retirement intentions working conditions should fit the individual needs in a way that quantitative work demands and working hours do not exceed individual preferences or abilities. However, the findings also indicate that certain constellations of misfit could foster late retirement intentions compared to normal retirement intentions. Because we controlled for financial difficulties, the higher odds for late retirement intentions if the older worker feels qualitatively underchallenged at work or has the desire to work more hours are not likely to be explained by financial motives only. One explanation for this finding could therefore be that the work situation of older workers whose preferences exceed the workplace supplies and demands corresponds to a work situation that is typical for post-retirement work.

Knowing the individual needs of the older workers within an organization could help promote staff retention through providing part-time work possibilities as well as reduction of

workload on the one hand, and to identify unused potential for later life work on the other hand. Flexibility in different aspects of work organization seems to be a promising way to foster later life work. Recognizing the individuals' needs and adopting the work organization accordingly is a task team leaders in organizations have to face.

5.2 Respectful leadership and Occupational Self-Efficacy

Based on socioemotional selectivity theory (Carstensen, 2006) it can be assumed that individuals stay in the workforce as long as they experience a positive balance of socioemotional gains and risks. The social and emotional gains in the workplace could be enhanced through a leader who shows recognition and respect to their subordinates. Working conditions that allow the experience of meaningfulness and recognition are favourable to many older workers (Hertel & Zacher, 2016; Zacher, 2015). Thus, respectful leadership could provide a meaningful job resource regarding later life work. It can therefore be assumed that it affects older workers' desired retirement age via several mechanisms. In Study 6, we (Wöhrmann, Fasbender, & Deller, 2017) investigated the enhancement of job satisfaction and subjective health as well as the reduction of work-to-private life conflict as such mechanisms.

As discussed above (Chapter 4), individual psychological factors are important drivers in the context of later life work. Occupational self-efficacy is a psychological factor that reflects individuals' beliefs about their capabilities to manage situations and to reach their goals with regard to their job (e.g., Rigotti, Schyns, & Mohr, 2008). It can be regarded as a central personal resource that, amongst others, helps the goal-directed use of other resources. We therefore argued that older workers with high occupational self-efficacy take an active role in interpreting external factors at work and make therefore better use of respectful leadership as a contextual resource. Thus, we expected higher levels of occupational self-efficacy to enhance the relationships of respectful leadership with job satisfaction, subjective health, and work-to-private life conflict.

Questionnaire responses from 1,130 blue-collar and white-collar employees of a logistics company in Germany aged 45 to 65 years were used in this study. Structural equation modelling results are presented in Figure 6 and not only show that respectful leadership was positively related to older employees' desired retirement age but also that this relationship was mediated by subjective health and work-to-private life conflict. Because job satisfaction was unrelated to desired retirement age in the data, the indirect effect was insignificant despite of a strong relationship of respectful leadership and job satisfaction. Occupational self-efficacy showed significant bivariate correlations with all study variables, but it did not moderate the

relationships of respectful leadership with subjective health, work-to-private life conflict or job satisfaction.

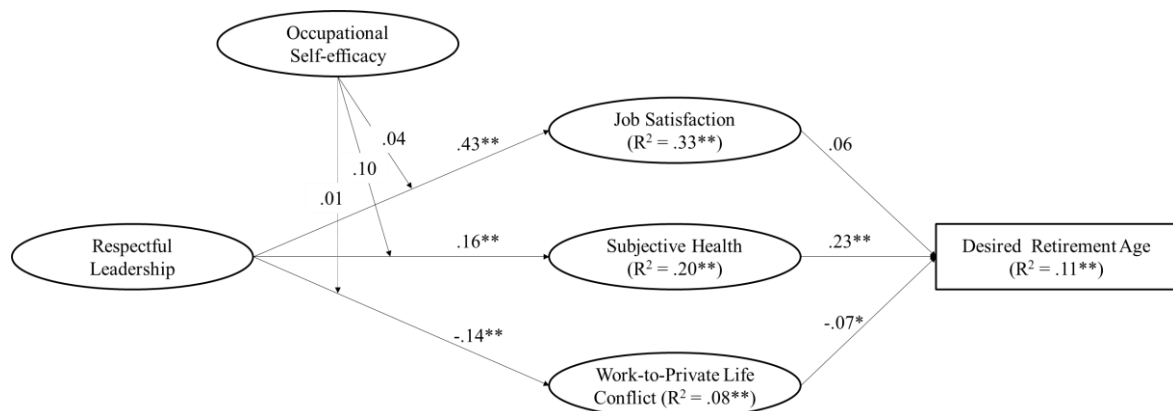


Figure 6. Structural equation model showing relationships between respectful leadership, work-to-private life conflict, occupational self-efficacy, job satisfaction, subjective health, and desired retirement age with standardized coefficients (Study 6: Wöhrmann et al., 2017); $N = 1,088$; for the sake of clarity, only structural relationships are shown; * $p < .05$, ** $p < .01$.

This study highlights that respectful leadership provides a relevant contextual resource in the retirement decision-making process. The findings indicate that the experience of respect and recognition in the workplace have the potential to beneficially affect job satisfaction, subjective health and work-to-private life conflict. And in line with socioemotional selectivity theory, older workers are willing to postpone their retirement when experiencing higher levels of subjective health and lower levels of work-to-private life conflict. Occupational self-efficacy seems to play a role with regard to later life work, but our study does not support the assumption that older workers with high occupational self-efficacy make better use of or profit more from a leader who treats them respectfully. The study adds to the understanding of retirement decision making. It highlights the importance of leadership behavior for older workers' motivation and socioemotional needs on the one hand, and an organizational climate characterized by respect and recognition that becomes evident in the leader-subordinate relationship on the other hand.

5.3 Motivational Goals and Corresponding Occupational Characteristics

Study 6 (Wöhrmann et al., 2020) presented above, showed that the fit of actual work organization and corresponding individual needs is important in the context of later life work. Thus, it is not only the job factors being important for later life work, but also the related individual preferences. In Study 7, we (Pundt et al., 2015) followed a similar reasoning and

investigated the role of motivational goals and corresponding occupational characteristics regarding later life (work) satisfaction. As shown above, work values play a role for the intention to engage in voluntary activity beyond normal retirement age (Study 3: Wöhrmann et al., 2016). In Study 7, we (Pundt et al., 2014) took a closer look at this group of volunteering retirees. Following socioemotional selectivity theory (Carstensen, 2006) we assumed that not only general work values, but also more specific personal motives may play a role in career decisions. More specifically, motivational goals regarding appreciation, autonomy, contact, and generativity were assumed to be related to the later life consequences life and work satisfaction because they become more important when future time is perceived as limited (see Figure 7). The same was hypothesized regarding the personal motive for achievement, which had shown inconsistent findings regarding the importance for older workers in earlier research (cf., Kooij, de Lange, Jansen, Kanfer, & Dikkers, 2011). It is likely that these motivational goals affect the selection of a job that provides corresponding occupational characteristics which in turn affect life and work satisfaction. We assumed accordingly that life and work satisfaction of working retirees should be higher in jobs that provide achievement, appreciation, autonomy, contact, and generativity.

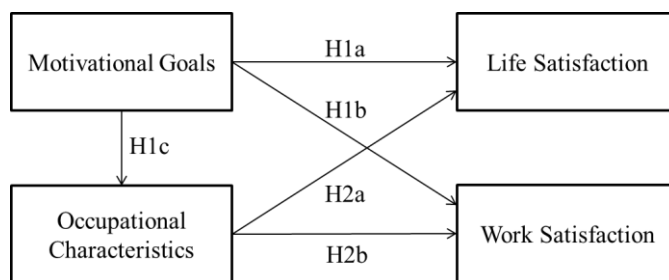


Figure 7. Theoretical model of motivational goals, occupational characteristics, life and work satisfaction of voluntarily engaged retirees (Study 7: Pundt et al., 2015); H = Hypothesis.

A sample of 644 individuals who were fully retired from their main job (average age 69 years) fully completed an online survey. They worked voluntarily for a non-profit organization applying the knowledge from their former career field. Participants were mostly men (92 %). We used structural equation modelling to investigate the hypothesized relationships. Results are presented in Table 3. All motivational goals except appreciation motive were positively related to life satisfaction but only indirectly related to work satisfaction via their corresponding task characteristic. All occupational characteristics were positively related to work satisfaction. However, except for occupational autonomy, they were not related to life satisfaction. Thus,

working in a job that gives some freedom regarding decision making may be perceived as a fundamental prerequisite in the context of later life work (e.g., Maxin & Deller, 2010).

Table 3

Standardized Effects of Motivational Goals and Occupational Characteristics (Study 7: Pundt et al., 2015)

Variable	Life satisfaction	Work satisfaction (indirect effect)	Corresponding occupational characteristic (R ²)
<i>Control variables</i>			
Age	.04	-.06	-
Gender ^a	.03	.02	-
<i>Motivational goals</i>			
Achievement motive	.15*	.04 (.09***)	.30*** (.09**)
Appreciation motive	-.16**	.06 (.06***)	.28*** (.08***)
Autonomy motive	.13*	-.09 (.04*)	.21*** (.04)
Contact motive	.24***	-.03 (.03*)	.17** (.03)
Generativity motive	.17*	-.01 (.09*)	.42*** (.18***)
<i>Occupational characteristics</i>			
Occupational achievement	.02	.31***	-
Occupational appreciation	.06	.22***	-
Occupational autonomy	.12*	.18**	-
Occupational contact	-.02	.17**	-
Occupational generativity	-.02	.21***	-
R ²	.21***	.29***	-

Note. N=644. * $p < .05$; ** $p < .01$; *** $p < .001$. ^a 1 = male, 0 = female

The findings point to several motivational goals being important for life satisfaction in working retirees which is in line with earlier findings (e.g., Grosse Holtforth & Grawe, 2000) and socioemotional selectivity theory (Carstensen, 2006). They also show, that active retirees select jobs that correspond to their motivational goals. If they work in a job that is high in the corresponding occupational characteristics, this is related to higher work satisfaction. Thus, work satisfaction in later life work can be enhanced through according work design. Organizations aiming to employ individuals beyond retirement age on a voluntary basis should provide a work environment that fulfils their motivational goals better than alternative activities in retirement would. As this study has shown, certain corresponding occupational characteristics are important for the work satisfaction. Thus, the work environment should be

designed in a way that it allows the fulfilment of achievement goals, gives back appreciation and recognition for the contribution, provides space for latitude and flexibility as well as possibilities for social contacts and for passing on knowledge to others. A possibility is to provide retirees the option to serve as mentors. These findings are likely to be transferrable to enhance the satisfaction of paid workers in retirement age which additionally may fulfil related financial motives. That achievement as a personal motive as well as occupational characteristic plays an important role for work and life satisfaction of working retirees is rather surprising. According to socioemotional selectivity theory, achievement should be more relevant to older than to younger workers. However, the studies' findings could point to working retirees being a group with highly pronounced occupational future time perspective which would correspond to higher achievement motives.

