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Highly motivated and extra-productive: four papers on the impact of resources on affective-motivational processes and extra-productive behavior of newcomers

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A General introduction

This thesis deals with the motivation and behavior of new employees in organizations, also called newcomers. More specifically, it examines the overarching research question of what factors enhance newcomers' motivation and their willingness to engage in extra-productive behavior. To address this question, the thesis takes a cumulative approach. It consists of four separate articles that each deal with the experience and behavior of newcomers in contributing to closing specific research gaps in answering the overarching research question.

Herein, the four articles examine different constructs in investigating the research question and relate to the motivational experience and behavior of organizational newcomers, considering resources and their contributions to affective-motivational processes and extra-productive behavior of newcomers. The articles are based on three different surveys of organizational newcomers: a cross-sectional survey (Article 2), a longitudinal survey with newcomers from various organizations in Germany (Article 1 and Article 3), and a longitudinal survey conducted among recently hired employees of the University of Wuppertal (Article 4). Due to differences in formal requirements between the respective journals that the articles have been submitted to, there are variations between the use of British and American English among the four articles.

This first chapter provides a general introduction to the overall topic, outlines the research question and identified research gaps, and summarizes the four research articles while explaining their contribution to filling the research gaps in answering the overall research question. The first section (section A.1) presents the overarching theme and the research gaps that relate to the overall research question in more detail while highlighting its relevance to research and practice in industrial and organizational psychology. The second section (Section A.2) highlights the relationship of each article to the overarching research question. In doing so, the

articles' respective objectives, specific research questions, and their contribution to research and practice are briefly summarized. Finally, section A.3 provides an overview of the structure of this thesis.

1 Research question, research gaps, and relevance for practice and research on organizational socialization in industrial and organizational psychology

Providing employees with factors that enhance motivation and their contribution to the organization from the very start of their job is becoming ever the more important for organizations. Especially in times of skilled worker shortages, with today's labor market turning in favor of employees, fluctuation is a critical factor to address, and maintaining top talent becomes a key factor for organizations. Consequently, organizations report that one of their highest priorities nowadays is retaining talented employees (78%) (Society for Human Resource Management [SHRM], 2022). In Germany, the average fluctuation rate has been constant at around 30 % for many years, meaning that almost one in three positions in organizations has to be filled every year (Hammermann et al., 2022). Not only is recruiting and retaining qualified employees a top priority in times of skilled workers shortages, but studies also show that fluctuation is a very costly affair for organizations: The average cost is € 14,900 per new position to be filled (Brence et al., 2019). Considering the economic impact and the high relevance of introducing and retaining talented new employees for companies, keeping newcomers motivated and engaged to contribute to organizational effectiveness and success becomes a major factor in staying competitive (Saks & Gruman, 2014).

After entering a new organization, newcomers undergo a process of organizational socialization – also called onboarding – where they transition from being outsiders to becoming organ-

izational insiders (Bauer et al., 2007, p. 707). As a vital function of human resource management, organizational socialization aims to facilitate newcomer adjustment by helping newcomers acquire “the attitudes, behaviors, knowledge, and skills required to participate and function effectively as a member of an organization” (van Maanen & Schein, 1979, p. 211), ultimately enhancing their career success and organizational effectiveness (Saks & Gruman, 2014).

Traditionally, organizational socialization literature has been based on uncertainty reduction theory (Berger & Calabrese, 1975). Organizational socialization scholars focused investigations and models of socialization mainly on reducing stress and uncertainty for newcomers to facilitate adjustment, mostly through organizational efforts (e.g., socialization tactics) or newcomer behavior (e.g., proactive behaviors or information seeking) (e.g., Ashforth et al., 2007; Bauer et al., 2007; Bauer & Erdogan, 2014; R. Fang et al., 2011; G. R. Jones, 1986; Miller & Jablin, 1991; Saks et al., 2007). Although most organizational socialization research is still on reducing stress and uncertainty for newcomers (Ellis et al., 2015), only recently, a new research thread has started to emerge that deals with how newcomers benefit from resources provided throughout socialization through processes of resource gains regarding their work engagement in enhancing socialization outcomes (Saks & Gruman, 2012, 2018). However, there is still little knowledge on what factors enhance newcomers’ motivational and affective processes and their performance beyond expected levels of adjustment and role-performance during organizational socialization. This lack of knowledge seems especially surprising, given that resource theories in industrial and organizational psychology, such as the job-demands resources (JD-R) model (Bakker & Demerouti, 2007, 2017; Bakker et al., 2023), conservation of resources (COR) theory (Hobfoll, 1989, 2002; Hobfoll et al., 2018) and broaden and build theory (Fredrickson, 1998, 2004) strongly suggest the close interrelation of resources (both resulting from the work context and from the person itself) with motivational and affective processes in explaining employee performance.

Resources, in general, can be defined as all means that are either of inherent value themselves or serve as means to acquire valued ends (Hobfoll, 2002, p. 307), or even more broadly as any means that are perceived as helpful by individuals in reaching their goals (Halbesleben et al., 2014, p. 1338). During organizational socialization, two types of resources can be distinguished: Socialization job resources, which newcomers are provided with by the organization or through the work environment, and personal resources, which relate to the personal characteristics or traits of newcomers (Saks & Gruman, 2012, 2018). This distinction emanates from the JD-R model, wherein job resources are delineated as favorable elements within the occupational context that facilitate goal attainment and foster personal growth, while personal resources pertain to positive self-evaluations denoting the capacity to exert control and influence over one's environment efficaciously (Bakker et al., 2023). Resource theories expect that work environments rich in resources, like newcomers provided with effective job resources and possessing beneficial personal resources, will facilitate further resource gain for individuals (i.e., acquiring further resources and building on them) and lead to enhanced employee motivation (Hobfoll, 2011; Hobfoll et al., 2018). Employee work motivation can be defined as “the desire or willingness to make an effort in one’s work” (American Psychological Association, n.d.).

Here, the JD-R model and socialization research propose that job resources and personal resources of newcomers are expected to initiate a motivational process and enhance their motivational experience by impacting newcomers’ work engagement (Bakker & Demerouti, 2008, 2017; Bakker et al., 2023; Saks, 2019; Saks & Gruman, 2018). Work engagement represents a positive work-related motivational state of mind, expressed in vigor, dedication, and absorption (Schaufeli et al., 2002). As work engagement reflects a central aspect of the motivational process in resource theories, relating socialization resources with performance, highly motivated newcomers are characterized by enhanced levels of work engagement. Employees with higher levels of work engagement have more capacity to perform behaviors beyond their

job tasks that are beneficial for the whole organization and to go the extra mile regarding their productivity (Bakker & Demerouti, 2008; Bakker et al., 2014; Christian et al., 2011). Thus, high motivation in the form of work engagement in newcomers enhances behavior that goes beyond the expected level of performance, also known as extra-productive behavior. Enhancing extra-productive behavior is especially crucial to organizations, as it reflects employee behaviors that are aimed at promoting productivity in organizations and thus go beyond mere productivity and normal performance levels (Neuberger, 2006), describing behaviors that are voluntarily exhibited and serve the goals of the organization (Nerdinger et al., 2008, p. 449).

Complementary to and consistent with the aforementioned motivational processes, affect-based theories such as broaden-and-build theory (Fredrickson, 1998, 2001, 2004) and affective events theory (Weiss & Cropanzano, 1996) provide a similar perspective on the link between resources and extra-productive behavior. They suggest that resource-rich environments associated with processes of resource building and positive affective events and emotions are related to extra-productive behavior through affective processes.

In summary, newcomers' resources relate to affective and motivational processes (hereafter also referred to as affective-motivational processes) and impact extra-productive behavior during socialization. Although a few studies have started to integrate a perspective of how resources might impact work engagement during organizational socialization (for an overview, see Article 1 in Chapter B of this thesis), there is very little evidence on how resources might enhance newcomers performance beyond just expected levels of job performance through affective and motivational processes. Instead, research on organizational socialization has tended to focus on how resources provided to newcomers can help them cope with demands and reduce stress and uncertainty. How to provide newcomers with resources to effectively enhance motivational and affective processes, getting highly motivated and enabled newcom-

ers to engage in extra-productive behaviors that benefit the organization and go beyond adjustment and expected task performance has vastly evaded scholarly attention. Against this background, the present thesis seeks to clarify how to get newcomers to contribute from early on by providing them with effective resources for enhancing their motivational experience and fostering their extra-productive behavior through affective-motivational processes. Therefore, the overarching research question is: What are factors for newcomers' enhanced motivation and for their willingness to engage in extra-productive behavior?

To address this overarching question, the articles presented in this thesis deal with different factors that relate to enhanced newcomers' motivation and their willingness to engage in extra-productive behavior. Herein, they focus on the investigation of resources, resource interactions, and processes of resource gains and their impact on affective-motivational processes and on extra-productive behavior of newcomers during organizational socialization. In analyzing the literature, the following research gaps have been identified, which specify the overall research question and the aim of this thesis in more detail.

Gap I: The role and development of newcomers' work engagement. Extensive research during the last two decades has outlined the crucial role of work engagement in explaining the relationships of resources and resource gains with employee well-being and performance through motivational processes (Albrecht et al., 2015; Bakker & Demerouti, 2017; Bakker et al., 2023) and how resource-rich environments help employees gain resources and enhance motivation (Hobfoll, 2011; Hobfoll et al., 2018). Meanwhile, organizational socialization literature has predominantly focused on reducing stress and uncertainty for newcomers (Ellis et al., 2015), generating very little evidence regarding newcomers' work engagement. Thus, although theory and previous research outside the domain of organizational socialization highlight the relevance of work engagement in motivational processes relating resources with important performance outcomes, very little is known about the antecedents and consequences of work

engagement during organizational socialization and how newcomers' work engagement develops and changes over time (Saks & Gruman, 2018). Despite its central role in linking socialization resources with outcomes for highly motivated newcomers, so far, we simply lack understanding of how and why work engagement develops in newcomers and knowledge on its role in motivational processes linking socialization resources with performance during socialization. Addressing this gap in research by investigating newcomers' work engagement and its development vastly enhances the understanding of motivational processes during organizational socialization, shedding light on the question of how and why work engagement develops in highly motivated newcomers.

Gap II: The importance of leadership for affective and motivational experiences of newcomers. During the process of newcomers transitioning from being outsiders to becoming fully functional organizational insiders and part of the organization, leaders take a key role as role models and sources of information and support. Organizational socialization literature consistently emphasizes that especially leaders, as one of the most important organizational insiders and key persons, are one of the most important factors during socialization and that efficient leader-newcomer relationships strongly contribute to socialization success and newcomer adjustment and performance (A. E. C. Griffin et al., 2000; Jokisaari, 2013; Reichers, 1987; Sluss & Thompson, 2012). Although research suggests that leader support should strongly relate to newcomer engagement (Saks & Gruman, 2018), evidence is lacking on how leader behaviors and leader-newcomer relationships relate to processes of resource gain and influence the affective and motivational experience for newcomers during organizational socialization. Addressing this gap by transferring existing knowledge on the effects of leader-newcomer relationships and supportive leader behavior to the domain of newcomer motivation and performance will enhance scholarly understanding of the influencing factors and mechanisms relat-

ing to motivational and affective processes during organizational socialization. For practitioners, gaining insights into how leaders might actively promote newcomers' motivation and performance will be of great value for designing socialization practices and leadership training.

Gap III: The impact of resource combinations and interactions of resources on newcomers' work engagement. Resource theories strongly suggest that resources interact in predicting motivation. The JD-R model states that people and work situations interact with each other in such a way that having more personal resources improves the effectiveness and availability of job resources. This implies a mutual amplification of job and personal resources in predicting employees' work engagement (Bakker & Demerouti, 2017; Bakker et al., 2023; Hakanen & Roodt, 2010). Similarly, COR theory proposes that resource-rich environments enhance motivation and that resource gains are enhanced when more resources are available (Hobfoll, 2011; Hobfoll et al., 2018). Therefore, one should expect newcomers with favorable personal resources to experience enhanced effectiveness of job resources provided during socialization. Although organizational socialization research has considered the impact of newcomers' characteristics and personality on newcomer adjustment and socialization outcomes (Bauer et al., 2007; Bauer & Erdogan, 2011; Bauer et al., 1998), the investigation of resource combinations and the interplay of resources in enhancing newcomer motivation is still a blind spot (Saks & Gruman, 2018). Investigating core personal resources of newcomers regarding their interplay with job resources during organizational socialization is therefore imperative to shed light on the mechanisms of resource interactions in predicting newcomers' work engagement. This will not only improve theoretical knowledge of said mechanisms but also benefit practitioners in understanding the consequences that result from the interplay of newcomers' personality and work situations, allowing human resource practitioners and leaders to take more differentiated action during socialization.

Gap IV: The impact of motivational and affective processes on newcomers' extra-productive behavior. Extra-productive behavior refers to employee actions regarding performance that transcend the expected scope of productivity and standard performance levels, including behaviors enhancing productivity within the organizational context (Neuberger, 2006). Moreover, extra-productive behaviors are characterized by their voluntary nature, willingly initiated by employees, and aligned with the overarching objectives and mission of the organization (Nerdinger et al., 2008, p. 449). From the very start of the new job, these extra-productive behaviors include positive and voluntary newcomer behaviors that benefit the organization and its social structure, help reach organizational goals in uncertain and rapidly changing contexts, and bring new ideas to the organization, ultimately enhancing productivity. Newcomers' extra-productive behaviors are, therefore, of great relevance to organizations. These extra-productive behaviors are closely linked to newcomers' resources and high motivation, with affective-motivational processes explaining employees' willingness and capacity to engage in such behavior. However, despite considering proactive behaviors in terms of newcomers actively engaging in behavior that aims at facilitating their own adjustment (e.g., Cooper-Thomas & Burke, 2012; Ellis et al., 2017; Gruman et al., 2006), only a scarce amount of studies has investigated newcomers' extra-productive behaviors (e.g., Adil et al., 2023; Ge et al., 2010; Özdemir & Ergun, 2015; Uen et al., 2018), none of them regarding motivational and affective processes in explaining such behaviors. Thus, there is much to learn about when and why highly motivated newcomers are willing to engage in extra-productive behavior. Closing this gap will provide insights into how affective and motivational processes elucidate the mechanisms behind highly motivated newcomers exhibiting extra-productive behavior.

Overall, by addressing the identified gaps in organizational socialization research, the thesis expands the knowledge on factors for newcomers' enhanced motivation and extra-productive behavior. In doing so, it contributes to the understudied area of newcomers' motivational processes and the role of newcomers' work engagement by linking resources to various forms of

extra-productive behavior during organizational socialization. Furthermore, it highlights the importance of leadership and the interplay between job and personal resources for affective and motivational processes that relate to extra-productive behavior, clarifying when and how newcomers are willing to engage in such behaviors. For socialization research and practice, understanding these mechanisms is of great importance, as consequently embedding a focus on resources and motivational factors such as engagement into organizational policies and socialization practices bears great potential for improving organizational performance and competitive advantage (Albrecht et al., 2015). Investigating factors and mechanisms that relate to newcomers' work engagement will enhance scholarly understanding of the role of newcomers' work engagement and help human resource management adjust socialization practices accordingly. Answering the research gaps will, for example, enable employees and organizational insiders to get a clearer idea of how interactions and relationships with leaders shape newcomers' motivation to engage in behaviors that benefit the organization and its social structure. Getting newcomers to engage in these extra-productive behaviors is also of great importance for organizational effectiveness, as the enhanced contribution by new employees will largely benefit organizations, with newcomers willing to contribute by bringing vital new ideas and ways of thinking to the organization. Furthermore, closing the research gaps regarding the investigation of interplays of resources in predicting newcomers' engagement will also benefit and advance research on how newcomers' personality interacts with situational factors during socialization, enhancing processes of resource gains. This will likewise enhance the awareness of organizations and employees regarding the impact of newcomers' characteristics on how they benefit from job resources, bearing implications for practices regarding selection and socialization. In summary, this thesis contributes to research on organizational socialization and offers human resource practitioners and employees valuable implications for adapting socialization practices and programs.

2 Purpose, content, and contributions of the articles

The main goal of this thesis lies in the investigation of the overarching research question, examining factors for newcomers' enhanced motivation and the willingness to engage in extra-productive behavior by addressing the identified research gaps. All four articles in this thesis are self-contained and distinguished by their own focus, content, and contribution to closing the identified research gaps in answering the overarching research question, resulting in an overall elaboration from a cumulative perspective. Figure 1 gives an overview of the constructs and relationships investigated in all articles and schematically depicts the underlying processes and effects among the variables studied in an integrative framework.

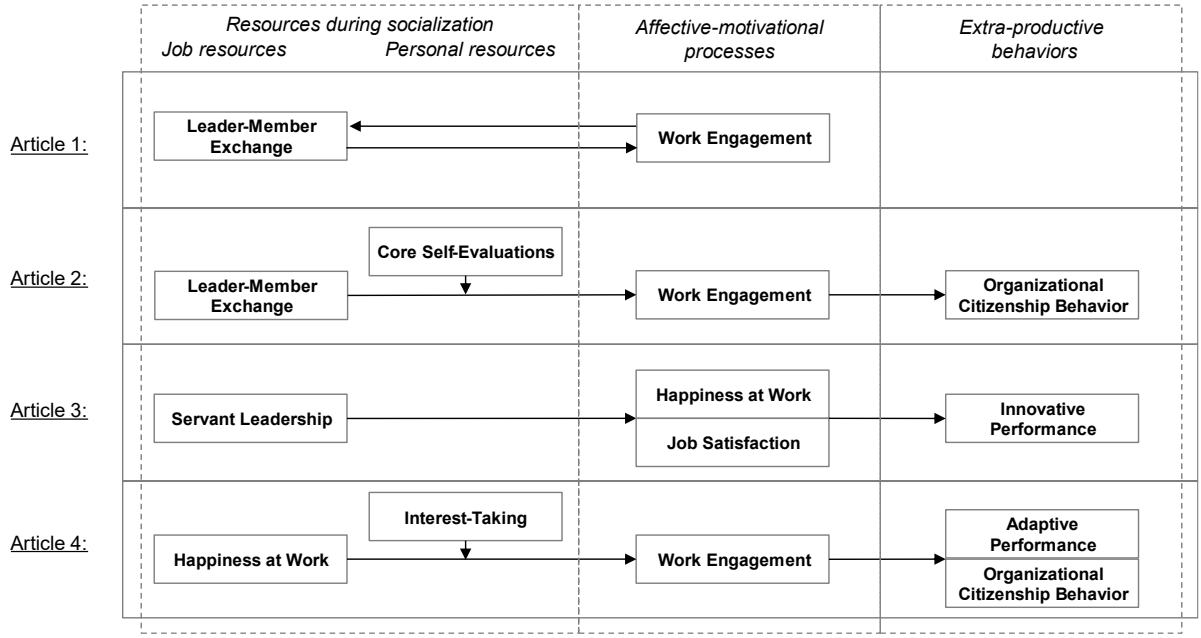

Figure 1: Overview of the articles and integrative framework

Article 1: An investigation of work engagement maintenance curves and reciprocal relationships between work engagement and leader-member exchange during organizational socialization. The first article focuses on leadership, especially the role of the leader-newcomer relationship in dealing with the question of what particularly contributes to enhanced

motivation and processes of resource gain for newcomers. Drawing on the JD-R model (Bakker & Demerouti, 2017; Bakker et al., 2023) and social exchange theory (Cropanzano & Mitchell, 2005), the article proposes how newcomers might differ in their course of work engagement over time and investigates the relationship of newcomers' work engagement with leader-member exchange (LMX) among a longitudinal sample, applying different analytical approaches. Elaborating on the development of newcomers' work engagement and the relationship between work engagement and LMX in organizational socialization research, the article foremost contributes to research gaps I and II. Thus, the article examines differential courses of development of newcomers' work engagement and the relationship between LMX and work engagement, outlining the relevance of leader-newcomer relationships for enhanced newcomer motivation and processes of resource gains. In doing so, the article seeks to answer two major questions: 1.) How does newcomers' work engagement develop, do newcomers systematically differ in their longitudinal development, and how does this relate to LMX? 2.) Do work engagement and LMX influence one another over time within individuals, and are there reciprocal effects that would suggest resource gain cycles or spirals?

Article 2: The interplay of leader-member exchange and core self-evaluations in predicting newcomers' work engagement and OCB. The second article further focuses newcomers' work engagement and LMX, especially emphasizing the effects of individual differences regarding personality. It builds on the JD-R model (Bakker & Demerouti, 2017; Bakker et al., 2023) and COR theory (Hobfoll, 1989, 2002; Hobfoll et al., 2018) to empirically investigate how job resources and resource interactions enhance motivational processes related to newcomers' extra-productive behavior. Thus, is encompasses all four research gaps (I, II, III, and IV). Specifically, the article proposes that LMX, as a job resource, will interact with the personality trait of core self-evaluations, representing the fundamental self-perception as a personal resource, in predicting newcomers' work engagement and extra-productive behavior in the form of organizational citizenship behavior (OCB) during organizational socialization. Therefore, the

article seeks to enhance the knowledge about how newcomers' personal resources influence the effectiveness of job resources related to the leader-newcomer relationship in predicting enhanced newcomer motivation, clarifying the role of work engagement in linking resources with extra-productive behavior through motivational processes. In doing so, the article will answer the following questions: 1.) How do individual differences regarding newcomers' core self-evaluations impact the effectiveness of resources related to LMX relationships? 2.) How does the interplay of core self-evaluations (personal resource) and LMX (job resource), beyond its motivational effects, influence newcomers' actual contribution to the organization in the form of OCB?

Article 3: Starting happy to innovate: mediating effects of newcomers' happiness at work and job satisfaction between servant leadership and innovative performance. The third article empirically investigates how leadership behavior enhances newcomers' innovative, extra-productive behavior through affective processes. Therefore, the article contributes to closing research gaps II and IV. It builds on affective events theory (Weiss & Cropanzano, 1996) and broaden and build theory (Fredrickson, 1998, 2004) and zooms in on explaining why leadership behavior by servant leaders is particularly important for enhancing newcomers' willingness to engage in behaviors of generating, promoting, and implementing new ideas for products and processes. The article takes an affect-based perspective on how resource building and availability related to affective events relating to servant leadership impact newcomers' extra-productive, innovative behaviors, emphasizing evaluation processes regarding happiness at work and job satisfaction. The article seeks to answer the following questions that address the importance of leader behavior for newcomers' willingness to engage in extra-productive behavior through the lens of affective processes: 1.) How can leadership behavior of servant leaders enhance newcomers' extra-productive behavior in the form of innovative performance? 2.) How can this relationship be explained by affective evaluation processes regarding happiness at work and job satisfaction?

Article 4: When happiness strengthens engagement and performance: the role of happiness at work as a resource for both experienced employees and newcomers. The last article takes a JD-R (Bakker & Demerouti, 2017; Bakker et al., 2023) perspective on happiness at work, considering how happiness at work might serve as a valuable job resource for newcomers in enhancing motivation and extra-productive behavior. The article seeks to clarify how resource availability that is related to happiness at work impacts work engagement and extra-productive behavior (OCB and adaptive performance), additionally considering resource combinations by investigating interactive effects of happiness at work and interest-taking (a personality trait that is expected to enhance the effectiveness of happiness at work) in predicting work engagement. Thus, the article contributes to closing the identified research gaps I, III, and IV. Furthermore, the article investigates said processes among two separate samples: newcomers and experienced employees. Thereby, motivational processes predicting extra-productive behavior and the impact of moderating effects regarding employee personality (interest-taking) are comparatively evaluated among both samples. Overall, the article is guided by the following questions that link newcomers' resources with extra-productive behavior through motivational processes: 1.) How does happiness at work, considered as a job resource for newcomers and experienced employees, relate to enhanced work engagement and extra-productive behavior in the form of OCB and adaptive performance? 2.) How do personality traits in the form of interest-taking impact the effect of happiness at work on motivational processes?

3 Structure of the thesis

The thesis consists of six chapters (Chapter A to Chapter F), followed by a references list (Chapter G) and appendices (Chapter H)**. Chapter A** gives an introduction to the topic, overarching research question, and research gaps addressed while highlighting the relevance to organizational socialization research and industrial and organizational psychology (A.1) and

outlines the purpose of the articles, their content, and their contribution to the overarching research question (A.2). The following four Chapters (B, C, D, and E) present the four separate research articles, each guided by the standard structure of quantitative research articles.

Chapter B (Article 1) focuses on a longitudinal investigation of the development of newcomers' work engagement and its relationship with LMX. After the introduction (B.1) and the theoretical background are presented (B.2), the methodological approach (B.3) and the results (B.4) are described. After discussing the findings regarding theoretical and practical implications and limitations (B.5), the article ends with a concise conclusion (B.6).

Chapter C (Article 2) deals with the interplay of LMX and core self-evaluations in predicting newcomers' work engagement and OCB. It starts with an introduction (C.1) and the theoretical background (C.2). After the description of the method (C.3) and presentation of the results (C.4), a discussion (C.5) on the theoretical and practical implications and the study's limitations follows. Finally, a conclusion (C.6) is presented.

Chapter D (Article 3) examines the differential effect of servant leadership on happiness at work and job satisfaction in enhancing newcomers' innovative performance. After an introduction (D.1), the theoretical background (D.2), method (D.3) and results (D.4) are described. A discussion follows (D.5) that addresses implications for theory and practice, limitations, and future research before the article ends with a conclusion (D.5).

Chapter E (Article 4) uses a two-study design to examine the interactive effects of happiness at work and interest-taking on work engagement and extra-productive behavior. After the introduction (E.1), the theoretical background (E.2) and a short overview of the studies (E.3) are presented. Methods, results, and respective discussions are then presented for the first study among experienced employees (E.4) and the second study among newcomers (E.5). A general discussion (E.6) organizes the results of both studies, followed by a brief conclusion (E.7).

Chapter F presents an overall discussion of the thesis. After the results and findings of each article are presented and contextualized in a synoptic form (F.1), overall implications for research and practice are derived (F.2). The final section comprises the discussion of limitations and provides directions for future research (F.3).

The references list is provided in **Chapter G**, after which two appendices are attached to this thesis in **Chapter H.** The first appendix (H.1) provides details on the measures used for the articles. The second appendix (H.2) presents supplementary information for Chapter B.

Article 1

An investigation of work engagement maintenance curves and reciprocal relationships between work engagement and leader-member exchange during organizational socialization

Authors:

Patrik Fröhlich (University of Wuppertal, Germany)

Fabian Otto (University of Wuppertal, Germany)

Stefan Diestel (University of Wuppertal, Germany)

Alan M. Saks (University of Toronto, Canada)

B An investigation of work engagement maintenance curves and reciprocal relationships between work engagement and leader-member exchange during organizational socialization (Authors: Patrik Fröhlich, Fabian Otto, Stefan Diestel, Alan M. Saks)

Abstract:

Work engagement and leader-member exchange (LMX) have received much attention in both research and practice during the last two decades. However, there is a lack of knowledge about the work engagement of newcomers during organizational socialization and the role of LMX for newcomers' work engagement. In this study, we use the Job-Demands Resources (JD-R) model and Social Exchange Theory to investigate the relationship between newcomer work engagement and LMX. First, we uncover differences in trajectories of newcomer work engagement and how these relate to person-average levels of LMX. Second, we hypothesize that newcomers' LMX and work engagement reciprocally affect each other over the course of time. By applying two types of analysis in a longitudinal sample of 203 newcomers, we show that newcomers systematically differ in how their work engagement progresses over time and that these differences relate to person-average LMX. We also find evidence for intra-individual effects of work engagement on LMX over time, but no systematic reciprocity between newcomer work engagement and LMX. In a supplementary analysis, we find persistent effects within LMX over two months later. Our findings advance the scholarly discussion on the development of newcomers' work engagement and its relationship with LMX. Additionally, we discuss the contributions we make to both the work engagement and LMX literature. Based on our findings, we offer several implications for future research and practice on socialization resources, work engagement, and LMX.

1 Introduction

In the last two decades, work engagement has received increasing attention in industrial and organizational psychology regarding its potential to facilitate desirable individual and organizational outcomes. Defined as a positive motivational state that consists of the three dimensions of absorption, dedication and vigor (Bakker et al., 2014; Schaufeli et al., 2002), work engagement positively predicts health, job satisfaction, organizational commitment, and task performance (e.g., Christian et al., 2011; Mazzetti et al., 2021; Saks, 2006, 2019) while mitigating negative consequences, such as absenteeism, stress, and turnover (e.g., Halbesleben, 2010; Neuber et al., 2022), and ultimately increasing organizations' financial success (Attridge, 2009). Although there has been a considerable amount of research on work engagement, relatively little attention has been given to the work engagement of newcomers (Saks & Gruman, 2018). Only a few studies have investigated newcomers' work engagement, such as the relationships between newcomer proactive behaviors (Cooper-Thomas et al., 2014; Nguyen et al., 2020), socialization tactics (Saks & Gruman, 2011; Song et al., 2015; Villavicencio-Ayub et al., 2014), and buddying (Nigah et al., 2012) on newcomers' work engagement.

Although the focus on newcomers' work engagement has recently become a topic of interest in organizational socialization research, the development of newcomers' work engagement and its antecedents remain largely unexplored. While research on changes in newcomers' attitudes, namely patterns of change in job satisfaction (Boswell et al., 2005, 2009; D. Wang et al., 2017) and commitment (Maia et al., 2016), have been demonstrated, similar studies on newcomer work engagement have not followed. Given the evidence of considerable fluctuations in newcomer attitudes and motivation during the first months of employment, there is reason to believe that similar fluctuations are likely for newcomers' work engagement. However, at this time, we do not know how newcomers' work engagement develops and fluctuates over time and by which antecedents it is affected (Saks & Gruman, 2018).

Research on the factors that influence work engagement is well established, and various types of resources have been found to be related to work engagement (e.g., Mazzetti et al., 2021; Lesener et al., 2020). For newcomers, the direct supervisor is one of the most important persons with whom an individual exchange occurs. Supervisors have been recognized as a main channel for newcomer socialization (Jokisaari & Nurmi, 2009) and an important relational source for newcomer attitudes (Sluss & Thompson, 2012). In our study, we therefore investigate how leader-member exchange (LMX) relates to newcomers' work engagement and its development during organizational socialization, given its role as an important predictor during organizational socialization and its relationship to engagement.

LMX reflects the quality of leader-member relationships in terms of behaviors and capabilities in the work context (Graen & Uhl-Bien, 1995). Several studies that draw on non-newcomer samples have reported positive associations between LMX and work engagement (e.g., Agarwal et al., 2012; Aggarwal et al., 2020; Lebrón et al., 2018; E. Y. Liao & Hui, 2021). Furthermore, socialization research has found LMX to be an important predictor of newcomer adjustment and socialization (e.g., Delobbe et al., 2016; J. Liu et al., 2021; Major et al., 1995; Sluss & Thompson, 2012; Zheng et al., 2016). Surprisingly, no study provides in-depth insights into the relationships between work engagement and LMX among newcomers.

In summary, despite considerable research on work engagement and LMX, there is neither evidence on the longitudinal development or systematic inter-individual differences in the growth of newcomer work engagement nor about the potential influence of LMX on those differences. Research on the temporal change patterns in newcomers' work engagement would be an important addition to our understanding of how newcomer work engagement changes and fluctuates over time. Evidence is also lacking on the reciprocal effects of the bi-directional relationship between work engagement and LMX.

The Present Study:

The primary goal of the present study is to examine newcomer work engagement over time following organizational entry and the longitudinal relationships between LMX and work engagement of newcomers. Herein, our primary objectives are to explore differences in trajectories of newcomers' work engagement and how LMX relates to inter-individual differences in these trajectories. In addition, we investigate potential reciprocal effects between work engagement and LMX to advance our understanding of the intra-individual effects between work engagement and LMX among newcomers.

We integrate the Job-Demands Resources (JD-R) model (Bakker & Demerouti, 2007) with previous evidence on how newcomers' attitudes might fluctuate, and we argue that there will be systematic differences among newcomers in terms of how their work engagement develops over time. In this context, we also aim to investigate how LMX relates to inter-individual differences among newcomers' work engagement trajectories. We derive our predictions from the JD-R model, which suggests that LMX is a relational job resource. By linking social exchange theory (Cropanzano & Mitchell, 2005) with the JD-R model, we further propose that LMX and work engagement are reciprocally related. Thus, we seek to examine the short-term reciprocal effects between work engagement and LMX. To supplement this, we additionally consider the extent to which effects persist, that is, if they are transmitted or mitigated over time. In doing so, we gain in-depth insights into how work engagement and LMX affect one another over time.

To provide empirical answers to our research questions and hypotheses, we conduct a longitudinal study with newcomers from various organizations and apply two complementary analytic approaches to the data. First, we use growth-based trajectory modeling (GBTM, Nagin, 2005, 2010) to examine the longitudinal development of work engagement and relating effects

of LMX. In doing so, we gather insights into newcomer work engagement maintenance curves and how LMX relates to them. Second, we use a General Cross-Lagged Panel Model (GCLM, Zyphur et al., 2020) to investigate short-term associations between work engagement and LMX from time to time, namely the proposed reciprocal effects.

We make several contributions to the literature on work engagement and LMX in the context of organizational socialization and respond to recent calls in both the LMX and work engagement literature. First, we add to the understanding of the development of work engagement among newcomers during organizational socialization. As one of the first studies in organizational socialization, we systematically explore work engagement maintenance curves (Saks & Gruman, 2018) in empirical data by revealing differences in work engagement trajectories among newcomers associated with LMX. By revealing interindividual patterns in trajectories of newcomers' work engagement, we contribute to the literature on fluctuations in newcomers' attitudes that has so far exclusively focused on job satisfaction (Boswell et al., 2005, 2009; D. Wang et al., 2017) and organizational commitment (Maia et al., 2016). We extend theoretical insights into how newcomers adapt and stabilize their motivational states of mind in relation to levels of LMX. That is, our study provides a more detailed picture of how LMX might relate to newcomers' work engagement maintenance curves.

Second, by examining reciprocal effects of LMX and work engagement, we contribute to the discussion that centers around the role of LMX as an antecedent or outcome (Antonakis, 2017). While previous research has pointed to issues regarding the specification of LMX in statistical models (Gottfredson et al., 2020), our research seeks to reveal the underlying nature of the dynamic relationship (see Granger, 1969) between LMX and work engagement. Using GCLM, we advance conventional cross-lagged panel model analysis by implementing a more fine-grained approach that enables us to investigate effects within different time frames, thereby revealing potential causal reciprocal patterns among work engagement and LMX.

Third, with our analytical approach, we can also demonstrate that effects persist within LMX over two months, highlighting the impact that early LMX has for socialization. In addition, we also respond to calls to investigate relationships of LMX in cross-lagged models (Schermuly & Meyer, 2016) and cause-effect relationships between work engagement and resources (Mauno et al., 2007), especially in longitudinal study designs during organizational socialization (Nigah et al., 2012; Saks & Gruman, 2012, 2018; Song et al., 2015). Based on our findings, we also provide recommendations for practice addressing the development of work engagement during the first months after organizational entry. In sum, we add to the understanding of the dynamic patterns in the relationship between work engagement and LMX during organizational socialization.

2 Theoretical background and study hypotheses

2.1 Newcomer work engagement trajectories and their relation to LMX

Along with every job change or career entry comes a period where people are introduced and adjust themselves to the new organization and work environment they enter. This phase, known as organizational socialization, is characterized by the “process by which individuals acquire the attitudes, behaviors, knowledge, and skills required to participate and function effectively as a member of an organization” (van Maanen & Schein, 1979, p. 211). New employees or newcomers undergo a learning process during which they acquire information and adjust their attitudes and behaviors (C. D. Fisher, 1986) as they transition from being outsiders to insiders of the organization (Bauer et al., 2007).

Organizational socialization research models address this procedural view on newcomer adjustment by investigating factors that impact newcomer socialization and relate to socialization

outcomes (e.g., Bauer & Erdogan, 2011; Ellis et al., 2015; Saks & Ashforth, 1997; Saks et al., 2007). However, although more than two decades of research have highlighted the crucial role of work engagement for employees, far less research has investigated newcomers' work engagement and how it can change during the organizational socialization process.

Work engagement is a motivational state that includes high levels of energy, dedication and focus at work (Schaufeli & Bakker, 2010) and has been defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor [i.e., high levels of vitality, energy and willingness to make an effort], dedication [i.e., being deeply involved in the work and feeling a sense of excitement and significance], and absorption [i.e., fully focusing on one's work while enjoying it, so that time passes quickly]" (Schaufeli et al., 2002, p. 74). To date, only a few studies have integrated work engagement into organizational socialization research by either linking socialization practices (e.g., socialization tactics: Saks & Gruman, 2011 and Song et al., 2015; buddy-programs: Nigah et al., 2012) or newcomer proactive behaviors (Cooper-Thomas et al., 2014; James, 2022) and perceptions regarding socialization success (Villavicencio-Ayub et al., 2014; Xu et al., 2019) with newcomer work engagement. The results of these studies suggest that work engagement is an important psychological, motivational state that can cause newcomers to engage in a wide range of beneficial behaviors.

However, previous studies have not investigated changes in newcomers' work engagement over time during the socialization process, nor has previous research considered differences among newcomers in the development of work engagement during organizational socialization. This is especially surprising given that research on work engagement has found fluctuations in work engagement across situations and individuals over time (Bakker & Albrecht, 2018) and stable trajectories of work engagement (Tóth-Király et al., 2023). This further points to changes in the longitudinal course of work engagement over time and differences between individuals.

Research on organizational socialization has found changes in newcomers' attitudes during socialization. For example, several studies have reported changes in newcomer attachment (Lance et al., 2000), role conflict and role overload (Vandenberghe et al., 2011), as well as changes in self-efficacy, role clarity and social acceptance (Bauer et al., 2007). Boswell et al. (2005, 2009) investigated changes in newcomers' job satisfaction. Based on the honeymoon-hangover effect, the authors found that newcomers' job satisfaction immediately increased after a job change but was followed by a decline in job satisfaction over the next few months. In a more recent study, Valero and Hirschi (2019) replicated these patterns in job satisfaction change and found that newcomers could be systematically distinguished into two groups, one with declining and the other with high and stable job satisfaction trajectories. Maia et al. (2016) reported similar results on newcomers' affective commitment, showing that newcomers differed in their decline or increase in affective commitment.

Thus, there is clear evidence of changes and fluctuations in newcomers' job attitudes during the organizational socialization process. Although previous research has not investigated changes in newcomers' work engagement, one would expect similar changes as those reported for job satisfaction and organizational commitment. The possibility of changes in newcomers' work engagement during the organizational socialization process was first noted by Saks and Gruman (2018), who stated that "the nature, pattern, and timing of the fluctuations in newcomers' work engagement can be considered in terms of newcomer work engagement maintenance curves which show the changes in newcomers' work engagement" (p. 14). They described five types of newcomer work engagement maintenance curves showing that newcomers' work engagement can decline, increase, or remain stable. They also suggest that providing newcomers with various resources during their socialization is necessary to develop and maintain high levels of newcomer work engagement.

To illustrate potential changes in newcomer work engagement maintenance curves, imagine three newcomers that recently joined an organization. Immediately after entry, the work engagement of the first newcomer increases steadily and shows a high level of work engagement that might either further increase or level off later on during socialization. This may be due to a highly effective socialization program provided to the newcomer, enabling them to efficiently utilize job resources (e.g., social support, leader feedback, challenging and exciting tasks, or learning opportunities). A second newcomer might report a rapid or constant decline in work engagement right after joining the organization due to poor socialization practices or a lack of resources. This decline could further proceed, hitting a bottom line, level off at below-average levels or even turn around and increase again due to more positive experiences during socialization. In contrast, a third newcomer might show sustained levels of work engagement throughout organizational socialization. This newcomer would most probably be provided with sufficient guidance and support, reflecting effective socialization practices, so that they will maintain their level of work engagement over time. Notably, as the only study to report evidence on changes in newcomer engagement to date, Ployhart et al. (2021) found that newcomer engagement after two months was higher compared to the time immediately after entry. Nevertheless, the authors state that they were not able to examine changes in newcomer engagement over time.

Given the lack of research and evidence on how newcomers develop and differ in their work engagement during organizational socialization, the first goal of this study is to examine trajectories of work engagement among a sample of newcomers to improve our understanding of the systematic variations in work engagement maintenance curves. As we do not have a-priori evidence that suggests specific trajectories, we offer a broader first research question as follows:

RQ1:

How do newcomers systematically vary in their work engagement trajectories?

A second and related question concerns the drivers or resources contributing to newcomers' work engagement trajectories. For more than two decades, research on work engagement has investigated predictors and outcomes of work engagement (e.g., Bakker & Albrecht, 2018; Gillet et al., 2022; Lesener et al., 2020; Mazzetti et al., 2021; Neuber et al., 2022; Saks, 2006, 2019; Saks & Gruman, 2021a, 2021b). As noted earlier, socialization research has only recently begun to explore newcomers' work engagement and to study its antecedents during organizational socialization.

Regarding the development of newcomer work engagement during the socialization process, resource theories seem well-suited to explain how antecedents might affect the development of newcomers' work engagement. Resources can be defined as entities that are either of central value themselves or serve as means in achieving central and valuable goals (Hobfoll, 2002, p. 307) and therefore represent anything that individuals find helpful in achieving their goals (Halbesleben et al., 2014, p. 1338). The job-demands resources (JD-R) model relates resources and job demands with employees' outcomes via motivation and strain processes (Bakker & Demerouti, 2007). The model proposes that while job demands act as a source of stress at work that has a negative impact on well-being and performance, resources induce a motivation process by enhancing work engagement and promoting performance and well-being (Bakker & Demerouti, 2008, 2017). Although job resources are also beneficial in dealing with job demands, they are primarily vital in predicting work engagement (Bakker et al., 2014; Lesener et al., 2020; Schaufeli, 2017) and are more relevant for employees' work engagement than job demands (Crawford et al., 2010; Hakanen et al., 2008). Therefore, it is reasonable to assume that resources provided during organizational socialization will facilitate the development of newcomers' work engagement (Saks & Gruman, 2018).

Saks and Gruman (2018) argue that socialization resources are necessary to develop newcomers' work engagement during organizational socialization. During socialization, supervisor support is especially crucial in newcomers' adjustment and socialization (Jokisaari & Nurmi, 2009). Social support and leadership have both been found to be important for work engagement (Christian et al., 2011; Mazzetti et al., 2021).

One important aspect of leadership that has been found to be essential for newcomers and work engagement is leader-member exchange or LMX (Sluss & Thompson, 2012). LMX theory offers a valuable approach to examining the relationship between leaders and newcomers in the context of organizational socialization. Rooting models of vertical dyadic linkage (Dansereau et al., 1975; Liden & Graen, 1980) and the theory of role emergence (Graen & Scandura, 1987), LMX theory addresses dyadic relationships between leaders and members (i.e., employees in their teams as followers) and the development and maintenance of those LMX relationships, focusing on the quality of relationships (Graen & Uhl-Bien, 1995). Higher quality LMX relationships are characterized by leaders providing and enabling access to viable resources for the follower, with followers feeling obliged and motivated to reciprocate to the leader (Erdogan & Bauer, 2015; Uhl-Bien & Maslyn, 2003). Applied to the organizational socialization process, we refer to newcomers' LMX as the quality of the LMX relationship between the newcomer and the leader in the work context, as perceived by the newcomer.

Organizational socialization research has identified LMX as an important predictor of newcomers' socialization and adjustment (Major et al., 1995; Sluss & Thompson, 2012; Zhou & Wang, 2015). For example, higher quality in newcomers' LMX relates to reduced turnover intentions (Jie Chen & Eldridge, 2011) and strain (Zheng et al., 2016), higher commitment and job satisfaction (Jokisaari & Vuori, 2018; Major et al., 1995), greater occupational identification and perceived PO fit (Sluss & Thompson, 2012), better role clarity and social integration (Delobbe et al., 2016), and higher in-role and extra-role performance (Jokisaari, 2013; J. Liu et al., 2021;

Zheng et al., 2016). Therefore, newcomers profit from LMX, as a higher LMX quality results in the greater availability and accessibility of tangible and intangible resources (Liden & Maslyn, 1998; Sluss & Thompson, 2012).

Regarding its relationship with work engagement, research has established a positive relationship between LMX and work engagement. In general, leaders are supposed to influence the work engagement of their respective followers through social exchange (Decuypere & Schaufeli, 2020). Most studies have focused on whether LMX positively influences work engagement (e.g., Agarwal et al., 2012; Aggarwal et al., 2020; Bezuijen et al., 2010) and meta-analytic studies report a moderate to strong relationship with corrected coefficients of .31 to .41 between LMX and work engagement (Christian et al., 2011; E. Y. Liao & Hui, 2021). Further, a recent study among newcomers during organizational socialization found that LMX is positively related to newcomers' work engagement (H. Liu et al., 2023).

Thus, previous research suggests that LMX is essential for newcomers' adjustment and positively related to work engagement. Therefore, LMX can be considered an important resource for newcomers that will be positively related to their work engagement.

There is also some evidence that LMX is related to changes in work engagement. Tóth-Király et al. (2023) investigated how LMX affects the engagement of experienced employees. The authors found that while the engagement of experienced employees changed over the course of one year, both global LMX and specific facets of LMX positively related to fluctuations in employee engagement. Given that LMX is related to newcomer adjustment, we would expect that newcomers' LMX quality will be linked to trajectories of newcomer work engagement. There is also some evidence that resource availability predicts membership in different classes

of work engagement profiles (Gillet et al., 2022). Valero and Hirschi (2019) found that individuals with more (vs. less) resources showed highly stable (vs. declining) trajectories of job satisfaction.

The results of these studies lead to the possibility that newcomers with higher overall levels of LMX will be more likely to sustain higher levels of work engagement than those with lower LMX quality due to better access to viable resources. Newcomers' overall perceptions of LMX should be related to differences in the development of their work engagement.

In summary, JD-R theory and previous research strongly suggest that LMX relates to work engagement and plays a crucial role for newcomers during organizational socialization. A higher LMX quality provides a greater resource availability for newcomers, which should relate to higher levels of work engagement. Given that newcomers might systematically differ in how their work engagement progresses during organizational socialization (see research question RQ1), differences in newcomers' trajectories of work engagement might relate to their perceived quality of the relationship with their supervisor, that is, their perceived LMX quality. Therefore, another goal of this study is to examine the relationship between work engagement trajectories with newcomers' perceived LMX. Thus, the second research question is:

RQ2:

How do newcomers' work engagement trajectories relate to their perceived LMX quality?

2.2 Reciprocal effects between newcomer work engagement and LMX

An additional perspective from which to view the relationship between work engagement and LMX is the time perspective from one point in time to the next. Other than an overall association

with differences in trajectories of work engagement, LMX might also affect newcomers' work engagement on a more-fine-grained basis. Imagine a newcomer that enters the organization. After two months, the newcomer's work engagement has considerably increased since joining the organization. This could be due to several causes and effects. First, the change might be due to a steady, previous increase in work engagement over two months, or it may be due to a rapid increase in work engagement within a short past period, e.g., the most recent two weeks. Second, as we argued earlier, an increase in the newcomer's work engagement might result from a previous either steady or short-term increase in LMX. Thus, the quality of the LMX relationship might impact the newcomers' future work engagement.

We know that work engagement fluctuates within individuals over time (e.g., Bakker & Albrecht, 2018; Bakker et al., 2020). Although research on how LMX develops and changes still lacks longitudinal research (Holt & Lee, 2023), studies suggest that LMX quality changes and varies over time. Early research on LMX indicates that while the relationship between leader and follower develops, there is substantial change in newcomers' perceived LMX quality (Bauer & Green, 1996; Liden et al., 1993; Nahrgang et al., 2009). More recently, Dimotakis et al. (2022) demonstrated that LMX quality substantially fluctuates weekly. Furthermore, the authors found that fluctuations of LMX quality within individuals relate to changes in positive or negative affect.

In addition, a study by S. Park et al. (2015) suggests that tenure-related changes in LMX over time are positively related to performance and justice perceptions. Given that, as stated in the derivation of our second research question, previous research has consistently linked LMX to work engagement and demonstrated its positive relationship, it thus seems plausible to expect that past LMX would relate to future work engagement. As a higher LMX quality implies a higher resource availability for newcomers, it should indicate an increase in newcomers' work engagement.

In summary, we expect that LMX influences future work engagement with newcomers, leading to the following hypothesis:

Hypothesis H1a: LMX will be positively related to newcomers' work engagement over time.

While we have argued that LMX will influence newcomers' work engagement, the reverse is also possible. That is, an increase or decline in LMX might also result from within itself, namely a former steady increase or from a positive short-term impulse in LMX, or result from either a continuous or short-term rapid change in past work engagement. In the latter case, the change in LMX quality might be attributed to the newcomer's reciprocal behavior towards the leader. This involves offering personal and job resources to meet the leader's expectations (Graen & Uhl-Bien, 1995), enhancing the LMX quality. Furthermore, leaders might be more inclined to establish higher-quality relationships with newcomers who are more highly engaged. Thus, being more engaged, either steadily increasing or contributing with a very high engagement in recent weeks or days, might impact LMX quality.

Interestingly, Breevaart et al. (2015) investigated the direction of LMX on work engagement and noted that engaged employees might have a better relationship with their leader, thus leaving questions about the direction of causality. Similarly, most studies investigating the relationship between LMX and work engagement do not consider that more engaged employees might reciprocate and contribute to the relationship, thus improving LMX quality.

In general, most LMX research posits that higher quality LMX predicts outcomes such as performance and satisfaction, neglecting that followers can contribute to LMX themselves by enhancing the preferred treatment their leaders give them (Holt & Lee, 2023). Recently, questions have been raised about the causality of LMX and its endogeneity, leading to recommendations to consider reverse causality (Gottfredson et al., 2020). For this reason, we advance common

approaches regarding the causal relationship between LMX and work engagement by proposing that higher work engagement might promote higher-quality LMX.

As LMX theory rests on the rationale of social exchange (Graen & Uhl-Bien, 1995; Liden et al., 1997), we draw from social exchange theory to explain the potential reverse causal effects of work engagement on LMX. In social exchange theory, reciprocal interdependence describes how interactions between individuals are mutually conditional (Cropanzano & Mitchell, 2005). These reciprocal interactions are rooted in the fundamental principle that a beneficial or harmful action or expression by an actor is followed by a positive or negative reaction or response by the target (behavioral, attitudinal, or both), which can be either beneficial or detrimental for the actor (Cropanzano, Anthony, et al., 2017). Those interdependent exchanges impact actor-target relationship patterns, which is the leader-newcomer relationship in our case.

In LMX research, the rationale of reciprocal interdependence and social interaction is often used to explain that a higher quality LMX (that is associated with exchanges of resources where the leader (i.e., the actor) provides benefits, challenges and support) results in a higher willingness of the member to reciprocate behaviors or attitudes (i.e., the target) (Erdogan & Bauer, 2015). In the socialization literature, Sluss and Thompson (2012) have argued that “receiving tangible and intangible resources via newcomer LMX builds a sense of generalized reciprocity and mutuality within the new context” (p. 116-117). According to the social exchange rationale, this reciprocation by the member can then be evaluated as beneficial by the leader.

Likewise, expecting newcomers to perform as actors in the reciprocally interdependent LMX relationship is reasonable. As actors, newcomers initiate actions related to desirable behaviors and attitudes, leading to a response by the leader as the target. Higher levels of work engagement might therefore reflect in newcomers’ expressions of their positive motivational state of

mind (either in the form of attitudes or behavior), which are evaluated as positive and beneficial by the leader, resulting in beneficial behavioral or attitudinal responses by the leader (e.g., increased attention towards this individual and a higher willingness to provide supporting and enabling resources) that ultimately impact LMX quality. A similar mechanism that might further explain why newcomers' work engagement relates to LMX is through leaders' expectations. Employees meeting leaders' expectations is strongly associated with LMX (Dulebohn et al., 2012).

Therefore, newcomers meeting leader expectations in the form of being engaged in their work will impact the leader-newcomer relationship in the form of LMX quality. Similar studies further support the notion of a concurrent reverse causal effect of work engagement on LMX. Gutermann et al. (2017) found that leaders' work engagement is positively related to employees' perceived LMX, implying that perceived other-related work engagement is related to employees' own LMX quality. Further, while most studies contemplate effects in the direction of LMX on performance, effects of follower performance on LMX quality have also been established (Nahrgang et al., 2009; S. Park et al., 2015). This strongly suggests the presence of reverse causal effects regarding LMX and related outcomes. Moreover, recent empirical evidence indicates that incongruence of leader and employee engagement with lower employee work engagement is associated with lower LMX (Ye et al., 2021). This aligns with our argument that newcomers might perform as actors and suggests that lower or higher work engagement will relate to the perceived LMX quality.

In summary, higher newcomer work engagement is expected to be positively related to the leader-member relationship. Leaders that perceive newcomers to be more engaged will be more likely to demonstrate supporting and enabling behaviors and attitudes that benefit the LMX relationship with the engaged newcomer. Therefore, the following hypothesis is tested:

Hypothesis H1b: Newcomers' work engagement will be positively related to LMX over time.

During organizational socialization, newcomers might experience changes in their LMX relationship that might impact their subsequent work engagement. Similarly, engaged newcomers might reciprocate in such a way that their engagement impacts the future quality of their LMX relationship. Therefore, we assume that both directions of causation can take place simultaneously, and work engagement and LMX might impact one another mutually, suggesting a reciprocation between newcomer work engagement and LMX.

This reciprocation is in line with JD-R literature. Higher-quality LMX relationships and support from the supervisor are associated with higher levels of resources for the employee. Research on the reciprocal effects of resources and work engagement shows that job and personal resources are positively related to future work engagement and that employee work engagement positively affects future job and personal resources (Xanthopoulou et al., 2009). The JD-R model refers to these reciprocal effects as gain cycles (Bakker & Demerouti, 2017; Bakker et al., 2023), where employees' work engagement is both a predictor and an outcome of job and personal resources. Ongoing gain cycles might further initiate gain spirals, where reciprocal effects become stronger over time (Bakker et al., 2023; Hobfoll et al., 2018). Moreover, research on LMX and reciprocal effects further supports our supposition. By applying cross-lagged designs, reciprocal effects have been found in the relationship between LMX and job satisfaction (Volmer et al., 2011) and OCB (Tremblay et al., 2022).

In summary, investigating both directions of effects might provide insights into the dynamic time-lagged relationships between newcomer work engagement and LMX from a more fine-grained and short-term perspective. There might be both effects of work engagement on LMX and LMX on work engagement during organizational socialization. These simultaneous effects

suggest a reciprocation of work engagement and LMX over time, resulting in the following hypothesis:

Hypothesis H1c: Newcomers' LMX and work engagement will be positively and reciprocally related over time.

3 Method

3.1 Participants and procedure

Participants completed four questionnaires during the first four months following organizational entry. We used a convenience sampling method via professional contacts and networks (e.g., LinkedIn). After we provided a link, the participants self-registered for the online survey via a website using a double opt-in mailing procedure. With given informed consent, participation in the study was voluntary and all participants were assured that their data would remain confidential. To ensure a standardized measurement procedure during the entry phase, all participants started the first questionnaire two to four weeks after beginning their new employment. The first questionnaire covered the time since the start of the new job and also asked for descriptive data. To ensure equal temporal distances, the following three questionnaires were sent at an interval of four weeks each. Participants were offered individual feedback on topics regarding resources, job demands and socialization, but no monetary compensation was given. The present study complies with the APA ethical standards.

Of 290 individuals that initially started the survey, 246 completed the first questionnaire. After 43 individuals were excluded due to either illogical or incomplete data, the final sample consisted of N = 203 newcomers (M_{age} = 27.96 years; SD_{age} = 6.40 years; 61.10% female) from

organizations of various industries in Germany. Of those 203, 128 completed the second questionnaire, 87 the third and 67 the fourth questionnaire. The sample's average previous work experience was 4.43 years (*SD* = 6.12). Experience in organizational socialization processes was assessed by the total number of job changes, which was 2.18 on average (*SD* = 2.11).

3.2 Measures

LMX was assessed with seven items of the LMX-7 scale and item-specific five-point answer formats (Graen & Uhl-Bien, 1995) using the translated and validated German version by Schyns (2002). Example items are "Do you usually know how satisfied your leader is with what you do?" and "How well does your leader understand your job problems and needs?". For work engagement, we used nine items of a German version (Sautier et al., 2015) of the Utrecht Work Engagement Scale (Schaufeli et al., 2006) that was adapted for retrospective assessment and included the three facets of vigor (e.g., "At my work, I felt bursting with energy."), dedication (e.g., "My job inspired me.") and absorption (e.g., "I was immersed in my work."). All items for work engagement are scored on a seven-point rating scale (0 = Never; 6 = Always). Work engagement and LMX were both measured at all four time points. Demographic and personal data were obtained in the first questionnaire.

3.3 Analytical approach

First, we assessed construct validity by performing longitudinal Bayesian Confirmatory Factor Analysis, taking into account cross-loadings across time points for LMX and work engagement, and using sensitivity analysis based on residual priors (Asparouhov et al., 2015). Based on the sensitivity analysis, we also tested in a Bayesian framework approximate invariance (Winter & Depaoli, 2020). Approximate invariance relaxes the assumption that certain parameters must be the same across time points by explicitly allowing a range of variation through distensible

equality constraints in the form of difference priors (B. Muthén & Asparouhov, 2013; Pokropek et al., 2020). In our analysis, we specified the hyperparameters of the normal distributions for differences in intercepts and loadings as ~N(0,.05).

Second, we used GBTM (Nagin, 2005, 2010), also referred to as Latent Class Growth Analysis (Herle et al., 2020), to test for systematic inter-individual variation in trajectories of work engagement and their relation to LMX. A common feature of studies that apply GBTM is openness with respect to a priori knowledge of actual trajectories and clusters of trajectories. Because of scarce evidence on newcomers' work engagement trajectories, this inductive approach to trajectory analysis suits our research. GBTM allows for systematically clustering individuals based on similar behavior patterns or other outcomes over time (B. L. Jones & Nagin, 2007) and facilitates a comprehensible depiction of the trajectories (Nagin, 2014). In our study, we seek to reveal systematical differences in newcomers' work engagement trajectories and consider the effect of person-average levels of LMX on these trajectories.

We ran GBTM for models with up to five classes with quadratic growth parameters and used a maximum likelihood estimator with robust standard errors to account for missing data. To maximize transparency and standardization in reporting on our latent trajectory analysis, we applied the GRoLTS Checklist (see a commented version in Table B.1.1 in the Appendix for Chapter B) and followed recommendations by reporting values of various statistical criteria for all models to select the final model (van de Schoot et al., 2017). That would be a combination of the lowest Bayesian Information Criterion (BIC) and sample-size adjusted BIC, coupled with a significant bootstrap likelihood ratio test and Vuong-Lo-Mendell-Rubin adjusted likelihood ratio test, preferably high values of entropy and desirably equal class sizes with no class size below 5% of the sample size (Weller et al., 2020), while also bearing in mind the interpretability of the results. After identifying the best fitting model, we used the three-step method with the r3step procedure in Mplus (Asparouhov & Muthén, 2014), specifying person-average level

LMX as a predictor of the latent classes and using tests of categorical multinomial logistic regression.

Third, to test our hypotheses on the reciprocal relationship between work engagement and LMX, we specified the General Cross-Lagged Panel Model (GCLM; Zyphur et al., 2020) based on a conventional cross-lagged panel model (Campbell, 1963). For our analysis of the effect of variables of one point in time on subsequent ones, this translates into specifying autoregressions and cross-lagged effects (Kenny & Harackiewicz, 1979). Furthermore, the well-known criticism of cross-lagged panel models to consider stable effects over time (Hamaker et al., 2015) is addressed by the specification of unit effects. Thus, both the effects of each variable on itself in the form of autoregressions and the effects of each variable on the other in the form of cross-lagged effects can be regarded as within-unit effects (Mulder, 2022). Another key extension is using time-specific residuals as separated latent variables, namely impulses (Zyphur et al., 2020). To deal with the heightened complexity of modeling temporal sequences, we used Bayesian estimation for GCLM models. The ability to perform such complex modeling is one reason for our choice of estimation method (e.g., Hoijtink et al., 2019). For a depiction of the whole structural model with parameter labels for the present analysis, see Figure B.3.1 in the Appendix for Chapter B.

Two major advantages result from using the GCLM: On the one hand, there are several problems regarding the direction of effects between work engagement and LMX (e. g. Agarwal et al., 2012; Gottfredson et al., 2020). An essential characteristic of the GCLM is the interpretation of the impulses as hypothetical interventions because of their random variation (Shamsollahi et al., 2021, p. 438). Furthermore, the GCLM is based on Granger-Sims causality (Granger, 1969). This idea implies that conditional independence relations are handled by temporal ordering, i.e., the modeling of lagged effects (Kossakowski et al., 2021; Núñez-Regueiro et al., 2021). In this regard, we use discrete-time modeling to contribute to the incipient clarification

of the course and strength of reciprocal relationships (Arnold et al., 2020) between LMX and work engagement over time. On the other hand, we seek to disentangle temporal dynamics. The GCLM allows distinguishing effects in terms of their persistence to test effects in different directions and reciprocal effects.

Both analyses are useful to our research interest in complementary ways. Person-centered approaches like GBTM allow for heterogeneity by considering subpopulations, each with its own parameter set. Variable-centered approaches like GCLM, on the other hand, focus on analyzing relations between variables that apply to an assumed homogeneous overall population with just one set of parameters and, therefore, easier interpretability (Howard & Hoffman, 2018).

4 Results

4.1 Longitudinal confirmatory factor analysis and reliability

Longitudinal Bayesian Confirmatory Factor Analysis confirmed the overall expected factor structure for LMX and work engagement. All cross-loadings were non-significant. All main loadings were significant, with only one non-significant main loading for LMX at time t4. The analysis showed a good fit (*Posterior Predictive P-Value* = 0.27, 95% CI [-211.34, 398.37] for the difference between the observed and the replicated chi-square values; B. Muthén & Asparouhov, 2012). The differences in intercepts and loadings over measurement occasions are included in the 95% credibility interval of the posterior and thus do not systematically deviate from the mean (see Table B.2.1 in the Appendix for Chapter B), thereby indicating approximate factorial invariance for LMX and work engagement. Table 1 shows means, standard deviations, correlations and values of McDonald's omega for work engagement and LMX for all

measurement times separately. The values of McDonald's omega indicate high internal consistency and reliability.

Table 1: Descriptive statistics for longitudinal bayesian confirmatory factor analysis

				Factor correlation							
Variable	*M*	*SD*	Factor loading	1.	2.	3.	4.	5.	6.	7.	8.
1. WE t1[a]	4.79	1.21	0.59 - 0.80	(0.87)							
2. WE t2[a]	4.67	1.29	0.62 - 0.84	0.71	(0.89)						
3. WE t3[a]	4.39	1.25	0.70 - 0.88	0.58	0.79	(0.88)					
4. WE t4[a]	4.61	1.09	0.72 - 0.99	0.53	0.63	0.58	(0.89)				
5. LMX t1[b]	3.65	0.72	0.43 - 0.76	0.56	0.50	0.41	0.38	(0.79)			
6. LMX t2[b]	3.66	0.82	0.54 - 0.78	0.35	0.55	0.43	0.38	0.67	(0.82)		
7. LMX t3[b]	3.65	0.80	0.52 - 0.83	0.31	0.61	0.54	0.32[**]	0.64	0.85	(0.84)	
8. LMX t4[b]	3.71	0.74	0.34 - 0.83	0.35[**]	0.40	0.43	0.48	0.65	0.71	0.68	(0.77)

Note. WE = Work Engagement. LMX = Leader-Member Exchange. Factor loadings: The first (second) value represents the lowest (highest) value of main factor loadings. Values in parenthesis on the diagonal represent McDonald's omega and were calculated using Bayesian confirmatory factor analysis results. Unless otherwise noted, all 95% credibility intervals for factor correlations do not contain zero.

[a] 7-point scale. [b] 5-point scale.

[**] = Zero is included in 95% credibility interval with $p < .05$.

4.2 Trajectories in newcomer work engagement

4.2.1 Model selection and interpretation of work engagement trajectories

The first research question on the inter-individual perspective aimed to clarify how newcomers systematically vary in their work engagement trajectories. We therefore investigated models with up to five classes that successfully converged. Model summary statistics can be found in Table 2. Given the most desirable combination of criteria, a model with three distinct classes and quadratic growth factors best fitted the data while considering interpretability. Thus, systematical variation in trajectories of work engagement is evident, and newcomers can be grouped by their work engagement maintenance curves, answering the first research question regarding the inter-individual perspective. The three-class model had the best set of criteria and provided distinct and well-interpretable classes (see Figure 2).

Table 2: Fit statistics of models with up to five classes of trajectories

	1 class	2 classes	3 classes	4 classes	5 classes
BIC	1570.77	1443.85	1379.57	1375.87	1382.05
SABIC	1548.59	1409.00	1332.05	1315.68	1309.18
BLRT	N/A	.33	.01*	.09	.13
VLMRa	N/A	.32	.01*	.10	.14
Entropy	N/A	.68	.71	.64	.67
n_k	197	69, 128	38, 106, 53	62, 35, 54, 46	51, 64, 5, 32, 45

Note. *N* = 197. BIC = Bayesian Information Criterion; SABIC = sample-size adjusted BIC; BLRT = bootstrapped likelihood ratio test *p*-value; VLMRa = Vuong-Lo-Mendell-Rubin adjusted likelihood ratio test *p*-value; n_k = size of the k classes.
* $p < .05$. ** $p < .01$. *** $p < .001$.

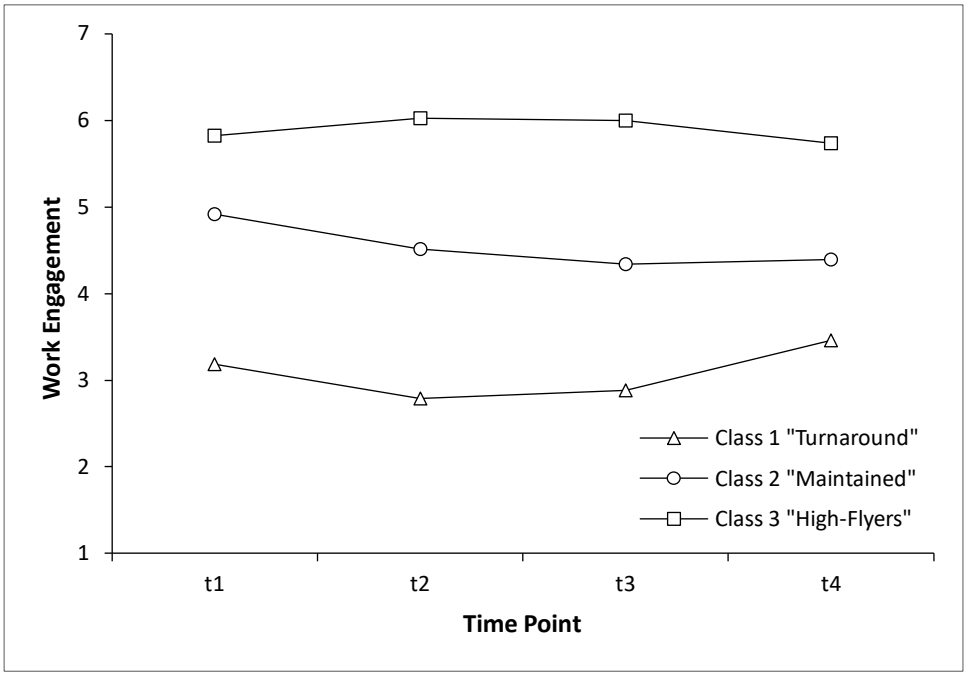

Figure 2: Mean trajectories of the three-class model

Class 1 (19.29%; intercept = 3.18, $p < .001$; $slope_{linear}$= -0.64, $p < .01$; $slope_{quadratic}$= 0.24, $p < .01$), which we labeled “Turnaround”, represents a group that is characterized by a low average level of work engagement that decreases in the first half of the time studied, to then reveal a slight turnaround towards an increase until above t1-level of engagement at the last time t4. Class 2 (53.81%; intercept = 4.92, $p < .001$; $slope_{linear}$= -0.52, $p < .01$; $slope_{quadratic}$= 0.11, $p < .05$), which we called “Maintained”, shows an initial decline in its maintenance curve, almost similar to Class 1, but is characterized by a higher intercept of engagement and a longer lasting decline. A lower rate of decline with almost a stabilizing adjustment in engagement can be

observed around t3 to t4. Class three (26.90%; intercept = 5.83, $p < .001$; $slope_{linear} = 0.32$, $p < .05$; $slope_{quadratic} = -0.12$, $p < .05$), which we refer to as “High-Flyers”, almost represents a counterpart to the trajectory of Class 1. Characterizing this class, an initial increase in engagement is followed by a stagnation that turns into a slight decline of engagement, all on very high levels of engagement.

4.2.2 Person-average LMX predicts class-membership

The second research question on the inter-individual perspective addressed how newcomer work engagement trajectories relate to their overall perceived LMX quality. Addressing this question and concerning the three-class model with quadratic growth curves, tests of categorical multinomial logistic regression for person-average level LMX as a predictor of class membership using the r3step procedure were significant.

Table 3 presents test results and odds ratios. Person-average level LMX was significantly associated with work engagement trajectories. Adding to the second research question on the inter-individual perspective, newcomers with higher person-average level LMX are less likely to have maintenance curves of Class 1 (*Odds ratio* = 0.02, 95% CI [0.00-0.14], z = -3.91, $p = .000$) and Class 2 (*Odds ratio* = 0.04, 95% CI [0.01-0.29], z = -3.17, $p = .001$) compared to Class 3. Put differently, with an increasing person-average level of LMX, the likelihood that newcomers will have a similar trajectory to Class 3, “High-Flyers,” rather than Class 1 or Class 2, rises very sharply.

Table 3: Results of categorical multinomial logistic regression for LMX and the three-class model

		Reference class		
		Class 1	Class 2	Class 3
Coefficients	Class 1		- 0.74 *	- 3.91 ***
	Class 2	0.74 *		- 3.17 **
	Class 3	3.91 ***	3.17 **	
Odds ratios	Class 1		0.48 [0.25, 0.90]	0.02 [0.00, 0.14]
	Class 2	2.10 [1.12, 3.95]		0.04 [0.01, 0.29]
	Class 3	50.00 [7.16, 349.44]	23.81 [23.43, 163.89]	

Note. *N* = 197. First (second) value in parenthesis represents lower (upper) bounds of 95% Confidence Intervals of the respective odds ratio.
* $p < .05$. ** $p < .01$. *** $p < .001$.