5.4 Interim Conclusion: Job Characteristics and Abilities

In this Chapter, I presented Studies 5, 6, and 7 in which the role of different job characteristics as meso level antecedents of later life work and their interplay with individual psychological factors was investigated. Thus, here I address my third guiding research question, asking how specific job characteristics interact or align with individual psychological factors with regard to later life work. More specifically, in the studies, we identified three important antecedents playing a beneficial role in later life work: a) a work organization regarding working time and work demands that matches the individual older workers' preferences and abilities, b) a respectful treatment by the supervisor, as well as c) a job that allows the fulfilment of motivational goals relevant to older workers, such as appreciation, achievement, autonomy, contact, and generativity. Thus, job characteristics constitute important meso level factors to promote later life work through later retirement entries and satisfaction in working retirees. To this end, the job characteristics have to fit the individual older worker.

These findings provide evidence for the importance of a person-environment fit perspective, when it comes to later life work. Thus, they provide empirical evidence supporting assumptions of the process model of successful aging (Kooij et al., 2020). By including the micro (individual) and meso (job) factors as well as addressing different stages of the retirement process, the findings also support the conceptual models of retirement (Fisher et al., 2016; Wang & Shi, 2014; Wang & Shultz, 2010). From a practical point of view, the findings point to the recommendation, that work design should be oriented at the needs and abilities of older workers in general. This includes the provision of a work environment that meets older workers'

underlying motivations that become increasingly important with age. Examples are the experience of positive emotional states and relationships with close social partners as well as more specific motivational goals of older workers such as autonomy and generativity. However, with increasing age, not only the employees' heterogeneity regarding their work ability, but also regarding needs and preferences due to different life experiences increases. Thus, the studies' findings also support the importance of attending to the needs, abilities, and preferences of each older worker individually—for example through a supervisor that treats older team members and their individual situation with appreciation and respect. This could result in attending the individual needs regarding the work organization in terms of working time and work demands. However, it could also translate into other individual adaptations of the job or work situation. This attentiveness to the individual older worker could help identify and adapt working conditions that prevent employees from retiring early. Furthermore, it could also support the identification of those employees who are able and motivated to continue working beyond normal retirement age.

In this chapter, it became clear that different job characteristics that match the individual older workers' needs play an important role for later life work. However, for organizations a more holistic approach to later life work is needed that allows them to reflect their readiness to cope with an aging workforce by attending to older workers needs in general without neglecting the heterogeneity of their older workers regarding their individual needs. Thus, in the following chapter, I give an overview of the development of the Later Life Workplace Index that bestrides supportive framework conditions for healthy and motivated later life work holistically.

6. Later Life Work: A Holistic Organizational Approach

The research I presented in the previous chapter has shown that job characteristics corresponding to older workers' preferences and their individuality play an important role in later life work. Also, research has identified a large pool of organizational practices that support the successful employment of an older and increasingly age-diverse workforce (e.g., Armstrong-Stassen & Lee, 2009; Göbel & Zwick, 2013; Parker, Andrei & Wang, 2020). It becomes clear that considering specific job characteristics or organizational practices cannot suffice the understanding of the overall situation in an organization with regard to the facilitation of later life work. Rather, a holistic organizational approach comprising an overarching set of organizational practices is required to enable employees to engage in later life work, to help them stay healthy, productive, motivated to continue working, and to allow a successful transition to retirement.

Because there was a lack of conceptual frameworks and validated measures reflecting such a holistic approach that conceptually covers all domains of organizational practices relevant to later life work (e.g., Boehm, Kunze, & Bruch, 2014), there was a need for a comprehensive, multifaceted measure that is suitable for research and practice alike. We therefore developed the Later Life Workplace Index (LLWI). On the one hand, it is intended to serve as a diagnostic tool for organizations to allow an assessment and evaluation of current organizational conditions relevant in the context of later life work. On the other hand, with the LLWI, we intended to provide a conceptually broad and sufficiently validated measure that, for example, allows researchers to disentangle the role and relevance of different organizational practices in the context of later life work.

To develop the LLWI, we applied a multi-study procedure. To ensure a broad and conceptual coverage, the conceptual framework was developed based on qualitative evidence from Germany and the U.S. (see Chapter 6.1). To this end, we first conducted and analyzed qualitative interviews with subject-matter experts in Germany (Study 8: Wöhrmann, Pundt, & Deller, 2018). We then extended the resulting conceptual framework to not only fit the German but also the U.S. context (Study 9: Wilckens, Wöhrmann, Adams, Deller, & Finkelstein, 2020). The final framework comprised of nine domains of organizational practices relevant to later life work with several facets each. Based on this, in Study 10 (Wilckens, Wöhrmann, Deller, & Wang, 2020), we then operationalized and validated the LLWI (see Chapter 6.2). Using the rich qualitative data we generated an item pool, revised this item pool, and finally administered it to two different samples of employees in Germany for validation and cross-validation. The final LLWI consists of 80 items covering the nine domains organizational climate, leadership, work

design, health management, individual development, knowledge management, transition to retirement, continued employment, and health and retirement coverage. In the scope of the development of the LLWI we adapted its name twice (Study 8: Silver Work Index; Study 9: Later Life Work Index; Study 10: Later Life Workplace Index). To avoid confusion, only the final denomination Later Life Workplace Index (LLWI) is used here.

6.1 Later Life Workplace Index: Qualitative Development of the Conceptual Framework

To ensure a thorough conceptual coverage of organizational practices relevant in the context of later life work, we first developed a comprehensive conceptual framework by applying an empirical qualitative research design. First, in Study 8, we conducted interviews with 27 subject-matter experts that had dealt with the employment of employees nearing or beyond retirement age either in practice or in research (Wöhrmann et al., 2018). Amongst others, researchers from various disciplines, employees of retirement age, human resource executives, and human resource managers were interviewed. In the semi-structured interviews participants were asked to elaborate on good organizational practices relevant for later life work, thus older employees—especially those nearing or beyond retirement age. In the subsequent process of content analysis, we took an iterative approach including qualitative content analysis following Mayring (2010) and several feedback loops with researchers and practitioners. This procedure allowed us to come up with a content valid category system including categories and subcategories (hereafter referred to as domains and facets). The result was a comprehensive overarching framework for organizational practices relevant for later life work with eight domains entailing two to four facets each (Wöhrmann et al., 2018). The domains were organizational culture, leadership, work design, health management, individual development, knowledge management, transition into retirement phase, and employment during retirement age.

In a next step, we aimed to extend the content validity of the LLWI beyond the German cultural context. We therefore aimed to adapt it to also fit the U.S. cultural context in Study 9 (Wilckens, Wöhrmann, Adams, et al., 2020). To this end, we used qualitative data gathered in the scope of the Age Smart Employer Award 2014 and 2015. This award honors organizations in New York City whose policies and practices promote generational diversity with a special focus on the engagement and retention of older workers (Finkelstein, Roher, & Owusu, 2013). A categorized list of practices was developed based on the analysis of the content of 61 applications. It comprised eight categories with four to ten subcategories each. The categories

were flexibility, benefits, environment, work atmosphere, training, job restructuring, retirement, and hiring.

To integrate the U.S. perspective into the LLWI, we took a multistep procedure. First, after preparation of the qualitative data, similarities and differences in the category systems were identified by an independent researcher based on the definitions of categories and subcategories. Then, in a workshop we (LLWI experts as well as Age Smart Employer Award experts) met to discuss the adaptations necessary to integrate the U.S. perspective into the LLWI. In a subsequent iterative process including back-and-forth translations between German and English language, the definitions of the LLWI domains and facets were sharpened. Amongst others, we included the domain *health and retirement coverage*, restructured the domain *employment during retirement phase* and renamed it to *continued employment*, and included additional examples in the definitions. The final conceptual framework of the LLWI comprises nine domains with two to four facets. The domains are organizational culture (later renamed to organizational climate), leadership, work design, health management, individual development, knowledge management, transition to retirement, continued employment, and health and retirement coverage. The full definitions of the dimensions and facets are presented in the appendices of Wilckens, Wöhrmann, Adams, et al. (2020; Study 9) and Wilckens, Wöhrmann, Deller, and Wang (2020; Study 10).

To validate the revised category system interrater reliabilities (Krippendorff, 2013) were determined through independent ratings of qualitative material by two experts knowledgeable of human resource management practices. The analyses yielded Krippendorff's alphas ranging from .65 to .92 for the nine dimensions which are acceptable considering the category systems' multidimensionality as well as the complexity and the extent of the rating material.

We organized the nine domains into the house of LLWI (see Figure 8). Organizational climate and leadership represent the roof of the house as they both reflect domains that affect the design of the other seven domains of organizational practices that are displayed as pillars standing next to each other. With this we also intended to account for the importance of appreciation and responsiveness to individuality which are specifically expressed in the dimension *leadership*. These aspects were identified as being the core of providing good organizational framework conditions for older employees. Especially in light of the target group's heterogeneity regarding their abilities and motivation to continue working, there is a necessity for individualized solutions for work design and employment. The basis for this is flexibility in designing working conditions and employment options. Further, appreciation for

their work expertise and their person as such, was mentioned repeatedly to be essential for successfully managing employees to stay motivated to continue working.