4.3 Reciprocal effects of work engagement and LMX

4.3.1 Hypothesis testing - step 1: model comparison

Rouder and Morey (2012) propose the model comparison approach as preferred for testing hypotheses in Bayesian regression models meaning that different submodels without specific effects of interest are compared to the full model. In line with this, Zyphur et al. (2020) recommend four steps to test for Granger-Sims causality in the GCLM, estimating first the full GCLM model, second the model without cross-effects in one direction, third the model correspondingly reversed without cross-effects in the other direction, and fourth the model excluding any cross-effects. We have a manageable number of predictors in our model (i.e., LMX and work engagement) and, thus, a feasible number of models to test, which leads us to adopt this procedure.

First, we examined the direction of causality, precisely that LMX influences newcomers' work engagement over time (H1a) or the opposite direction (H1b), as well as a reciprocal relation over time (H1c). We compared the nested submodels using the BIC and Bayes factors and with the full model as the reference in each case. As can be seen from Table 4, the model fit worsens by introducing zero-constraints for effect sizes regarding work engagement → LMX (BIC = 2328.04) but improves for the other submodels, namely LMX → work engagement (BIC

= 2302.66) as well as for work engagement ↔ LMX (BIC = 2294.43). In other words, omitting parameters in the direction of work engagement → LMX suggests inappropriate changes in this submodel due to higher BIC compared to the full model. This supports the notion that the omitted effects are justified. Correspondingly, the Bayes factor being decisively greater than zero for work engagement → LMX (Bayes Factor = 17.81) indicates that the data are considerably more likely under conditions of this model specification as compared to the other two submodels with Bayes factors near zero (Andraszewicz et al., 2015) which supports H1b.

Table 4: Fit for testing hypothesis of the GCLM

Model	PPP	95% CI for Chi-Square differences	BIC	Approximative Bayes Factor
1 Full (no effects excluded)	.52	[-32.00, 30.80]	2322.28	Reference
2 Effects WE → LMX excluded	.21	[-20.16, 45.67]	2328.04	17.81
3 Effects LMX → WE excluded	.43	[-29.69, 34.38]	2302.66	0.00
4 Effects WE ↔ LMX excluded	.18	[-17.46, 46.43]	2294.43	0.00

Note. WE = Work Engagement. LMX = Leader-Member Exchange. PPP = Posterior Predictive P-Value. BIC = Bayesian Information Criterion. Approximate Bayes Factor was calculated using the Schwarz criterion (Kass & Raftery, 1995)

4.3.2 Hypothesis testing - step 2: investigation of effects

Similar to Zyphur et al. (2021), in Table 5, we report the direct effects as fully endogenous and average time-varying effect sizes across time points for brevity (for all non-averaged parameters, see Table B.3.1 in the Appendix for Chapter B). In our model, we considered both cross-lagged and cross-lagged moving average effects. Cross-lagged effects represent the lagged effects of variables regressed directly to each other. However, cross-lagged moving average effects represent lagged effects of variables regressed on the impulses associated with the respective other variable at the former time point. Contrary to our hypothesis, we neither found cross-lagged nor cross-lagged moving average effects in the direction of LMX → work engagement (see Table 5). In the direction of work engagement → LMX cross-lagged moving average effects were significant (δWE_{l1}^{LMX} = 0.30, 95% CrI [0.06, 0.53]). Thus, a past impulse in work engagement indicates an initial increase in LMX.

In sum, these results support hypothesis H1b on the influence of work engagement on LMX but do not support either the opposed direction (H1a) or a reciprocal relationship (H1c).

Table 5: Parameter estimates of the GCLM

Parameters	Estimates	95% CrI	p-value
		Effects regarding solely WE	
βWE_{l1}^{WE}	-0.20 (0.32)	[-0.67, 0.63]	.22
δWE_{l1}^{WE}	1.52 (0.72)	[-0.28, 2.37]	.07
δWE_{l2}^{WE}	0.52 (0.30)	[-0.17, 1.02]	.08
δWE_{l1+l2}^{WE}	2.13 (0.94)	[-0.35, 3.02]	.07
$\beta WE_{l1+l2}^{WE} + \delta WE_{l1+l2}^{WE}$	1.86 (0.72)	[0.00, 2.73]	.03
		Effects regarding solely LMX	
βLMX_{l1}^{LMX}	0.19 (0.43)	[-0.69, 1.00]	.33
βLMX_{l2}^{LMX}	0.67 (0.38)	[-0.06, 1.41]	.04
βLMX_{l1+l2}^{LMX}	0.86 (0.14)	[0.59, 1.12]	.00
δLMX_{l1}^{LMX}	0.42 (0.48)	[-0.45, 1.43]	.18
δLMX_{l2}^{LMX}	-0.25 (0.18)	[-0.60, 0.11]	.08
δLMX_{l1+l2}^{LMX}	0.17 (0.49)	[-0.73, 1.17]	.36
$\beta LMX_{l1+l2}^{LMX} + \delta LMX_{l1+l2}^{LMX}$	1.02 (0.40)	[0.25, 1.83]	.00
		Effects in the direction of WE on LMX	
βWE_{l1}^{LMX}	0.00 (0.06)	[-0.11, 0.11]	.47
δWE_{l1}^{LMX}	0.30 (0.12)	[0.06, 0.53]	.01
$\beta WE_{l1}^{LMX}+\delta WE_{l1}^{LMX}$	0.30 (0.11)	[0.10, 0.51]	.00
		Effects in the direction of LMX on WE	
βLMX_{l1}^{WE}	0.24 (0.24)	[-0.22, 0.74]	.13
δLMX_{l1}^{WE}	-0.50 (0.37)	[-1.24, 0.19]	.07
$\beta LMX_{l1}^{WE} + \delta LMX_{l1}^{WE}$	-0.25 (0.28)	[-0.81, 0.28]	.13

Note. WE = Work engagement. LMX = Leader-Member Exchange. Posterior standard deviations are in parentheses. 95% CrI = 95% credibility interval in square brackets (effects not present if zero included). Superscripts = dependent variables. Subscripts: li = lag order i. β = autoregressive or cross-lagged effects. δ = moving average or cross-lagged moving average effects.

4.3.3 Supplementary analysis in the GCLM

When considering a long-term perspective and thus covering remaining effects, an impulse response is traced through the model, where the starting point of the first impulse must correspond to at least the highest lag order (in our model, that is two) (Zyphur et al., 2020). As can be seen in Table 5, results indicate stronger persistence of impulses (considering the autoregressive terms) for later LMX (βLMX_{l1+l2}^{LMX} = 0.86, 95% CrI [0.59, 1.12]) in contrast to work

engagement (βWE_{l1}^{WE} = -0.2, 95% CrI [-0.67, 0.63]). For the unstandardized and standardized effect estimates, see Table B.3.2 in the Appendix for Chapter B.

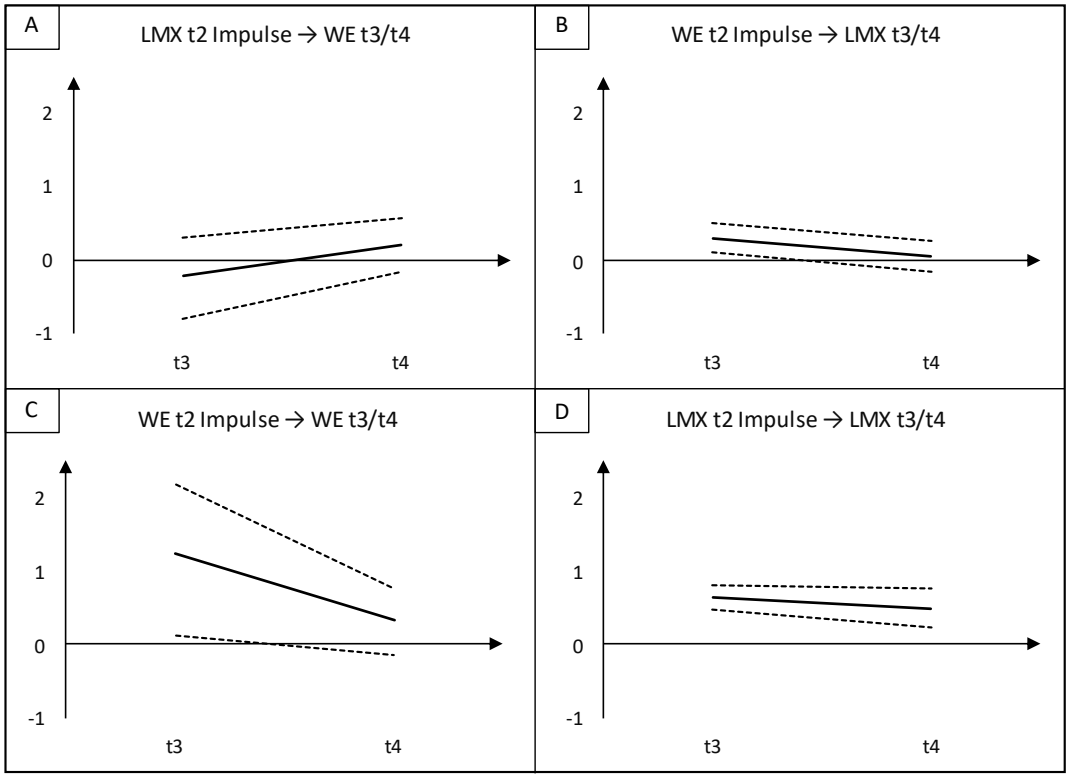

Figure 3: Persistence of impulse responses

Note. LMX = Leader-Member Exchange. WE = Work Engagement. Impulse responses (i.e., the remaining effects of t2 impulses in t3 and t4) are depicted as continuous lines. The dotted lines represent the lower and upper bounds of the respective 95% credibility intervals.

We have depicted the impulse response patterns (i.e., the remaining effects in t3 and t4 resulting from impulses in t2) in Figure 3. For LMX → work engagement, no remaining effect of the initial impulse from t2 is apparent ($uLMX_{t2}^{WEt3}$ = -0.22, 95% CrI [-0.81, 0.30]; $uLMX_{t2}^{WEt4}$ = 0.20, 95% CrI [-0.16, 0.57]; see Figure 3, Quadrant A). The impulse in the opposite direction, work engagement → LMX, can be found in t3 but no longer in t4 (uWE_{t2}^{LMXt3} = 0.30, 95% CrI [0.12, 0.51]; uWE_{t2}^{LMXt4} = 0.04, 95% CrI [-0.16, 0.26]; see Figure 3, Quadrant B). These results are consistent with the short-term effects we have already shown. Regarding the remaining effect of an impulse of a variable from t2 on itself later on, work engagement shows remaining effects in t3 but not in t4 (uWE_{t2}^{WEt3} = 1.24, 95% CrI [0.11, 2.17]; uWE_{t2}^{WEt4} = 0.33, 95% CrI [-

0.15, 0.76]; see Figure 3, Quadrant C) while LMX still exhibits the impulse responses in t3 as well as slightly reduced in t4 ($uLMX_{t2}^{LMXt3}$ = 0.63, 95% CrI [0.46, 0.80]; $uLMX_{t2}^{LMXt4}$ = 0.49, 95% CrI [0.22, 0.76]; Figure 3, Quadrant D).

5 Discussion

Despite two decades of intensive work engagement research, work engagement among newcomers has not been thoroughly investigated. In particular, differences between newcomers in how their work engagement progresses during organizational socialization and how newcomer work engagement relates to the leader-newcomer relationship in terms of LMX have not been studied. By applying a multimethod approach to a longitudinal newcomer sample, the present study advances our understanding of newcomer work engagement maintenance curves (Saks & Gruman, 2018) and how LMX relates to newcomers' work engagement over time. Thus, the first aim of our study was to explore how newcomers differ in their development of work engagement and whether LMX relates to different forms of newcomer work engagement trajectories. In addition, we also investigated the relationship between work engagement and LMX over time and hypothesized that work engagement and LMX would affect each other, resulting in reciprocation.

Our results on the trajectories of work engagement support the notion of work engagement maintenance curves by demonstrating that newcomers systematically differ in their work engagement trajectories. GBTM revealed three distinct groups of newcomer work engagement trajectories (Research Question 1): "High Flyers", "Maintained" and "Turnaround". Most of the newcomers in our sample belonged to the "Maintained" group, which initially had moderately high levels of work engagement and showed a slight decline until reaching a stable level after four months. The "High Flyers" demonstrated consistently high levels of work engagement over time. In contrast, the "Turnaround" group started off at lower work engagement levels that

slightly decreased over two months to then turn around and slightly increase towards a moderately low level again. In addition, we found that LMX is significantly related to work engagement maintenance curves (Research Question 2). As person-average levels of LMX increase, there is a substantially higher likelihood for newcomers to have work engagement trajectories that align with the “High Flyers” group compared to the other groups.

To examine reciprocal relationships between work engagement and LMX over time, we adopted the GCLM procedure. In support of our hypotheses regarding the effect of work engagement on LMX within individuals, we found a notable influence of work engagement on LMX over time. Accordingly, in the short term, impulses (i.e., random variation) in work engagement significantly positively predicted increases in LMX at subsequent measurement occasions, corresponding to cross-lagged moving average effects. However, our hypotheses on the reverse effects of LMX on work engagement or a reciprocal relationship were not supported. By taking a longer-term perspective in complementary analyses of the GCLM, we gained insights into what proportion of the effects of an earlier time point remained in the same or the other construct after one month and two months. We can show that remaining effects of work engagement were detectable within itself and LMX up to one month later. The remaining effects of LMX were found within itself up to two months later, indicating a strong temporal persistence of these effects.

5.1 Theoretical contributions

The findings of our study make several contributions to the theoretical understanding of work engagement, LMX, and the relationship between the two. First, by uncovering differences between newcomers in their trajectories of work engagement, this is the first study to empirically demonstrate the concept of newcomer work engagement maintenance curves (Saks & Gruman, 2018). Thus, we add to the existing literature on changes in work engagement (e.g.,

Bakker & Albrecht, 2018; Bakker et al., 2020) and changes in newcomer attitudes during organizational socialization (e.g., Bauer et al., 2007; Boswell et al., 2005, 2009; Maia et al., 2016; Valero & Hirschi, 2019; D. Wang et al., 2017). We also advance the discussion of newcomer work engagement with respect to how it progresses and how newcomers differ in their work engagement maintenance curves. In doing so, we add to the research by expanding the knowledge about longitudinal changes that newcomers undergo throughout organizational socialization (see also Bauer et al., 2021).

While research on changes in newcomer job satisfaction, such as the honeymoon-hangover effect (Boswell et al., 2005, 2009; Valero & Hirschi, 2019; D. Wang et al., 2017), and on changes in commitment (Maia et al., 2016) suggest that newcomers mostly show patterns of initial increases followed by a decline or more stable pattern throughout socialization, our results imply that there are several potential work engagement trajectories. A differentiation in patterns of honeymoon, hangover, or maintenance might be too simplistic. Multifaceted patterns of change might be similar or different across proximal and distal socialization outcomes (e.g., work engagement, job satisfaction, or commitment), as previous research has demonstrated substantial differences in newcomers' mean values of adjustment-related outcome variables over time (Bauer et al., 2007; Bauer & Erdogan, 2011). Taken together, there might not only be systematic similarities or differences in how several socialization outcomes develop over time but also in how newcomers differ among their trajectories along each outcome. This would suggest a broader concept of newcomer maintenance curves, which we will elaborate on later regarding future research.

Second, by focusing on the relationship between work engagement and the relational job resource of LMX, we add to the broader literature on socialization resources and work engagement in the context of the JD-R model and answer calls to investigate how this relates to newcomer adjustment and work engagement (Saks & Gruman, 2012, 2018). In line with evidence

on the positive relationship between LMX and work engagement in the domain of the JD-R model (e.g., Agarwal et al., 2012; Lesener et al., 2020; Tanskanen et al., 2019) and existing literature on the effects of LMX on changes in work engagement (e.g., Tóth-Király et al., 2023), our results indicate that LMX is positively related to newcomer work engagement maintenance curves. Thus, the quality of leader-member relationships has far-reaching consequences for newcomers regarding which type of work engagement trajectory they will have. Lower levels of LMX might relate to unfavorable newcomer work engagement maintenance curves. For theory, and in line with the propositions of the JD-R model, this also implies that socialization resources will be related to newcomer work engagement maintenance curves.

Furthermore, by investigating LMX and work engagement in a cross-lagged design, we address calls regarding potential cause-effect relationships of work engagement (e.g., Mauno et al., 2007). In particular, our results contribute to the existing literature pointing to reciprocity between job resources and work engagement (Xanthopoulou et al., 2009). While person-average LMX is associated with different groups regarding newcomer work engagement maintenance curves, LMX does not impact newcomer work engagement from one month to the next. Our results of the GCLM suggest that LMX does not affect the work engagement of newcomers on the intra-individual level over time. However, temporal variation in work engagement positively predicts increases in LMX at a later point in time. Accordingly, the JD-R model proposes gain cycles, where job resources enhance work engagement, and work engagement, in turn, enhances employees' job resources (Bakker et al., 2023). Our results add to the proposition of gain cycles in the JD-R model as we found that newcomers' work engagement is positively related to LMX, which can be considered a job resource. In the short term, increases in work engagement might favor a higher LMX quality. In the long run and on the inter-individual level, overall levels of LMX relate to newcomer work engagement trajectories. Taken together, this could indicate that gain cycles unfold in different temporal dynamics and intervals depending on the level (inter- or intra-individual). In this regard, our results likewise expand the existing

literature on how work engagement might affect its antecedents by showing that newcomers contribute to their LMX relationship.

Third, we contribute to the discussion regarding the endogeneity of LMX and its treatment in statistical modeling (Gottfredson et al., 2020). LMX exhibits considerable conceptual ambiguity, posing a potential risk when attempting to model it as an exogenous variable, where influential factors that might cofound LMX as a predictor are omitted (Antonakis et al., 2010). One recommendation to mitigate this issue and enhance the robustness of the findings by Antonakis et al. (2010) is to employ experimental manipulation. Although the present study does not involve an experimental design, the GCLM makes a valuable contribution by integrating impulses. Those impulses can be seen as random assignments to a level of the associated variable at each measurement occasion (Zyphur et al., 2020, p. 675), thus modeling randomness within the model. Adding to the notion that LMX is endogenous, we can empirically demonstrate the direction of influence from work engagement on LMX in our model, where impulses in work engagement (including randomness) affect LMX one month later. Furthermore, although LMX literature has been elaborating on how it might develop in different phases over time (e.g., Bauer & Green, 1996; Graen & Scandura, 1987; Liden et al., 1993) and how numerous antecedents relate to LMX (e.g., Dulebohn et al., 2012), recent calls for research have pointed to the scarcity of studies on both longitudinal changes in LMX (e.g., Holt & Lee, 2023; van Es et al., 2021) and cross-lagged designs that investigate longitudinal effects with LMX (e.g., Schermuly & Meyer, 2016). We respond to those calls and add to the literature on the development, changes and phases of LMX. The results of the GCLM suggest that during the earlier phases of LMX development (i.e., the role-taking and role-making phase; see Graen & Scandura, 1987), we would see the newcomers of our sample in, LMX is influenced by followers' work engagement. This also adds to LMX research regarding the underlying reciprocity rationale of social exchange theory (Cropanzano & Mitchell, 2005), as newcomers might also perform as actors in LMX relationships, where expressions of their positive motivational state

of mind regarding work engagement will result in responses by the leader that increase LMX quality. Moreover, the results of our supplemental analyses strongly suggest that changes in the early phase of LMX have a long-lasting, persistent effect. Thus, what happens in LMX early on during socialization will sustain until months later.

5.2 Practical implications

In terms of practice, the results of our study highlight the importance of rigorously conducted socialization practices and monitoring of key indicators for socialization success. In line with Albrecht et al. (2015), we encourage practitioners to implement and adjust practices that consistently focus on providing newcomers with valuable resources. During socialization, organizations need to provide their newcomers with resources that not only facilitate their adjustment in lowering uncertainty and providing information but enable and engage newcomers (Bauer et al., 2021). We found that leadership and LMX, in particular, play an essential role in newcomer engagement, which could be a starting point for organizations. Organizations might further draw from socialization resources theory while they focus on sharpening the process of organizational socialization and supporting newcomers in this process by providing them with various resources at different times during the socialization process (Saks & Gruman, 2012).

Furthermore, we suggest a systematic approach of closely monitoring work engagement and LMX from the beginning of socialization to mitigate potential negative consequences for both LMX relationships and work engagement trajectories. Organizations should be more aware that newcomer engagement and attitudes might affect LMX relationships. In this regard, implementing systematic and ongoing mutual feedback during socialization could encourage newcomers to further benefit from their engagement. Also, as LMX has been linked to turnover via work engagement (Agarwal et al., 2012), identifying declines or turning points in both LMX

and newcomer engagement might be crucial for newcomer retention. In a broader sense, organizations could assess and monitor socialization resources and outcomes to better identify changes and counteract undesired developments.

Organizations should also be aware of the lasting effects that human resource and leadership interventions can have on newcomers. Our findings, along with those of Bauer et al. (2021), suggest that what happens early on during socialization has a lasting impact, as early effects in LMX persist within newcomers over months. In line with existing research highlighting that early resources and events have a lasting effect on socialization, where even just meeting one's manager in the first days impacts social acceptance (Bauer et al., 2021), we thus encourage practitioners to provide appropriate resources to newcomers from the very start. Particular attention should also be given to interactions between leaders and newcomers (Sluss & Thompson, 2012), as these can influence LMX and make a difference in the progress of newcomers' work engagement maintenance curves.

Finally, from a management perspective, an integrative and holistic approach toward caring human resource management (Saks, 2022) could benefit both LMX and newcomer work engagement. Various practices of caring HRM systems, such as programs for participation, career development, or flexible work arrangements, can provide newcomers with resources to maintain high levels of work engagement. Combined with a focus on caring leadership, this might facilitate the development of high-quality LMX, leading to greater caring for the organization and higher work engagement.

5.3 Strengths, limitations and future research

Despite its strengths, this study has some limitations that might offer starting points for future research. First, we included self-report measures for both work engagement and LMX. These

may be affected by socially desirable response behavior and common method bias. Although the focus of our study strongly lies on newcomer perceptions of LMX and work engagement, future research might also seek to implement external ratings of LMX and work engagement. As research has pointed out that agreement in leader-perceived and member-perceived LMX affects employee extra-role behavior (e.g., Matta et al., 2015), future studies might investigate the effects of LMX agreement on newcomer work engagement (and vice versa).

Second, as one of the main foci of our study was to investigate the immediate relationship between newcomer work engagement and LMX, our study does not account for effects of mediation or moderation. Future research might seek to investigate proactive employee behaviors such as job crafting in the link between work engagement with resources (Bakker & Demerouti, 2017; Bakker et al., 2023) while implementing models that account for intensive longitudinal mediation (e.g., McNeish & MacKinnon, 2022) to gain further insights into mediating mechanisms. Future research would also benefit from implementing co-variates into cross-lagged panel models (Hamaker et al., 2015; Mulder & Hamaker, 2021). Researchers could also seek to expand cross-lagged models to different levels (e.g., Gregersen et al., 2016) or to implement random effects for individual differences, called Random Effects Cross-Lagged Panel Model (Núñez-Regueiro et al., 2021). At the same time, future studies might consider relationships of work engagement with other resources than LMX in cross-lagged designs, given that evidence suggests reciprocal effects between job resources and work engagement (Xanthopoulou et al., 2009). Furthermore, researchers could investigate such effects on multiple levels (e.g., newcomer, leader, organization) and across levels (Bakker et al., 2023). Given that recent research established the effects of job resources on work engagement on and across different levels (Lesener et al., 2020), this may be a fruitful area of future research.

Third, even with complex procedures for analyzing longitudinal data, like in our case, the GCLM, we might not uncover the exact underlying nature of causality, as correlational designs

do not permit causal conclusions in a strict sense. Even though experimental research in the context of organizational socialization might be challenging to conduct, we encourage researchers to increase internal validity. As research has already shown that interventions can improve work engagement (e.g., Knight et al., 2017; Virga et al., 2021), randomized experimental designs could largely benefit making causal claims (Antonakis et al., 2010, p. 1086) while investigating effects regarding newcomers and the relationship between newcomer work engagement and LMX or other socialization resources. In addition, further expansion of the GCLM by investigating accumulated remaining effects resulting from not only one but multiple impulses (see Shamsollahi et al., 2021) might further enhance insights into long-term effects and thus be another promising approach for future studies.

Fourth, this study was limited to four measurement points during the first four months of socialization. In GBTM, this limited us to using quadratic slopes as the highest exponential growth factor. Future research should consider more time points and inspect latent classes and patterns of change based on higher polynomial functions, and find additional types of work engagement trajectories to further validate the concept of newcomer work engagement maintenance curves. In this regard, as discussed earlier, patterns of change during organizational socialization are manifold. Changes should not only be examined regarding work engagement, job satisfaction, or commitment. Rather, we advocate for a broader approach to newcomer maintenance curves, integrating and comparing several proximal and distal socialization outcomes in how they change and evolve over time and how this relates to various socialization resources or perhaps bundles of resources. Therefore, future studies might elaborate on designs that enable the comparison of changes and trajectories in different constructs during newcomer socialization. Future studies might also investigate how different socialization resources (e.g., material, personal, social, and status resources) provided at different times during organizational socialization relate to adjustment trajectories and changes in newcomer maintenance curves throughout the first year of socialization (Bauer et al., 2021). Research

along these lines would benefit and advance research on socialization resources theory and newcomer maintenance curves.

6 Conclusion

Although the research on work engagement and LMX have long traditions, the development of newcomers' work engagement and its relationship with LMX has not received much scholarly attention. The present study demonstrated that the relationship between LMX and newcomer work engagement cannot be easily explained by a simple antecedent-consequence rationale. While inter-individual differences in newcomers' work engagement trajectories relate to overall LMX quality, LMX does not predict work engagement intra-individually. Conversely, our study indicates that newcomers' work engagement impacts LMX on an intra-individual level. We hope our findings will be a starting point for scholars and draw more attention to newcomer work engagement maintenance curves and how different types of resources relate to newcomer work engagement over time. Future research might also dig deeper into the development of newcomer work engagement and shed more light on causal relationships over longer periods of time to further develop both the science and practice of newcomer work engagement.

Article 2

The interplay of leader-member exchange and core self-evaluations in predicting newcomers' work engagement and OCB

Authors:

Patrik Fröhlich (University of Wuppertal, Germany)

Stefan Diestel (University of Wuppertal, Germany)

C The interplay of leader-member exchange and core self-evaluations in predicting newcomers' work engagement and OCB (Authors: Patrik Fröhlich, Stefan Diestel)

Abstract:

Current research accentuates the importance of organizational and personal resources for newcomer socialization. To advance scholarly understanding of how both types of resources influence each other in facilitating newcomers' motivational states and predicting extra-role behavior, our study investigates interactive effects of leader-member exchange (LMX) and core self-evaluations on newcomers' work engagement and OCB. Specifically, linking the job-demands resources model with conservation of resources theory, we develop and test a moderated mediation model. Data from 153 newcomers show that the positive indirect effect of LMX on OCB via work engagement is amplified as a function of core self-evaluations. We derive theoretical and practical implications on how LMX and core self-evaluations shape newcomers' motivation and OCB.

1 Introduction

In order to gain and enhance competitive advantages, organizations seek to build a strong workforce by helping employees to develop skills and maintain their motivation from an early stage of organizational entry (Albrecht et al., 2015). In this phase of organizational socialization, both organizations and newcomers engage in mutual exchange, also considering the effects of newcomers' characteristics (Bauer et al., 2007; A. E. C. Griffin et al., 2000; Reichers, 1987).

During organizational socialization, the newcomers' relationships with their leaders play an essential role (T. B. Harris et al., 2013; Sluss & Thompson, 2012). This is because the quality of these relationships in the form of leader-member exchange (LMX) is an important resource that facilitates work engagement (e.g., Breevaart et al., 2015; Gutermann et al., 2017) and enhances extra-role performance (i.e., organizational citizenship behavior (OCB) (Dulebohn et al., 2012). At the same time, socialization research has highlighted the impact of newcomers' personality traits during socialization (e.g., Bauer & Erdogan, 2011). Consequently, core self-evaluations (CSE) have caught scholarly attention, and research demonstrates its important role for newcomers (e.g., R. Fang et al., 2017; Song et al., 2015), given that CSE reflect individuals' overall and basic assessments of themselves, their abilities and their control as a higher-order trait (Judge et al., 1997). Although organizational socialization literature has emphasized relationships between resources and well-being, little is known about how job resources, personal resources, and their interactions relate to newcomer work engagement and socialization outcomes, such as OCB (Saks & Gruman, 2012, 2018).

This is particularly surprising given that the Job Demands-Resources (JD-R) model assumes that personal and job resources interact in predicting work engagement and performance (Bakker et al., 2023). Irrespective of the theoretical insights that strongly suggest an interplay of

resources, the potential impact of CSE on the influence of leader-member relationships on work engagement and extra-role behaviors has evaded scholarly attention.

In the present study, we investigate the interplay of LMX with CSE in predicting newcomers' work engagement and OCB. We build upon the JD-R model and hypothesize indirect effects of LMX on OCB via work engagement. Incorporating conservation of resources (COR) theory (Hobfoll, 2002; Hobfoll et al., 2018), we further predict CSE to amplify the positive effects of LMX on newcomers' work engagement. To test our propositions, we analyze the resulting model of moderated mediation (see Figure 4) among a sample of 153 organizational newcomers.

Our study offers three contributions. First, we add literature on organizational socialization and the JD-R model. We go beyond existing literature on newcomers' work engagement and identify LMX as an important predictor of newcomers' work engagement, thereby addressing calls to investigate relationships of socialization resources with newcomers' work engagement (Saks & Gruman, 2018).

Furthermore, by investigating how LMX impacts OCB through newcomers' work engagement, we contribute to the literature on beneficial effects that LMX will have on employee behavior and performance (Mumtaz & Rowley, 2020). Second, we combine literature on OCB and organizational socialization to clarify the role of work engagement in predicting newcomers' extra-role behavior. While previous studies on newcomers' OCB mostly focused on socialization practices, role clarity, or fit perceptions, we outline the relevance of work engagement for newcomers' OCB. We thus add to the theoretical understanding of motivational processes in predicting why newcomers engage in OCB. Finally, we advance JD-R and socialization research by underlining the importance of resource combinations and their interplay for newcomers. In

particular, by investigating the resource-managing role of newcomers' CSE, we advance literature on how personal resources impact newcomers' capability to benefit from job resources, such as LMX.

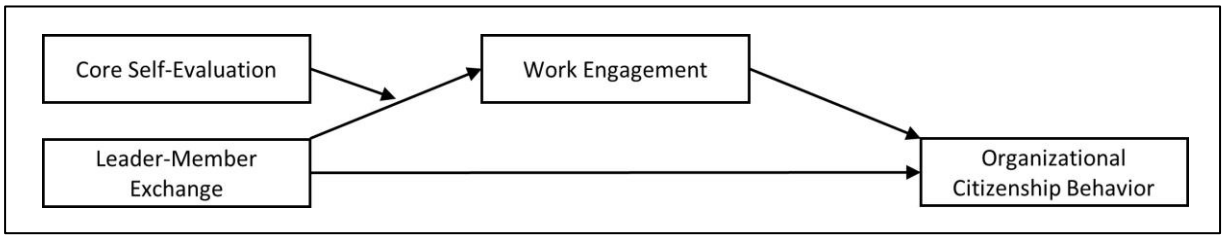

Figure 4: Proposed model of moderated mediation

2 Theory and hypotheses

2.1 Work engagement as a mediator in the relationship between newcomers' LMX and OCB

During organizational socialization, former organizational outsiders become organizational insiders while learning the behaviors and skills to be successful in their new work roles (Bauer & Erdogan, 2011). Both newcomers and organizations jointly contribute to socialization success, with the interaction between newcomers and organizational insiders being particularly important for socialization and performance (A. E. C. Griffin et al., 2000; Reichers, 1987).

Leaders are one of the most influential insiders and especially important for newcomers (T. B. Harris et al., 2013) and research repeatedly highlights how leader-member exchange (LMX) impacts newcomer adjustment and performance (e.g., Jokisaari, 2013; Sluss & Thompson, 2012). LMX theory considers the mutual influence and exchange in leader-follower relationships, focusing on the quality of the relationships (Graen & Uhl-Bien, 1995). This study looks at the leader-newcomer relationship regarding LMX quality perceived by newcomers. In

higher-quality LMX relationships, leaders enhance resource availability for followers (here: newcomers), who then reciprocate to the organization and leader by enhanced contribution and performance (Erdogan & Bauer, 2015; Uhl-Bien & Maslyn, 2003). Therefore, newcomers profit from their leaders through access to more resources (e.g., R. Fang et al., 2017), facilitating socialization and enhancing newcomer performance (e.g., J. Liu et al., 2021).

Based on the underlying principle of reciprocity in LMX theory, research strongly suggests that LMX quality perceived by newcomers will enhance OCB in particular, as employees with "higher quality LMX relationships 'pay back' their leaders by engaging in [organizational] citizenship (i.e., discretionary) behaviors" (Ilies et al., 2007, p. 269). OCB refers to voluntary behaviors that go beyond formal job descriptions, supporting the social structure and functioning of the organization (Fox et al., 2012; Spector et al., 2010).

Organizational socialization research implies effective exchange relationships – especially with leaders – facilitate newcomers' OCB (Cooper-Thomas & Anderson, 2006). However, there are only two studies on the relationship between newcomers' LMX and extra-role behaviors (Zheng et al., 2016) or organization member performance (Jokisaari, 2013). This is especially surprising as meta-analyses demonstrate that LMX is most strongly related to OCB (relative to other behavioral performances) with corrected coefficients of .34 to .37 (Dulebohn et al., 2012; Ilies et al., 2007). Thus, prior research and LMX theory strongly suggest that newcomers in higher-quality LMX relationships make use of high resource availability and engage in OCB.

In general, resources can be defined as all means that are either of central value themselves or serve as means in achieving goals (Hobfoll, 2002, p. 307). Throughout socialization, organizations provide newcomers with valuable resources to enhance performance and motivation (Saks & Gruman, 2012, 2018). JD-R theory offers an in-depth explanation for why resources

shape behavioral outcomes and performance, proposing that employee performance is enhanced through motivational processes initiated by two types of resources: job resources and personal resources (Bakker & Demerouti, 2017). Job resources are entities at work that can help achieve goals and promote development, whereas personal resources are positive evaluations of oneself referring to the sense of being able to control and influence the environment effectively (Bakker et al., 2023). As noted earlier, LMX is of central value for newcomers, helping them achieve goals and facilitating socialization and performance. Therefore, in line with JD-R theory, LMX represents a job resource during organizational socialization that should positively relate to newcomers' OCB.

In conclusion, LMX theory, the JD-R model, and previous research strongly suggest that LMX positively affects newcomers' OCB. Newcomers with higher-quality LMX relationships profit from LMX as a job resource and their leader providing and enabling access to other viable resources, leading to newcomers "paying back" by demonstrating higher levels of OCB. This leads to the following hypothesis:

Hypothesis 1: Leader-member exchange is positively related to newcomers' OCB.

The JD-R model proposes that job resources promote employee performance by enhancing work engagement in a motivational process (Bakker & Demerouti, 2017). Work engagement can be defined as "a positive, fulfilling, work-related state of mind that is characterized by vigor [i.e., high energy levels and eagerness to make an effort], dedication [i.e., being engrossed and feeling a sense of meaningfulness and excitement at work], and absorption [i.e., enjoyment of work and full concentration, with time passing quickly]" (Schaufeli et al., 2002, p. 74). Although job resources may also help in dealing with demands, they are foremost important

for employee work engagement (Bakker et al., 2014; Lesener et al., 2020) and shape newcomers' work engagement (Saks & Gruman, 2018). Therefore, job resources like LMX should positively relate to newcomers' work engagement.