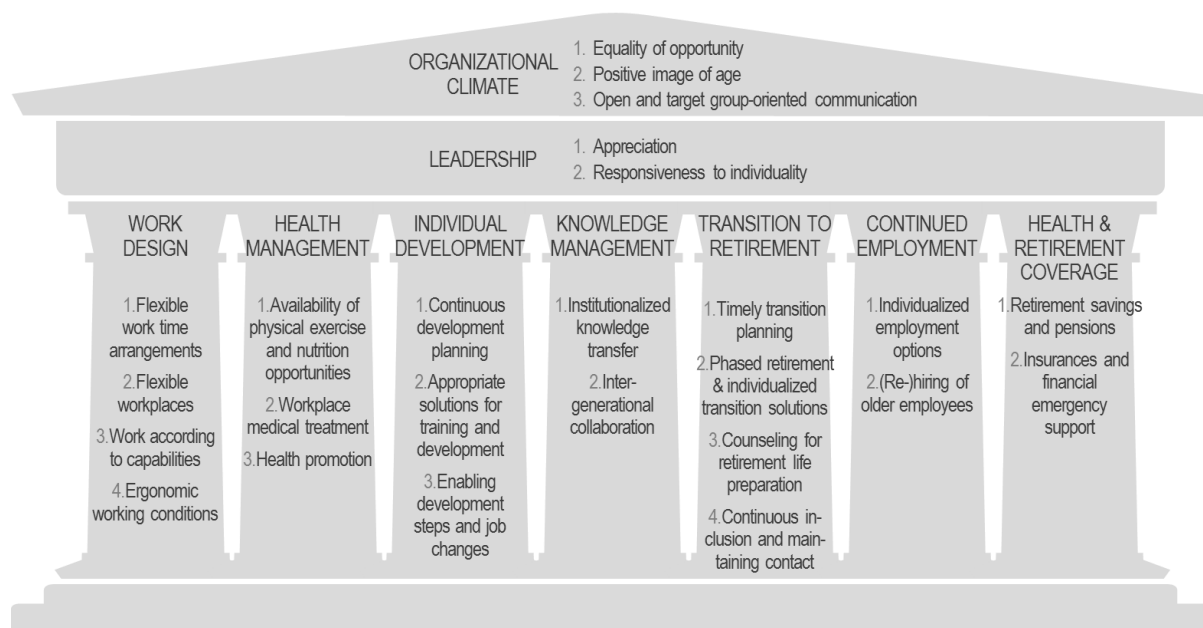


Figure 8. Conceptual framework of the Later Life Workplace Index (LLWI; Wilckens, Wöhrmann, Adams, et al., 2020).

The final version of the LLWI entails domains and facets of organizational practices that are of high importance for later life work. Of course, several of the dimensions we identified—such as work design, health management or individual development—are relevant for employees of all ages. However, the focus of the facets within the LLWI-dimensions are of particular relevance to older workers, as are other domains—such as transition to retirement or continued employment. Thus, the LLWI comprises age-specific as well as age-inclusive human resource practices.

The LLWI conceptual framework accounts for the rather regulated work environment in a rather strong public social system as well as for the rather free market-driven work environment in the U.S. Although the process of integrating the U.S. perspective in the LLWI framework showed that the two perspectives were very similar, it also became clear that different LLWI domains may be more or less relevant or important for later life work depending on the cultural context.

6.2 Later Life Workplace Index: Development and Validation of the Measure

Based on the thorough and precise conceptualization of organizational practices relevant to later life work, the next step was to translate the conceptual LLWI-framework into a valid

and reliable measure. To this end, in Study 10 (Wilckens, Wöhrmann, Deller, & Wang, 2020), we applied a multistep procedure. We conducted a series of three studies as described in Table 4 following widely applied and theoretically derived recommendations for scale development and score validation (Clark & Watson, 1995).

Table 4

Process of the LLWI Scale Development (Study 10: Wilckens, Wöhrmann, Deller, & Wang, 2020)

Study 1 (Item generation)	Study 2 (Scale development)	Study 3 (Cross-validation)
Item style and response format definition Initial item pool development Item revision based on topic level experts' assessment Initial item selection based on pre-tests	Item selection for the final scales based on item distributions, explorative and confirmatory factor analysis Construct validity assessment Convergent validity assessment regarding organizational practices and climate measures Discriminant validity assessment regarding positive and negative affect	Construct validation based on confirmatory factor analysis Criterion validity assessment regarding older employees' work outcomes

First, we generated an initial item pool based on the qualitative framework of the LLWI. Items were formulated based on available scales in the literature, the definitions of the domains and facets of the LLWI as well as the original qualitative material. The items were phrased to measure organizational practices on the organizational level (e.g., “In our organization...”). This allows the assessment of the availability of the practices in the organization as well as and respondents’ awareness of these practices reflecting the level of implementation throughout the organization.

To enhance precision, practicability, and comprehensiveness, we consulted subject-matter experts on human resource management and organizational age management to review the 200 proposed items. We further pretested the item pool. To this end, we split the item pool into four parts and administered it to different samples. Items developed to measure the overarching domains organizational climate and leadership were answered by 174 older employees from three medium-sized organizations (Sample 1). The items developed to measure domains covering more specific human resource practices were answered by human resource representative and general managers from a broad range of organizations (Sample 2; N=76: work design, knowledge management, continued employment, and health and retirement coverage; Sample 3; N=38: health management and individual development; Sample 4; N=42:

transition to retirement). Based on psychometric characteristics and at the same time ensuring content coverage we reduced the initial item pool to 102 items.

In a second study, 609 employees from different industries and company sizes in Germany completed the LLWI as well as additional scales for the assessment of convergent and divergent validity. We used a multi-step procedure to analyse the data. Psychometric analyses of item distribution and a combination of explorative and confirmatory factor analysis techniques were applied. This process resulted in a reduced set of 80 items in a factor structure with nine domains and 22 facets with at least acceptable reliability. The number of facets was reduced from 25 to 22, because the analyses revealed that the two domains leadership and individual development are best reflected with a unidimensional scale. An overall confirmatory factor analysis supported the conceptual nine-dimensional factor structure of the LLWI. Analyses regarding validity suggested sufficient independence of positive and negative affect (divergent validity) as well as convergence with other measures for age-friendly organizational climate and human resource practices (convergent validity).

The aim of the third study was twofold: first, to cross-validate the factor structure determined in Study 2, and second, to provide additional validity evidence. We used a sample of 349 older workers from a diverse range of organizations across industries in Germany. In addition to the set of 80 LLWI items derived from the second study, the participants responded to scales measuring several criteria for successful integration of older employees into the workforce. Confirmatory factor analyses largely supported the proposed factor structure and suggest, that the nine-dimensional factor structure of the LLWI holds across studies (see Table 5). Further, the study provided some evidence for criterion validity. Amongst others, the LLWI domains were positively related with perceived health and workability, work engagement, and occupational future time perspective. Also, the LLWI domains correlated quite strongly with person-job fit as well as person-organization fit. They were rather weakly to moderately related to later life work intentions. The intention to continue working beyond retirement age was most strongly related to the LLWI-domains continued employment and leadership. Convergent and divergent validity was again supported.

In summary, the 80-item LLWI measure reflects the initial conceptual framework of the LLWI. The measure comprises of nine subscales for the nine domains of the LLWI. The structure of facets of the domains was largely confirmed.

Table 5

Confirmatory Factor analysis and Reliability Results (Study 10: Wilckens et al., 2020b)

Model	Number of subscales	Number of items	α (all items)	α (first order scales)	Chi-Square	df	RMSEA	RMSEA 90% CI	CFI	SRMR
1. Organizational climate	3	10	.93	.89—.91	86.0	32	.07	[.05, .09]	.98	.02
2. Leadership	1	6	.95		48.7	9	.11	[.08, .14]	.98	.02
3. Work design	4	14	.90	.77—.86	180.9	71	.07	[.05, .08]	.96	.04
4. Health management	3	9	.91	.76—.87	89.9	24	.09	[.07, .11]	.96	.04
5. Individual development	1	8	.92		71.7	20	.09	[.06, .11]	.97	.03
6. Knowledge management	2	7	.90	.83—.87	38.5	13	.07	[.05, .10]	.98	.02
7. Transition to retirement	4	14	.94	.84—.93	228.1	71	.08	[.07, .09]	.96	.04
8. Continued employment	2	7	.86	.72—.89	30.3	13	.06	[.03, .09]	.98	.03
9. Health and retirement coverage	2	5	.91	.86—.89	7.4	4	.05	[.00, .10]	1.00 (.998)	.01
10. Overall hierarchical model		80			5348.1	3024	.05	[.04, .05]	.89	.07
11. Second-order model with first-order scale means					1240.4	491	.07	[.06, .07]	.92	.05

Note. $N = 349$. α = Cronbach's alpha; *RMSEA* = root mean squared error of approximation; *CI* = confidence interval; *CFI* = comparative fit index; *SRMR* = standardized root mean square residual.

6.3 Interim Conclusion: Later Life Workplace Index

The LLWI was designed to provide a holistic overview of the most important operational practices and organizational framework conditions that are likely to facilitate later life work. They are aimed at the provision of a work environment that corresponds to the needs of older workers in general and is adaptable to the specific needs of the individuals. Thus, with the development of the LLWI, I address my fourth guiding research question regarding the characteristics of a holistic organizational approach to later life work. The goal was to provide a measure that meets the requirements of researchers and practitioners alike. This chapter gave an overview of the multi-step development of the LLWI as described in Studies 8, 9, and 10. Based on qualitative data from Germany and the U.S. and the consistent inclusion of expertise from researchers and practitioners, we developed the conceptual framework of the LLWI consisting of nine domains of organizational practices and framework conditions related to later life work: organizational climate, leadership, work design, health management, individual development, knowledge management, transition to retirement, continued employment, and health and retirement coverage. Each domain is represented by two to four facets. Based on the conceptual framework and rich qualitative data, items were generated and reduced to the final measure consisting of 80 items in a series of validation studies. This procedure resulted in a

valid, reliable, comprehensive, and multi-faceted measure regarding organizational practices for later life work that is now available for use.