Despite extensive literature on antecedents and consequences of work engagement (for a meta-analytic overview: see Mazzetti et al., 2021), the body of knowledge regarding newcomers is scarce (for an overview, see Saks & Gruman, 2018). Also, organizational socialization research has highlighted the importance of LMX for socialization, but only one study exists on its relationship with newcomer work engagement (H. Liu et al., 2023). However, previous research revealed that leaders particularly influence followers' work engagement through social exchange (Decuypere & Schaufeli, 2020) and consistently demonstrates a positive relationship of LMX with work engagement (e.g., Breevaart et al., 2015; Gutermann et al., 2017; .31 to .41 in meta-analytical studies: Christian et al., 2011; E. Y. Liao & Hui, 2021).

In summary, representing an important job resource for newcomers, higher LMX quality is related to higher resource availability during organizational socialization, enhancing newcomer work engagement. In line with the JD-R model and previous research, we assume that LMX positively impacts newcomers' work engagement. This leads to the following hypothesis:

Hypothesis 2: Leader-member exchange is positively related to newcomers' work engagement.

According to the JD-R model, work engagement positively relates to employee performance (Bakker & Demerouti, 2017) (Bakker & Demerouti, 2017). Engaged employees exhibit better performance and more extra-role behaviors (Mazzetti et al., 2021; Saks, 2019). They are highly dedicated to making a positive contribution and are highly motivated to contribute by demonstrating beneficial behaviors that help the organization and its social structure (Christian et al., 2011). Consequently, evidence strongly suggests that engaged employees are more likely to

demonstrate OCB (e.g., Bakker et al., 2004; W. Kim et al., 2013), and meta-analyses report medium to strong effects of .34 to .46 for the relationship (Borst et al., 2020; Christian et al., 2011). Surprisingly, to the best of our knowledge, there is no study on how work engagement impacts OCB in newcomers. Despite the lack of evidence on newcomers' work engagement and its consequences among newcomers, socialization literature expects work engagement to positively impact newcomer performance, including OCB (Saks & Gruman, 2018).

We, therefore, expect newcomers' work engagement to positively predict OCB, as they are more capable and willing to positively contribute beyond their in-role job tasks, resulting in higher levels of OCB. This leads to the following hypothesis:

Hypothesis 3: Newcomers' work engagement is positively related to OCB.

In sum, the mediating role of work engagement emerges. Firmly anchored in JD-R theory, job resources have been demonstrated to be crucial in predicting extra-role behaviors through their impact on work engagement (Bakker et al., 2004). Previous research has established work engagement as a mediator between LMX and performance (e.g., Breevaart et al., 2015), and meta-analyses further suggest that work engagement mediates the positive relationship between LMX and OCB (Martin et al., 2016). This is because high work engagement indicates that employees are highly motivated and willing to build further resources and contribute. Overall, we thus expect that LMX will positively relate to newcomers' work engagement, ultimately enhancing OCB. Therefore, we propose the following hypothesis:

Hypothesis 4: Work engagement mediates the positive relationship between LMX and OCB among newcomers.

2.2 The interplay of LMX with core self-evaluations

Organizational socialization research highlights the impact of newcomer personality in interactions between organizations and newcomers (Bauer et al., 2007; Reichers, 1987). This also manifests in resource theories. According to COR theory, fewer resources increase the likelihood of negative effects and resource loss, while higher levels enable individuals to benefit and thus gain resources (Hobfoll et al., 2018). With the latter, higher levels of personal resources enable individuals to better manage their job-related resources (Hobfoll, 2002). Similarly, JD-R theory proposes that higher personal resources relate to more job resources, and vice versa, and expects employee characteristics and personality to moderate effects of job resources on performance (Bakker et al., 2023).

CSE represent a person's overall evaluation of oneself, one's abilities, and one's ability to control the environment (Judge et al., 1997), integrating four interrelated personality traits: self-esteem (overall assessment of one’s value), generalized self-efficacy (confidence in one's ability to succeed), neuroticism (tending to focus on negative aspects), and locus of control (belief that results cause from one’s behaviors by controlling the environment) (Judge et al., 2003). COR and JD-R theory strongly suggest that newcomers with higher levels of CSE as a personal resource (i.e., positive self-evaluations with a sense of being able to effectively control the environment) will be better able to utilize job resources. We thus expect newcomers with higher CSE will be better able to manage the job resource of LMX and leverage available resources provided in higher LMX relationships, resulting in higher levels of work engagement. In particular, we expect newcomers with higher CSE to be better able to profit from a higher LMX quality than those with lower CSE.

Meta-analyses demonstrate that CSE can enhance positive job attitudes and OCB (Chang et al., 2012), and previous research suggests that CSE enable employees to better utilize available resources (Judge & Hurst, 2007, 2008), enhancing relationships of job resources with performance (Debusscher et al., 2017). Research repeatedly calls for more nuanced investigations of interplays of personal and job resources in predicting newcomer work engagement (Saks & Gruman, 2012, 2018) and demonstrates how newcomers' CSE enhance effects of socialization resources on newcomer adjustment and work engagement (e.g., R. Fang et al., 2017; Song et al., 2015). However, the interaction between LMX and newcomers' CSE has remained unstudied.

In line with COR and JD-R theory, we propose that newcomers with higher CSE will be better able to leverage provided resources in higher-quality LMX relationships, resulting in higher levels of work engagement. This leads to the following hypothesis:

Hypothesis 5: Newcomers' CSE moderate the positive relationship between LMX and work engagement; the relationship will be stronger (weaker) for newcomers with higher (lower) CSE.

In sum, we expect enhanced resource availability due to LMX as a job resource will positively predict newcomers' work engagement, ultimately facilitating OCB. Thus, in line with the JD-R model, we expect work engagement to mediate the positive relationship between LMX and OCB. We additionally expect newcomers with higher CSE to be better able to manage and leverage resources related with better LMX, further enhancing work engagement. Thus, we expect that the indirect effect of LMX on OCB via work engagement will be stronger (weaker) for newcomers with higher (lower) CSE, leading to the following hypothesis:

Hypothesis 6: The indirect effect of LMX on OCB via work engagement will be moderated by newcomers' CSE; the indirect effect will be stronger (weaker) for newcomers with higher (lower) CSE.

3 Method

3.1 Participants and procedure

We acquired 153 newcomers (M_{Age} = 28.81; SD_{Age} = 7.50; 56.20 % female) from various German organizations through direct contact and professional networks (e.g., LinkedIn, XING). The main inclusion criterium for participants was an organizational tenure of four to eight weeks (*M* = 5.28; *SD* = 1.25), creating a homogenous group of newcomers during organizational socialization. The average previous work experience was 7.97 years (*SD* = 7.52), with an average of 3.20 previous job changes (*SD* = 3.03), measuring participants' prior onboarding experience. Participants received the online survey via double opt-in mailing procedure. Participation was voluntary, and data security and confidentiality were assured. An independent ethics committee approved the ethical soundness.

3.2 Measures

LMX: We used the LMX-7 Scale (Graen & Uhl-Bien, 1995). All seven items (e.g., "How would you characterize your working relationship with your leader?") were rated on a 5-point scale.

CSE: Assessed with the 12-item Scale of Judge et al. (2003). All items (e.g., "I determine what will happen in my life") were assessed on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree).

Work Engagement: Measured with the UWES-9 (Schaufeli et al., 2006). All items (e.g., "I am enthusiastic about my job") were scored on a 7-point rating scale (1 = never; 7 = always).

OCB: Measured with the 10-item OCB-Checklist (Fox et al., 2012; Spector et al., 2010). All items (e.g., “Helped a coworker who had too much to do”) were assessed on a 5-point rating scale (1 = Never; 5 = Every Day).

Control Variables: We included gender, age, prior work experience, and onboarding experience (number of job changes) as potentially relevant covariates (mentioned by Bauer and Erdogan, 2011 or Bauer et al., 2007).

3.3 Analytical approach

We tested the proposed moderated mediation model with the PROCESS module (model 7) for SPSS by Hayes (2022). Based on 5,000 bootstrap samples, we also estimated bias-corrected and accelerated confidence intervals for testing indirect effects (Shrout & Bolger, 2002). To mitigate the risk of multicollinearity, we centered variables defining products before calculating interaction terms (Cohen et al., 2003). Before testing our hypotheses, we performed confirmatory factor analysis to analyze construct validity and address concerns regarding common method bias.

4 Results

4.1 Confirmatory factor analysis

We aggregated Items to form parcels before analyses, using the item-to-construct balance method, parceling lower-loading items with higher-loading items (Little et al., 2002). Confirmatory factor analysis results show that our model with four factors demonstrates better fit values than alternative models, indicating a good fit and discriminant validity (see Table 6).

Table 6: Results for confirmatory factor analysis

Model	Factors	χ^2	df	$\Delta\chi^2$	CFI	TLI	SRMR	RMSEA
Model 1	Four factors	161.32	113		0.96	0.96	0.05	0.05
Model 2	Three factors: OCB and WE combined into one factor	438.44	116	277.13***	0.76	0.71	0.13	0.14
Model 3	Three factors: LMX and CSE combined into one factor	374.48	116	213.16***	0.80	0.79	0.10	0.12
Model 4	Two factors: LMX, CSE, and WE combined into one factor	601.17	118	439.86***	0.63	0.58	0.12	0.16
Model 5	One factor: All constructs combined into one factor	898.59	119	737.27***	0.41	0.32	0.16	0.21

Note. CFI = Comparative Fit Index. TLI = Tucker-Lewis Index. SRMR = Standardized Root Mean Square Residual. RMSEA = Root Mean Square Error of Approximation. OCB = Organizational Citizenship Behavior. WE = Work Engagement. LMX = Leader-Member Exchange.
* $p < .05$. ** $p < .01$. *** $p < .001$.

4.2 Descriptive statistics

Table 7 shows descriptive statistics, internal consistencies, and intercorrelations of all variables.

Table 7: Means, standard deviations, factor loadings, and intercorrelations

					Correlations							
	M	SD	min-max	Factor loadings	1.	2.	3.	4.	5.	6.	7.	8.
1. Gender	0.44	0.50										
2. Age	28.81	7.50	18-63		.13							
3. Work experience	7.97	7.51	0-44		.19*	.90**						
4. Onboarding experience [a]	3.20	3.03	0-20		.12	.31**	.41**					
5. Leader-Member Exchange [b]	3.91	0.67		0.79–0.87	.05	.01	.00	-.02	*.87*			
6. Core-Self Evaluations [b]	3.95	0.65		0.71–0.81	.08	.05	.08	-.04	.34**	*.88*		
7. Work Engagement [c]	4.95	1.02		0.83–0.90	.06	.11	.17*	.02	.46**	.43**	*.93*	
8. OCB [b]	2.91	0.73		0.69–0.84	-.01	.17*	.22**	.13	.18*	.21**	.34**	*.83*

Note. N = 153. For gender: 0 = female, 1 = male. Factor loadings: The first (second) value represents the lowest (highest) value. Values for Cronbach's Alpha are in parenthesis on the diagonal. OCB = Organizational Citizenship Behavior.
a Number of previous job changes. b 5-point scale. c 7-point scale.
* p < 0.05. ** p < 0.01.

We excluded gender and onboarding experience as covariates as they were not correlated with the study variables. Despite non-zero correlations with either work engagement or OCB,

we excluded age and prior work experience from process analyses to minimize power reduction associated with Type II error inflation (Becker, 2005; Becker et al., 2016). Supplemental analyses, including controls, also yielded the same result patterns.

4.3 Tests of mediation and moderated mediation

Table 8 presents the results of hypothesis testing. We found no significant direct effect of LMX on OCB (B = 0.03, n.s.), rejecting Hypothesis 1. Results indicate significant positive relationships of LMX with work engagement (B = 0.55, p < .001) and of work engagement with OCB (B = 0.23, p < .001). Thus, Hypothesis 2 and Hypothesis 3 are supported. In consequence and supporting Hypothesis 4, bootstrap estimates reveal a significant full indirect effect of LMX on OCB via work engagement ($estimate_{bootstrap}$ = 0.13, 95% CI: [0.05, 0.23]).

The coefficient for the cross-product of LMX and CSE was significant (B = 0.45, p < .05, ΔR^2 = 0.03), supporting Hypothesis 5. To examine the interaction pattern, we performed a simple slope analysis (see Figure 5). Interaction patterns show that only when CSE is higher (+1 SD) LMX significantly relates to work engagement (B = 0.85, t = 5.22, p < .001, 95% CI [0.52, 1.17]). In contrast, LMX does not predict work engagement (B = 0.25, t = 1.64, n.s., 95% CI [-0.05, 0.56]) when CSE is lower (-1 SD).

We analyzed the conditional indirect effect and estimated the index of moderated mediation (Hayes, 2022). The 95% confidence interval excludes zero [0.01, 0.21]. Thus Hypothesis 6 is supported. Bootstrap estimates indicate the indirect effect of LMX on OCB through work engagement is amplified for newcomers with higher (+1 SD) CSE (95% CI [0.08 0.33]) but nonexistent for newcomers with lower (-1 SD) CSE (95% CI [-0.03 0.17]).

Table 8: Regression results for moderation and moderated mediation

Effect	Work Engagement (WE)				
Direct effects	B	SE	t	p	95% CI
LMX	0.55	0.11	5.05	0.00	0.33 0.77
CSE	0.53	0.11	4.68	0.00	0.30 0.75
LMX x CSE	0.45	0.18	2.56	0.01	0.10 0.80
R^2 (ΔR^2)	0.33 (0.03)			0.00 (0.01)	
	OCB				
	B	SE	t	p	95% CI
LMX	0.03	0.09	0.33	0.74	-0.15 0.22
WE	0.23	0.06	3.73	0.00	0.11 0.35
R^2	0.11			0.00	
Conditional effects of LMX on WE	B	SE	t	p	95% CI
CSE M-1SD	0.25	0.15	1.64	0.10	-0.05 0.56
CSE M	0.55	0.11	5.05	0.00	0.33 0.76
CSE M+1SD	0.85	0.16	5.22	0.00	0.52 1.16
Conditional indirect effects, bootstrap results	MB_{IND}	SE			95% CI
CSE M-1SD	0.06	0.05			-0.03 0.17
CSE M	0.13	0.05			0.05 0.23
CSE M+1SD	0.19	0.06			0.08 0.33
Index of moderated mediation	Index	SE			95% CI
	0.10	0.05			0.01 0.21

Note. N = 153. MB_{IND} = Average bootstrap estimate. Bootstrap sample size = 5,000. 95% CI = 95% Confidence Interval, where the first (second) value represents the lower (upper) limit. LMX = Leader-Member Exchange. CSE = Core Self-Evaluations, WE = Work Engagement, OCB = Organizational Citizenship Behavior.

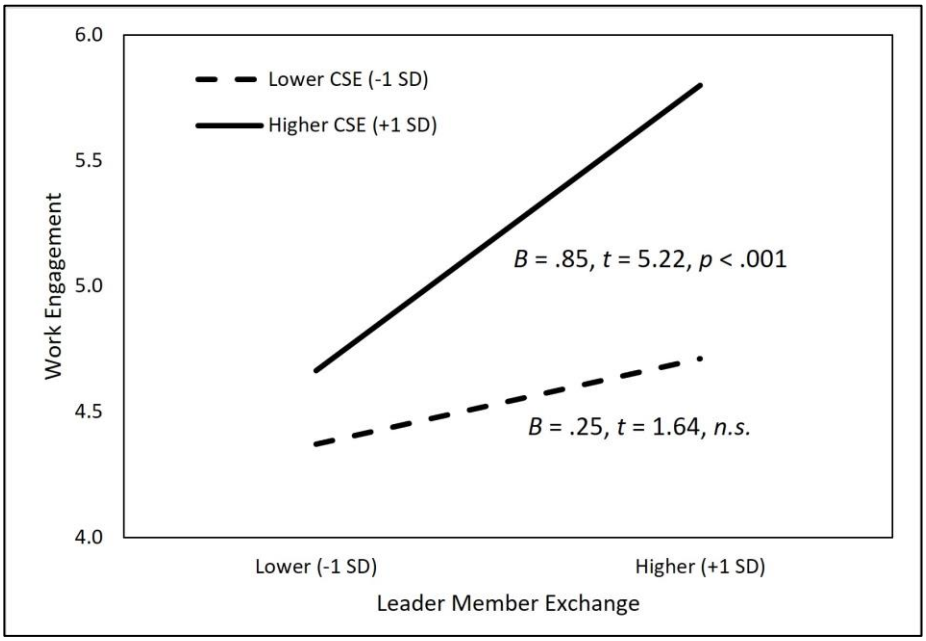

Figure 5: Two-way interaction of LMX and CSE on work engagement

5 Discussion

The present study was motivated by recent calls to scrutinize the role of resources, their interaction in building newcomers' work engagement, and the effects on socialization outcomes (Saks & Gruman, 2018). Building on JD-R and COR theory, we hypothesized and found that LMX interacts with CSE to foster newcomers' work engagement, further leading to enhanced OCB.

5.1 Theoretical contributions

First, we uncover the interaction of CSE and LMX and thus enhance scholarly knowledge about the interplay of personal and job resources proposed by both JD-R (Bakker et al., 2023; Hakanen & Roodt, 2010) and COR (Hobfoll et al., 2018) theory. Specifically for newcomers, our findings demonstrate the impact personal resources have on the effectiveness of socialization resources, adding to the knowledge about combinations and interactions of resources during socialization (Saks & Gruman, 2012, 2018). In particular, only newcomers with positive CSE benefit from LMX regarding their work engagement. In line with previous research highlighting the role of CSE for effectively managing given work resources (e.g., Debusscher et al., 2017; Judge & Hurst, 2007), our study thus advances the understanding of how personality traits impact newcomers' capability to benefit from job resources.

Second, we add to the literature on newcomer work engagement. Congruent with previous evidence on the positive relationship between LMX and engagement (e.g., Christian et al., 2011; E. Y. Liao & Hui, 2021) and the essential role of LMX for newcomers (e.g., Jokisaari, 2013; Zheng et al., 2016), we demonstrate that LMX positively relates to newcomers' work engagement. In line with JD-R and LMX theory, our study gives in-depth insights into how higher resource availability in higher-quality LMX relationships enhances newcomers' work

engagement, thereby addressing calls to expand the knowledge about how socialization resources impact work engagement during organizational socialization (Saks & Gruman, 2018).

Third, our study further enhances the knowledge about newcomers' extra-role behavior and the role of work engagement during organizational socialization (Saks & Gruman, 2018) by taking a process perspective on how socialization resources (here: LMX) impact socialization outcomes (here: OCB) via work engagement. By combining literature on OCB, organizational socialization, and resource theories, we improve the theoretical understanding of motivational processes by clarifying the role of work engagement in predicting newcomers' OCB. Contributing to the literature on relationships of LMX with employee behavior and performance (Mumtaz & Rowley, 2020) and specifically adding to studies that found direct effects of LMX on OCB among newcomers (Jokisaari, 2013; Zheng et al., 2016), we uncover that newcomers' work engagement fully mediates the relationship. We thus add to the limited number of studies on newcomers' OCB, demonstrating the importance of work engagement for newcomers' extra-role behavior.

5.2 Practical implications

Our results suggest that organizations should encourage and promote positive and efficient LMX relationships for newcomers. Even from very early on, the resources that newcomers receive in those relationships during socialization will enhance their work engagement. Keeping newcomers high on work engagement should be a major goal as this will translate into OCB, which benefits both the organization and its social structure, ultimately enhancing organizational performance and effectiveness (Podsakoff & MacKenzie, 1997). In addition, special emphasis should be given to the impact newcomers' CSE have on their ability to make use of resources at work. Newcomers will only benefit from high-quality LMX relationships when their

CSE are positive. This bears strong organizational implications. Leaders might pay closer attention to how newcomers react and how they are able to make use of resources provided by the leaders. Even though personality traits are relatively stable over time, organizations should strengthen beneficial effects CSE have in resource management. For example, by giving newcomers with lower CSE opportunities to grow and succeed or encouraging feedback, organizations and leaders could enhance employees' self-evaluations, enabling them to make use of valuable resources and enhancing motivation.

5.3 Limitations and future research

Although our results are consistent with previous research and the JD-R model's motivational process, they should be interpreted with caution, as the cross-sectional design does not allow for causal inferences concerning the associations between LMX, work engagement, and OCB to be drawn. It might be possible that employees with higher work engagement have better relationships with leaders because they are more energetic and enthusiastic. Thus, future investigations would benefit from implementing reciprocal effects in causal models (Gottfredson et al., 2020) and studying LMX and its relationship with work engagement (Saks & Gruman, 2018) and OCB (Methot et al., 2017) in longitudinal designs.

Furthermore, we used self-report measures prone to social desirability and common method bias. To address these issues, we conducted confirmatory factor analyses, which provide further support for construct validity. Moreover, finding interaction effects despite potential common method variance would be even more suggestive of their actual existence. (Siemsen et al., 2010). Nevertheless, to mitigate undesirable biases, future studies could again implement longitudinal designs or include additional external evaluations by others (e.g., the leader).

Ultimately, we did not include leaders' perceptions of LMX. Although this study focuses on how newcomer-perceived LMX impacts newcomers' work engagement, investigating LMX agreement and implementing leaders' perceptions might be a fruitful avenue to further investigate when and why leaders enhance resource availability, leading to enhanced newcomer work engagement.

6 Conclusion

This study demonstrates how LMX and CSE interact in their joint impact on work engagement and OCB among newcomers. Our study conceptually and empirically highlights the importance of newcomers' work engagement in linking LMX with OCB and the impact that newcomers' personality has on the effectiveness of job resources (here: LMX) in enhancing motivation: Low CSE hinder newcomers from benefiting from LMX regarding their work engagement and OCB. Overall, future research and practice in organizational socialization should have a strong scope on aligning personal and job resources in supporting newcomers' motivation, thereby causing them to engage in extra-role behavior.

Article 3

Starting happy to innovate: mediating effects of newcomers' happiness at work and job satisfaction between servant leadership and innovative performance

Authors:

Patrik Fröhlich (University of Wuppertal, Germany)

Ricarda Rehwaldt (IU International University Erfurt, Germany)

Timo Kortsch (IU International University Erfurt, Germany)

Elvira Radaca (University of Wuppertal, Germany)

Stefan Diestel (University of Wuppertal, Germany)

D Starting happy to innovate: mediating effects of newcomers' happiness at work and job satisfaction between servant leadership and innovative performance (Authors: Patrik Fröhlich, Ricarda Rehwaldt, Timo Kortsch, Elvira Radaca, Stefan Diestel)

Abstract:

The innovation potential of employees is crucial for companies to remain competitive. Although previous research in organizational socialization has identified factors that facilitate newcomers to innovate their work roles, there is little research on how to enhance newcomers' innovative performance. Evidence suggests that servant leadership is important for employee innovation, positive affect and newcomer socialization. However, we lack knowledge about how servant leadership facilitates newcomers' innovative performance and how affective processes might explain the relationship. Drawing on affective events theory and broaden-and-build theory, we hypothesized that happiness at work and job satisfaction mediate the positive relationship between servant leadership and newcomers' innovative performance. Indirect effects were tested via multilevel modelling in a longitudinal study of 203 organizational newcomers with seven measurement points over one year. Our results showed that servant leadership positively predicts innovative performance, happiness at work and job satisfaction in newcomers. In detail, the within-person indirect effect of servant leadership on newcomer innovation performance was significant only via happiness at work, while we found no indirect effects for job satisfaction. Finally, we discuss practical and theoretical contributions to understanding how servant leaders can improve newcomers' innovative performance.

1 Introduction

Organizations constantly have to attract and retain top employees to stay competitive in today's labour market, as companies rely on employees' potential for innovation (Anderson et al., 2014). It should therefore be of great importance and interest for practitioners and scholars to further explore these factors that enable employees to engage in innovation. Here, leadership has been shown to be critical for organizational innovation (Denti & Hemlin, 2012; Hülsheger et al., 2009). Although a large body of research shows that leadership styles, such as servant leadership, significantly impact employee innovative performance (e.g., Hughes et al., 2018; Karatepe et al., 2020), surprisingly, very little is known about whether leadership predicts newcomers' innovative performance. Even since Van Maanen and Schein described 1979 how organizational newcomers might generate, promote and implement new ideas for products and processes (van Maanen & Schein, 1979), only little research followed on newcomers' innovative performance. Especially since newcomers might provide novel perspectives, knowledge or experiences (T. B. Harris et al., 2013), getting newcomers' innovative performance should be particularly important to the organization.

Recent research suggests that servant leadership might have a significant impact on innovative performance (e.g., Yoshida et al., 2014; Zeng & Xu, 2020) and facilitate newcomer adjustment (Bauer et al., 2019). As a person-centred approach to leadership, servant leadership focuses on facing the needs of employees and serving followers, promoting their well-being and development, and creating a positive work environment (Eva et al., 2019; Greenleaf, 2002; van Dierendonck, 2011). It is, therefore, not surprising that servant leadership is related to affect and emotions such as happiness and thriving (e.g., Gonzales-Macedo et al., 2023; Iqbal et al., 2020; Semedo et al., 2019) or job satisfaction (e.g., Al-Asadi et al., 2019). However,

although servant leadership is related to innovative performance and positive affect, the relationship between servant leadership and innovative performance among newcomers and the role of affective evaluations in the relationship remain unclear.

To address this gap, we draw from affective events theory (AET, Weiss & Cropanzano, 1996) and argue that servant leadership creates positive affective events at work by prioritising newcomers and empowering them to develop their skills in the workplace. Happiness at work is an ideal state that involves positive cognitive and affective evaluations (Diener, 1984; Rehwaldt, 2017), while job satisfaction represents an evaluative judgment of the job with a compromising character that also includes emotional and affective experiences (Cropanzano, Dasborough, & Weiss, 2017; Rehwaldt, 2017). As such, both include evaluations of affective events. We thus expect servant leadership to cause newcomers to experience higher happiness at work and higher job satisfaction. Furthermore, drawing from broaden-and-build theory (Fredrickson, 1998, 2004), we argue that happiness at work and job satisfaction broaden and expand the thought-action repertoires of newcomers, enhancing innovative performance. In sum, we integrate AET and broaden-and-build theory to propose a mediation model, with happiness at work and job satisfaction mediating the positive relationship between servant leadership and innovative performance among newcomers (see Figure 6). To test our hypotheses, we conducted multilevel modelling based on a sample of 203 newcomers drawn from a longitudinal study with seven time points over one year.

The results of the present study provide several important contributions relevant to research and practice. With our comprehensive longitudinal newcomer study with seven measurement points over the course of one year, we respond to calls for longitudinal investigations of the relationship between leadership and innovation (Hughes et al., 2018). By applying multilevel analysis, we are able to distinguish between within-person and between-person levels, thereby

enhancing scholarly knowledge about the relationship between servant leadership and innovative performance among newcomers. Furthermore, by investigating the impact of servant leadership on both newcomers' happiness at work and job satisfaction, we provide a more nuanced understanding of the factors that promote innovative behaviour. A deeper understanding will help leaders create more positive events that foster happiness at work, job satisfaction and innovative performance. Moreover, our findings contribute to the distinction between happiness at work and job satisfaction by unveiling the differential role of happiness at work and job satisfaction in mediating the relationship between servant leadership and newcomers' innovative performance. For practice, this study suggests that organizations and leaders should focus on creating working conditions that promote happiness at work among newcomers, as this can lead to increased innovative behaviour, ultimately improving the organization's competitiveness. A key to innovative performance in newcomers will not be satisfaction or contentment but a happy start.

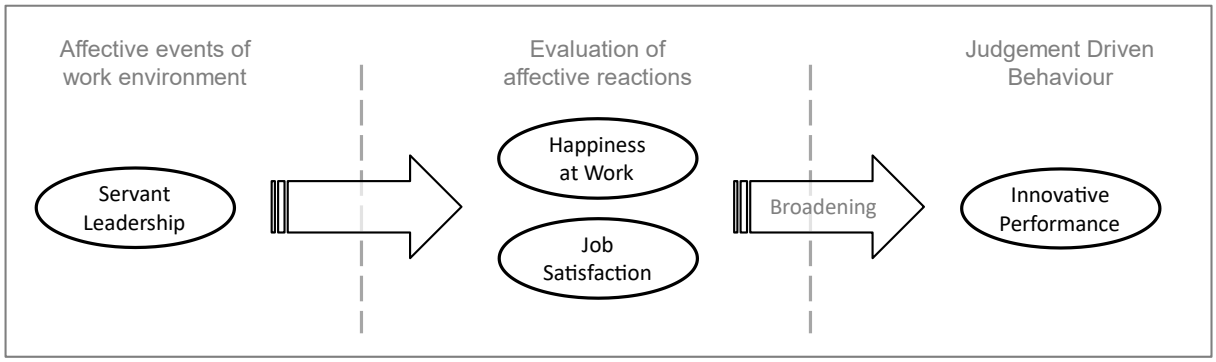

Figure 6: Conceptual model

2 Theory and hypotheses

2.1 Newcomer innovation and servant leadership

Employees' novel ideas and innovative job performance are important for organizational effectiveness and functioning (Oldham & Cummings, 1996; Kanter, 1988; West et al., 2004), and

research has been prosperous in investigating innovative performance and its predictors (Hammond et al., 2011; Lukes & Stephan, 2017). Innovative performance on the job is an inherent part of employee performance (Janssen, 2001). Three aspects are central to employee innovative performance: Idea generation (i.e., developing novel thoughts, new ideas and solutions for improvements to work-related topics), idea promotion (i.e., seeking support, approval and sponsorship for ideas) and idea implementation (i.e., turning ideas into applications or solutions that are of productive use) (Janssen, 2001; Scott & Bruce, 1994).

However, little is known about innovative performance among new employees. During their first year of employment, newcomers undergo a process of organizational socialization, in which they go from organizational outsiders to insiders (Bauer & Erdogan, 2011) while acquiring attitudes, skills and knowledge needed to successfully adapt to their new organizational role (van Maanen & Schein, 1979, p. 211). In their early and widely cited work, van Maanen and Schein (1979) initially discuss how newcomers engage in behaviours that reflect either role innovation (i.e., redefining one's role and its ends) or content innovation (i.e., innovative performance). Consequently, a substantial body of research on the impact of how socialization practices impact newcomers' role innovation and role orientation (e.g., Allen & Meyer, 1990; Antonacopoulou & Güttel, 2010; Ashforth & Saks, 1996; Perrot et al., 2014) emerged. However, only a few studies followed that investigated newcomers' innovative performance regarding its relation to learning-adaptability (Boulamatsi et al., 2021), supervisor creativity expectations (Jenny Chen et al., 2023) or mentoring (Uen et al., 2018). Recently, G. Liao et al. (2022) found servant leadership to amplify the positive relationship between organizational socialization and newcomer voice behaviour, which enhances innovative performance in the newcomers' teams.

For newcomers, leaders are especially important in their new workplace, as their assistance and support are crucial for the successful socialization and adjustment of newcomers (e.g.,

Jokisaari, 2013; Sluss & Thompson, 2012; Zheng et al., 2016) and to foster newcomer innovation (Levine et al., 2003). Thus, leadership is vital in empowering newcomers and creating positive events at work that facilitate innovative performance. As servant leadership particularly encompasses emotional healing, empowering, and high prioritization of employee concerns (Liden et al., 2008), servant leaders should largely facilitate newcomers' innovative performance. This is because those leaders seek to act as a servant first and second as a leader while putting the needs of followers first (Greenleaf, 2002) and strongly focusing on employees' concerns within the organization (Eva et al., 2019). In addition, they prioritize employees' personal growth and development (van Dierendonck, 2011) and aim to enable employees to develop their full potential by empowering and involving them in relational, emotional and ethical ways (Eva et al., 2019). Newcomers largely benefit from strong and effective relationships with their leaders (Sluss & Thompson, 2012), while servant leadership enhances newcomers' proactive behaviours and facilitates newcomers' socialization (Bauer et al., 2019) by helping newcomers adjust to organizational norms (Giambatista et al., 2020), enhancing newcomers' perceptions of job meaningfulness (Jiang et al., 2015) and fostering their well-being (Kang et al., 2023). In fact, research has consistently linked servant leadership with individual and team innovative performance (e.g., Cai et al., 2018; Eva et al., 2019; Shailja et al., 2023). Ultimately improving newcomers' innovative behaviours, servant leadership also positively predicts creativity (Karatepe et al., 2020), positive emotions (Yoshida et al., 2014) and thriving at work (Iqbal et al., 2020; Z. Wang et al., 2019).

In conclusion, research has consistently shown that servant leadership relates to innovative performance. Servant leadership plays a crucial role in supporting newcomers during organizational socialization (e.g., Bauer et al., 2019; G. Liao et al., 2022) while enhancing proactive and innovative behaviours (e.g., Eva et al., 2019, Walumbwa et al., 2010). This leads to the following hypothesis:

Hypothesis 1: Servant leadership is positively related to newcomers' innovative performance.

2.2 Servant leadership and positive affective events for newcomers

It is inherent to leadership that a leader's actions are evaluated by their followers. As such, actions and expressions of servant leaders are evaluated by newcomers. According to affective events theory (AET), expressions and behaviour of leaders serve as affective events at work that influence followers' emotions (Cropanzano, Dasborough, & Weiss, 2017). Previous research has consistently linked leaders' expressions and behaviour with affective events in the light of AET (e.g., Gaddis et al., 2004; Pirola-Merlo et al., 2002).

Servant leadership behaviours and expressions might relate to positive events for newcomers, as they emphasize several dimensions of enabling and supporting behaviours and activities (Liden et al., 2008, 2015). For example, by showing interest and taking time for newcomers' personal concerns (dimension: emotional healing) or supporting them in dealing with their new work environment by providing assistance (dimension: conceptual skills), servant leaders create positive events for newcomers. Furthermore, servant leaders will put newcomers' interests ahead of their own (dimension: putting subordinates first) and care for their career development and success (dimension: helping subordinates grow and succeed). These behaviours and expressions will most likely relate to positive affective events for newcomers.

Besides a cognitive process of overall evaluation of work environment features, the core of AET comprises an affective evaluation process that relates affective events at work to affective evaluations, such as happiness at work and job satisfaction (Weiss & Cropanzano, 1996). Here, affective events at work, caused by factors of the work environment, can lead to positive affective events, resulting in positive evaluations. Given that their cause lies in affective events at work, for example, the behaviour and expressions of a servant leader, we will next focus on

the concepts of happiness and satisfaction. Both – happiness at work and job satisfaction – include evaluations of affective reactions that might result from servant leadership and related affective events in the work context.

2.3 Distinguishing happiness at work and job satisfaction

In research, an often-synonymous use of the terms job satisfaction and happiness leads to little of the required discriminatory power in distinguishing job satisfaction and happiness (e.g., S. Singh & Aggarwal, 2018; Diener, 1984).

In accordance with Weiss and Cropanzano (1996), we consider job satisfaction as an overall judgment of the job that includes evaluations of affective experiences at work. In contrast to happiness at work, job satisfaction is characterized by a rather compromising nature and is rather extrinsically motivated, reflecting fulfilled task expectations (Rehwaldt, 2017; Rehwaldt & Kortsch, 2022) (Rehwaldt, 2017; Rehwaldt & Kortsch, 2022). As such, job satisfaction is described as "a uniform state with a compromising character [that] arises, on the one hand, from the evaluation of a situation and, on the other hand, can be generated by external circumstances, such as the expected reward of extrinsically motivated activities" (Rehwaldt, 2017, p. 83).