To meet requirements in practice and research we aimed to provide an assessment requiring as little effort as possible in order to ensure efficient implementation. However, the measure also needed to be specific enough to allow to derive improvement potential and concrete guidance for action. The LLWI was developed against the background of the recognized need to assess organizational practices for later life work holistically and with high quality at the same time. Most scales available at that time either lacked conceptual coverage or measured the availability of practices with single items. The LLWI not only allows the multidimensional assessment of the situation in an organization regarding conditions for later life work, but it also allows to focus on certain aspects of interest as the LLWI domains can all be measured independently. Thus, the LLWI does not only provide the possibility to focus on a specific job or organizational antecedents for successful employment, such as aspects of work design or organizational climate, but intends to cover all relevant domains equally. This holistic approach allows the comparison of different practices and framework conditions as well as their relevance for outcomes on the individual and organizational level within a sample or organization as well as the comparison of practices between different samples and organizations. The measure can also be administered to different groups within the organization, for example to human resource managers, managers, or older employees. Amongst others, this allows to investigate to which extent practices introduced by human resource management are actually perceived at the employee level. All in all, the LLWI has the potential to facilitate research in the rapidly evolving research field of work and aging in many ways.

Although some LLWI domains are specifically targeted at older workers (e.g., transition to retirement), several LLWI domains are not only relevant to older workers or for later life work, respectively, but also for successful employment of employees of all ages. However, the LLWI covers the domains with the respective facets that are especially important in the context of later life work. Thus, for younger groups of employees, there may be additional domains that are relevant, or the domains would need to include other facets.

In the conceptual development of the LLWI it became clear that responsiveness to individuality is key in the provision of appropriate organizational framework conditions that help foster later life work as well as successful transitions to retirement. The flexibility to adapt to individual older workers' needs, abilities, and preferences results in a better fit between the individual on the one hand and job characteristics and employment opportunities on the other

hand. The findings regarding criterion validity of the LLWI provide some initial empirical support for the relevance of different LLWI domains for later life work outcomes. In sum, the LLWI provides a guiding organizational framework regarding later life work that takes into account not only older workers' needs in general but also accounts for the specific needs of individual older workers.

7. General Discussion

The aim of the research presented in this cumulative habilitation thesis was to investigate individual psychological factors, job characteristics, and organizational framework conditions that foster later life work. I defined later life work as work activities of older adults just before and beyond normal retirement age, including paid employment but also voluntary work.. Multi-level models on the retirement process served as an overarching framework (Fisher et al., 2016; Wang & Shultz, 2010). Based on socioemotional selectivity theory and a person-environment fit perspective, needs of older workers in general but—due to the heterogeneity of this group—also specific needs of individual older workers were acknowledged. To this end, I presented ten studies that contribute to answering four guiding research questions.

In my first two studies, we explored the later life work potential in Germany and gave an overview on related characteristics on individual, family, job, and organizational levels (Study 1: Mergenthaler, Wöhrmann, & Staudinger, 2015; Study 2: Büsch, Zohr, Bruschi, Deller, Schermuly, Stamov-Roßnagel, & Wöhrmann, 2015) to investigate my first research question on determining the work activity potential of older people in Germany and the characterization of different types of later life work potential. Second, in Studies 3 and 4, I underlined the importance of stable and rather flexible psychological factors for retirement intentions and retirement planning including different types of later life work engagement (Study 3: Wöhrmann, Fasbender, & Deller, 2016; Study 4: Fasbender, Wöhrmann, Wang & Klehe, 2019). These two studies contribute evidence for my second research question on the role of individual psychological factors such as personality, values, and beliefs in the context of later life work. To address my third guiding research question on the interaction or alignment of specific job characteristics and individual psychological factors with regard to later life work, I conducted three studies. Specific job characteristics and their interplay or fit with individual factors were investigated regarding later life work intentions as well as satisfaction. The findings pointed to the need to provide a work environment that attends to needs of older workers in general but also to specific needs of individual older workers (Study 5: Wöhrmann, Brauner, & Michel, 2020; Study 6: Wöhrmann, Fasbender, & Deller, 2017; Study 7: Pundt, Wöhrmann, Deller, & Shultz, 2015). Finally, Studies 8, 9, and 10 contributed to my fourth guiding research question on the characteristics of a holistic organizational approach to later life work that helps the alignment of the work environment to older workers' (individual) needs and abilities by developing the LLWI. The LLWI provides an organizational framework that bestrides supportive framework conditions for healthy and motivated later life work holistically (Study 8:

Wöhrmann, Pundt, & Deller, 2018; Study 9: Wilckens, Wöhrmann, Adams, Deller, & Finkelstein, 2020; Study 10: Wilckens, Wöhrmann, Deller, & Wang, 2020).

In the following, I will give an integrative summary of my research findings to outline the overall contribution and the theoretical implications of the habilitation project on the role of micro and meso level factors in later life work, or more specifically, the individual, job, and organizational antecedents of retirement timing and work beyond normal retirement age. Then, I will acknowledge some limitations and provide directions for future research. In doing so I also give an outlook on the studies I am currently conducting that build on the research findings I presented. Finally, I will give an overview on practice implications for different target groups.

7.1 Overview, Contributions and Implications for Theory

The ten studies I presented, were conducted against the background of aging workforces, low labor force participation rates of older individuals, and rising retirement ages. Individuals need to stay in the workforce increasingly longer before they reach normal retirement age. Organizations need to keep these employees healthy and motivated to employ them productively until or even beyond retirement eligibility age. With increasing age, abilities but also motives and needs regarding the work environment change. For example, when time becomes more limited, people tend to shift their focus from career advancements to rather emotionally and socially satisfying experiences at work (socioemotional selectivity theory; Carstensen, 2006). Also, with the expertise gained throughout the years, older employees favour different roles, such as mentoring that allows them to pass on their knowledge to the younger generation. But they also need more latitude in how to perform their job tasks (Kanfer & Ackerman, 2004; McAdams, De St. Aubin, & Logan, 1993). These and other developments call for a work environment that attends to the changing needs of older workers in general. Furthermore, due to different life situations and experiences throughout the life span, the group of older workers becomes increasingly heterogeneous with increasing age. Thus, organizations need to be able to flexibly react to different abilities and demands of their older workers to keep them in the workforce as long as possible. These work activities of older adults just before and beyond normal retirement age, including paid employment but also voluntary work, have been defined above as later life work, which is also the key construct of this cumulative habilitation thesis.

Different conceptual models on retirement, its multilevel antecedents, its timing, and related processes (Fisher et al., 2016; Wang & Shi, 2014; Wang & Shultz, 2010) provided the framework for the studies presented here. Guided by the overarching research interest on the

identification of factors that contribute to later life work, the conducted studies mainly focused on antecedents on micro and meso levels which were individual and job and organizational factors. The workers' family as a meso level factor as well as macro level (societal) factors were not in the focus. Therefore, they were hardly addressed in the studies conducted (for exemptions see Studies 1: family factors, societal factors, 2: family factors, and 9: societal factors). The findings supported the importance of including factors from different levels when predicting complex constructs such as later life work planning and activity, retirement timing intentions and later life work consequences. Thus, they provide empirical evidence for conceptual models in the context of work and aging that take multilevel antecedents into account. Above all, it supports and contributes to the multilevel model of retirement (Wang & Shi, 2014; Wang & Shultz, 2010), especially, on individual attributes such as needs and values or personality as well as job and organizational attributes such as job characteristics. Regarding the proposed phases of retirement (Wang & Shi, 2014; Wang & Shultz, 2010), the findings enhance the knowledge of antecedents for retirement planning (phase 1; e.g., later life work planning activities, Study 4) as well as retirement decision making (phase 2; e.g., late retirement intentions, Study 5) but also for retirement transition and adjustment (phase 3; e.g., life satisfaction in retirement, Study 7). The findings also support and provide further evidence for the model of retirement timing (Fisher et al., 2016)—especially on work-related antecedents (job characteristics and human resource policies and practices; e.g., respectful leadership, Study 6) and psychological factors as individual antecedents (e.g., work values, Study 3). With the conceptualization of later life work being closely related to successful aging at work, the findings also inform the process model of successful aging (Kooij et al., 2020), amongst others by providing some indications for individual and contextual antecedents of person-environment (mis)fit (e.g., regarding work organization, Study 5). In the following, I discuss the findings of my studies structured along the four guiding research questions pointed out in the introduction in Chapter 1.

What is the work activity potential of older people in Germany and what characterizes different types of later life work potential?

In my first two studies (Study 1: Mergenthaler et al., 2015; Study 2: Büsch et al., 2015), we investigated constellations or types of later life activity potentials including work-related activities but also voluntary activities that contribute to society. We also investigated their structural antecedents on different levels. Cluster analyses revealed the heterogeneous nature of concepts regarding the engagement in activities in later life. When nearing normal retirement

age, older adults are faced with several options for activities that can or need to be pursued in terms of work (including type and extent of work), voluntary or family engagement. The findings of Study 1 (Mergenthaler et al., 2015) give some indication on the extent and distribution of different later life activity potentials. About three quarters of the older population belong to clusters characterized by actual engagement and/or the inclination to engage in some type of later life activity. About one quarter of the 50 to 75 year olds belongs to the *unambitious*.

The investigation of sociodemographic, socioeconomic, health, personality, and family-related as well as structural work and organizational factors as possible antecedents of different types (clusters) of later life activity potential showed several distinct relationships. For example, the *inclined to continue to employment* and *the changers*, who would like to continue working but not for the same employer, are rather male, younger, of good physical health, have higher values in openness and conscientiousness. Also, the *determined* to continue working beyond normal retirement tend to not live with a partner and to have more grandchildren. Furthermore, those with the strongest inclinations to continue working tend to more often work in very small organizations which might be partly due to many self-employed being inclined to continue working. These findings are in line with earlier research that has repeatedly shown the significance of multilevel antecedents such as sociodemographic factors, health, family factors as well as employment characteristics for increased or reduced later life work (e.g., Kim & Feldman, 2000; Von Bonsdorff et al., 2009; Wang et al., 2008; Wang & Shultz, 2010). However, using statistical approaches like cluster analysis to determine typologies or employment patterns, seems a promising approach in understanding later life work and retirement transitions. Thus, our findings add to the literature as they revealed activity patterns that cannot be detected when considering single outcome variables such as the intention to engage in paid work beyond normal retirement age. Also, Studies 1 and 2 add to the understanding of multilevel antecedents of later life work as they gave some indications for relevant micro, meso and macro level factors. Thus, the findings provide empirical evidence for the multilevel model of retirement (Wang & Shi, 2014; Wang & Shultz, 2010) and extent it by determining clusters or types of later life work potential.

The findings show that the maintenance of a high and healthy life quality is essential for the realization of activity potentials of older adults. It can be achieved through primary prevention measures throughout the working life that shape the individual's behaviour but also through the social, economic, and cultural contexts. It is known that socioeconomic circumstances affect individual's health, which becomes also evident in later life (e.g., Borchert, 2008). This is also reflected in the social-structural hierarchies becoming evident

between the different types of later life activity potentials we identified. These inequalities are mostly conveyed through occupational activities (e.g., Schneider, 2008). Thus, measures of occupational health provide an essential starting point, for example through ensuring a health maintaining work design that is aligned to individuals' needs (cf. Chapters 5 and 6). In the light of social disparities it becomes clear, that there are privileged populations who have a variety of options to participate in later life (work) activities. However, there are also disadvantaged groups who cannot or do not want to engage in later life work activities due to the lack of personal or socioeconomic resources.

In sum, the findings underline that the population of older adults is very heterogeneous regarding their actual work engagement as well as their inclination to continue later life work. Further the studies provide empirical findings regarding micro (individual), meso (family, job and organizational), and macro (societal) level antecedents of later life work potential. Thus, the findings offer further empirical support for models of the antecedents of the retirement process (Wang & Shi, 2014; Wang & Shultz, 2010). Because the findings are based on data that is representative for older persons in Germany, they also allow future comparisons with representative data from other countries. This could give indications for the relative importance of factors on different levels in different cultural settings.

Which role do individual psychological factors such as personality, values and beliefs play in the context of later life work?

In several of the presented studies, we examined the role of individual psychological factors for later life work. While I focused on psychological factors—especially those directly related to the work context—in Chapter 4 (Studies 3 and 4), psychological factors were also part of the investigations in some of the studies I presented in Chapters 3 and 5 (Studies 1, 2, 6, and 7). In the following, I discuss findings regarding the psychological factors from all relevant studies.

The analyses conducted in Study 1 (Mergenthaler et al., 2015) have shown that several of the Big Five personality characteristics were differentially related to different types of later life activity potentials. Most consistently, conscientiousness distinguished the *unambitious* from the other clusters. Also, those *inclined to continue employment* and the *civic engaged*, who are characterized by having a rather high productive image of age, are more open to new experiences, which is known to generally decline with age (e.g., Donnellan & Lucas, 2008). Similarly, Study 2 (Büsch et al., 2015), in which we investigated patterns of continued employment intentions, showed that *the ambitious*, and *the determined* had higher values in

openness than, for example, *the steady*. These findings are in line with earlier research on turnover intentions (Zimmermann, 2008) and add to the rather scarce literature on personality and later life work (cf., Sullivan & Al Ariss, 2019).

In addition to the findings regarding the general Big Five personality traits and different later life activity patterns, in Study 3 (Wöhrmann et al., 2016), we investigated work values as stable psychological constructs and their relationship to later life work intentions. We again found openness to be important in the context of later life work. *Openness to change* work values were positively related to the intention to engage in voluntary work activities and to be negatively related to the intention to continue to work for the current employer beyond normal retirement age. This is in line with the finding in Study 2 that *the steady* had comparably low values in openness. Contrary to our expectations, *openness to change* was unrelated to the intention to work for another employer or to become self-employed. While *self-transcendence* was positively related to intentions regarding all these later life work possibilities, *conservation* work values were negatively related to all but the same-employer work intentions. These findings add to the understanding of work values in the context of occupational transitions—especially the transition to retirement. It supports protean career theory under which it can be assumed that work values are important for career-related decision making, also in retirement (Kim & Hall, 2013; Wang & Shi, 2014). Also, this study—together with publications from the TOP project such as Studies 1 (Mergenthaler et al., 2015) is one of few, integrating paid as well as voluntary work in retirement in one study (Micheel, 2021). It therefore adds to the understanding of psychological factors regarding different kinds of productive activities in retirement.

With regard to career development, beliefs concerning own abilities and perspectives in the light of earlier experiences are relevant. Especially, when it comes to later life work, individuals have made many experiences, for example with respect to their health or abilities that may affect their future career planning. In my fourth study (Fasbender et al., 2019), we took these past experiences into account and examined the role of aging experiences and career adaptability for late career planning. Career adaptability reflects personal psychological resources in terms of readiness and available resources to respond to career development tasks (Savickas, 2013). More specifically, we found career adaptability and the two aging experiences physical loss and personal growth to affect older workers' occupational future time perspective (Fasbender et al., 2019) which reflects their beliefs regarding remaining time and opportunities in their working life. Occupational future time perspective in turn was positively related to late career planning. Thus, older workers with high career adaptability and more positive and less

negative aging experiences are motivated to plan an engagement in later life work because they expect a longer future in employment. Although career construction has received a lot of attention in research (Rudolph, Lavigne, & Zacher, 2017), our study significantly contributes to this line of research as the career construction of older workers has been rather neglected for a long time. Thus, with this study we add to the literature on career construction in general and the psychological factors underlying career construction regarding later life work in particular. It complements research conducted in the context of socioemotional selectivity theory and future time perspective (e.g., Henry et al., 2017). Furthermore, this study points to the importance of personal resources for the engagement in later life work.

In Study 6 (Wöhrmann et al., 2017), we investigated the role of occupational self-efficacy as a personal resource for older workers in the context of later life work. Although our hypothesis, that occupational self-efficacy facilitates the use of other resources in the workplace was not confirmed, there were indications that it could still play a role as an antecedent of later life work. However, research on the role of occupational self-efficacy in the context of later life work is mixed. While Wöhrmann et al. (2014) showed the importance of occupational self-efficacy in post-retirement career planning, Micheel (2021) did not find occupational self-efficacy to be related to post-retirement work intentions. The findings presented above complement other lines of research on the relevance of personal resources for older workers' job engagement and job satisfaction, for example in the context of the use of selection, optimization, and compensation strategies (e.g., Moghimi, Zacher, Scheibe, & van Yperen, 2016).

In Study 7 (Pundt et al., 2015), we have shown that personal motives or motivational goals related to achievement, autonomy, contact, and generativity were related to life satisfaction in retirement. Thus, retirees who were engaged in unpaid work activities were more satisfied in life when these factors were important to them. That motivational goals were related to life satisfaction is consistent with earlier findings (e.g., De St Aubin & McAdams, 1995; Grosse Holtforth & Grawe, 2000). Under socioemotional selectivity theory (Carstensen, 2006) it can be assumed that certain motivational goals such as social contact or generativity are important for workers at higher ages. The motivational goals were also indirectly related to work satisfaction via corresponding occupational characteristics—probably because the working retirees chose their projects in a way that they could fulfil their motivational goals. The study's findings add to the literature on motivational goals of older workers (e.g., Kooij et al., 2011) as well as on work and life satisfaction in retirement as later life work consequences (e.g., Wang & Shultz, 2010; Wang & Shi, 2014).

In summary, all studies conducted to address my second research question underlined the importance of individual psychological factors in the context of later life work, especially later life career planning. The findings support and extend earlier empirical findings and models on the retirement process (e.g., Fisher et al., 2016; Wang & Shultz, 2010). They have shown that individual psychological factors specific to the work context such as career adaptability or work values, but also general psychological factors such as personality traits and personal experiences contributed to later life work. Some of these factors are rather stable, such as work values, others that are more dependent on experiences can be adapted and developed. The better understanding of rather stable individual factors for later life work facilitates the identification of those groups of older workers with high potential for later life work. The better understanding of rather adaptable individual factors for later life work provides starting points for interventions that promote later life work.

How do specific job characteristics interact or align with individual psychological factors with regard to later life work?

Career decisions are based on the fit of a person and their environment (e.g., Dawis & Lofquist, 1984). It can therefore be assumed, that the perceived or expected fit of an older worker and their work environment plays a role for retirement timing and engagement in later life work. If a misfit is perceived, this can be due to a demands-abilities misfit or a needs-supplies misfit (see Chapter 2.3; Edwards et al., 1998). Based on socioemotional selectivity theory (Carstensen, 2006) and other theoretical approaches regarding work motivation and abilities (e.g., Kanfer & Ackerman, 2004) several job characteristics have been proposed that older workers should favor over other job characteristics or compared to younger workers (e.g., Truxillo, Cadiz, Rineer, Zaniboni, & Fraccaroli, 2012). There is also some empirical evidence for the proposed age effects. For example, in their review, Mühlenbrock and Hüffmeier (2020) find evidence for job autonomy to be stronger related to health in older workers than in younger workers. Also, research has shown that job characteristics play a role for later life work intentions (e.g., physical demands, social support: Wöhrmann, Deller, & Wang, 2013). Thus, job characteristics older workers in general could benefit from have been identified. However, the population of older workers is a very heterogeneous group. The individual abilities and needs should also be taken into account when investigating the role of job characteristic or human resource practices and policies with regard to later life work engagement and planning. Therefore, to address the third research question, I investigated different job characteristics in the context of individual psychological factors in three studies.