On the other hand, happiness at work occurs when one’s potential can be meaningfully used and developed (Haybron, 2008; Rehwaldt, 2017). Furthermore, happiness in the work context is understood as a positive, evaluative emotional state that results from "intrinsically motivated, active, and self-determined activities" (Rehwaldt, 2017, p. 83). Accordingly, happiness at work involves meaningfulness, self-actualization and a sense of community (Rehwaldt & Kortsch, 2022).

Despite these differences, both happiness at work and job satisfaction include evaluations of affective reactions that result from affective events at work. Nevertheless, previous studies have not examined the extent to which the two constructs have differential effects. We, therefore, investigate both constructs to simultaneously account for their conceptual similarity and potential differences in their effects.

2.4 The mediating role of happiness at work and job satisfaction

2.4.1 Evaluations of affective reactions: how servant leadership leads to happiness at work and job satisfaction

As described earlier, the behaviour and expressions of servant leaders are important affective events for newcomers. These affective events further lead to affective reactions and will influence employees' emotions, as stated by AET (Cropanzano, Dasborough, & Weiss, 2017). Happiness at work and job satisfaction represent newcomers' evaluations of their affective reactions. We thus propose that servant leadership will positively predict both happiness at work and job satisfaction for newcomers.

Previous research provides initial support for our proposition and demonstrates that servant leadership positively relates to job satisfaction (e.g., Al-Asadi et al., 2019; Ozturk et al., 2021). Also, leaders that encourage and inspire followers also improve happiness at work (Salas-Vallina et al., 2020). Overall, servant leadership has been proven to enhance workplace positive affect (e.g., Y. Li et al., 2018; van Dierendonck & Rook, 2010) and improve happiness at work (Gonzales-Macedo et al., 2023). This further underscores the role of servant leadership in positively impacting affective processes.

From an AET perspective, and supported by previous evidence, work events represented by the behaviour and expressions of servant leaders will relate to positive affective reactions,

resulting in more positive evaluations in the form of happiness at work and job satisfaction. Therefore, we propose the following hypotheses:

Hypothesis 2: Servant leadership is positively related to newcomers' happiness at work.

Hypothesis 3: Servant leadership is positively related to newcomers' job satisfaction.

2.4.2 Happiness at work and job satisfaction lead to newcomers' innovative performance

According to AET, affective evaluations resulting from affective events lead to judgement-driven behaviours. Since servant leadership leads to positive affective events and thus to positive affective evaluations (i.e., happiness at work and job satisfaction), it can be assumed that the resulting behaviours are also positive. The broaden-and-build theory (Fredrickson, 1998, 2004) provides an extension to AET for the relationship between positive affective evaluations and the resulting behaviours. The theory suggests that positive emotions encourage employees to reflect upon and rethink long-established or routine behaviours and to adopt innovative and creative ways of doing things. That is, positive emotions broaden individuals' thought-action repertoires, which refer to the tendencies and ways people behave, respond and think (Fredrickson, 1998). By broadening individuals' thoughts, actions and cognition, employees' positive affective evaluations (such as happiness and satisfaction) relate to innovativeness and better performance (Wright & Cropanzano, 2007; Zelenski et al., 2008). Through broadening thought-action repertoires, experiencing higher satisfaction and happiness will thus enhance innovative performance by encouraging exploratory thoughts, novel actions and creative ideas (Fredrickson, 2004).

In line with the proposition that broadened thought-action-repertoires reflect in higher novel-oriented behaviour and less routine thoughts, research has shown that positive affect and positive emotions lead to more original associations and creative solutions (e.g., Fernández-Abascal & Díaz, 2013; Isen & Daubman, 1984; Isen et al., 1987). People in a positive mood exhibit greater mental flexibility and broader attention, which is helpful for creative problem-solving and generating novel thoughts (e.g., Baas et al., 2008; Estrada et al., 1994; Friedman & Forster, 2001).

In line with AET and broaden-and-build theory, we argue that these positive evaluations of affective reactions will be related to broadened thought-action-repertoires in newcomers, facilitating them to generate, promote and implement innovative ideas, thus positively impacting judgement-driven behaviour in the form of innovative performance. This leads to the following hypotheses:

Hypothesis 4: Happiness at work is positively related to newcomers' innovative performance.

Hypothesis 5: Job satisfaction is positively related to newcomers' innovative performance.

In summary, we integrate AET and broaden-and-build theory in a mediation model to understand how servant leadership facilitates newcomers' innovative performance. In detail, AET suggests that expressions and behaviour of servant leaders serve as positive affective events reflected in newcomers' positive evaluations of affective reactions in the form of happiness at work and job satisfaction. In turn, and in line with broaden-and-build theory, these evaluations of positive affective reactions largely enhance thought-action-repertoires of newcomers, facilitating their innovative performance. Thus, happiness at work and job satisfaction should mediate the positive relationship between servant leadership and newcomers' innovative performance, which leads to the following hypotheses:

Hypothesis 6: Happiness at work mediates the positive relationship between servant leadership and innovative performance among newcomers.

Hypothesis 7: Job satisfaction mediates the positive relationship between servant leadership and innovative performance among newcomers.

3 Materials and methods

3.1 Research design and participants

We invited recently hired employees from a German university via email to participate in the longitudinal online survey study. We offered participants feedback on resources, job demands, and socialization but no monetary incentives. We ensured that participation was voluntary and anonymous. Participants self-registered via a website using a double opt-in process and, with given informed consent, received a total of seven questionnaires that spanned the first 12 months of employment. The first questionnaire was completed within six weeks after entry and included descriptive data. All other focal variables were measured in all seven questionnaires. Ethical soundness was approved by an independent ethics committee. 310 newcomers completed the first questionnaire. After deleting cases with irregular data, incomplete demographics or only one measurement point, 203 newcomers with at least two complete measurement points remained in our sample. The average number of complete measurement points per participant was 4.58, resulting in 929 observations. Participation rates and questionnaire timing are shown in Table 9. Most participants were female (62.60%, 36.90% male and 0.50% diverse), with an average previous work experience of 6.80 years (*SD* = 8.44). As required by the workers' council, age was assessed in ranges. The majority of newcomers were 20-29 (58.60%), 30-39 (22.20%) or 40-49 years old (11.30%), while only a few indicated ages of 50-59 (5,90%), 18-19 (1%) or 60 and above (1%). The average number of previous job changes

was 2.57 (*SD* = 2.64), reflecting experience with socialization processes. 11.80% reported having leadership responsibilities. Just under half (45.30%) worked in academia or arts, 28.60% were non-scientific staff (e.g., technical or administrative staff), 23,60% were administrative or research assistants, and 2.50% indicated "other". Thus, our sample reflects a variety of professional backgrounds, positions and hierarchical levels.

Table 9: Timing, participation and attrition rates per questionnaire

Questionnaire (Distance to T1 in months)	T1	T2 (+1)	T3 (+2)	T4 (+3)	T5 (+6)	T6 (+9)	T7 (+12)
Complete questionnaires	203	184	158	139	104	75	66
Attrition relative to T1	-	9.36%	22.17%	31.53%	48.77%	63.05%	67.49%

Note. Questionnaire T1 was completed within 2-6 weeks after entry. Subsequent questionnaires were sent out at the respective relative intervals after questionnaire T1 was completed. Reminders were sent three days after participants received the respective questionnaires, and each questionnaire had to be completed within seven days.

3.2 Measures

Servant leadership was measured with the SL-7 seven-item scale (Liden et al., 2015). The measure integrates all seven dimensions of servant leadership (Liden et al., 2008) while assessing employees' global perception of behaviour shown by their supervisors on a seven-point response scale (1 = "strongly disagree" to 7 = "strongly agree"). Example item: "My leader has put my best interests ahead of his/her own".

Happiness at work was measured with the HappinessandWork-Scale (Rehwaldt & Kortsch, 2022). The HappinessandWork-Scale scale was developed in a comprehensive, multi-method development process based on a grounded theory approach to assessing happiness explicitly at work and, in contrast to other measures, does not measure general well-being or satisfaction (Rehwaldt, 2017; Rehwaldt & Kortsch, 2022). The scale assesses the perception of four happiness factors (meaningfulness, self-actualization, professional community, and trusted community) with three items each on a five-point scale (1 = "strongly disagree" to 5 = "strongly agree"). Example item: "With my work I actively contribute to the well-being of others".

Job satisfaction was assessed with seven items of the German adaptation of the Job Descriptive Index (Smith et al., 1969) by Neuberger and Allerbeck (1978). We use this instrument because it allows an overall evaluation of satisfaction (“All in all, how satisfied are you with …”) while differentiating seven job-related aspects (e.g., colleagues, supervisors, working conditions). Answers were rated on a 5-point Kunin item scale (Kunin, 1955).

Innovative performance was measured with the nine-item scale by Janssen (2001), as it covers all facets of the construct (idea generation, promotion, and realization). Responses were given on a seven-point frequency (1 = "never" to 7 = "always"). Example item: “I have searched out new working methods, techniques, or instruments”.

Controls. As potential control variables, we assessed age (with age categories), gender (female, male, diverse), previous job experience (in years) and job change experience (as the number of previous job changes).

3.3 Analytical procedure

We used Mplus 8.7 (L. K. Muthén & Muthén, 2017) for multilevel modelling required for our nested data structure. Before testing our hypotheses, we performed a multilevel confirmatory factor analysis of our focal variables. We test our hypotheses using multilevel path analysis to estimate a 1-1-1 mediation model (Preacher et al., 2010) while following recent recommendations regarding model selection (Zigler & Ye, 2019) and sample size requirements (McNeish, 2017). As all constructs were assessed at the within-person level, they contained both within- and between-person variance. By applying a 1-1-1 multilevel mediation model, we can examine whether the relationship between servant leadership and newcomers’ innovative performance is mediated by their job satisfaction and happiness at work at the within-person level while accounting for between-person variance simultaneously.

4 Results

4.1 Descriptive statistics

Table 10 displays descriptive statistics, correlations and reliabilities of the study variables.

Table 10: Descriptive statistics, intercorrelations and reliabilities

	M	SD	ICC	1.	2.	3.	4.	5.	6.	7.
1. Servant Leadership [a]	4.79	1.06		*.80*	**.34**	**.42**	**.15**			
2. Happiness at Work [b]	3.67	0.62	.72	**.80**	*.87*	**.50**	**.12**			
3. Job Satisfaction [b]	4.06	0.60	.65	**.64**	**.69**	*.79*	.04			
4. Innovative Performance [a]	3.99	1.56	.62	**.34**	**.37**	.09	*.95*			
5. Age [c]	3.84[c]	1.85[c]		.11	.09	-.01	**.26**	-		
6. Gender [d]	1.36	0.48		.29	**.22**	.11	**.30**	-.09	-	
7. Previous Job Experience [e]	7.00	8.54		.08	.10	-.01	**.23**	**.88**	-.09	-
8. Number of Job Changes	2.59	2.71		-.05	-.03	-.10	**.21**	**.48**	-.12	**.58**

Note. Values for McDonald's Omega for within-level are displayed on the diagonal. Correlations below the diagonal are between-level correlations (N = 202). Correlations above the diagonal are within-level correlations (N = 929). M = Grand means for person-level means. SD = Standard deviation of grand means for person-level means. ICC = Intraclass correlation coefficient. Values in bold = $p < .05$.

[a] 7-point scale. [b] 5-point scale. [c] Years in categorical ranges: 1 = 18-19, 2 = 20-24, 3 =25-29, 4 = 30-34, 5 = 35-39, 6 = 40-44, 7 = 45-49, 8 = 50-55, 9 = 55-60, 10 = 60-65, 11 = over 65. [d] 1 = female, 2 = male. For the computation of *M* and *SD* for Age and all correlation analyses, one case of gender = "diverse" was excluded. [e] in years.

Despite significant correlations with happiness at work or innovative performance, we excluded control variables from multilevel path analyses to minimize power reduction that might be associated with type II error inflation (Becker, 2005; Becker et al., 2016). Supplemental analyses that included gender (two categories of female and male; one case of diverse excluded), age, previous job experience and job change experience yielded the same result patterns.

4.2 Construct validity and model fit

We conducted multilevel confirmatory factor analyses to assess the distinctiveness of our constructs. As shown in Table 11, the 4-factor model had the best fit to the data compared with the three alternative models.

Table 11: Results for multilevel confirmatory factor analyses

Model	χ^2 (df)	$\Delta\chi 2$	CFI	TLI	RMSEA	SRMRw	SRMRb
Model 1 - Four factors: Servant leadership; happiness at work; job satisfaction; innovative performance	2701.294 (1108)	-	.845	.834	.039	.041	.113
Model 2 - Three factors: Happiness at work and job satisfaction as one factor; servant leadership; innovative performance	2913.484 (1114)	212.190***	.825	.814	.042	.046	.119
Model 3 - Two factors: Servant leadership and happiness at work and job satisfaction as one factor; innovative performance	3254.161 (1118)	552.867***	.793	.779	.045	.053	.117
Model 4 - One factor: Servant leadership and happiness at work and job satisfaction and innovative performance as one factor	5635.843 (1120)	2934.549***	.562	.535	.066	.177	.246

Note. CFI = Comparative Fit Index. TLI = Tucker Lewis Index. RMSEA = Root Mean Square Error of Approximation. SRMRw/SRMRb = Standardized Root Mean Residual for Within/Between.
* p < .05 ** p < .01 *** p < .001

The 1-1-1 mediation model with between-person and within-person effects that was used for testing our hypotheses had a very good fit to the data: $\chi^2(12) = 628.85$, $p < .001$, root mean square error of approximation = .033, comparative fit index = .998, Tucker-Lewis index = .980, standardized root-mean-square residual within-person/between-person = .002/.018.

4.3 Hypotheses testing

With 28% to 38%, a substantial amount of variance was attributable to within-person differences (see intraclass correlation values in Table 10), which suggests consideration of multilevel mediation to account for effects on both levels. Overall, R^2 values also indicate a substantial amount of variance explained in our model (Innovative performance: $R^2_{between} = .19$, *p*

< .01; R^2_{within} = .03; p < .01. Happiness at work: $R^2_{between}$ = .64, p < .001; R^2_{within} = .12, p < .001. Job satisfaction: $R^2_{between}$ = .41, p < .001 R^2_{within}= .18, p < .001).

The results of our model are depicted in Figure 7. In support of Hypothesis 1, multilevel estimates indicate a positive relationship between servant leadership and innovative performance ($estimate_{within}$= 0.22, p < .001). Thus, servant leadership is positively related to newcomers' innovative performance.

Hypotheses 2 and 3 postulate positive relationships of servant leadership with happiness at work and job satisfaction, respectively. Accordingly, servant leadership exhibits positive relationships with happiness at work ($estimate_{within}$ = 0.17, p < .001; $estimate_{between}$ = 0.52, p < .001) and job satisfaction on both levels ($estimate_{within}$ = 0.22, p < .001; $estimate_{between}$ = 0.39, p < .001). Thus, our data provided support for Hypotheses 2 and 3.

Hypotheses 4 and 5 propose relationships between happiness at work and job satisfaction with innovative performance, respectively. Happiness at work significantly predicts innovative performance at both levels ($estimate_{within}$ = 0.28, p < .05; $estimate_{between}$ = 1.39, p < .001). For job satisfaction, the results are mixed. While within-person estimates are not significant ($estimate_{within}$ = -0.19, *ns*), the relationship is significant and negative at the between-person level ($estimate_{between}$ = -0.82, p < .01). Thus, whereas our results are in line with Hypothesis 4, Hypothesis 5 is not supported.

Hypothesis 6 and Hypothesis 7 propose the indirect effects of servant leadership on innovative performance via happiness at work and job satisfaction, respectively. The indirect effect via happiness at work is significant at both levels ($estimate_{within}$ = 0.05, p < .05; $estimate_{between}$ = 0.73, p < .001). The indirect effect via job satisfaction is not significant at the within-person level ($estimate_{within}$ = -0.04, *ns*) and significant but negative at the between-person level ($estimate_{between}$ = -0.32, p < .05). In sum, Hypothesis 6 is supported, and Hypothesis 7 must be

rejected. While Happiness mediates the positive relationship between servant leadership and newcomers' innovative performance, job satisfaction does not.

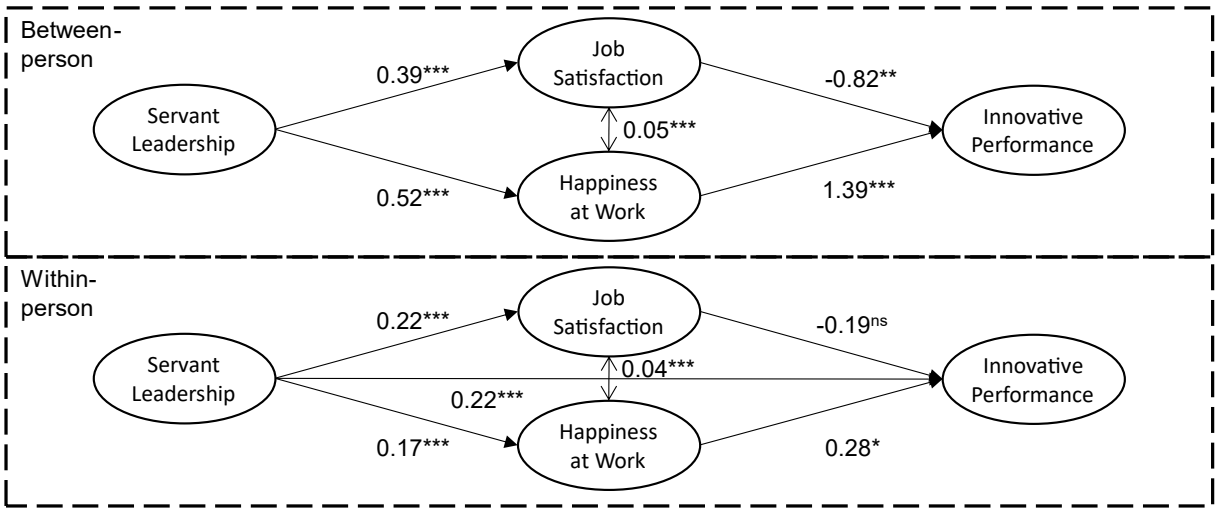

Figure 7: Illustration of the model results

Note. Model with unstandardized coefficients for both between- and within-person levels.
*** p < .001. * p < .01. * p < .05. ns p > .05.

5 Discussion

A happy start leading to new and innovative ideas from newcomers is of great relevance and interest to organizations, as these former organizational outsiders add novel and different perspectives and experiences to existing ones. Therefore, organizations should encourage their innovative performance. So far, organizational socialization research has mainly focused on newcomers' role innovation and role orientation (e.g., Allen & Meyer, 1990; Perrot et al., 2014), while there has been little research on when and how newcomers engage in innovative performance and how affective processes shape this relation. Our longitudinal study aimed to investigate how happiness at work and job satisfaction explain the relationship between servant leadership and innovative performance in newcomers.

We found that newcomers benefit from servant leadership in general: Newcomers' happiness at work and job satisfaction were positively affected by servant leadership. Thus, we extend

AET and research on the role of leaders during organizational socialization. In line with broaden-and-build theory, we find indirect effects of servant leadership on newcomers' innovative performance via happiness at work. However, job satisfaction does not positively relate to innovative performance. In the following, we discuss the theoretical contributions and practical implications of our findings.

5.1 Theoretical contributions

5.1.1 Newcomers' innovative performance and servant leadership

This longitudinal newcomer study with seven points of measurement over one year responds to calls for longitudinal investigations of leadership-innovation relationships (Hughes et al., 2018) and clarifies the role of servant leadership for newcomers' innovative performance. Our findings add to the sparse research on newcomer innovation in the thread of organizational socialization literature. In line with existing evidence on how leader behaviour relates to innovative or proactive behaviours in newcomers (e.g., Jenny Chen et al., 2023; Uen et al., 2018), we advance the understanding of newcomers' innovative performance by highlighting the impact that servant leadership has on innovative performance in newcomers. This also adds to the finding that servant leadership plays an important role in how newcomer socialization might affect team innovative performance (G. Liao et al., 2022).

Furthermore, our findings fit research on innovation in work teams, where leadership is proposed to influence innovation in work teams and newcomer innovation (Levine et al., 2003). While previous research indicates that servant leadership plays an important contextual role for newcomers' proactive behaviours (Bauer et al., 2019), our results demonstrate that servant leadership enables newcomers to develop and implement novel ideas. This might relate to

newcomers further enhancing innovative performance in their respective work teams, depending on the team's receptiveness to change (e.g., Hansen & Levine, 2009).

5.1.2 Servant leadership, affective events and affective evaluations

Focusing on AET and consistent with T. B. Harris et al. (2013), our findings highlight that viewing servant leadership through the lens of AET is a fruitful perspective to explain its relation to happiness at work, job satisfaction and, ultimately, innovative performance. (2013) (2013)Contributing to organizational socialization research, we thus expand research on the role of leadership for innovation in newcomers and highlight the importance of affective processes herein. In addition, by integrating AET and servant leadership literature, we add to the knowledge about the role of servant leadership in affective processes (e.g., Y. Li et al., 2018) by demonstrating its positive relationships with happiness at work and job satisfaction. We hereby uncover the underlying mechanism of how servant leadership relates to innovative performance, primarily through happiness at work.

5.1.3 Happiness at work and job satisfaction in newcomers

Our results contribute to the conceptual distinction between job satisfaction and happiness at work because they illustrate that, surprisingly, the two constructs have different effects on newcomers' innovative performance. Our findings suggest that both predictors differentially relate to newcomers' innovative performance since only happiness at work positively predicts newcomers' innovative performance. Different strengths in evaluations of positive affective events might explain this divergence. Happiness at work is characterized by a strong evaluation of affective reactions and intrinsic components, where servant leadership might play a stronger role in triggering affective evaluations through affective events. On the other hand, job satisfaction might reflect weaker affective evaluations of a more extrinsic nature, with servant leadership still influencing affective components, but to a lesser extent. Our results further revealed

that job satisfaction had a negative impact on newcomers' innovative performance at the between-person level. Although these results should be interpreted cautiously, they are consistent with research showing that creativity and innovation can be influenced by negative moods and emotions (e.g., George & Zhou, 2002).

Moreover, our findings emphasize the importance of happiness at work in broadening thought-action repertoires. In line with the broaden-and-build theory, the positive impact on newcomers' innovative performance suggests that happiness at work plays a vital role in stimulating novel thoughts and behaviours. This might be due to a stronger evaluation of affective components in happiness at work, in contrast to job satisfaction. Overall, our findings highlight the vital role of happiness at work in enhancing innovative performance in newcomers.

5.2 Practical implications

Our study highlights the relevance of servant leadership in encouraging newcomers to engage in innovative behaviours at work by facilitating happiness at work. Consequently, organizations can actively cultivate a positive work environment to enhance newcomers' and existing employees' innovative performance by developing servant leadership behaviours and fostering happiness at work. Organizations should thus train their managers to become servant leaders that will initiate and promote processes related to the innovative performance of newcomers. Getting novel ideas from former organizational outsiders now becoming organizational insiders is valuable for organizational development.

Furthermore, organizations should strive to foster meaningfulness, self-actualization, and community, and thus happiness at work because, as this study shows, this is how organizations can foster innovative behaviour. By developing servant leadership behaviours and fostering

happiness at work, organizations can actively cultivate a work environment that facilitates individual innovation, ultimately enhancing organizational innovativeness (Anderson et al., 2014),

Our findings also offer valuable insights for leaders in organizations. By emphasising servant leadership behaviour, leaders actively support newcomers. Servant leaders not only facilitate newcomers' transition from being outsiders to becoming insiders but also provide them with essential resources that will enable them to engage in innovative behaviour. At the same time, servant leaders' focus on building effective and long-lasting leader-member exchange relationships will further enhance positive affect (Cropanzano, Dasborough, & Weiss, 2017) and pro-organizational behaviour (Martin et al., 2016).

Also, organizations should make knowledge about happiness at work available to their employees, emphasising the importance of happiness. The fulfilment of factors for happiness could also be made transparent during the application process. This will offer employees a transparent platform, ultimately facilitating identification and increasing retention. An example would be to openly illustrate the scope for action at the job (self-actualization) or to communicate the overarching purpose of tasks and jobs (meaningfulness).

5.3 Limitations and avenues for future research

Despite its strengths, our study has some limitations. First, this study focuses on the positive evaluations of affective reactions regarding happiness at work and job satisfaction. Future studies might expand the investigation by adding direct assessments of affect or affective events. As such, future research might additionally implement direct measures of affect or measure hassles and uplifts for events (e.g., Junça-Silva et al., 2021). Moreover, we aimed to

capture the global perception of servant leader behaviour. Future studies might examine differential effects among behavioural dimensions, for example, by implementing the SL-28 servant leadership scale (e.g., SL-28 scale, Liden et al., 2008).

Second, we use self-report data. Although it would be challenging to implement such designs for newcomer settings and to assure correct attribution, future studies might seek to implement other-rated or objective measures, especially for innovative performance (e.g., the number of actual innovations) and a differentiation of more than two levels (e.g., within-person, between-person, unit/team-level). Regarding the time frame, it would be interesting to transfer and validate our findings in shorter time intervals (e.g., Junça-Silva et al., 2021) among newcomers.

Third, while focusing on servant leadership, happiness at work, and job satisfaction, other drivers of innovative performance or moderator effects might exist. Future research might benefit from comparing multiple leadership styles (see Banks et al., 2018) in their effect on innovative performance, implementing moderator variables (e.g., personality traits or personal resources for the effect of servant leadership on happiness at work) or validating our results in other industries that might depend more on innovation (such as IT). In addition, future research might consider different leadership styles in their effects on changes or trajectories in newcomers' happiness at work, attitudes, innovative behaviour and affective reactions over time.

6 Conclusion

Happiness at work can be a key to newcomers' innovative performance. Our study demonstrates the important role of servant leaders for newcomers in enhancing happiness and innovation at work. At the same time, job satisfaction alone will not lead employees to engage in innovation. Nevertheless, there is much to learn about happiness and satisfaction, why we

encourage researchers and practitioners alike to emphasize happiness at work in the organizational context.

Article 4

When happiness strengthens engagement and performance: the role of happiness at work as a resource for both experienced employees and newcomers

Authors:

Patrik Fröhlich (University of Wuppertal, Germany)

Elvira Radaca (University of Wuppertal, Germany)

Stefan Diestel (University of Wuppertal, Germany)

E When happiness strengthens engagement and performance: the role of happiness at work as a resource for both experienced employees and newcomers (Authors: Patrik Fröhlich, Elvira Radaca, Stefan Diestel)

Abstract:

In today's competitive labour market, companies should strive for happiness at work (HAW), which is related to better performance, efficiency, and motivation. Nevertheless, evidence is scarce regarding the relationship between HAW, work engagement, and extra-productive behaviour for experienced employees and newcomers. Given this background, our research examines the link between HAW and employees' extra-productive behaviour, particularly adaptive and extra-role performance. We conducted two longitudinal studies among newcomers (N = 126) and experienced employees (N = 126) of various industries. Based on the Job Demands-Resources Model (JD-R), we argue that work engagement mediates the relationship between HAW and adaptive performance as well as organizational citizenship behaviour (OCB). Furthermore, we predict interest-taking to moderate (amplify) the positive relationship between HAW and work engagement. Across both studies, our findings indicate indirect effects of HAW on extra-productive behaviour via work engagement. Interest-taking strengthens the impact of HAW on work engagement for newcomers but not for experienced employees. These new insights into the relationship between HAW and extra-productive behaviour can aid organizations in enhancing the performance and motivation of all employees, regardless of their tenure. Theoretical and practical implications, as well as limitations and future research directions, are discussed.

1 Introduction

A growing number of studies demonstrate that employees highly value motivating work environments, which provide opportunities for personal growth, meaningfulness, and career advancement, over monetary benefits (e.g., Allan et al., 2019; Ehresmann & Badura, 2018). In today's job market, companies face the challenge of attracting and retaining skilled employees in the "War for Talents" era. Here it is crucial to identify and promote factors that constitute motivating environments to enhance employee motivation and extra-productive behaviour, enabling organizations to attract and retain highly talented employees (e.g., Cheese, 2008; Monteiro et al., 2020). Rehwaldt and Kortsch (2022) suggest that happiness at work (HAW) can be an effective approach to motivating employees in their work. HAW represents an ideal and positive state that includes evaluations of affective and cognitive components in the work context and refers to the sense of meaning at work, self-actualization, and community at work (Rehwaldt, 2017). Furthermore, research suggests that happiness is positively related to extra-productive behaviour in terms of adaptive performance and extra-role performance (e.g., Salas-Vallina et al., 2017; A. Singh & Banerji, 2022). While adaptive performance refers to an employee's ability to adapt to changes in the workplace (M. A. Griffin et al., 2007; Jundt et al., 2015), organizational citizenship behaviour (OCB) is defined as individual extra-role behaviour not explicitly required by the job description or formal work conditions (Fox et al., 2012; Organ, 1997).

Although the notion that HAW can lead to extra-productive behaviour at work has gained traction in research, past research has only tentatively explored the role of HAW in the way employees engage in extra-productive behaviour. Whereas initial evidence indicates that HAW is a promising precursor of employee effectiveness (e.g., Rehwaldt, 2017, 2020), the questions of how, why, and when HAW shapes employees' behaviour at work remain largely unan-

swered. This is somewhat surprising as theoretical insights from research on the Job Demands-Resources (JD-R) model (e.g., Bakker & Demerouti, 2007, 2017) strongly suggest that HAW relates to extra-productive behaviour by enhancing motivational processes and that employee personality might further influence these processes (Bakker et al., 2023). Our study, therefore, aims to provide an in-depth understanding of the effects of HAW on OCB and adaptive performance by examining work engagement as a mediator, with additional consideration of moderating mechanisms.

Work engagement, a positive, motivational state of mind consisting of the three facets of vigour, dedication, and absorption (Schaufeli et al., 2002), has been identified as a key factor that mediates the relationship between resources and employee performance (e.g., Bakker et al., 2011; Christian et al., 2011; Saks, 2019). Drawing from the JD-R model (Bakker & Demerouti, 2007, 2017) and in line with empirical evidence on the positive relationship of work engagement with extra-role performance (e.g., Borst et al., 2019; Kanjanakan et al., 2021) and adaptive performance (e.g., Costa et al., 2016; Kaya & Karatepe, 2020), we hypothesize that HAW will act as a job resource and promote work engagement, which ultimately enhances adaptive performance and OCB.

Thereby, organizations' workforce includes employees at different stages of their careers, both new and experienced. Newcomers undergo a volatile phase during organizational socialization while they acquire the knowledge, skills, and attitudes required for the new role they adjust to (van Maanen & Schein, 1979) and go from being organizational outsiders to becoming insiders (Bauer et al., 2007). Organizational insiders are characterized by higher levels of knowledge and expertise, with a deeper understanding of their job and the organization, therefore called veterans or experienced employees (Bauer & Erdogan, 2011). Because of the different stages and situational contexts in which experienced employees and newcomers find themselves, it is reasonable to adapt study designs accordingly, even if the phenomena studied are assumed

to be the same in their effectiveness. Therefore, we conducted a two-study design to examine both target groups to consider employees at different stages of their organizational careers. We hereby enlarge the scope of mechanisms of HAW by investigating the proposed effects among experienced employees and newcomers. Based on these two samples, we examine the indirect effects of HAW on adjustment performance and OCB via work engagement.

Additionally, we seek to uncover interaction effects that further explain the relationship between HAW and work engagement by proposing interest-taking as an amplifying moderator of the positive relationship. Interest-taking is a personal trait and a form of trait autonomy that describes the ability to openly reflect on inner and outer circumstances with an unbiased opinion, which creates a state of self-directed awareness of things of inner interest (Ryan & Deci, 2008; Weinstein et al., 2012). We argue that individuals with higher interest-taking get a more precise and in-depth sense of their environment at work and therefore expect that employees with higher (lower) levels of interest-taking will be better (less) able to utilize HAW, leading to higher (lower) work engagement. In doing so, we also address the person x situation approach within the JD-R model framework that emphasizes the interaction of stable traits of employees with the situational context of their work (Bakker et al., 2023).

In sum, we propose a model of moderated mediation wherein HAW interacts with interest-taking in predicting work engagement, resulting in adaptive performance and OCB (see Figure 8). To investigate our hypotheses among our samples with experienced employees and organizational newcomers, we apply a multilevel analysis of a 2-1-1 moderated mediation model for our studies.

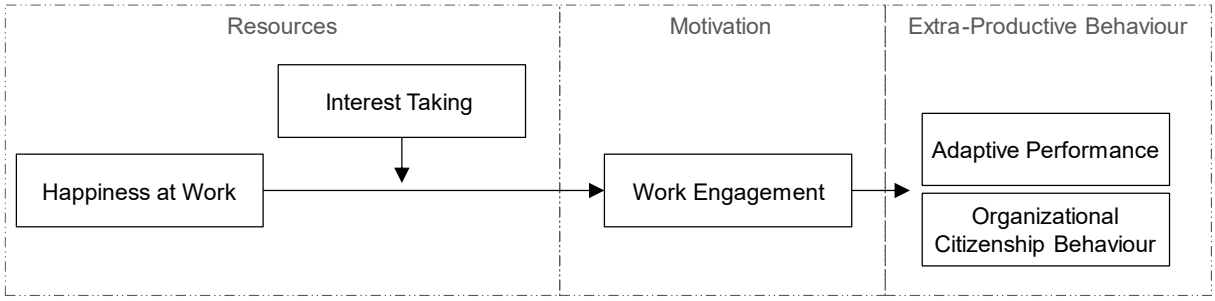

Figure 8: Conceptual research model

We offer several contributions by clarifying the role of HAW in the JD-R Model framework and outlining its relevance for newcomers and experienced employees. First, our study uncovers that HAW is an important job-related resource (Bakker & Demerouti, 2007) and indirectly positively affects adaptive performance and OCB. Second, concerning the literature on organizational socialization specifically, our study adds to the knowledge about the role of work engagement for newcomer extra-productive behaviour and what resources can help enhance newcomer engagement (Saks & Gruman, 2012, 2018). Third, by including interest-taking as a trait and implementing the person x situation approach (Bakker et al., 2023), we contribute to understanding how personality traits moderate the relationship between the job resource HAW and employee work engagement in different career stage contexts. Concerning practice, especially human resources management can draw from our insights, which is why we offer practical recommendations on actions and strategies regarding interventions to create motivating work environments with factors relating to HAW.

2 Theoretical background

2.1 Happiness at work and performance: the mediating role of work engagement

2.1.1 Happiness at work as a resource and its relation to extra-productive behaviour:

Several studies have shown that work environments and conditions significantly impact psychological well-being and extra-productive behaviour (e.g., Rossberg et al., 2004). In modern workplaces, factors related to HAW are becoming increasingly relevant for experienced employees and newcomers. HAW can be described as an ideal and positive state that includes evaluations of affective and cognitive components at the workplace (Rehwaldt, 2017). Whereas various concepts and instruments reflect general happiness and related constructs that refer to broader well-being factors (e.g., Butler & Kern, 2016; Su et al., 2014), this conceptualization refers to happiness at the very work context (Rehwaldt & Kortsch, 2022). Based on a grounded theory approach by Rehwaldt (2017), Rehwaldt and Kortsch (2022) propose three central factors of HAW: Meaningfulness, self-actualization, and community. Meaningfulness involves perceiving one's contribution to a meaningful goal and aligning values and goals for organizational coherence. It extends beyond task purposes, encompassing a broader perspective of contributing to a larger purpose and assisting others. Self-actualization entails utilising personal strengths and abilities to implement ideas at work, driven by individual ideals and beliefs. This leads to increased emotional attachment and commitment, fostering happiness. The third factor, community, is fostered through social interaction and cohesion among members sharing a common goal. It encompasses task-related and professional exchanges and emotional interactions built on trust and familiarity, enhancing the sense of belonging and overall HAW.

Rehwaldt (2017) describes these factors of HAW as a valuable job resource. In general, resources include any means an individual perceives that helps them achieve their goals (Halbesleben et al., 2014). The JD-R model is a theoretical framework to explain the relationship between job demands, resources, and employee well-being and performance (Bakker & Demerouti, 2017; Bakker et al., 2023). It distinguishes between two types of resources: Personal resources and job resources. Personal resources are individuals' positive self-evaluations about aspects of themselves associated with personal resilience (Hobfoll et al., 2003) and reflect their beliefs about successfully controlling and influencing their environment (Bakker & Demerouti, 2007). Job resources include different aspects of the job that might lower job demands and associated costs, and/or support employees in achieving work goals, and/or help individuals in their personal development, growth, or learning (Bakker & Demerouti, 2007, 2017). HAW implies that individuals can self-realize and sense the purpose of their work within a trustful and professional community, thus emphasising aspects of the job that support individuals and help employees grow and succeed. Therefore, according to the JD-R model, HAW can be considered a job resource.

Previous research demonstrates that employees benefit from higher resources in the form of HAW, as they should be more productive and energized, take fewer sick days, and intend to stay longer with the organization (Pryce-Jones & Lindsay, 2014). Here, Rehwaldt (2017) argues that improving factors that contribute to HAW is not only a goal in itself but also has a significant impact on individual extra-productive behaviour and employee engagement. This shows as employees who feel good about their jobs, find meaning in their work, can develop themselves further, and work in an environment where shared goals are pursued, are generally more productive, more motivated, and have less absenteeism due to illness (Baruch-Feldman et al., 2002; Bashir et al., 2020; Rossberg et al., 2004). Previous studies consistently demonstrate that HAW is important for employees' well-being and extra-productive behaviour (e.g., Salas-Vallina et al., 2017; A. Singh & Banerji, 2022). Thus, higher resources in the form of

HAW relate to a motivating environment for employees, positively impacting extra-productive behaviour in the form of adaptive performance and OCB.

OCB refers to employee behaviours that go beyond formal duties of core job tasks and support the social structure of organizations (Fox et al., 2012; Organ, 1997), thus helping organizations as a whole and individuals within the organization (Spector et al., 2010). Those behaviours include, for example, supporting colleagues and complying with organizational rules and procedures. Adaptive performance describes the ability of employees to adapt to new or unforeseen situations successfully and to exhibit appropriate behaviours to deal successfully with these challenges (Jundt et al., 2015). It encompasses employee flexibility and adaptivity in reacting to work-related changes and is an important factor in the performance of individuals and organizations (M. A. Griffin et al., 2007). Both adaptive performance and OCB are crucial for organizations in improving organizational effectiveness, enhancing teamwork and collaboration, and promoting a positive corporate culture (e.g., Chiaburu et al., 2022; Podsakoff et al., 2000).

In summary, HAW is an important resource that enhances employees' extra-productive behaviours, such as adaptive performance and OCB. Higher HAW should help employees better adapt to changes and motivate them to engage in behaviour beyond their formal duties, that is, OCB. Nevertheless, only scarce evidence exists on the relationship of HAW with adaptive performance and OCB. In line with the JD-R model and addressing this research gap, we expect HAW as a job resource to positively affect employees' extra-productive behaviour in the form of adaptive performance and OCB. We, therefore, propose the following hypotheses:

Hypothesis 1.1: HAW is positively related to adaptive performance among (a) experienced employees (b) and newcomers.

Hypothesis 1.2: HAW is positively related to OCB among (a) experienced employees (b) and newcomers.

2.1.2 The mediating role of work engagement

Focusing on the relationship of resources with individual and organizational outcomes, the motivational path of the JD-R model describes a mediation process via motivation and engagement. It assumes that personal and job resources are positively related to work engagement, which impacts individual behaviour and organizational outcomes (Bakker & Demerouti, 2007, 2017). Thus, work engagement should mediate the relationship between the job resource of HAW and employee extra-productive behaviour. Due to its conceptual role within the JD-R model, most work engagement research deals with either antecedents and consequences of work engagement or its mediating role (e.g., Borst et al., 2020; Christian et al., 2011; Lesener et al., 2019). Work engagement is a positive, fulfilling, motivational state of mind that reflects in vigour (i.e., high level of energy, resilience, and perseverance), dedication (i.e., experiencing a strong involvement, a sense of significance and enthusiasm), and absorption (i.e., being fully absorbed and concentrated in one's work so that time passes quickly (Schaufeli et al., 2002). Employees provided with a work environment that fulfils their expectations have higher levels of engagement (Green et al., 2017). A work environment that reflects factors of HAW will therefore relate to higher levels of work engagement. Employees that are provided with opportunities to self-actualize and to find meaning in their work will be more engaged and motivated, as they should be better able to sense the significance in what they do, be happily engrossed in their meaningful work and experience higher levels of vitality and perseverance in supportive and trusting community. In a resource-rich work environment characterized by HAW, employees' willingness to dedicate themselves to work will increase (Bakker et al., 2011; Meijman & Mulder, 1998). In line with the JD-R model, we, therefore, expect HAW as a job resource to be positively related to work engagement.

Regarding its relation to extra-productive behaviour, several scholars found work engagement essential in predicting adaptive performance (e.g., Costa et al., 2016; Kaya & Karatepe, 2020; Y. Park et al., 2020) and OCB (e.g., Gupta et al., 2017; Mathumbu & Dodd, 2013; Sulea et al., 2012). Meta-analytic evidence demonstrates that work engagement strongly relates to extra-role performance (Borst et al., 2020) and, among various behavioural outcomes, its highest correlation is with OCB (Kanjanakan et al., 2021). Employees that experience increased work engagement report higher levels of vigour, dedication, and absorption at work and will thus be more likely to demonstrate extra-productive behaviours. Regarding adaptive performance, engaged employees are more focused and engrossed in their work (Breevaart et al., 2014), enabling them to detect changes more efficiently and be more ready and dedicated to adapting to those successfully. Therefore, engaged employees should be more likely to demonstrate behaviours that reflect their adaptive performance. Furthermore, regarding OCB, work engagement is positively related to extra-role behaviours (e.g., Eldor & Harpaz, 2016). Engaged employees are more likely to demonstrate OCB as they are dedicated to achieving their work goals while having an increased capability of performing behaviours that go beyond formal work tasks and benefit the organization and individuals within it (Christian et al., 2011). Thus, in line with the JD-R model and former empirical evidence, we expect work engagement to relate to both adaptive performance and OCB positively.

In summary, both the JD-R model and evidence underscore that work engagement is an important mediator between job resources and performance (e.g., Lesener et al., 2019; Neuber et al., 2022; Saks, 2019), strongly suggesting mediation of the relationship between HAW and adaptive performance or OCB. While the vast majority of studies have investigated work engagement among experienced employees, recent research indicates that the mediating role of work engagement in predicting individual extra-productive behaviour and performance also applies to newcomers during organizational socialization (Saks & Gruman, 2018). Accordingly,

work engagement plays an important mediating role for all employees, both experienced and new to the organization.

In conclusion, the JD-R model and recent socialization literature suggest that HAW will positively influence work engagement for both experienced employees and newcomers. This assumption is also consistent with the findings of Lesener et al. (2020), as HAW is a resource that is closely connected to the individual and thus has a presumably strong effect on work engagement. Moreover, theory and empirical research have consistently linked work engagement to extra-productive behaviour in both populations and demonstrated the mediating role of work engagement between job resources and extra-productive behaviour, particularly concerning adaptive performance and OCB. Thus, it is reasonable to assume that work engagement mediates the relationship between HAW and extra-productive behaviour in the form of adaptive performance and OCB. Therefore, we postulate the following hypotheses:

Hypothesis 2.1: HAW is positively indirectly related to adaptive performance via work engagement among (a) experienced employees (b) and newcomers.

Hypothesis 2.2: HAW is positively indirectly related to OCB via work engagement among (a) experienced employees and (b) newcomers.

2.2 The moderating role of interest-taking

By examining experienced employees and newcomers, we examine individuals in different contexts, considering their unique personal and professional situations. We propose that employees with higher levels of interest taking, reflecting in attentional self-directed regulation at work and openness to internal and external circumstances, will be better able to benefit from HAW in demonstrating increased work engagement. Drawing from the person x situation approach of the JD-R model (Bakker et al., 2023), we seek to improve understanding of the

interaction between an individual's personality and work situation. The approach assumes that an individual's behaviour results from their unique personality traits and the specific situational factors they encounter. Considering the effects of personality traits helps improve our understanding of the relationship between HAW and work engagement.

Interest-taking, a central facet of trait autonomy, is the conscious ability to think about and reflect on internal and external circumstances, involving both cognitive and motivational processes that encompass awareness and ongoing insight into oneself and one's experiences, promoting a high degree of self-oriented regulation (Ryan & Deci, 2008; Weinstein et al., 2012). Specifically, this means that employees take an active interest in a given circumstance or thing, building a personal connection to it. This helps them, e.g., stay intrinsically motivated in a task or activity. In addition, in interest-taking, individuals actively reflect on phenomena or conditions as well as circumstances in a curious rather than defensive manner. That is, individuals with high levels of interest-taking are better able to be open to, reflect on, and match internal and external events with their inner selves (Weinstein et al., 2012). The main element of interest-taking is the awareness of one's own experiences and self in these moments (Weinstein et al., 2012, p. 398), which reflects a higher level of self-directed attention. Thus, we assume that interest-taking is crucial in enabling employees to optimally process the conditions and circumstances they face at work, such as factors that determine HAW, and assess the extent to which these align with their self. This leads to a higher degree of self-direction and the ability to leverage these factors and conditions at work, ultimately enhancing work engagement. Complementing this argumentation, we can transfer the expected interaction to the resource-reciprocity proposition of the JD-R model (Bakker et al., 2023). The JD-R model expects that resources reciprocate so that individuals with higher levels of personal resources can access higher levels of job resources and vice versa (Bakker et al., 2023, p. 33), leading to a joint positive impact on work engagement. Interest-taking can be characterized as a personal resource, as it represents a positive self-evaluation related to the ability to control and impact

the work environment. In contrast, HAW is referred to as a job resource. That means a higher level of the personal resource of interest-taking should relate to better accessibility of the job resource of HAW, consequently enhancing work engagement.

In summary, employees (newcomers and experienced employees) with higher levels of interest-taking, representing a personal resource, are better able to perceive and profit from a working environment that aligns with their values, feelings, and interests. Therefore, the influence of HAW, which represents a job resource, on work engagement will be enhanced, leading to the following hypothesis:

Hypothesis 3: Interest-taking moderates the positive relationship between HAW and work engagement among (a) experienced employees and (b) newcomers; the relationship will be stronger (weaker) for individuals with higher (lower) interest-taking.

In line with the JD-R model, we propose that higher job resources related to HAW will positively impact work engagement, enhancing adaptive performance and OCB. Thus, we expect work engagement to mediate the respective positive relationship of HAW with adaptive performance and OCB among newcomers and experienced employees. In addition, we expect employees with higher levels of interest-taking, represented by a higher degree of self-directed attention, to be better able to process beneficial conditions and circumstances at work and thus leverage the factors related to HAW, further enhancing their work engagement. Overall, we expect that both indirect effects of HAW on adaptive performance and OCB via work engagement will be stronger (weaker) for individuals with higher (lower) levels of interest-taking. This leads to the following hypotheses:

Hypothesis 4.1: Interest-taking moderates the indirect effect of HAW on adaptive performance via work engagement among (a) experienced employees and (b) newcomers.

Hypothesis 4.2: Interest-taking moderates the indirect effect of HAW on OCB via work engagement among newcomers among (a) experienced employees and (b) newcomers

3 Overview of the studies

Since our two target groups are in different phases and situational contexts, it was essential to adapt the study design to the respective target group accordingly, even if the phenomena studied are assumed to be equally effective. As a consequence, we conducted two studies to test our hypotheses. The first study includes experienced employees from various organizations participating in a diary study. The second study uses a monthly assessment to focus on organizational newcomers. By expanding the examination of our research model into the domain of organizational socialization among newcomers, we seek to gather insight into commonalities and differences in the interactive effects of HAW on work engagement and performance. By doing so, we also gain insights into how HAW might be important for newcomers and how this relates to enhancing newcomers' work engagement during organizational socialization. Furthermore, we improve the generalizability by replicating our findings among varying samples. Ethical soundness of both studies was certified under APA standards.

4 Study 1 – Experienced employees

4.1 Materials & methods

4.1.1 Research design and participants

For Study 1, a diary study, we recruited experienced employees from a diverse range of occupational backgrounds. Recruitment was performed via convenience sampling, using direct contact and contacts with different companies. We used a standardized promotional flyer and

provided information about data protection. Participation in the study was voluntary and without monetary compensation. However, participants had the option to receive individual feedback on their data. All participants were fully informed about the data protection regulations, the purpose of the study, and the methodological procedure before participating.

We conducted this diary study using an online survey. The pre-questionnaire consisted of stable constructs, such as sociodemographic information and person-related variables (e.g., HAW and interest-taking). Over ten working days (Monday to Friday), participants received three emails a day (morning, noon, and evening) with links to the respective questionnaires. The study was suspended on weekends and holidays and resumed on the next regular work day. The timing of the questionnaires was based on the participants' self-reported working hours. The first email was sent two hours before the start of work, the second four hours into the workday, and the last email was sent one hour after work ended. Participants had two hours to complete each questionnaire. They received a reminder email if they did not complete it within one hour.

Of the initial 138 participants recruited, 12 were excluded due to incomplete daily questionnaires for at least one day. The final sample size was 126 employees who completed all questionnaires on an average of 6.37 out of a maximum of 10 survey days, resulting in a total of 803 measurement points. All data collected in the daily diary study was self-reported.

65.90% were female, and the average age was 34.20 years (range = 19-67; SD = 13.50). The work experience was 13.97 years (SD = 14.32) on average, and the average organizational tenure was 6.45 years (SD = 9.06). 15.90% of the participants held supervisory positions, and 59.50% were full-time employees. The majority of the participants were from the financial and insurance sector (18.30%), healthcare (10.30%), science (9.50%), IT and communication (8.70%), production and processing industry (7.90%), and miscellaneous industries (21.40%).

4.1.2 Measures

We assessed HAW and interest-taking in the pre-questionnaire. All other constructs were assessed daily as repeated measures; work engagement as a state at noon, adaptive performance, and OCB in the evening to reflect on the whole working day. See Table 12 for an overview of all measures.

Table 12: Measures of focal variables

Variable	Source	Item count	Response Scale	Sample Items
Happiness at Work	Rehwaldt and Kortsch (2022)	12	1 (“disagree”) to 5 (“totally agree”)	“I can implement my ideas and wishes.”[ab] “I feel that my work is meaningful.” [ab] “In our company, we treat each other with respect.” [ab]
Interest-Taking	Weinstein et al. (2012)	3	1 (“not at all true”) to 5 (“completely true”)	“I often reflect on why I react the way I do.” [ab]
Work Engagement	Schaufeli et al. (2006)	9	1 (“never”) to 7 (“always”)	“At my work, I feel[a]/felt[b] bursting with energy.” “My job inspires[a]/inspired[b] me.” “I am[a]/was[b] immersed in my work.”
Adaptive Performance	M. A. Griffin et al. (2007)	3	1 (“very little”) to 5[a] / to 7[b] (“a great deal”)	“I adapted well to changes in my core tasks.” [ab]
OCB	Staufenbiel and Hartz (2000)[a]	7[a]	1 (“does not apply at all”) to 7 (“fully applies”)[a]	“Today, I actively sought to prevent difficulties with colleagues.”[a]
	Spector et al. (2010)[b]	10[b]	1 (“never”) to 5 (“every day”)[b]	“Helped a co-worker who had too much to do”[b] “Offered suggestions to improve how work is done.”[b]

Note. OCB = Organizational Citizenship Behaviour. We used the same scales for both studies, except for OCB. For study 1, work engagement was worded as a state, while adaptive performance and OCB reflected the whole working day and were worded accordingly. To account for the retrospective assessment of all the repeated measures in study 2 (work engagement, adaptive performance and OCB), items were reworded and the instruction was adapted accordingly. [a] Study 1. [b] Study 2.

4.1.3 Analytical procedure

All analyses were performed with Mplus 8.7 (L. K. Muthén & Muthén, 2017). We applied multilevel path analysis to test our 2-1-1 model of moderated mediation (Preacher et al., 2010, 2011). Following recent recommendations on 2-1-1 multilevel mediation (J. Fang et al., 2019), we used the Bayesian estimation method that has repeatedly demonstrated better accuracy and efficiency compared to frequentist approaches (e.g., maximum likelihood) for multilevel

models that include moderated mediation (Asparouhov & Muthén, 2021b). To estimate the moderated mediation model, we specified a level-2 interaction between the moderator (i.e., interest-taking) and the independent variable (i.e., HAW). For an unbiased estimation, we centred both level-2 variables and their interaction around the grand mean (Enders & Tofighi, 2007). Bayesian estimation is based on the Markov Chain Monte Carlo algorithm, where multiple iterations are used for calculating posterior parameter values (Zyphur & Oswald, 2015). We rely on non-informative priors to allow unbiased inferences (L. Wang & Preacher, 2015), as our hypotheses include novel relationships. Bayesian estimation does not deliver fixed values with significance values for parameter estimates but instead makes use of the distribution of information for the parameters. Therefore, a credibility interval (CrI), based on the posterior distributions, is provided for each parameter estimate. In a 95% CrI, the effect has a 95% probability of falling within the given range. Thus, similar to the logic of frequentist confidence intervals, including zero in a 95% CrI would indicate that the respective parameter might not differ from zero. For convergence and fit of our respective models in the two studies, we evaluated the potential scale reduction value, trace plots for the distribution, model parameter autocorrelations, and Posterior Predictive p-Values (Asparouhov & Muthén, 2021a).

4.2 Results of study 1

4.2.1 Descriptive statistics, construct validity, and model fit

Table 13 shows means, correlations, intraclass correlations (ICCs), and reliabilities for Study 1[1]. We first examined within-person (Level 1) and between-person (Level 2) variances among our outcome variables and evaluated the model fit before testing the hypotheses. A substantial amount of between-person variance was given (see ICC values in Table 13). Thus, the results of variance decomposition strongly support the application of multilevel modelling.

Table 13: Descriptive statistics for study 1 (experienced employees)

Variable	*M*	*SD*	ICC	1.	2.	3.	4.	5.	6.	7.	8.
1. Work Engagement [a]	4.78	1.25	.69	(.95)	**.25**	**.12**					
2. Adaptive Performance [b]	3.20	1.02	.37	.13	(.79)	**.17**					
3. OCB [a]	3.34	1.30	.61	.18	**.63**	(.83)					
4. Happiness at Work [b]	3.63	0.60		**.50**	.16	.19	(.82)				
5. Interest-Taking [b]	3.42	0.79		-.04	.09	.06	.17	(.81)			
6. Age [c]	34.20	13.50		.09	-.06	**-.23**	.15	-.15	-		
7. Gender [d]	1.33	0.47		.12	.10	.11	.04	-.14	.72	-	
8. Work Experience [c]	13.97	14.32		.09	-.04	**-.18**	.14	-.15	**.96**	.41	-
9. Organizational Tenure [c]	6.45	9.06		-.10	.07	-.11	-.05	**-.27**	**.64**	.13	**.69**

Note. OCB = Organizational Citizenship Behaviour. M = Grand means for person-level means. SD = Standard deviation of grand means for person-level means. ICC = Intraclass correlations of within-variables. Values for McDonald's Omega are depicted in parentheses on the diagonal. Below the diagonal are between-level correlations (*N* = 126), and above the diagonal are within-level correlations (*N* = 803). Numbers in bold = 95% Credibility interval does not include zero.
[a] 7-point scale. [b] 5-point scale. [c] In years. [d] 1 = female, 2 = male.

[1] Despite significant correlations of age and work experience with OCB and of organizational tenure with interest-taking, we excluded these control variables from further analyses in order to minimize power reduction associated with type II error inflation (Becker, 2005; Becker et al., 2016). Supplemental analyses that accounted for the aforementioned variables also did not reveal a different pattern of results.

We performed a multilevel confirmatory factor analysis to examine the construct validity of the self-report measures. A 5-factor model with separate HAW, trait interest-taking, work engagement, adaptive performance, and OCB was tested against three alternative models. Table 14 shows the results of the model comparison. Results imply the discriminability of our measures, as the 5-factor model fitted our data best.

Table 14: Confirmatory factor analyses results for study 1 (experienced employees)

	Model	χ^2 (df)	$\Delta\chi 2$	CFI	TLI	RMSEA	$SRMR_w$	$SRMR_b$
1	Within: Work Engagement; Adaptive Performance; OCB Between: Happiness at Work; Interest-Taking	1113.891 (267)	-	0.863	0.843	0.063	0.063	0.115
2	Within: Work Engagement & Adaptive Performance as one factor; OCB Between: Happiness at Work; Interest-Taking	1685.116 (269)	571.225***	0.771	0.739	0.081	0.106	0.115
3	Within: Work Engagement; Adaptive Performance & OCB as one factor Between: Happiness at Work; Interest-Taking	1501.609 (269)	387.718***	0.801	0.773	0.076	0.074	0.115
4	Within: Work Engagement & Adaptive Performance & OCB as one factor Between: Happiness at Work & Interest-Taking as one factor	2963.385 (271)	1849.494***	0.565	0.507	0.112	0.162	0.155

Note. OCB = Organizational Citizenship Behaviour. CFI = Comparative Fit Index. TLI = Tucker-Lewis Index. RMSEA = Root Mean Square Error of Approximation. SRMRw/SRMRb = Standardized Root Mean Residual for within/between.
* $p < .05$. ** $p < .01$. *** $p < .001$.

4.2.2 Test of hypotheses

Before hypothesis testing, the trace plot inspection and a stable potential scale reduction value of less than 1.05 after approximately 200 iterations indicated a very good model convergence. Results further indicated a good fit for the mediation model (95%-CI = [-18.98; 29.75]; Posterior Predictive P-Value = .33).

For Hypothesis 1.1a and Hypothesis 1.2a, we tested the direct positive effect of HAW on adaptive performance and OCB, respectively. Multilevel estimates do not indicate direct effects of HAW on adaptive performance (B = 0.12, 95%-CrI = [-0.13; 0.38]) and OCB (B = 0.21, 95%-CrI = [0.16; 0.60]). Therefore, Hypothesis 1.1a and Hypothesis 1.2a have to be rejected, and

HAW does not directly relate to adaptive performance and OCB among experienced employees.

Hypothesis 2.1a proposed the indirect positive effect of HAW on adaptive performance via work engagement. Hypothesis 2.2a proposed an indirect effect of HAW and OCB via work engagement. Consistent with Hypothesis 2.1a and Hypothesis 2.2a, multilevel estimates revealed that between-person HAW positively related to work engagement (B = 0.90, 95%-CrI = [0.60; 1.21]). At the within-person level, work engagement was positively related to both adaptive performance (B = 0.30, 95%-CrI = [0.21; 0.38]) and OCB (B = 0.14, 95%-CrI = [0.05; 0.23]), supporting Hypothesis 2.1a and Hypothesis 2.2a respectively. Consequently, the two hypothesized indirect effects of HAW via work engagement on adaptive performance (B = 0.26, 95%-CrI = [0.16; 0.39]) and OCB (B = 0.13, 95%-CrI = [0.05; 0.23]) were evident among experienced employees (see Table 15). Both Hypothesis 2.1a and Hypothesis 2.2a are therefore supported. Thus, work engagement fully mediates the positive relationships between HAW and adaptive performance (Hypothesis 2.1a) and OCB (Hypothesis 2.2a) among experienced employees.

In Hypothesis 3a, we predicted moderating effects (amplifying effects) of interest-taking on the positive relationship between HAW and work engagement among experienced employees (a-path of the model). However, multilevel estimates do not indicate an interaction effect of HAW × interest-taking on work engagement (B = -0.14, 95%-CrI = [-0.47; 0.19]). Therefore, Hypothesis 3a did not receive support from the first sample's data. Interest-taking does not moderate the positive relationship between HAW and work engagement among experienced employees. Consequently, the proposed moderator's conditional indirect effects at higher or lower levels could not be interpreted. Thus, Hypothesis 4.1a and Hypothesis 4.2a are not supported.

Table 15: Multilevel estimates for study 1 (experienced employees)

Parameter	Model 1 (mediation)				Model 2 (moderated mediation)			
	B	PSD	95% CrI LL	95% CrI UL	B	PSD	95% CrI LL	95% CrI UL
Within-level								
Direct effects								
WE→AP	**0.293**	0.044	0.208	0.379	**0.296**	0.043	0.211	0.380
WE→OCB	**0.143**	0.046	0.052	0.234	**0.144**	0.046	0.053	0.234
R^2 AP	**0.064**	0.018	0.032	0.105	**0.065**	0.018	0.034	0.104
R^2 OCB	**0.014**	0.009	0.002	0.037	**0.014**	0.009	0.002	0.037
Between-level								
Direct effects								
WE→AP	**0.040**	0.072	-0.100	0.181	**0.039**	0.072	-0.105	0.183
WE→OCB	**0.107**	0.110	-0.112	0.325	**0.105**	0.112	-0.115	0.323
R^2 WE	**0.231**	0.069	0.105	0.373	**0.261**	0.070	0.130	0.403
R^2 AP	**0.038**	0.037	0.002	0.141	**0.038**	0.038	0.002	0.138
R^2 OCB	**0.050**	0.040	0.004	0.154	**0.051**	0.041	0.004	0.158
Cross-level								
Direct effects								
HAW→WE	**0.871**	0.154	0.569	1.167	**0.902**	0.156	0.597	1.209
HAW→AP	0.126	0.125	-0.126	0.368	0.123	0.128	-0.125	0.375
HAW→OCB	0.219	0.193	-0.169	0.594	0.214	0.194	-0.164	0.598
IT→WE					-0.187	0.117	-0.414	0.047
Indirect effects								
HAW→WE→AP	**0.252**	0.059	0.147	0.381	**0.263**	0.060	0.158	0.393
HAW→WE→OCB	**0.121**	0.047	0.042	0.225	**0.127**	0.048	0.046	0.232
Interaction								
HAW×IT→WE					-0.142	0.168	-0.472	0.188

Note. $N_{between}$ = 126, N_{within} = 803. PSD = Posterior Standard Deviation. HAW = Happiness at Work. WE = Work Engagement. IT = Interest-Taking. AP = Adaptive Performance. OCB = Organizational Citizenship Behaviour. 95% CrI LL (UL) = Lower (Upper) Level of 95% Credibility Interval. Bold values indicate parameters' 95% Credibility Interval does not include zero.

4.2.3 Supplementary analysis

Although the current study focused on the moderating role of interest-taking, we conducted supplementary analyses to examine the other subscales of the index of autonomous functioning. Multilevel estimation revealed non-existent interactions of the sub-facets of susceptibility to control (B = 0.01; 95%-CrI = [-0.16; 0.17]) and authorship (B = -0.03; 95%-CrI = [-0.56; 0.50]) with HAW. Therefore, none of the subscales of the index of autonomous functioning moderated the positive effect of HAW on work engagement among experienced employees.

4.3 Discussion of study 1

In our first study, we sought to investigate the mediating role of work engagement in a sample of experienced employees, and our findings confirmed our hypothesis. Our results indicate that HAW had a positive effect on work engagement, which in turn positively influenced extra-role performance in the form of adaptive performance and OCB. The path of motivation triggered by HAW highlights the importance of this construct as a key resource for experienced employees. Although we initially hypothesized that interest-taking moderates the positive effect of HAW on work engagement, our first study does not provide evidence for this interaction. One possible explanation for this lack of moderation is that experienced employees often possess a deep understanding of work processes and company culture, and they are frequently capable of adapting their work to their interests and skills. Furthermore, their experience often allows them to quickly acclimate to new tasks, which might limit the relevance of interest-taking in moderating the relationship between HAW and work engagement. However, our study's findings provide valuable insights into the mediating role of work engagement between HAW and extra-role performance among experienced employees.

5 Study 2 - Newcomers

5.1 Materials & methods

5.1.1 Research design and participants

We recruited newcomers from various organizations in Germany using the convenience sampling method through professional networks or direct contact. Participants self-registered for the online study via a double opt-in email procedure. All participants were fully informed about the study's details and assured of data confidentiality and security. Participation was voluntary,

and participants received no monetary compensation. However, as in Study 1, participants were given the option of receiving individual feedback on their data regarding resources and motivation. Of the 246 people who initially participated in the survey, 120 were excluded because they had only completed one survey or because data were either illogical or incomplete. The final sample included 126 newcomers with an average age of 27.84 years (SD = 6.73 years), of which 63.50% were female. The average work experience was 4.26 years (SD = 6.48), and the average number of previous job changes was 2.15 (SD = 2.17), reflecting the participants' experience with socialization processes. 10.30% of the newcomers were in leadership positions, and 31.70% worked part-time. Participants came from various industries: Health and social care sector (18.90%), service industry (17.10%), wholesale and retail (16.20%), education and upbringing (12.60%), or information and communications (8.10%). Participants filled out the first questionnaire two to four weeks after organizational entry, covering the time since they started their job. Three consecutive questionnaires were then sent at four-week intervals to cover the initial four months of the new employment.

5.1.2 Measures

We used the same scales as in Study 1, except for OCB (see Table 12). The first questionnaire included demographic information, such as age or gender, and measures of HAW and interest-taking as a trait. The first and the subsequent three questionnaires assessed work engagement, adaptive performance, and OCB.

5.1.3 Analytical procedure

The procedures of Study 1 were adopted for Study 2 accordingly.

5.2 Results of study 2

5.2.1 Descriptive statistics, construct validity and model fit

Table 16 displays descriptive statistics and reliabilities of Study 2 variables. Similar to Study 1[2], examination for within-person (Level 1) and between-person (Level 2) variances among the outcome variables of Study 2 revealed substantial amounts of variance on Level 2 (see ICC values in Table 16). In line with Study 1, the results of variance decomposition for Study 2 also support the application of multilevel modelling.

As in Study 1, a 5-factor model with separate HAW, trait interest-taking, work engagement, adaptive performance, and OCB was tested against three alternative models. As can be seen in Table 17, the 5-factor model better fitted our data compared to the alternative models. We could replicate the factor structure from Study 1, and the discriminability of our measures was given.

2 For the same reason as in Study 1, we excluded additional control variables from our multilevel path analyses, especially since there were no significant correlations of the focal variables with control variables in the second study.

Table 16: Descriptive statistics for study 2 (newcomers)

Variable	*M*	*SD*	ICC	1.	2.	3.	4.	5.	6.	7.	8.
1. Work Engagement [a]	4.64	1.21	.71	(.95)	**.34**	**.18**					
2. Adaptive Performance [a]	5.43	0.95	.43	**.55**	(.75)	**.14**					
3. OCB [b]	2.53	0.70	.63	**.34**	**.26**	(.82)					
4. Happiness at Work [b]	3.68	0.70		**.67**	**.46**	.26	(.89)				
5. Interest-Taking [b]	3.49	0.72		**.22**	.18	-.09	.22	(.77)			
6. Age [c]	27.84	6.73		.16	.11	.17	.07	-.05	-		
7. Gender [d]	1.37	0.48		-.08	-.08	.12	.02	-.06	.02	-	
8. Work Experience [c]	4.26	6.48		.09	.09	.13	-.03	-.05	**.90**	.02	-
9. Job Change Experience [e]	2.15	2.17		-.02	-.09	.16	-.09	-.09	**.48**	.08	**.58**

Note. OCB = Organizational Citizenship Behaviour. M = Grand means for person-level means. *SD* = Standard deviation of grand means for person-level means. ICC = Intraclass Correlations of within-variables. Values for McDonald's Omega are depicted in parentheses on the diagonal. Below the diagonal are between-level correlations (N = 126), and above the diagonal are within-level correlations (N = 399). Numbers in bold = 95% Credibility Interval does not include zero.
[a] 7-point scale. [b] 5-point scale. [c] In years. [d] 1 = female, 2 = male. [e] Total number of previous job changes.

Table 17: Confirmatory factor analyses results for study 2 (newcomers)

	Model	χ^2 (df)	$\Delta\chi 2$	CFI	TLI	RMSEA	$SRMR_w$	$SRMR_b$
1	Within: Work Engagement; Adaptive Performance; OCB Between: Happiness at Work; Interest-Taking	818.688 (324)	-	0.894	0.880	0.062	0.063	0.077
2	Within: Work Engagement & Adaptive Performance as one factor; OCB Between: Happiness at Work; Interest-Taking	1004.492 (326)	185.804***	0.855	0.837	0.072	0.073	0.077
3	Within: Work Engagement; Adaptive Performance & OCB as one factor Between: Happiness at Work; Interest-Taking	1111.978 (326)	293.290***	0.832	0.811	0.078	0.107	0.077
4	Within: Work Engagement & Adaptive Performance & OCB as one factor Between: Happiness at Work & Interest-Taking as one factor	1781.576 (328)	962.888***	0.689	0.652	0.106	0.129	0.118

Note. OCB = Organizational Citizenship Behaviour. CFI = Comparative Fit Index. TLI = Tucker-Lewis Index. RMSEA = Root Mean Square Error of Approximation. SRMRw/SRMRb = Standardized Root Mean Residual for within/between. * $p < .05$. ** $p < .01$. *** $p < .001$.

5.2.2 Test of hypotheses

Trace plot inspection and the potential scale reduction value falling below 1.05 after approximately 500 iterations indicated good model convergence for Study 2. Like in Study 1, results revealed a good model fit (95%-CI = [-19.60; 26.47]; Posterior Predictive P-Value = .41) for Study 2.

Hypothesis 1.1b and Hypothesis 1.2b postulated the respective direct positive effects of HAW on adaptive performance and OCB among newcomers. Multilevel estimates do not confirm the direct effects of HAW on adaptive performance (*B* = 0.14, 95%-CrI = [-0.09; 0.38]) or OCB (*B* = 0.04, 95%-CrI = [-0.17; 0.25]). Among newcomers, HAW is not directly related to adaptive performance and OCB.

Hypothesis 2.1b and Hypothesis 2.2b proposed that work engagement mediates the positive effect of HAW on newcomer adaptive performance (Hypothesis 2.1b) and newcomer OCB (Hypothesis 2.2b), respectively. The results show that between-person HAW was related to newcomer within-level work engagement (a-path; *B* = 1.01, 95%-CrI = [0.79; 1.23]). On the within-person level, newcomer work engagement was related to adaptive performance (*B* = 0.37, 95%-CrI = [0.25; 0.50]) and OCB (*B* = 0.12, 95%-CrI = [0.04; 0.19]). Therefore, the results support the indirect effect of HAW on adaptive performance via work engagement (*B* = 0.37, 95%-CrI = [0.24; 0.54]) and the indirect effect of HAW on OCB via work engagement (*B* = 0.12, 95%-CrI = [0.04; 0.20]) (see Table 18). Thus, Hypothesis 2.1b and Hypothesis 2.2b were supported. Consistent Study 1 on experienced employees, work engagement also fully mediates the positive relationship between HAW and adaptive performance (Hypothesis 2.1b) and the positive relationship between HAW and OCB (Hypothesis 2.2b) among newcomers.