The findings of Studies 5, 6, and 7 provide evidence for the importance of job characteristics with regard to later life work. Respectful leadership could be identified as an important contextual resource for later life work because it was related to better subjective health and less work-to-private life conflicts which in turn were related to planning activities regarding later life work beyond retirement age (Study 6: Wöhrmann et al., 2017). Older workers seem to profit from a respectful treatment by their supervisor regardless of their own occupational self-efficacy. This finding can be interpreted in the light of socioemotional selectivity according to which older workers strive for positive emotional experiences. It could be assumed that a respectful treatment by the supervisor facilitates the adaptation of the work environment to the individual needs, preferences, and abilities for example through job crafting opportunities (Kooij, 2015). By providing empirical support for the relevance of respectful leadership in the context of late life work, the findings contribute not only to the literature on antecedents of later life work but also on leadership concepts.

Regarding work organization (working time, work demands) the findings of Study 5 (Wöhrmann et al., 2020) emphasized that the provision of different options that provide the individually appropriate work supply or work demand could help the prolonged employment of older workers. In line with the person-environment fit perspective (cf., Dawis & Lofquist, 1984; Edwards et al., 1998) those older workers who would like to work less hours than they currently did and who were unable to cope with their workload were inclined to retire early. Interestingly, person-environment fit with regard to work organization seemed to correspond with on-time retirement intentions. Late retirement intentions were more likely if older workers were rather unchallenged in their work regarding working hours but also with regard to their skill use. This could be an indication for an expected person-environment fit in the light of the known fact that most individuals working beyond normal retirement age prefer reduced working hours and reduced strain at work (e.g., Maxin & Deller, 2010; Wöhrmann, Pundt, & Deller, 2017). This finding also has a methodological implication. The concurrent analysis of early, on-time, or late retirement points to qualitative differences that should be taken into account when investigating and interpreting findings regarding the desired retirement age as a continuous variable.

Finally, in Study 7 (Pundt et al., 2015), we showed that a job that allows the fulfilment of motivational goals relevant to older workers, such as appreciation, achievement, autonomy, contact, and generativity, can play a beneficial role in later life work. All these occupational characteristics were related to the work satisfaction of volunteering retirees. However, except for autonomy, they were unrelated to their life satisfaction. This was rather related to the

motivational goals corresponding to these occupational characteristics. The findings indicate that the working retirees selected their job based on the expectation that the job had the potential to meet their motivational goals. Thus, the findings extend earlier studies on the motivational goals of older workers (e.g., Kooij et al., 2011) and the job characteristics of individuals engaged in later life work beyond normal retirement age (e.g. Maxin & Deller, 2010). They largely support assumptions of the person-environment fit perspective and also of socioemotional selectivity theory. However, that the achievement motive played an important role is rather surprising in the light of theorizing for working conditions for older workers (e.g., Carstensen, 2006; Truxillo et al., 2012). It indicates that an engagement in later life work beyond normal retirement age attracts individuals with certain individual attributes. Based on of Study 4 (Fasbender et al., 2019), it could be argued that these individuals are high in (occupational) future time perspective and therefore motivations may be more similar to those of younger retirees.

In summary, the findings indicate that job characteristics constitute an important meso level antecedent with regard to later life work. The alignment of job characteristics with individual abilities, needs, and preferences could beneficially affect retirement timing and the engagement in later life work. Amongst others, the results extend earlier empirical findings and models regarding the retirement process by underlining the importance of the interplay of individual psychological factors with the work environment of later life work engagement just before and also beyond normal retirement age.

What characterizes a holistic organizational approach to later life work that helps the alignment of the work environment to older workers' (individual) needs and abilities?

Although research on job and organizational characteristics regarding later life work has been evolving over the last years (e.g., Fisher et al., 2016), the organizational practices and framework conditions that could beneficially affect later life work intentions of older workers have not been investigated sufficiently (Henkens et al., 2018). Also, research usually focuses on specific aspects of job or organizational characteristics (for an overview on research on work-related factors and retirement see Fisher et al., 2016). Thus, with the LLWI we intended to provide a holistic framework that allows researchers and practitioners alike to assess an organizations' situation regarding working and environmental conditions that could improve later life work. With this measure we provide a possibility to assess the situation at the organizational level and to get a holistic but also rather detailed overview of the situation within the organization. The development of the LLWI (Study 8: Wöhrmann et al., 2018; Study 9:

Wilckens, Wöhrmann, Adams, et al., 2020; Study 10: Wilckens, Wöhrmann, Deller, & Wang, 2020) contributes to the literature in a way that a validated instrument—and its subscales measuring different facets relevant to later life work on the organizational level, such as transition to retirement—are now available for use. The validation studies conducted within the scope of Study 10 (Wilckens, Wöhrmann, Deller, & Wang, 2020) already give some indications for the relative importance of different facets of the LLWI for different outcomes concerning later life work. For example the intention to continue working beyond retirement age was most strongly related to the LLWI domains *continued employment* and *leadership* reflecting the importance of providing possibilities as well as an appreciative environment that is responsive to the individual.

Of course, although the LLWI allows to focus on a specific job or organizational antecedents, its relatively broad constructs can only give comparably broad indications “on the surface”. Researchers interested in specific areas of the LLWI find lines of research dealing with these aspects—for example on age climate or knowledge transfer (e.g., Boehm & Kunze, 2015; Burmeister, Wang, & Hirschi, 2020). Furthermore, within all domains of the LLWI it becomes clear, that working conditions have to be provided that fit the abilities and needs of older workers in general but also the responsiveness to individuality is key. For example, the provision of career and retirement planning that is tailored to the individual needs could result in respectful and smooth transitions to retirement for some and to continued employment possibilities for others.

In a nutshell, guided by the general research interest on how individual (psychological) as well as job and organizational factors contribute to later life work, the ten studies of this cumulative habilitation thesis provide some new insights into antecedents of later life work on different levels. It underlined the importance of individual factors beyond health-related, economic, and sociodemographic factors as well as the necessity of providing appropriate working conditions that correspond to the needs of older workers. Furthermore, the studies pointed to significance of the flexibility to provide workplace supplies and to adapt workplace demands that fit the individual older worker. The newly developed LLWI makes the situation in organizations measurable and therefore provides a suitable and feasible means for researchers in the context of aging and work.

The ten studies I have presented add to the literature on later life work, its multi-level antecedents and the importance of the interplay of these antecedents. The individual needs based on experiences, beliefs, preferences and abilities, as well as the context factors, including

the work environment and its possibilities, determine later life work. Thus, it becomes clear, that potential for later life work is contingent upon multiple factors from different levels. Although organizations can hardly affect individual, family or societal level factors, they can adapt job and organizational factors that are relevant for later life work. Also, they are responsible to implement political regulations targeted at later life work. Family and societal factors have not been the focus of the studies conducted, however, studies on the later life work potential in Germany included caregiving responsibilities and the adaptation of the LLWI framework to the U.S. context gave some indication for the importance of retirement norms, regulations, and support systems for organizational responsibilities and areas of action with regard to later life work.

7.2 Limitations and Future Research

The different studies presented here as well as the habilitation thesis in its entirety have several limitations which call for future research. In the following, I will outline some of these limitations. My studies are mostly cross-sectional (for an exception see Study 4: Fasbender et al., 2019), use self-report measures and lack the use of objective data for example regarding actual retirement transitions or working conditions. This enhances the risk of common method variance and does not allow for causal conclusions. However, regarding psychological aspects self-report measures are appropriate and the LLWI intends to measure the work environment on the organizational level through the assessment on different levels (e.g., human resource managers, supervisors, older employees). Thus, future research investigating psychological factors as well as job and organizational factors in the context of later life work should complement their subjective self-report measurements with objective measures for example with regard to actual retirement transitions as well as appropriate longitudinal data (cf., Wang, Beal, Chan, Newman, Vancouver, & Vandenberg, 2017).

By determining types of later life activity potentials and by investigating factors from different levels, for example individual psychological factors and job characteristics or information on their fit, some of the included studies already account for the complex nature of later life work to some extent (e.g., Study 1: Mergenthaler et al., 2015; Study 5: Wöhrmann et al., 2020; Study 7: Pundt et al., 2015). However, future studies should begin to include factors from all levels to help understand the interplay and differential relevance of factors on all the different levels. To do so, not only quantitative country spanning data should be used, but also qualitative approaches to better understand the underlying processes should be applied—for example through case studies in different types of organizations.

Furthermore, in the studies several aspects of later life work including intentions with regard to timing or the type of activity but also consequences such as work satisfaction were investigated. On the one hand, this provides evidence for different stages in the process of retirement (cf., Wang & Shi, 2014). On the other hand, this also complicates the comparability of results and the whole picture viewing the topic from different angles has to be put together. Developing the LLWI was one approach to enable researchers to get more holistic impressions of the actual situation. Thus, using the LLWI for future research could help examine the situation in organizations regarding later life work more holistically. Furthermore, it allows for inter- and intra-organizational comparisons as well as to determine context factors under which circumstances which LLWI dimensions may be most relevant. As described above, the LLWI tries to capture the general situation within one organization. However, it may well be that certain groups or areas in one organization have worse access to appropriate human resource practices than others. Keeping the heterogeneity of older worker work forces in mind, also the usability or usefulness of these human resource practices maybe different for distinct groups of workers. Future research could therefore investigate, whether there are certain vulnerable groups of older employees in organizations to whom the practices covered by the LLWI are not available or useful. Furthermore, the LLWI could be integrated into research on successful aging. The LLWI reflects a work environment characterized by adaptability and responsiveness to individual needs and abilities. Investigating its role for demands-abilities fit and needs-supplies fit and related self-regulatory behavior (e.g., late career planning as proactive goal engagement; cf., process model on successful aging, Kooij et al., 2020) could provide a fruitful avenue to enhance knowledge on how the work environment can facilitate successful aging.