Hypothesis 3b addressed the moderating role of interest-taking. It proposes that the positive relationship between HAW and work engagement is stronger for newcomers with higher (vs. lower) interest-taking. In support of this proposition, results indicate that interest-taking moderates the positive relationship between HAW and work engagement (*B* = 0.46, 95%-CrI = [0.19; 0.72]). We performed simple slope analysis for values of the moderator at one standard deviation above (+1SD) and below (-1SD) the mean as recommended by Preacher et al. (2006) and depicted the interaction in Figure 9. Interaction patterns show that for newcomers

with higher levels of interest-taking, the positive relationship between HAW and work engagement is stronger (*B* = 1.34) than for those showing lower levels of interest-taking (*B* = 0.67). Thus, Hypothesis 3b is supported. Interest-taking moderates the positive relationship between HAW and newcomer work engagement.

Consequently, Hypothesis 4.1b and Hypothesis 4.2b predicted that interest-taking moderates the respective indirect effects of HAW on adaptive performance and OBC via work engagement. Multilevel estimates provided evidence for a moderation of the indirect effects. For values of the moderator at one standard deviation above and below the mean, results indicate conditional indirect effects of HAW on adaptive performance (*B* = 0.25 for interest taking at -1SD, *B* = 0.50 for interest taking at +1SD) and OCB (*B* = 0.08 for interest taking at -1SD, *B* = 0.15 for interest taking at +1SD) via work engagement (see Table 18). Thus, interest-taking moderates both indirect effects of HAW on adaptive performance (Hypothesis 4.1b) and OCB (Hypothesis 4.2b) via work engagement among newcomers.

Table 18: Multilevel estimates for study 2 (newcomers)

Parameter	Model 1 (mediation)				Model 2 (moderated mediation)			
	B	PSD	95% CrI LL	95% CrI UL	B	PSD	95% CrI LL	95% CrI UL
Within-level								
Direct effects								
WE→AP	**0.373**	0.064	0.246	0.499	**0.373**	0.063	0.251	0.496
WE→OCB	**0.118**	0.039	0.040	0.195	**0.116**	0.039	0.039	0.194
R^2 AP	**0.114**	0.036	0.052	0.195	**0.114**	0.036	0.052	0.191
R^2 OCB	**0.032**	0.022	0.004	0.086	**0.031**	0.021	0.004	0.084
Between-level								
Direct effects								
WE→AP	**0.269**	0.086	0.097	0.438	**0.276**	0.085	0.109	0.439
WE→OCB	**0.165**	0.079	0.008	0.317	**0.171**	0.078	0.020	0.327
R^2 WE	**0.448**	0.074	0.297	0.587	**0.539**	0.071	0.387	0.663
R^2 AP	**0.334**	0.092	0.158	0.513	**0.350**	0.092	0.173	0.530
R^2 OCB	**0.127**	0.063	0.030	0.272	**0.139**	0.067	0.033	0.292
Cross-level								
Direct effects								
HAW→WE	**0.984**	0.112	0.765	1.200	**1.005**	0.113	0.786	1.228
HAW→AP	0.152	0.120	-0.087	0.386	0.142	0.119	-0.087	0.376
HAW→OCB	0.049	0.108	-0.161	0.258	0.043	0.108	-0.167	0.251
IT→WE					0.104	0.105	-0.103	0.310
Indirect effects								
HAW→WE→AP	**0.364**	0.076	0.229	0.526	**0.373**	0.076	0.237	0.535
HAW→WE→OCB	**0.115**	0.041	0.039	0.200	**0.116**	0.042	0.039	0.203
Interaction								
HAW×IT→WE					**0.457**	0.136	0.193	0.722
Conditional a-path								
HAW×IT(-1SD)→WE					**0.668**	0.140	0.399	0.951
HAW×IT(+1SD)→WE					**1.339**	0.159	1.030	1.654
Conditional indirect effects								
HAW×IT(-1SD)→WE→AP					**0.248**	0.068	0.130	0.395
HAW×IT(+1SD)→WE→AP					**0.496**	0.103	0.311	0.707
HAW×IT(-1SD)→WE→OCB					**0.076**	0.032	0.023	0.148
HAW×IT(+1SD)→WE→OCB					**0.154**	0.056	0.052	0.274

Note. $N_{between}$ = 126, N_{within} = 399; PSD = Posterior Standard Deviation. HAW = Happiness at Work. WE = Work Engagement. IT = Interest-Taking. AP = Adaptive Performance. OCB = Organizational Citizenship Behaviour. 95% CrI LL (UL) = Lower (Upper) Level of 95% Credibility Interval. Bold values indicate parameters' 95% Credibility Interval does not include zero.

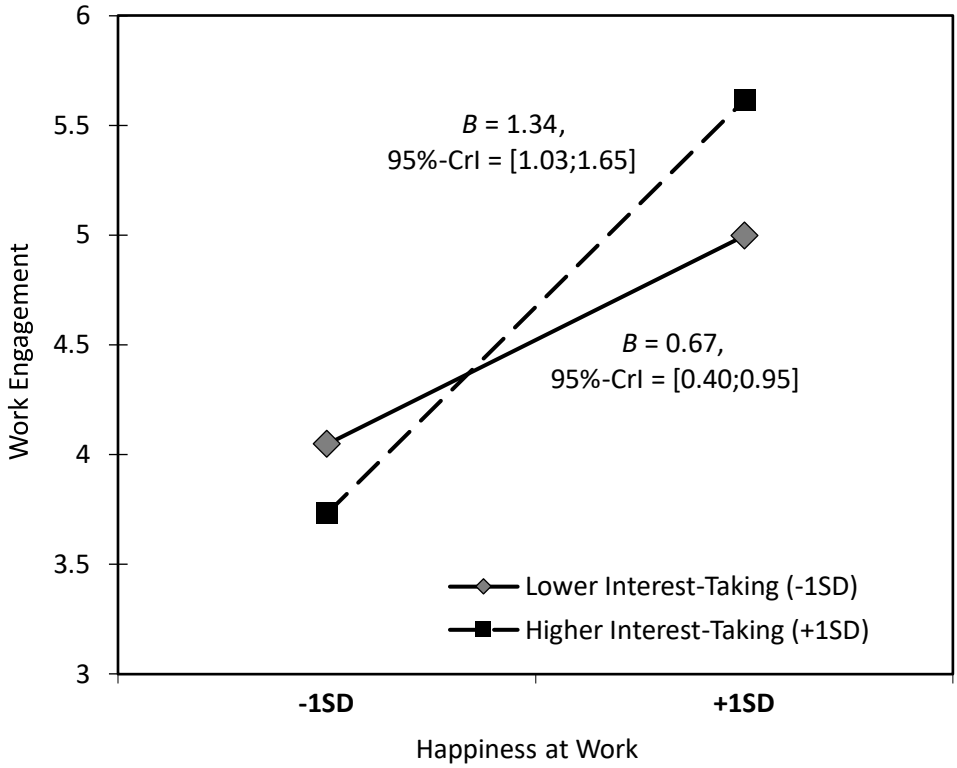

Figure 9: Interaction effects of happiness at work and interest-taking

5.2.3 Supplementary analysis

As in Study 1, we conducted an additional analysis on potential moderating effects of the other two subscales of the index of autonomous functioning. Similar to Study 1, no interaction of HAW with susceptibility to control was found (B = 0.10, 95&-CrI = [-0.21; 0.40]) among newcomers. Regarding the interaction of HAW and the subscale of authorship, multilevel estimates support an interaction effect on work engagement (B = 0.56, 95%-CrI = [0.24; 0.87]). As the focus of the current study lies on interest-taking, there will be no discussion in detail regarding self-congruence for Study 2 specifically. Nevertheless, potential implications for future research will be discussed later.

5.3 Discussion of study 2

In line with Study 1, all hypotheses regarding the mediating role of work engagement were supported among our newcomer sample. We found that HAW relates to work engagement, which further leads to increases in socialization outcomes. Therefore, our findings further support the proposition of HAW as an important resource for experienced employees and newcomers. In addition, and in contrast to Study 1, we were able to show that interest-taking moderates the positive effect of HAW-on-work engagement. This further highlights the importance of additionally considering interactions between job resources and personal resources and adds to our understanding of how individuals might profit from HAW. Also, the findings of our second study address the supposition of the newcomer pathway to organizational socialization (Saks & Gruman, 2018), which adapts the motivational process of the JD-R model and extends it to organizational socialization research. Finally, work engagement mediates the positive relationship between HAW and adaptive performance and OCB, respectively. Thus, by proving that work engagement is an important mediator between socialization resources (here: HAW) and socialization outcomes (here: adaptive performance and OCB), our findings add to the knowledge about the role of work engagement among newcomers during organizational socialization.

6 General discussion

To the best of our knowledge, this is the first study that investigates the relationship between HAW and adaptive performance or OCB among different populations of employees and, based on the JD-R model (Bakker & Demerouti, 2017), explains these relationships via work engagement. In particular, we examine the interactive effect of HAW and interest-taking on work engagement, ultimately predicting adaptative performance and OCB, through two studies with employees at different stages of their organizational careers: experienced employees (Study

1) and newcomers (Study 2). First, our results demonstrate that HAW is an important job resource for both experienced employees and newcomers, affecting work engagement and the motivational process of the JD-R model. Second, we confirmed the moderating role of interest-taking among newcomers, introducing interest-taking as a valuable personal resource that helps individuals benefit from HAW even more regarding their engagement. Third, both studies improve our understanding of the link between HAW and important work-related performance outcomes, namely adaptive performance and OCB. Based on JD-R theory, we demonstrate the crucial role of work engagement as a mediator with additional emphasis on organizational socialization research.

6.1 Theoretical contribution

We make several contributions to theory and research. First, we contribute to research on HAW regarding its role as a resource and its consequences for organizations and employees at different career stages. Recent research shows HAW is inherently connected with motivating job characteristics (Oerlemans & Bakker, 2018) and modern work environments (Kortsch et al., 2022). HAW is determined by the factors of self-actualization, meaningfulness, and community (Rehwaldt, 2017; Rehwaldt & Kortsch, 2022) and is supposed to relate to creativity, motivation, and performance (Rehwaldt, 2020). Implementing this conceptualization of HAW, we expand the knowledge about its relationship with motivation and performance among employees at different stages of their careers. Referring to the JD-R model's motivation process, we demonstrate that HAW is an important job resource (Bakker & Demerouti, 2007, 2017) for experienced employees and newcomers. By conducting two longitudinal studies among heterogeneous samples, we further address recent calls for longitudinal examinations of HAW and its consequences among diverse occupational groups (Rehwaldt & Kortsch, 2022).

By including interest-taking as a moderator in the relationship between HAW and work engagement, we further add to the understanding of how personal resources help individuals leverage their job resources more effectively. The JD-R model expects individuals with more personal resources to have better access to job resources, which will benefit the motivational process (Bakker et al., 2023). In our second study, we can show that newcomers with higher levels of interest-taking, compared to those with lower levels, are better able to benefit from the job resource HAW, such that they exhibit higher levels of work engagement. In doing so, we also respond to calls by Saks and Gruman (2012, 2018) to examine the joint effects of resources on work engagement among newcomers and contribute to organizational socialization literature. As mentioned earlier, we did not find a moderating effect of interest-taking among experienced employees. However, previous research has shown differences between newcomers and experienced employees in terms of the influence of personality on performance (e.g., Bauer et al., 2007; Tracey et al., 2007). Our results were surprising as we hypothesized that interest-taking benefits newcomers and experienced employees. One possible explanation could be the different phases and situations that lead to different perceptions of the work environment among new hires and experienced employees. While newcomers gain many new impressions, experienced employees have more expertise and experience to react to situational work events without much effort and attention. Therefore, because of their stage, newcomers benefit more from higher interest-taking, such as finding meaning in events and staying motivated. However, more research is needed to replicate and confirm these findings. The person x situation approach of JD-R theory by Bakker et al. (2023) can serve as a theoretical foundation to dig deeper into understanding these relationships.

We further contribute to the work engagement literature by clarifying the role of work engagement for newcomers during organizational socialization and experienced employees. In line with the JD-R model and numerous empirical research that suggests work engagement mediates the motivational process between job resources and performance outcomes (e.g., Bakker

& Demerouti, 2017), our results show that work engagement fully mediates the relationship between HAW and adaptive performance and OCB respectively. Regarding research on organizational socialization, our study adds to the limited knowledge about newcomer work engagement (Saks & Gruman, 2012, 2018). We introduce HAW as a valuable socialization resource and empirically support the mediating role of work engagement for newcomers.

Furthermore, our studies focus on adaptive performance and OCB and contribute to the knowledge of how to promote both simultaneously. Employees are confronted with changes in their work environment and show adaptive behaviour to respond to those changes in their job tasks (Jundt et al., 2015). We contribute to the literature and expand the evidence on how engagement improves adaptive performance in employees, as there are only a few studies to link them (e.g., Kaya & Karatepe, 2020; Y. Park et al., 2020). Furthermore, our results add to the existing literature on the relationship between work engagement and OCB (e.g., Borst et al., 2020; Gupta et al., 2017). Consistent with previous research, our results suggest a positive relationship between work engagement and OCB for both experienced employees and newcomers. Making an important contribution to organizational socialization research, this is the first study to demonstrate the relationship between newcomers' work engagement, adaptive performance, and OCB.

6.2 Practical implications

Our findings provide valuable insights for practitioners. Current research suggests that HAW can provide valuable indicators for assessing progress and change in various work domains, such as employee acquisition, onboarding, and retention (e.g., Kortsch et al., 2022; Rehwaldt, 2017). Results from both studies extend and support these approaches and serve as a foundation for practical implementation for organizations seeking to build and improve HAW and

work engagement from the outset and throughout employment. Creating favourable and inspiring work conditions and environments is strongly related to better performance (e.g., Bashir et al., 2020).

Organizations should aim to build a professional and trusting community and empower employees to contribute to the bigger picture to strengthen HAW. This can be achieved, for example, by emphasising the factors of meaningfulness and self-actualization, encouraging early employee participation, supporting open communication, implementing feedback, and promoting autonomous working (e.g., Kortsch et al., 2022; Rehwaldt, 2017). In particular, training on positive leadership and coaching on HAW could help employees improve the factors of HAW. Companies should also provide employees with opportunities to improve their ability to align their actions with their interests to promote HAW and improve work engagement and extra-productive behaviours. Furthermore, training employees in interest-taking supports them in developing important skills and improving their experience of HAW. Implementing interventions addressing work engagement (see also Knight et al., 2019) and HAW is a promising avenue for future research.

6.3 Limitations and avenues for future research

First, we used self-report data, susceptible to certain biases (e.g., social desirability) and inflated associations due to common method bias. Future research could therefore address this limitation and include, for example, external information or sources such as team members or supervisors. Furthermore, especially in the first study, there is no significant moderator effect, raising two questions: (1) Which moderators could support the link between HAW and work engagement, especially for experienced employees? (2) Are there possibly industry differences in the sense that the perception of interests in some industries interacts more with HAW

and thus sets motivational processes in motion that favour individual work engagement? Investigation of both questions could be a promising avenue for future research. It should also be noted that a large portion of the first study was collected during the Corona pandemic, which is an additional limitation. In addition, future intervention studies could examine how training or coaching, focusing on work engagement or factors for HAW, enhances extra-productive behaviour.

7 Conclusion

Our studies show the importance of the job resource HAW for extra-productive behaviour via the activation of motivational processes of employees at different career stages (newcomers and experienced employees). In addition, we show that the personal resource interest-taking enhances the positive relationship between HAW and work engagement for newcomers. Future studies should build on these findings and further examine the role of HAW or its interactions with other personal and organizational resources.

F Final overall discussion

1 Synopsis of the results and findings

Job changes and career entries are an integral part of today's labor market. Each of these changes or entries begins with the coming together of newcomers and organizations. Consequently, the following onboarding process is of great importance to newcomers and organizations and greatly interests employees, companies, and organizational socialization scholars alike. Research on organizational socialization has a long tradition, and a wide variety of studies and models have examined the contribution of organizational actions, organizational insiders, and newcomers' behaviors and characteristics to newcomer adjustment and socialization success (Ashforth et al., 2007; Bauer & Erdogan, 2011), vastly building on the rationale of uncertainty reduction in focusing on how to minimize uncertainty for newcomers (Bauer et al., 2007; Ellis et al., 2015). However, although affective and motivational theories in industrial and organizational psychology indicate how resources and processes of resource gain play a major role in enhancing extra-productive behavior through affective-motivational processes (Bakker & Demerouti, 2017; Bakker et al., 2023; Fredrickson, 1998, 2004; Hobfoll, 2011; Hobfoll et al., 2018; Weiss & Cropanzano, 1996), organizational socialization research falls short on investigating these relationships among newcomers (Saks & Gruman, 2012, 2018).

Overall, this thesis departs from the traditional pathway of uncertainty reduction for newcomers during socialization and takes a resource-focused approach in answering the overarching research question regarding factors for newcomers' enhanced motivation and their willingness to engage in extra-productive behavior from the very start. Herein, the thesis takes a cumulative approach, with four separate research articles contributing to the overarching research question by closing four identified research gaps, integrating investigations of how resources,

resource interactions, and processes of resource gain relate to newcomers' affective-motivational processes and enhance newcomers' willingness to engage in extra-productive behavior. All four articles provide a distinct contribution to closing the four identified gaps in organizational socialization research.

Article 1

The first article was focused on the longitudinal empirical investigation of the development of newcomers' work engagement and its relationship with LMX. Drawing on the JD-R model (Bakker & Demerouti, 2017; Bakker et al., 2023) and literature on changes in work engagement and newcomers' attitudes, the article answered the question of how newcomers differ in their longitudinal development of work engagement and how these differences between individuals may relate to LMX. Furthermore, by integrating the JD-R model and social exchange theory (Cropanzano & Mitchell, 2005), the article took an intra-individual perspective on how work engagement and LMX might influence each other over time, suggesting potential reciprocation related to resource gain cycles or spirals.

By applying group-based trajectory analysis, the article showed how newcomers' work engagement develops over time, outlining three empirically distinguishable groups of trajectories. Furthermore, the socialization job-resource of LMX was found to be positively related to the groups of trajectories, suggesting higher-quality LMX to be an antecedent of favorable work engagement trajectories. Although reciprocal effects between work engagement and LMX were not evident and the idea of gain cycles was not completely supported, a positive, lagged impact of newcomers' work engagement was found on LMX in general cross-lagged analysis. This demonstrated how highly engaged newcomers might contribute to the LMX relationship, impacting resource-availability due to LMX and enhancing processes resource-gain. Thus, by

demonstrating how LMX relates to the differences regarding the development of work engagement over time and how newcomers enhance their own resources related to LMX through higher work engagement, the article contributes to closing research gap I on the role and development of newcomers' work engagement and gap II regarding how leader-newcomer relationships relate to newcomers' motivational processes and engagement. It demonstrates that for getting highly motivated newcomers, the leader-newcomer relationship is of great importance by outlining that LMX relates to favorable longitudinal trajectories of work engagement, while in turn, newcomers' work engagement positively impacts the leader-newcomer relationship in the short term.

Article 2

The second article presented a cross-sectional empirical investigation of how newcomers' personality regarding core-self evaluations impacts the beneficial effects of LMX on newcomers' work engagement and subsequent organizational citizenship behavior. In doing so, the article contributes to closing all four identified research gaps.

Drawing on the JD-R model (Bakker & Demerouti, 2017; Bakker et al., 2023), the article demonstrated that the job resource of higher-quality LMX positively impacts motivational processes during organizational socialization (contributing to closing research gap II), resulting in higher newcomer work engagement, which in turn leads to enhanced extra-productive behavior in the form of OCB (contributing to closing research gap IV). Consequently, newcomers' work engagement was found to fully mediate the relationship, outlining the crucial role of newcomers' work engagement in relating resources with relevant socialization outcomes (contributing to closing research gap I). In addition, the article drew on previous research and organizational socialization literature to highlight the role of core self-evaluations as a newcomer's personal resource. Additionally considering COR theory (Hobfoll, 1989, 2002; Hobfoll et al.,

2018), the article demonstrated the impact that personal resources have on newcomers leveraging their job resources (contributing to closing research gap III). It shows the interplay of core self-evaluations with LMX, as higher-quality LMX only resulted in higher work engagement and enhanced extra-productive behavior when newcomers had positive self-evaluations. Thus, the article outlines effects of resource interplays by highlighting how newcomers' personal resources may help explain the effectiveness of LMX as a resource and underscores the importance of leadership regarding high-quality leader-newcomer relationships as a factor for enhanced newcomers' motivation and their willing to engage in extra-productive behavior.

Article 3

The third article sought to clarify the question of how servant leaders impact newcomers' extra-productive behavior in the form of innovative performance through affective processes regarding happiness at work and job satisfaction.

By analyzing servant leadership literature, the leadership style was found to be primarily important for both newcomer socialization and extra-productive behavior in the form of innovative performance. The article took a multilevel mediation approach to analyze the effects that expressions and behaviors of servant leaders have on the understudied extra-productive behavior of innovative performance through happiness at work and job satisfaction. In doing so, the article drew on affective events theory (Weiss & Cropanzano, 1996) in analyzing the impact of leadership behavior on affective-motivational processes for newcomers regarding happiness at work and job satisfaction (contributing to closing research gap II) and broaden-and-build theory (Fredrickson, 1998, 2004) to further explain the resulting impact on newcomers' innovative performance (contributing to closing research gap IV). The article shows that servant leaders enhance positive affective events and resource-rich environments, which positively impact both happiness at work and job satisfaction. However, only happiness at work further

lead to the broadening of newcomers' thought-action repertoires, increasing innovative performance. Focusing on these relationships through the lens of affective processes, the article demonstrates how supportive and enabling behavior by servant leaders are effective factors in enhancing newcomers' extra-productive behavior.

Article 4

The fourth article focused on how resource interactions impact newcomers' motivational processes and extra-productive behavior, investigating newcomers and experienced employees in a complementary two-study design. The article considered happiness at work as a job resource in the context of the JD-R model (Bakker & Demerouti, 2017; Bakker et al., 2023) regarding its potential impact on work engagement and extra-productive behavior. In addition, interest-taking was taken into consideration to explain how the interplay of personal resources (here: interest-taking as a personal trait) with the job resource of happiness at work might enhance effects on work engagement.

The results showed that – contributing to closing research gap II – the resource combination of happiness at work (job resource) and interest-taking (personal resource) explained enhanced interactive effects on newcomers' work engagement. Furthermore, the article demonstrated how happiness at work, when considered as a job resource, positively predicts work engagement, leading to increased OCB and adaptive performance. For employees in general and newcomers in special, this underscores the central role of work engagement in explaining motivational effects of resources during organizational socialization, which contributes to closing research gap I. Finally, the article also contributed to closing research gap IV as it outlines the impact of newcomers' work engagement on positive newcomer behavior that benefits the organization and its social structure (OCB) and on behavior that goes beyond adjustment to the job and helps to reach organizational goals in uncertain contexts and rapidly changing

markets (adaptive performance). In sum, the article demonstrates how resource-rich environments related to happiness at work are an important contributing factor for newcomers' motivation and their enhanced willingness to engage in extra-productive behaviors. At the same time, the investigation again highlights the impact of personal resources regarding their interplay with job resources in their effect on motivational processes by demonstrating how interest-taking amplifies the effect of happiness at work on work engagement for newcomers.

2 Overall implications for research and practice

Taking a novel resource-based perspective on newcomer socialization and motivation, this thesis yields important implications for research and practice regarding organizational socialization.

Investigating the impact of resources on employee well-being and performance regarding affective-motivational processes through the lens of the JD-R model (Bakker & Demerouti, 2017; Bakker et al., 2023), COR theory (Hobfoll, 1989, 2002; Hobfoll et al., 2018), affective events theory (Weiss & Cropanzano, 1996) or broaden-and-build theory (Fredrickson, 1998, 2004) is an impactful tradition in industrial and organizational psychology. For decades, these theories have been used to describe how affective and motivational processes explain resource-outcomes links for employees. Although socialization literature has stressed that the proper and timely provision of socialization resources to newcomers is critical for newcomer adjustment and socialization outcomes (Saks & Gruman, 2012), thorough investigations of how resources and their combinations impact newcomers' affective-motivational processes in affecting crucial outcomes such as extra-productive behavior have been lacking (Saks & Gruman, 2018). As an overall contribution, the findings of this thesis shed light on this blind spot in organizational socialization literature and provide novel perspectives and fruits for thoughts that might deal

as a basis for research implementing a resource-focused perspective on affective-motivational processes and various forms of extra-productive behavior among newcomers.

In specific, this thesis also contributes to several research threads in organizational socialization literature. To start with, it strongly contributes to the literature on work engagement during organizational socialization. As a first in academic research, this thesis provides empirical evidence on the development and change of newcomers' work engagement during organizational socialization, underpinning the conceptual idea of newcomer work engagement maintenance curves (Saks & Gruman, 2018). Furthermore, while a few studies have started to investigate newcomers' work engagement regarding socialization practices, newcomers' perception of adjustment or proactive behaviors (Cooper-Thomas et al., 2014; James, 2022; Nigah et al., 2012; Saks & Gruman, 2011; Song et al., 2015; Villavicencio-Ayub et al., 2014; Xu et al., 2019), there was no evidence on how work engagement relates to extra-productive behavior. The findings of this thesis clearly point to the central role of work engagement in enhancing performance-related socialization outcomes.

As a second, it adds to and advances research that has demonstrated how leaders and leader-newcomer relationships play an exceptional role in newcomer adjustment during organizational socialization (e.g., Bauer et al., 2019; T. B. Harris et al., 2013; Jokisaari, 2013; Sluss & Thompson, 2012). By relating leadership behavior and the quality of the leader-newcomer relationship to motivation and performance, this thesis demonstrates that leaders have a strong impact on newcomers' affective and motivational experience, which will translate to their enhanced contribution in terms of various extra-productive behaviors. In addition, the findings provide a nuanced understanding of how resource availability related to higher-quality LMX enhances work engagement and how, vice versa, newcomers might contribute to their own processes of resource gain by reciprocating to the leader and organization. Besides, this also contributes to current discussions on the endogeneity of LMX (Gottfredson et al., 2020).

Third, the presented evidence also extends the literature on the role of newcomers' personality and characteristics during socialization (Bauer et al., 2007; Bauer & Erdogan, 2011; Bauer et al., 1998). While socialization literature has predominantly focused on how newcomers' proactive personality impacts adjustment (e.g., T.-Y. Kim et al., 2009; N. Li et al., 2011; W. Li et al., 2022), the evidence presented in this thesis suggests that newcomer personality plays an important role in enhancing effects of job resources during socialization, especially for amplifying motivational effects regarding work engagement. In line with major motivation and affect-based theories, the findings of this thesis provide valuable insights and implications that should encourage researchers to expand research regarding the combination and interplay of job and personal resources.

The findings of this thesis also bear implications that are of great value to practitioners. Considering the role that resources play in the affective-motivational processes of newcomers should be of great concern for organizations. Socialization research has already proven that socialization resources are of central value for newcomer adjustment and in reducing their uncertainty. Improving socialization practice by providing newcomers with effective resources to enhance their motivation and extra-productive behavior will bring in a breath of fresh air and impact organizational success. Organizations should orchestrate and carefully monitor resources provided during organizational socialization by planning when to provide newcomers with which kind of resources. Generating resource-rich environments will not only help newcomers adjust to their jobs successfully but enhance their contribution to the organization from the very start. Here, raising awareness of the influence of leaders, leader-newcomer relationships and factors for happiness at work on affective and motivational processes of newcomers should be particularly important. Improving these factors will benefit organizations as the resulting enhanced engagement and motivation will relate to extra-productive behavior, improving organizational effectiveness (Podsakoff et al., 2000).

In addition, close monitoring of newcomers' work engagement and other newcomer attitudes could provide further fertile ground for practice. Recognizing changes in newcomers' work engagement or attitudes is critical for taking timely action to identify root causes and take steps to maintain or improve motivation and commitment. Today, there are a variety of tools and software that might help keep track of changes and optimize the onboarding process. These could be used to ensure standards and quality of socialization processes or even implement digital elements of e-socialization (Gruman & Saks, 2020), but also help track newcomers' perceptions. For example, continuous assessment through surveys, implementing validated scientific short scales of work engagement, and options for open feedback will help identify turning points and causes of change in newcomers' motivation. These might be complemented by continuous feedback. In addition to the beneficial effects of feedback on affect and newcomer performance (e.g., Alam & Singh, 2021; N. Li et al., 2011), these would enable organizations to mitigate undesired developments and generate important insights into the causes of change. Besides, these insights would be of great value for research on newcomers' work engagement.

In addition, the interaction of newcomers with their new situation can be a key factor to consider. Human resource practitioners and leaders should be aware of the impact that the personality of newcomers will have on their ability to benefit from resources provided during socialization. This has particular implications for the consideration of personality in job appointments during organizational socialization or performance evaluation processes since not every person benefits equally from available resources. Acknowledging differences in newcomers' ability to make use of job resources and taking these into account by establishing flexible socialization processes that allow for providing individualized support and adapting resources would be beneficial in enhancing newcomers' motivation and their contribution to the organization.

3 Limitations and avenues for future research

Each of the articles is subject to specific limitations and bears its own potential for future research. However, there are general limitations related to the research presented in this thesis that provide fertile ground for future research.

First, there might be additional socialization resources that are related to the work engagement of newcomers. While the research presented in this thesis primarily focused on leadership and leader-newcomer relationships, given that leaders are the main representatives and of immense value for newcomer socialization, considering other socialization resources regarding their impact on work engagement could be a fruitful avenue for future research. In this regard, for example, future studies might consider the impacts of social events, mentoring or buddying, support by other organizational insiders, feedback and recognition, or challenging work assignments. Furthermore, this thesis investigated combinations of resources in the form of interactions between personal and job resources. These primarily focused on one job resource at a time as an antecedent of newcomer motivation or extra-productive behavior. Another avenue for future research could be the consideration and comparison of multiple job resources in their effect on newcomers' motivational processes during organizational socialization. Future studies might also consider resources at different points in time during socialization or even prior to entry to gain further insights on how to maximize their effectiveness (Saks & Gruman, 2012). The consideration of multiple socialization resources at once and joint effects would also address the concept of caravan passageways (Hobfoll, 2011; Hobfoll et al., 2018), where clusters of resources represent so-called resource caravans (desirable or undesirable circumstances), which could help advance the understanding of how resources impact newcomers' affective-motivational processes in future studies (Saks & Gruman, 2018).

Future research on organizational socialization could also delve into the role of personality in the use of resources and the emergence of motivation in newcomers. This thesis focused on two central personal resources for newcomers, namely core-self evaluations, which are deeply rooted and central assessments of individuals regarding their personality, and interest-taking, representing a vital trait regarding individuals' perception of their autonomous functioning. Uncovering how additional characteristics and traits in newcomers might enhance the effects of job resources on motivation and performance or function as boundary conditions during socialization would benefit our understanding of resource interactions during socialization. For example, scholars could add to this research thread by integrating research on proactive personality (e.g., Bakker et al., 2012; Thompson, 2005) and newcomers' work engagement.

Finally, although this thesis considered different forms of extra-productive behavior (OCB, adaptive performance, and innovative performance), additional performance-related socialization outcomes might result from affective-motivational processes. On the one hand, investigating the effects of newcomers' motivation on productivity and job-performance could bear valuable insights for organizational socialization research as engagement literature suggests the effects of work engagement on productive performance or contra-productive outcomes (e.g., W. Kim et al., 2013; Lebrón et al., 2018; Saks, 2019). Furthermore, considering additional forms and specific facets of extra-productive behavior, such as personal initiative (Fay & Frese, 2001) or prosocial behavior (Dovidio, 2006; Penner et al., 2005) would also advance research in adding to a more nuanced explanation of how affective-motivational processes predict extra-productive behaviors during organizational socialization.