The LLWI constitutes an important product of my research. However, its development can only constitute the beginning for research applying this tool and to develop it further. Thus, in the following I outline several studies on the LLWI we are currently planning or which are already in review processes. We used the LLWI in a multilevel study in which more than 100 organizations took part. From each organization a human resource representative as well as several dyads of leaders and older workers took part. Several studies are planned based on this data—two of which I will shortly outline here. Finsel, Wöhrmann, Venz, Wilckens, and Deller (2021) investigate the role of (in)congruent perceptions of the three LLWI domains *leadership*, *organizational climate*, and *work design* in dyads of supervisor and older workers for the older workers' well-being and behavior at work. In another study, Wilckens, Wöhrmann, Finsel, and Deller (2021) take a closer look at the relationship between employee health and later life work intentions by investigating the moderating role of workplace practices that respond to the

individual situation in the context of later life work and retirement, which are the LLWI domains *individual development planning*, *transition to retirement*, and *continued employment*.

Furthermore, following the validation of the originally developed German language version of the LLWI, an English language version of the LLWI was created and validated in a sample in the U.S. (Finsel, Wöhrmann, Wang, Wilckens, & Deller, 2021) with the aim to make the measure widely available to research and practice on an international level. The incorporation of the U.S. perspective into the qualitative LLWI framework has emphasized the need to validate measures before applying them in different languages and cultural settings. Providing validated versions of the LLWI in other languages in future is intended to broaden the usability of the LLWI to other cultures and countries. The development of other language versions and the verification in other cultural contexts is currently carried out in cooperation with international research partners.

In addition, because the LLWI in its entirety is rather long as it includes 80 items, it is planned to develop a shorter version allowing for a more general screening of the situation within an organization. Other researchers have also reacted to the need to measure age-friendly work environment with feasible measures. For example, Eppler-Hattab, Doron, and Meshoulam, 2020 recently developed a 24-item scale of workplace age-friendliness measuring age-friendly organizational culture as well as development, wellness, and flexibility practices. However, as this instrument misses certain domains relevant for older employees, such as supportive leadership and counselling for life in retirement (Edge, Cooper, & Coffey, 2017; Wang & Zhan, 2012) which are covered by the LLWI, we see the need for a short version of the LLWI to maintain comprehensive conceptual coverage of the relevant organizational practices.

7.3 Implications for Practice

The timing of retirement is of importance for individuals and the way they want to live their life but also for the organization they work for as well as the society they live in. The practical implications that can be drawn from the studies' findings mostly relate to the alignment of individual older workers needs and abilities and workplace supplies or demands. Thus, practical implications that can be drawn from the studies presented mainly concern organizations. I will therefore first give an overview of recommendations for organizations before giving a short outline of implications for society and politics as well as for older workers. The recommendations I present below partly constitute direct implications from the studies'

empirical findings but I also outline general ideas on how organizations, society and politics, as well as individuals could act inspired by the findings of my research.

Recommendations for Organizations

The promotion of later life work, thus keeping employees in the workforce until normal retirement or even beyond, is of importance to many organizations. For example, organizations can profit from the continued employment of older workers through the availability and use of their knowledge and experience and the possibilities to transfer this to the younger generation. Older workers that have the ability and motivation to continue working can help avoid skills shortages as well as costs related to early termination of employment contracts. However, working at higher age requires not only the ability and motivation of older workers to continue working but also the ability and motivation of the organizations to continue to employ older workers. The studies presented here provide a detailed and comprehensive overview of starting points to foster later life work within an organization. Due to the range of possibilities that are covered by my studies concerning the design or adaptation of human resource practices and other job and organizational characteristics directed at later life work—and the LLWI in particular—the specific practical implications will not be discussed in detail here but can be found in the original studies.

To promote later life work, organizations should take two general approaches that complement each other: First, abilities (e.g., Kanfer & Ackerman, 2004), personality (e.g., Roberts, Walton, & Viechtbauer, 2006), and motivations (e.g., Carstensen, 2006; Kooij, 2015) of employees in general change over the life span. Therefore, older workers' requirements regarding the workplace and work environment may differ from their own abilities and motivations when they started their career as well as from the abilities and motivations of their younger colleagues. That is not to say, that younger colleagues would not benefit from the same aspects of good work design, but the importance of certain aspects of job characteristics and organizational human resource practices may be shifted. For example, for older workers it becomes more important that their work place provides the possibility to pass on their knowledge, that they have latitude in planning and conducting their work, and that they receive respect and appreciation (e.g., Study 7: Pundt et al., 2015; Study 6: Wöhrmann et al., 2017). Therefore, job and organizational characteristics should be aligned to the needs of older employees in general. Second, sometimes even more than younger employees, older workers differ inter-individually, for example in their work ability, their work values, in their personality or their family situation which in turn are related to later life work intentions (Study 1:

Mergenthaler et al., 2015; Study 2: Büsch et al., 2015; Study 3: Wöhrmann et al., 2016). These differences in individual characteristics as well as differences in possibilities and experiences in life and employment over the life span result in a workforce that becomes increasingly heterogeneous with increasing age. Thus, abilities, needs, preferences, and motivations of older workers regarding the work environment are very diverse. For example, due to their aging experiences and career adaptability, employees differ in their beliefs about remaining time and opportunities in the workplace (Study 4: Fasbender et al., 2019). Also, while many older workers would like to reduce their working hours, there are others who rather like to extend their working hours (e.g., Study 5: Wöhrmann et al., 2020). Thus, a work environment intended to promote later life work needs to be responsive to the individual older worker's abilities, needs, preferences, and motivations. This is especially important because in case the work situation does not fit their needs, older workers—in contrast to younger workers—compare the current work situation not necessarily with an alternative work situation but with complete withdrawal from the labor force (e.g., Dawis & Lofquist, 1984; Hayward et al., 1989).

Adjusting the work environment to the needs and abilities of older workers in general as well as in response to the individual has the potential to reduce the factors that would otherwise push them out of the labor force. Also, providing possibilities for continued employment or other work-related activities and actively promoting these could serve as a pull factor for later life work. With the development of the LLWI we provide a measure that gives a comprehensive overview on organizational practices that promote later life work including the appropriate and appreciative transition to retirement. It covers recommendations on providing a workplace environment that is beneficial for older workers in general, and is responsive to the individual at the same time. The recommendations can be drawn from the 80 items as well as from the definitions of the nine domains and its indicators. They cover aspects of *leadership* and *organizational climate* as well as *work design*, *health management*, *individual development*, *knowledge management*, *transition to retirement*, *continued employment*, and *health and retirement coverage*.

The LLWI provides an opportunity to sustainably improve working conditions for an aging workforce and to encourage the use of the potential of older employees. It makes organizational practices and framework conditions for later life work measurable, visible, and comparable which in turn can drive actual change in an organization. Applying the LLWI reveals areas in which an organization is already well positioned as well as areas for improvement. Thus, it helps the understanding of organizational strengths and weaknesses but also the awareness of potentials and possibilities for older workers. It also reveals whether

employees are actually aware of the human resource practices in place. Based on the results, specific scopes for action can be developed to improve working conditions for an aging workforce. The improved understanding and awareness for antecedents of and possibilities for aging and work on an operational level can be beneficial for workers of all age groups. After taking measures the LLWI a repeated application of the LLWI can make the reception of their introduction in the organization visible. In doing so, relationships between LLWI domains, improved human resource practices, and operational results such as sick days or productivity in the organization can be uncovered. The LLWI can also be used for comparisons within an organization. Administered to different subunits it can help identify areas in which older workers have access to and knowledge of practices related to later life work and in which they do not. This allows the implementation of targeted initiatives to improve the situation.

The LLWI was developed independently of specific industries and can therefore be used across all industries. However, it is only applicable to organizations with at least 30 employees. As mentioned above, we applied the LLWI in a multilevel study in which more than 100 organizations took part. Applying the LLWI in many more organizations could help build a benchmark data base allowing organizations to compare their findings to organizations in general or organizations from similar industries. Table 6 gives an overview of the strengths, weaknesses, opportunities, and threats related to the operational application of the LLWI (Finsel, Wilckens, Wöhrmann, & Deller, 2020).

Table 6

Results of a SWOT Analysis of the LLWI (adapted from Finsel et al., 2020)

<p>Strengths</p> <ul style="list-style-type: none"> • Focus on measurement at the organizational level • Holistic perspective on relevant organizational practices • Measurement with little effort • Dimensionality of the LLWI comparable across different contexts (organizations, industries, countries) • Comparison of results with benchmark possible 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Effectiveness of the LLWI-practices for operational outcomes is still being investigated • Only applicable to organizations with at least 30 employees
<p>Opportunities</p> <ul style="list-style-type: none"> • Standardized assessment and benchmark • Creating attention and awareness • Identification of areas with development potential and need for action. 	<p>Threats</p> <ul style="list-style-type: none"> • Personal or organizational interests as well as social desirability could affect responses

In sum, the work environment should attend to the needs of all employees which may differ for younger and older workers. To account for the heterogeneity of the group of older workers, it is also important to shift from one-size fits all approaches to flexible approaches that allow for

individual-tailored solutions regarding work design, development, transition to retirement, and other aspects relevant for healthy and productive later life work.

Recommendations for Society and Politics

For countries' funding of pensions and other aspects of welfare systems the continuation of work-related activities until at least normal retirement age of a large share of older employees is crucial. Thus, promoting later life work is important to support a well-functioning society. The engagement in later life work becomes more likely if older workers are healthy, and therefore perceive their work ability to be sufficient, and if they are motivated to continue working. The findings of the studies presented above give some indications on how society as a whole and politics through targeted regulations could support the prevalence of later life work. Several aspects that have been identified to be relevant for later life work in an organization within the scope of the development of the LLWI may also constitute valuable approaches for society and politics—for example supporting transitions to retirement that account for individual abilities and needs or the provision of employment options.

First of all, the heterogeneity of the older individuals in a society has to be acknowledged and accepted. People differ in their ability and motivations regarding later life work activities or their inclinations to contribute to society in other ways (Study 1: Mergenthaler et al., 2015). Expansion of advisory services regarding retirement planning focusing on later life activities could be a possibility to not lose the activity potential of older individuals in a society. Not only paid later life work activities, but also voluntary engagement as well as social engagement in the neighbourhood as well as in the family should be valued (cf. Micheel, 2021). Societal initiatives and behaviour and statements of role models could help change attitudes towards aging from a deficit-oriented view to a rather active productive view that values the contribution to society of all individuals independent of their age.

With respect to paid later life work in particular, such initiatives could be targeted at raising the awareness for possibilities of later life work engagement as well as for benefits regarding later life work beyond financial motivations. This could lower the bar for the engagement later life work—especially after retirement from the main job—for those who would not have thought about continuing to work in retirement. For example, work values related to conservation rather increase the odds of the complete withdrawal from work-related activities once retired (Study 3: Wöhrmann et al., 2016). Thus, if working longer became more common and could be perceived as a societal norm, this might mitigate the association of conservation values and retirement.

Individuals are rather inclined to stay in the workforce until normal retirement age or beyond if they feel that there is still time and also many possibilities awaiting them. Although this occupational future time perspective is—amongst others—shaped by individual aging experiences and their career adaptability (Study 4: Fasbender et al., 2019), collective societal views about the importance of older workers and the benefits of later life work as well as governmental initiatives fostering later life work could help to raise occupational future time perspective in individuals. Furthermore, increasing individuals' occupational future time perspective by raising their occupational self-efficacy through the promotion of a culture of lifelong learning and development in a society could also be a promising approach.

Political solutions for a reduction of work demands that push older workers out of the labor force could prevent some older workers from retiring early due to decreased work ability or motivation. Examples are the creation of possibilities for reduced working time, for the adaption of the work place, or the provision of alternative later life work options. In Germany, there are already governmental regulations in place that account for higher vulnerability of older workers. Examples are annual occupational health checks for those aged 50 and older working in night shifts, the obligation to assess hazards in the workplace including psychological demands and the possibilities to reduce working time due to the right for part-time. Other political approaches could be targeted at the provision of flexible and attractive options for the transition to retirement that include options for continued or new work activities could promote later life work. Individual-tailored options taking needs, preferences, abilities, and motivations into account have to be possible. Raising legal retirement ages, however, bear the risk to strengthen social inequalities (e.g., Micheel, 2021).

In a nutshell, society and politics should take actions to create, recognize, and promote later life work potentials. If more and more older workers could be convinced not to withdraw completely from work-related activities but to make a meaningful contribution to society even with little effort and also profit from it themselves in many ways in later life, this could trigger a development towards changing views in society. Those who are motivated and able to continue working should be supported individually. However, those with low work ability and no motivation for later life work should also be respected in society. They could possibly pursue other activities that keep them satisfied and allow for rather healthy life years.

Recommendations for the Individual

Amongst others, the studies have shown that several individual factors play a role for later life work. For example, individual career construction is related to several psychological factors

such as career adaptability and aging experiences. But also personality and basic work values are related to later life work intentions (Study 4: Fasbender et al., 2019; Study 6: Wöhrmann et al., 2017). However, of course, work ability, health, finances, and family situation also play a role (e.g., Study 1: Mergenthaler et al., 2015). Thus, for an individual many factors that are independent of the current work place situation determine the engagement in later life work to a large extent. Therefore, it is important for individuals to be clear about the own needs and also to communicate them. Individuals should engage in thoughts and plans regarding retirement and sincerely reflect their own needs in the light of expectations of society and family and a long-term perspective. For example, regarding work-related decision making in retirement work values are crucial. This is true for different types of later life work (family, voluntary, type of work). Thus, the cooperation between the employee, the employer and societal (advisory) offers is important.

However, individuals also have to take responsibility for their own health and work and life satisfaction. This concerns retirement planning as well as the design of the work place. Work places that do not fit the individual are disadvantageous for the individual but also for the organization and in the end society. Only if the work place fits well, an individual can be productive. If not provided by the employer, adaptations to the work place as well as individual development planning should be claimed or demanded by the workers before it negatively affects motivation or work ability and health. If possible, they should engage in job crafting to create and adapt a work environment in which they feel well and can work productively and stay healthy (e.g., Kooij, 2015). However, although taking on an active role in the design of ones' work can facilitate successful aging (Kooij et al., 2020), the workers' role should not be overemphasized. The work environment on the one hand, but also contextual factors such as the life course disadvantages of certain groups of individuals on the other hand, cannot be neglected (e.g., Mergenthaler et al., 2015; Micheel, 2021; Rauvola & Rudolph, 2020).

7.4 Conclusion and Outlook

The overall objective of this cumulative habilitation thesis was to contribute to research on later life work that aims at employees' participation in working life in a healthy and motivated manner for as long as possible. In summary, the various studies add to the understanding of the multifactorial determination of later life work and the transition to retirement. The results confirm and extend the model on aspects and interrelationships in the retirement process of Wang and Shultz (2010) using various theoretical approaches. Achieving a better fit between individuals' needs reflecting their preferences, values, motives, and abilities

on the hand and the work environment and employment opportunities through appropriate organizational framework conditions on the other hand can facilitate later life work as well as successful transitions to retirement. By increasing the knowledge especially on individual (psychological) and job and organizational factors that foster later life work as well as their interplay the studies' findings can inform organizational and individual but also political and societal action. On the one hand, the findings provide starting points for organizations to promote appropriate work design and organizational conditions that support later life work. On the other hand, through the enhanced information on individual factors playing a role for later life work, the findings contribute to a better identification of employees that would like to continue working until a higher age and also of those who would rather like to retire early. This knowledge can support targeted initiatives. Demographic developments and the shift from a rather negative view of aging to a positive active view of aging has triggered research but also awareness in practice in many societies. In light of future developments, making the scientific knowledge regarding later life work widely perceived and implemented in practice should be of primary relevance. Researchers can support, monitor, and evaluate this—for example through well-designed intervention studies.

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Appendix

List of Scientific Publications of the Cumulative Habilitation Thesis in the Order as they Appear in the Main Document Including Electronic References

Study 1: Mergenthaler, A., Wöhrmann, A. M., & Staudinger, U. M. (2015). Produktivitätsspielräume der 55- bis 70-Jährigen: Kohortenunterschiede, Cluster und Determinanten [Productivity margins of 55 to 70 differences: Cohort differences, clusters and determinants]. In N. F. Schneider, A. Mergenthaler, U. M. Staudinger, & I. Sackreuther (Eds.), *Mittendrin? Lebenspläne und Potenziale älterer Menschen beim Übergang in den Ruhestand* [In the middle? Life plans and potential of older people in the transition to retirement] (pp. 217-251). Opladen: Barbara Budrich. eISBN:978-3-8474-0287-9.

https://www.bib.bund.de/Publikation/2015/pdf/Mittendrin-Lebensplaene-und-Potenziale-aelterer-Menschen-beim-Uebergang-in-den-Ruhestand.pdf;jsessionid=9F08462AFC618E5CCA46BC8D3FE9F4D8.1_cid380?_blob=publicationFile&v=1

Study 2: Büsch, V., Zohr, K., Bruschi, M., Deller, J., Schermuly, C. C., Stamov-Roßnagel, C., & Wöhrmann, A. M. (2015). Wer möchte im Ruhestand weiterarbeiten? Muster von Weiterbeschäftigungsneigungen bei 55- bis 70-Jährigen. [Who would like to continue working in retirement? Patterns of willingness to continue working among 55 to 70 year olds]. In N. F. Schneider, A. Mergenthaler, U. M. Staudinger, & I. Sackreuther (Eds.), *Mittendrin? Lebenspläne und Potenziale älterer Menschen beim Übergang in den Ruhestand* [In the middle? Life plans and potential of older people in the transition to retirement] (pp. 181-193). Opladen: Barbara Budrich. eISBN: 978-3-8474-0287-9.

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Study 3: Wöhrmann, A. M., Fasbender, U., & Deller, J. (2016). Using work values to predict post-retirement work intentions. *Career Development Quarterly*, 64, 98-113.

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- Study 4:** Fasbender, U., Wöhrmann, A.M., Wang, M., Klehe, U.-C. (2019). Is the future still open? The mediating role of occupational future time perspective on the effects of career adaptability and aging experience on late career planning. *Journal of Vocational Behavior*, *111*, 24-38. <https://doi.org/10.1016/j.jvb.2018.10.006>
- Study 5:** Wöhrmann, A. M., Brauner, C., & Michel, A. (2020). Working time preferences and early and late retirement intentions. *Chronobiology International*, *37*, 1283-1286. <https://doi.org/10.1080/07420528.2020.1806291>
- Study 6:** Wöhrmann, A. M., Fasbender, U., & Deller, J. (2017). Does more respect from leaders postpone the desire to retire? Understanding the mechanisms of retirement decision-making. *Frontiers in Psychology*, *8*, Article 1400. <https://doi.org/10.3389/fpsyg.2017.01400>
- Study 7:** Pundt, L., Wöhrmann, A. M., Deller, J., & Shultz, K. (2015). Differential predictors of post-retirement life and work satisfaction. *Journal of Managerial Psychology*, *30*, 216-231. <https://doi.org/10.1108/JMP-08-2012-0250>
- Study 8:** Wöhrmann, A. M., Pundt, L., & Deller, J. (2018). Complementing AAI at the meso level: The Silver Work Index. In A. Zaidi, S. Harper, K. Howse, G. Lamura, & J. Perek-Białas (Eds.), *Building evidence for active ageing policies: Active ageing index and its potential* (pp. 75-94). Singapore: Palgrave MacMillan. https://doi.org/10.1007/978-981-10-6017-5_5
- Study 9:** Wilckens, M., Wöhrmann, A. M., Adams, C., Deller, J., & Finkelstein, R. (2020). Integrating the German and US perspective on organizational practices for later-life work: The Later Life Work Index. In S. Czaja, J. Sharit, J. James, & J. Grosch (Eds.), *Current and emerging trends in aging and work* (Chapter 4). New York: Springer. https://doi.org/10.1007/978-3-030-24135-3_4
- Study 10:** Wilckens, M., Wöhrmann, A. M., Deller, J., & Wang, M. (2020). Organizational practices for the aging workforce: Development and validation of the Later Life Workplace Index. *Work, Aging, and Retirement*. Advance online publication. <https://doi.org/10.1093/workar/waaa012>