G References

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H Appendices

1 Overview of scales and items used

Article 1:

Construct:	Name of the measure:	Response scale:
Leader-Member Exchange	LMX-7 Scale	5-point categorical scale (different options)

Source(s):

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-Based Approach to Leadership: Development of Leader-Member Exchange (LMX) Theory of Leadership over 25 Years: Applying a multi-level multi-domain perspective. The Leadership Quarterly, 6(2), 219–247. https://doi.org/10.1016/1048-9843(95)90036-5

Schyns, B. (2002). Evaluation of a German Scale for the Assessment of Leader-Member Exchange. Zeitschrift für differentielle und diagnostische Psychologie, 23(2), 235–245. https://doi.org/10.1024//0170-1789.23.2.235

German wording of items in the survey:	Response anchors: min – max
1. „Wissen Sie im Allgemeinen, wie Ihr/e Vorgesetzte/r Sie einschätzt?“	nie – immer
2. „Wie gut versteht Ihr/e Vorgesetzte/r Ihre beruflichen Probleme und Bedürfnisse?“	gar nicht – sehr gut
3. „Wie gut erkennt Ihr/e Vorgesetzte/r Ihre Entwicklungsmöglichkeiten?“	gar nicht – sehr gut
4. „Wie hoch ist die Chance, dass Ihr/e Vorgesetzte/r ihren/seinen Einfluss nutzt, um Ihnen bei Arbeitsproblemen zu helfen?“	gering – hoch
5. „Wie hoch ist die Wahrscheinlichkeit, dass Ihr/e Vorgesetzte/r Ihnen auf seine/ihre Kosten "aus der Patsche" hilft?“	gering – hoch
6. „Ich habe genügend Vertrauen in meine/n Vorgesetzte/n um ihre/seine Entscheidungen zu verteidigen.“	trifft gar nicht zu – trifft voll zu
7. „Wie würden Sie das Arbeitsverhältnis mit Ihrer/Ihrem Vorgesetzten beschreiben?“	sehr ineffektiv – sehr effetktiv

Construct:	Name of the measure:	Response scale:
Work Engagement	Utrecht Work Engagement Scale (UWES-9)	7-point rating scale

Source(s):

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study. Educational and Psychological Measurement, 66(4), 701–716. https://doi.org/10.1177/0013164405282471

Sautier, L. P., Scherwath, A., Weis, J., Sarkar, S., Bosbach, M., Schendel, M., Ladehoff, N., Koch, U., & Mehnert, A. (2015). Assessment of Work Engagement in Patients with Hematological Malignancies: Psychometric Properties of the German Version of the Utrecht Work Engagement Scale 9 (UWES-9). Die Rehabilitation, 54(05), 297–303. https://doi.org/10.1055/s-0035-1555912

German wording of items in the survey:	Response anchors: min – max
1. „Bei meiner Arbeit war ich voll überschäumender Energie.“	nie – immer
2. „Bei meiner Arbeit fühlte ich mich fit und tatkräftig.“	nie – immer
3. „Wenn ich morgens aufgestanden bin, freute ich mich auf meine Arbeit.“	nie – immer
4. „Meine Arbeit hat mich inspiriert.“	nie – immer
5. „Ich war von meiner Arbeit begeistert.“	nie – immer
6. „Ich war stolz auf meine Arbeit.“	nie – immer
7. „Ich fühlte mich glücklich, wenn ich intensiv gearbeitet habe.“	nie – immer
8. „Ich bin völlig in meiner Arbeit aufgegangen.“	nie – immer
9. „Meine Arbeit hat mich mitgerissen.“	nie – immer

Article 2:

Construct:	Name of the measure:	Response scale:
Leader-Member Exchange	LMX-7 Scale	5-point categorical scale (different options)

Source(s):

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-Based Approach to Leadership: Development of Leader-Member Exchange (LMX) Theory of Leadership over 25 Years: Applying a multi-level multi-domain perspective. The Leadership Quarterly, 6(2), 219–247. https://doi.org/10.1016/1048-9843(95)90036-5

Schyns, B. (2002). Evaluation of a German Scale for the Assessment of Leader-Member Exchange. Zeitschrift für differentielle und diagnostische Psychologie, 23(2), 235–245. https://doi.org/10.1024//0170-1789.23.2.235

German wording of items in the survey:	Response anchors: min – max
1. „Wissen Sie im Allgemeinen, wie Ihr/e Vorgesetzte/r Sie einschätzt?“	nie – immer
2. „Wie gut versteht Ihr/e Vorgesetzte/r Ihre beruflichen Probleme und Bedürfnisse?“	gar nicht – sehr gut
3. „Wie gut erkennt Ihr/e Vorgesetzte/r Ihre Entwicklungsmöglichkeiten?“	gar nicht – sehr gut
4. „Wie hoch ist die Chance, dass Ihr/e Vorgesetzte/r ihren/seinen Einfluss nutzt, um Ihnen bei Arbeitsproblemen zu helfen?“	gering – hoch
5. „Wie hoch ist die Wahrscheinlichkeit, dass Ihr/e Vorgesetzte/r Ihnen auf seine/ihre Kosten "aus der Patsche" hilft?“	gering – hoch
6. „Ich habe genügend Vertrauen in meine/n Vorgesetzte/n um ihre/seine Entscheidungen zu verteidigen.“	trifft gar nicht zu – trifft voll zu
7. „Wie würden Sie das Arbeitsverhältnis mit Ihrer/Ihrem Vorgesetzten beschreiben?“	sehr ineffektiv – sehr effetktiv

Construct:	Name of the measure:	Response scale:
Core Self-Evaluations	CSES-DE	5-point Likert scale

Source(s):

Judge, T. A., Erez, A., Bono, J. E., & Thorsen, C. J. (2003). The Core Self-Evaluations Scale: Development of a Measure. Personnel Psychology, 56(2), 303–331. https://doi.org/10.1111/j.1744-6570.2003.tb00152.x

Stumpp, T., Muck, P. M., Hülsheger, U. R., Judge, T. A., & Maier, G. W. (2010). Core Self-Evaluations in Germany: Validation of a German Measure and its Relationships with Career Success. Applied Psychology, 59(4), 674–700. https://doi.org/10.1111/j.1464-0597.2010.00422.x

German wording of items in the survey:	Response anchors: min – max
1. „Ich bin zuversichtlich, im Leben den Erfolg zu bekommen, den ich verdiene.“	stimme gar nicht zu – stimme voll zu
2. „Manchmal bin ich deprimiert.“	stimme gar nicht zu – stimme voll zu
3. „Wenn ich mich anstrenge, bin ich im Allgemeinen erfolgreich.“	stimme gar nicht zu – stimme voll zu
4. „Wenn ich etwas nicht schaffe, fühle ich mich manchmal wertlos.“	stimme gar nicht zu – stimme voll zu
5. „Ich erledige Aufgaben erfolgreich.“	stimme gar nicht zu – stimme voll zu
6. „Manchmal habe ich das Gefühl, keine Kontrolle über meine Arbeit zu haben.“	stimme gar nicht zu – stimme voll zu
7. „Im Großen und Ganzen bin ich mit mir zufrieden.“	stimme gar nicht zu – stimme voll zu
8. „Ich zweifle an meinen Fähigkeiten.“	stimme gar nicht zu – stimme voll zu
9. „Ich bestimme, was in meinem Leben geschehen soll.“	stimme gar nicht zu – stimme voll zu
10. „Ich habe das Gefühl, den Erfolg meiner Karriere nicht unter Kontrolle zu haben.“	stimme gar nicht zu – stimme voll zu
11. „Ich bin in der Lage, die meisten meiner Probleme zu bewältigen.“	stimme gar nicht zu – stimme voll zu
12. „Es gibt Zeiten, in denen mir die Dinge ziemlich düster und hoffnungslos erscheinen.“	stimme gar nicht zu – stimme voll zu

Construct:	Name of the measure:	Response scale:
Work Engagement	UWES-9	7-point rating scale

Source(s):

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study. Educational and Psychological Measurement, 66(4), 701–716. https://doi.org/10.1177/0013164405282471

Sautier, L. P., Scherwath, A., Weis, J., Sarkar, S., Bosbach, M., Schendel, M., Ladehoff, N., Koch, U., & Mehnert, A. (2015). Assessment of Work Engagement in Patients with Hematological Malignancies: Psychometric Properties of the German Version of the Utrecht Work Engagement Scale 9 (UWES-9). Die Rehabilitation, 54(05), 297–303. https://doi.org/10.1055/s-0035-1555912

German wording of items in the survey:	Response anchors: min – max
1. „Bei meiner Arbeit bin ich voll überschäumender Energie.“	nie – immer
2. „Bei meiner Arbeit fühle ich mich fit und tatkräftig.“	nie – immer
3. „Wenn ich morgens aufstehe, freue ich mich auf meine Arbeit.“	nie – immer
4. „Meine Arbeit inspiriert mich.“	nie – immer
5. „Ich bin von meiner Arbeit begeistert.“	nie – immer
6. „Ich bin stolz auf meine Arbeit.“	nie – immer
7. „Ich fühle mich glücklich, wenn ich intensiv arbeite.“	nie – immer
8. „Ich gehe völlig in meiner Arbeit auf.“	nie – immer
9. „Meine Arbeit reißt mich mit.“	nie – immer

Construct:	Name of the measure:	Response scale:
Organizational Citizenship Behavior	OCB-Checklist	5-point frequency scale

Source(s):

Fox, S., Spector, P. E., Goh, A., Bruursema, K., & Kessler, S. R. (2012). The deviant citizen: Measuring potential positive relations between counterproductive work behaviour and organizational citizenship behaviour. Journal of Occupational and Organizational Psychology, 85(1), 199–220. https://doi.org/10.1111/j.2044-8325.2011.02032.x

Spector, P. E., Bauer, J. A., & Fox, S. (2010). Measurement artifacts in the assessment of counterproductive work behavior and organizational citizenship behavior: Do we know what we think we know? The Journal of Applied Psychology, 95(4), 781–790. https://doi.org/10.1037/a0019477

German wording of items in the survey:	Response anchors: min – max
1. „Ich habe mir Zeit genommen, einen Arbeitskollegen zu beraten, zu betreuen oder ein Mentor für ihn zu sein.“	niemals – jeden Tag
2. „Ich habe einem Kollegen geholfen, neue Fähigkeiten zu erlernen oder mein berufliches Wissen mit ihm geteilt.“	niemals – jeden Tag
3. „Ich habe anderen neuen Mitarbeitern geholfen, sich bei der Arbeit einzugewöhnen.“	niemals – jeden Tag
4. „Ich habe jemandem anteilnehmend zugehört, der ein Problem bei der Arbeit hatte.“	niemals – jeden Tag
5. „Ich habe Vorschläge gemacht, wie die Arbeit besser erledigt werden kann.“	niemals – jeden Tag
6. „Ich habe einem Arbeitskollegen geholfen, der zu viel zu tun hatte.“	niemals – jeden Tag
7. „Ich habe mich freiwillig für zusätzliche Arbeitsaufgaben gemeldet.“	niemals – jeden Tag
8. „Ich habe an Wochenenden oder anderen freien Tagen gearbeitet, um ein Projekt oder eine Aufgabe fertigzustellen.“	niemals – jeden Tag
9. „Ich habe mich freiwillig dazu gemeldet, in meiner Freizeit Meetings zu besuchen oder in Komitees zu arbeiten.“	niemals – jeden Tag
10. „Ich habe eine Mahlzeit und andere Pausen früher beendet, um die Arbeit abzuschließen.“	niemals – jeden Tag

Article 3:

Construct:	Name of the measure:	Response scale:
Servant Leadership	SL-7 Scale	7-point Likert scale

Source(s):

Liden, R. C., Wayne, S. J., Meuser, J. D., Hu, J., Wu, J., & Liao, C. (2015). Servant leader-ship: Validation of a short form of the SL-28. The Leadership Quarterly, 26(2), 254–269. https://doi.org/10.1016/j.leaqua.2014.12.002

German wording of items in the survey:	Response anchors: min – max
1. „Meine Führungskraft hat bemerkt, wenn etwas bei der Arbeit falsch gelaufen ist.“	stimme gar nicht zu – stimme voll zu
2. „Meine Führungskraft hat meiner beruflichen Karriere hohe Priorität eingeräumt.“	stimme gar nicht zu – stimme voll zu
3. „Wenn ich ein persönliches Problem hatte, habe ich Hilfe bei meiner Führungskraft gesucht.“	stimme gar nicht zu – stimme voll zu
4. „Meine Führungskraft hat die Wichtigkeit von gesellschaftlichem Engagement betont.“	stimme gar nicht zu – stimme voll zu
5. „Meine Führungskraft hat meine Interessen über ihre/seine eigenen gestellt.“	stimme gar nicht zu – stimme voll zu
6. „Meine Führungskraft hat mir die Freiheit gelassen, mit schwierigen Situationen so umzugehen, wie ich es für richtig gehalten habe.“	stimme gar nicht zu – stimme voll zu
7. „Meine Führungskraft hat ethischen Prinzipien nicht zuwider gehandelt, um erfolgreich zu sein.“	stimme gar nicht zu – stimme voll zu

Construct:	Name of the measure:	Response scale:
Happiness at Work	Happiness and Work Scale	5-point Likert scale

Source(s):

Rehwaldt, R., & Kortsch, T. (2022). Was macht bei der Arbeit glücklich? Entwicklung und Validierung einer mehrdimensionalen Skala zur Erfassung von Glück bei der Arbeit [What makes you happy at work? Development and validation of a multidimensional scale to capture happiness at work]. Zeitschrift Für Arbeits- Und Organisationspsychologie A&O, 66(2), 72–86. https://doi.org/10.1026/0932-4089/a000373

German wording of items in the survey:	Response anchors: min – max
1. „Bei meiner Arbeit habe ich viele Freiheiten.“	stimme gar nicht zu – stimme voll zu
2. „Ich kann meine Vorstellungen und Wünsche durchsetzen.“	stimme gar nicht zu – stimme voll zu
3. „Wenn ich eine Idee habe, kann ich diese an der BUW umsetzen.“	stimme gar nicht zu – stimme voll zu
4. „Mit meiner Arbeit trage ich aktiv zum Wohl anderer Menschen bei.“	stimme gar nicht zu – stimme voll zu
5. „Ich empfinde meine Arbeit als sinnvoll.“	stimme gar nicht zu – stimme voll zu
6. „Meine Arbeit hilft dabei, die Welt ein Stück besser zu machen.“	stimme gar nicht zu – stimme voll zu
7. „Auch in angespannten Situationen schiebt bei uns keiner die Verantwortung einem anderen zu.“	stimme gar nicht zu – stimme voll zu
8. „Wir ziehen alle gemeinsam an einem Strang.“	stimme gar nicht zu – stimme voll zu
9. „An der BUW gibt es einen respektvollen Umgang untereinander.“	stimme gar nicht zu – stimme voll zu
10. „Wenn ich private Probleme habe, bespreche ich diese mit meinen Kolleg*innen.“	stimme gar nicht zu – stimme voll zu
11. „Ich vertraue meinen Kolleg*innen voll und ganz.“	stimme gar nicht zu – stimme voll zu
12. „In unserem Team lachen wir oft und machen Späße.“	stimme gar nicht zu – stimme voll zu

Construct:	Name of the measure:	Response scale:
Job Satisfaction	Arbeitsbeschreibungsbogen	5-point Kunin item scale

Source(s):

Neuberger, O., & Allerbeck, M. (1978). Messung und Analyse von Arbeitszufriedenheit: Erfahrungen mit dem "Arbeitsbeschreibungsbogen (ABB)" [Measurement and analysis of job satisfaction: Experiences with the "Job Description Questionnaire (ABB)"]. Schriften zur Arbeitspsychologie: Vol. 26. Huber.

German wording of items in the survey:	Kunin item response scale example (colored items when mouse-over or clicked):
1. „Alles in allem: Wie zufrieden sind Sie mit Ihren Kolleg*innen?“	
2. „Alles in allem: Wie zufrieden sind Sie mit Ihrer Führungskraft?“	
3. „Alles in allem: Wie zufrieden sind Sie mit Ihrer Tätigkeit?“	
4. „Alles in allem: Wie zufrieden sind Sie mit den Arbeitsbedingungen?“	
5. „Alles in allem: Wie zufrieden sind Sie mit der Organisation und Leitung der BUW?“	
6. „Alles in allem: Wie zufrieden sind Sie mit Ihren Entwicklungsmöglichkeiten?“	
7. „Alles in allem: Wie zufrieden sind Sie mit Ihrer Bezahlung?“	

Construct:	Name of the measure:	Response scale:
Innovative Performance	Innovative Job Performance Scale	7-point rating scale

Source(s):

Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships be-tween job demands, and job performance and job satisfaction. Academy of Management Journal, 44(5), 1039–1050. https://doi.org/10.5465/3069447

German wording of items in the survey:	Response anchors: min – max
1. „Ich habe neue Ideen für Verbesserungen entwickelt.“	nie – immer
2. „Ich habe nach neuen Arbeitsmethoden und -techniken gesucht.“	nie – immer
3. „Für Probleme habe ich neuartige Lösungen gefunden.“	nie – immer
4. „Ich bin auf andere zugegangen, um diese für neue Ideen zu gewinnen.“	nie – immer
5. „Für neue Ideen habe ich versucht, mir Zustimmung einzuholen.“	nie – immer
6. „Ich habe versucht, relevante Personen an der BUW von neuen Ideen zu überzeugen.“	nie – immer
7. „Ich habe für innovative Ideen eine nützliche Anwendung gefunden.“	nie – immer
8. „Bei der Umsetzung neuer Ideen auf der Arbeit bin ich systematisch vorgegangen.“	nie – immer
9. „Ich habe den Nutzen von neuen Ideen nach ihrer Umsetzung überprüft.“	nie – immer

Article 4:

Construct:	Name of the measure:	Response scale:
Happiness at Work	Happiness and Work Scale	5-point Likert scale

Source(s):

Rehwaldt, R., & Kortsch, T. (2022). Was macht bei der Arbeit glücklich? Entwicklung und Validierung einer mehrdimensionalen Skala zur Erfassung von Glück bei der Arbeit [What makes you happy at work? Development and validation of a multidimensional scale to capture happiness at work]. Zeitschrift Für Arbeits- Und Organisationspsychologie A&O, 66(2), 72–86. https://doi.org/10.1026/0932-4089/a000373

German wording of items in the survey:	Response anchors: min – max
1. „Bei meiner Arbeit habe ich viele Freiheiten.“	stimme gar nicht zu – stimme voll zu
2. „Ich kann meine Vorstellungen und Wünsche durchsetzen.“	stimme gar nicht zu – stimme voll zu
3. „Wenn ich eine Idee habe, kann ich diese im Unternehmen umsetzen.“	stimme gar nicht zu – stimme voll zu
4. „Mit meiner Arbeit trage ich aktiv zum Wohl anderer Menschen bei.“	stimme gar nicht zu – stimme voll zu
5. „Ich empfinde meine Arbeit als sinnvoll.“	stimme gar nicht zu – stimme voll zu
6. „Meine Arbeit hilft dabei, die Welt ein Stück besser zu machen.“	stimme gar nicht zu – stimme voll zu
7. „Auch in angespannten Situationen schiebt bei uns keiner die Verantwortung einem anderen zu.“	stimme gar nicht zu – stimme voll zu
8. „Wir ziehen alle gemeinsam an einem Strang.“	stimme gar nicht zu – stimme voll zu
9. „In meinem Unternehmen gibt es einen respektvollen Umgang untereinander.“	stimme gar nicht zu – stimme voll zu
10. „Wenn ich private Probleme habe, bespreche ich diese mit meinen Kollegen.“	stimme gar nicht zu – stimme voll zu
11. „Ich vertraue meinen Kolleginnen bzw. Kollegen voll und ganz.“	stimme gar nicht zu – stimme voll zu
12. „In unserem Team lachen wir oft und machen Späße.“	stimme gar nicht zu – stimme voll zu

Construct:	Name of the measure:	Response scale:
Interest Taking	Index of Autonomous Functioning	5-point Likert scale

Source(s):

Weinstein, N., Przybylski, A. K., & Ryan, R. M. (2012). The index of autonomous functioning: Development of a scale of human autonomy. Journal of Research in Personality, 46(4), 397–413. https://doi.org/10.1016/j.jrp.2012.03.007

German wording of items in the survey:	Response anchors: min – max
1. „Ich denke häufig darüber nach, warum ich auf die eine oder andere Weise reagiere.“	stimmt gar nicht – stimmt völlig
2. „Es macht mich neugierig, wenn ich mit Angst oder Furcht auf Ereignisse in meinem Leben reagiere.“	stimmt gar nicht – stimmt völlig
3. „Ich will stets die Gründe meines Handelns erfahren.“	stimmt gar nicht – stimmt völlig
4. „Ich bin daran interessiert, warum ich so handle, wie ich handle.“	stimmt gar nicht – stimmt völlig
5. „Ich befasse mich gerne mit meinen Gefühlen.“	stimmt gar nicht – stimmt völlig

Construct:	Name of the measure:	Response scale:
Work Engagement	Utrecht Work Engagement Scale (UWES-9)	7-point rating scale

Source(s):

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study. Educational and Psychological Measurement, 66(4), 701–716. https://doi.org/10.1177/0013164405282471

Sautier, L. P., Scherwath, A., Weis, J., Sarkar, S., Bosbach, M., Schendel, M., Ladehoff, N., Koch, U., & Mehnert, A. (2015). Assessment of Work Engagement in Patients with Hematological Malignancies: Psychometric Properties of the German Version of the Utrecht Work Engagement Scale 9 (UWES-9). Die Rehabilitation, 54(05), 297–303. https://doi.org/10.1055/s-0035-1555912

German wording of items in the survey ([a] for study 1, [b] for study 2):	Response anchors: min – max
1. „Bei meiner Arbeit bin ich voll überschäumender Energie.“ [a] „Bei meiner Arbeit war ich voll überschäumender Energie.“ [b]	nie – immer
2. „Beim Arbeiten fühle ich mich fit und tatkräftig.“ [a] „Bei meiner Arbeit fühlte ich mich fit und tatkräftig.“ [b]	nie – immer
3. „Wenn ich morgens aufstehe, freue ich mich auf meine Arbeit.“ [a] „Wenn ich morgens aufgestanden bin, freute ich mich auf meine Arbeit.“ [b]	nie – immer
4. „Meine Arbeit inspiriert mich.“ [a] „Meine Arbeit hat mich inspiriert.“ [b]	nie – immer
5. „Ich bin von meiner Arbeit begeistert.“ [a] „Ich war von meiner Arbeit begeistert.“ [b]	nie – immer
6. „Ich bin stolz auf meine Arbeit.“ [a] „Ich war stolz auf meine Arbeit.“ [b]	nie – immer
7. „Ich fühle mich glücklich, wenn ich intensiv arbeite.“ [a] „Ich fühlte mich glücklich, wenn ich intensiv gearbeitet habe.“ [b]	nie – immer
8. „Ich gehe völlig in meiner Arbeit auf.“ [a] „Ich bin völlig in meiner Arbeit aufgegangen.“ [b]	nie – immer
9. „Meine Arbeit reißt mich mit.“ [a] „Meine Arbeit hat mich mitgerissen.“ [b]	nie – immer

Construct:	Name of the measure:	Response scale:
Adaptive Performance	Individual Task Adaptivity Scale	Study 1: 5-point rating scale Study 2: 7-point rating scale

Source(s):

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Posi-tive behavior in uncertain and interdependent contexts. Academy of Management Journal, 50(2), 327–347. https://doi.org/10.5465/amj.2007.24634438

German wording of items in the survey ([a] added in study 1):	Response anchors: min – max
1. „Ich konnte mich (heute)[a] gut auf Veränderungen bei meinen Kernaufgaben einstellen.“	gar nicht / nie – völlig / immer
2. „Ich bin (heute)[a] mit Änderungen in der Art und Weise, wie ich meine Kernaufgaben zu erledigen habe, klargekommen.“	gar nicht / nie – völlig / immer
3. „Ich habe (heute)[a] neue Fertigkeiten erlernt, die mir helfen, mich auf veränderte Kernaufgaben einzustellen.“	gar nicht / nie – völlig / immer

Construct:	Name of the measure:	Response scale:
Organizational Citizenship Behavior	Study 1: OCB-Fragebogen Study 2: OCB-Checklist	Study 1: 7-point Likert scale Study 2: 5-point frequency scale

Source(s):

Study 1:

Staufenbiel, T., & Hartz, C. (2000). Organizational citizenship behavior: Entwicklung und erste Validierung eines Messinstruments [Organizational citizenship behavior: Development and validation of a measurement instrument]. https://psycnet.apa.org/record/2000-03885-002 https://doi.org/10.1026/0012-1924.46.2.73

Study 2:

Fox, S., Spector, P. E., Goh, A., Bruursema, K., & Kessler, S. R. (2012). The deviant citizen: Measuring potential positive relations between counterproductive work behaviour and organizational citizenship behaviour. Journal of Occupational and Organizational Psychology, 85(1), 199–220. https://doi.org/10.1111/j.2044-8325.2011.02032.x

Spector, P. E., Bauer, J. A., & Fox, S. (2010). Measurement artifacts in the assessment of counterproductive work behavior and organizational citizenship behavior: Do we know what we think we know? The Journal of Applied Psychology, 95(4), 781–790. https://doi.org/10.1037/a0019477

German wording of items in the survey:	Response anchors: min – max
Study 1:	trifft gar nicht zu – trifft voll zu
1. „Heute habe ich innovative Vorschläge zur Verbesserung der Qualität in meinem Arbeitsbereich gemacht.“	trifft gar nicht zu – trifft voll zu
2. „Heute habe ich mich über neue Entwicklungen im Unternehmen informiert.“	trifft gar nicht zu – trifft voll zu
3. „Heute beachtete ich Vorschriften und Arbeitsanweisungen mit größter Sorgfalt.“	trifft gar nicht zu – trifft voll zu
4. „Heute ergriff ich die Initiative, um das Unternehmen vor möglichen Problemen zu bewahren.“	trifft gar nicht zu – trifft voll zu
5. „Ich wirkte heute bei auftretenden Meinungsverschiedenheiten ausgleichend auf Kollegen/Kolleginnen ein.“	trifft gar nicht zu – trifft voll zu
6. „Heute bemühte ich mich aktiv darum, Schwierigkeiten mit Kollegen/Kolleginnen vorzubeugen.“	trifft gar nicht zu – trifft voll zu
7. „Heute ergriff ich freiwillig die Initiative, neuen Kollegen/Kolleginnen bei der Einarbeitung zu helfen.“	trifft gar nicht zu – trifft voll zu
Study 2:	
1. „Ich habe mir Zeit genommen, einen Arbeitskollegen zu beraten, zu betreuen oder ein Mentor für ihn zu sein.“	niemals – jeden Tag
2. „Ich habe einem Kollegen geholfen, neue Fähigkeiten zu erlernen oder mein berufliches Wissen mit ihm geteilt.“	niemals – jeden Tag
3. „Ich habe anderen neuen Mitarbeitern geholfen, sich bei der Arbeit einzugewöhnen.“	niemals – jeden Tag
4. „Ich habe jemandem anteilnehmend zugehört, der ein Problem bei der Arbeit hatte.“	niemals – jeden Tag
5. „Ich habe Vorschläge gemacht, wie die Arbeit besser erledigt werden kann.“	niemals – jeden Tag
6. „Ich habe einem Arbeitskollegen geholfen, der zu viel zu tun hatte.“	niemals – jeden Tag
7. „Ich habe mich freiwillig für zusätzliche Arbeitsaufgaben gemeldet.“	niemals – jeden Tag
8. „Ich habe an Wochenenden oder anderen freien Tagen gearbeitet, um ein Projekt oder eine Aufgabe fertigzustellen.“	niemals – jeden Tag
9. „Ich habe mich freiwillig dazu gemeldet, in meiner Freizeit Meetings zu besuchen oder in Komitees zu arbeiten.“	niemals – jeden Tag
10. „Ich habe eine Mahlzeit und andere Pausen früher beendet, um die Arbeit abzuschließen.“	niemals – jeden Tag

2 Appendix for Chapter B

Table B.1.1: Commented GRoLTS checklist (van de Schoot et al., 2017) for the study

Checklist Item	Comment
Metric of time used in the statistical model	Equidistant measures, four weeks between each of the four time points.
Information about mean and variance of time within wave	Questionnaires were sent out at equal intervals. Participants had to answer within five days (maximum variance).
Missing data mechanism	Data for LMX and work engagement was missing completely at random by Little test.
Description of variables related to missing data	No variables were related to the attrition of data.
Description of how missing data were dealt with	List-wise deletion and MLR estimation were used.
Information about the distribution of the observed variables	Work engagement was normally distributed. LMX was approximately normally distributed.
Software mentioned	Mentioned in Text. Mplus was used for GBTM analyses.
Considering/describing alternative specifications of within-class heterogeneity	Models with free residual variance and residual correlation were specified but did not converge.
Consider alternative specifications of the between-class differences in variance-covariance matrix structure	Models with non-zero within class variance were specified but did not converge.
Alternative shape/functional forms of the trajectories	Linear and quadratic growth patterns are described. Quadratic = maximum complexity due to 4 time points.
Possibility of replication of the analysis	Validated measures for LMX and work engagement were used.
Information about the number of random start values and final iterations	For all models: 10,000 random starts (each up to 100 iterations)
Statistical description of model comparison & selection	Information is provided in the results part. BLRT, LMR, Entropy, size of the smallest class, and interpretability.
Total number of fitted models, including a 1-class solution	Data is reported for models with up to five classes (see Table 2 of Article 1).
Number of cases per class for each model (absolute sample size or proportion)	Reported for all models.
Reporting entropy	Entropy values for all classes were reported in Table 2 of Article 1.
Plot with estimated mean trajectories of the final solution	Mean trajectories for the final model with three classes are depicted in Figure 2 of Article 1.
Plots with estimated mean trajectories for each model	Plots are available on request from the authors.
Plot of combination of estimated means of final model and observed individual trajectories for each latent class	Plots are available on request from the authors.
Characteristics of the final class solution	Characteristics are described in the results section. Additional parameters (omitted for conciseness) see repository.
Provision of syntax files	Syntax files are available from the repository and on request from the authors.

Table B.2.1: Difference output of longitudinal approximate measurement invariance

Item	Average	*SD*	Deviations from the Mean			
			LMX (*N* = 203)			
1	3.311	0.061	IX1_1 -0.128*	IX2_1 -0.048	IX3_1 0.059	IX4_1 0.117
2	3.759	0.059	IX1_2 -0.021	IX2_2 0.027	IX3_2 0.014	IX4_2 -0.021

Item	Average	*SD*	Deviations from the Mean			
3	3.670	0.065	IX1_3 0.007	IX2_3 -0.010	IX3_3 -0.021	IX4_3 0.024
4	3.842	0.066	IX1_4 0.042	IX2_4 -0.025	IX3_4 -0.017	IX4_4 0.000
5	3.407	0.070	IX1_5 -0.023	IX2_5 -0.011	IX3_5 0.005	IX4_5 0.030
6	3.857	0.062	IX1_6 0.016	IX2_6 -0.002	IX3_6 -0.024	IX4_6 0.011
7	3.822	0.057	IX1_7 -0.004	IX2_7 0.001	IX3_7 0.011	IX4_7 -0.008
8	0.613	0.065	LAMX1_1 0.042	LAMX2_1 0.147	LAMX3_1 -0.037	LAMX4_1 -0.152
9	0.718	0.060	LAMX1_2 -0.028	LAMX2_2 0.002	LAMX3_2 0.079	LAMX4_2 -0.054
10	0.744	0.061	LAMX1_3 -0.040	LAMX2_3 0.074	LAMX3_3 0.056	LAMX4_3 -0.091
11	0.835	0.065	LAMX1_4 -0.049	LAMX2_4 0.055	LAMX3_4 -0.049	LAMX4_4 0.041
12	0.791	0.067	LAMX1_5 -0.111	LAMX2_5 -0.036	LAMX3_5 0.049	LAMX4_5 0.098
13	0.768	0.062	LAMX1_6 -0.060	LAMX2_6 -0.078	LAMX3_6 0.031	LAMX4_6 0.107
14	0.674	0.056	LAMX1_7 0.091	LAMX2_7 -0.013	LAMX3_7 0.043	LAMX4_7 -0.123
			Work Engagement (*N* = 197)			
1	4.158	0.096	IY1_1 0.015	IY2_1 -0.013	IY3_1 -0.054	IY4_1 0.052
2	4.891	0.089	IY1_2 0.052	IY2_2 0.093	IY3_2 -0.015	IY4_2 -0.130
3	4.497	0.100	IY1_3 0.081	IY2_3 0.034	IY3_3 -0.067	IY4_3 -0.048
4	4.444	0.107	IY1_4 0.128*	IY2_4 -0.095	IY3_4 -0.061	IY4_4 0.027
5	4.700	0.102	IY1_5 0.122*	IY2_5 0.024	IY3_5 -0.131*	IY4_5 -0.015
6	5.079	0.092	IY1_6 -0.029	IY2_6 0.022	IY3_6 -0.064	IY4_6 0.071
7	5.279	0.093	IY1_7 0.001	IY2_7 0.047	IY3_7 -0.054	IY4_7 0.006
8	4.450	0.098	IY1_8 0.088	IY2_8 0.040	IY3_8 -0.102	IY4_8 -0.026
9	4.455	0.101	IY1_9 0.092	IY2_9 -0.003	IY3_9 -0.091	IY4_9 0.002
10	1.273	0.121	LAMY1_1 0.045	LAMY2_1 0.078	LAMY3_1 -0.040	LAMY4_1 -0.081
11	1.124	0.107	LAMY1_2 0.007	LAMY2_2 -0.038	LAMY3_2 0.044	LAMY4_2 -0.012
12	1.211	0.111	LAMY1_3 0.021	LAMY2_3 0.015	LAMY3_3 0.006	LAMY4_3 -0.041
13	1.400	0.131	LAMY1_4 -0.138	LAMY2_4 0.007	LAMY3_4 -0.027	LAMY4_4 ‘0.161
14	1.390	0.120	LAMY1_5 -0.059	LAMY2_5 -0.013	LAMY3_5 0.107	LAMY4_5 -0.034
15	1.124	0.107	LAMY1_6 0.024	LAMY2_6 -0.005	LAMY3_6 0.086	LAMY4_6 -0.104

Item	Average	*SD*	Deviations from the Mean			
16	1.021	0.107	LAMY1_7 0.016	LAMY2_7 0.067	LAMY3_7 0.043	LAMY4_7 -0.125
17	1.325	0.116	LAMY1_8 0.091	LAMY2_8 0.072	LAMY3_8 -0.007	LAMY4_8 -0.156
18	1.433	0.127	LAMY1_9 -0.137	LAMY2_9 0.001	LAMY3_9 0.042	LAMY4_9 0.096

Notes. WE = Work Engagement. LMX = Leader-Member Exchange. IXt_i (IYt_i) = intercept for LMX (WE) of Item i at Time t; LAMXt_i (LAMYt_i) = factor loading for LMX (WE) of Item i at time t. Regarding difference priors for intercepts and loadings, normal distributions with hyperparameters of N(0,.05) are specified. Asterisk next to a value indicates that the posterior falls outside the 95% credibility interval.

Table B.3.1: Full parameter estimates for the GCLM

Parameter	Unstandardized	Standardized	p-value
	Effects regarding solely WE		
Unit Effects and Variance			
λWE_{t1}	1(0) [1, 1]	0.79(0.13) [0.53, 0.98]	.00
λWE_{t2}	0.95(0.29) [0.27, 1.43]	0.69(0.22) [0.15, 1.06]	.02
λWE_{t3}	0.94(0.29) [0.26, 1.47]	0.69(0.23) [0.14, 1.11]	.02
λWE_{t4}	0.94(0.29) [0.25, 1.42]	0.75(0.24) [0.17, 1.14]	.02
$\Psi\eta^{WE}$	0.94(0.3) [0.33, 1.5]	1(0) [1, 1]	.00
AR			
$\beta WE_{l1}{}^{WEt2}$	0.16(0.23) [-0.25, 0.69]	0.15(0.21) [-0.23, 0.65]	.20
$\beta WE_{l1}{}^{WEt3}$	-0.2(0.33) [-0.66, 0.67]	-0.2(0.34) [-0.68, 0.67]	.24
$\beta WE_{l1}{}^{WEt4}$	-0.21(0.31) [-0.68, 0.6]	-0.23(0.33) [-0.76, 0.63]	.21
$\beta WE_{l1}{}^{WE}$	-0.2(0.32) [-0.67, 0.63]		.22
MA			
$\delta WE_{l1}{}^{WEt3}$	1.54(0.71) [-0.25, 2.36]	0.82(0.35) [-0.09, 1.14]	.06
$\delta WE_{l1}{}^{WEt4}$	1.51(0.74) [-0.32, 2.38]	0.55(0.26) [-0.11, 0.85]	.08
$\delta WE_{l1}{}^{WE}$	1.52(0.72) [-0.28, 2.37]	-	.07
$\delta WE_{l2}{}^{WEt3}$	0.52(0.3) [-0.17, 1.02]	0.28(0.15) [-0.09, 0.49]	.08
$\delta WE_{l2}{}^{WEt4}$	0.52(0.31) [-0.18, 1.03]	0.29(0.2) [-0.1, 0.67]	.08
$\delta WE_{l2}{}^{WE}$	0.52(0.3) [-0.17, 1.02]	-	.08
$\delta WE_{l1+l2}{}^{WEt3}$	2.16(0.93) [-0.31, 3.01]		.07
$\delta WE_{l1+l2}{}^{WEt4}$	2.1(0.96) [-0.41, 3.03]		.08
$\delta WE_{l1+l2}{}^{WE}$	2.13(0.94) [-0.35, 3.02]	-	.07
AR+MA			

Parameter	Unstandardized	Standardized	p-value
$\beta WE_{l1+l2}^{WEt3} + \delta WE_{l1+l2}^{WEt3}$	1.89(0.71) [0.03, 2.72]	-	.03
$\beta WE_{l1+l2}^{WEt4} + \delta WE_{l1+l2}^{WEt4}$	1.84(0.73) [-0.01, 2.78]	-	.03
$\beta WE_{l1+l2}^{WE} + \delta WE_{l1+l2}^{WE}$	1.86(0.72) [0, 2.73]	-	.03
	Effects regarding solely LMX		
Unit Effects and Variance			
λLMX_{t1}	1 (0) [1, 1]	0.77 (0.18) [0.39, 0.99]	.00
λLMX_{t2}	0 (0.1) [-0.19, 0.2]	0 (0.07) [-0.13, 0.14]	.49
λLMX_{t3}	0.01 (0.1) [-0.18, 0.19]	0 (0.06) [-0.12, 0.13]	.47
λLMX_{t4}	0 (0.1) [-0.19, 0.18]	0 (0.07) [-0.14, 0.14]	.49
$\Psi\eta^{LMX}$	0.32 (0.14) [0.05, 0.54]	1 (0) [1, 1]	.00
AR			
βLMX_{l1}^{LMXt2}	0.8(0.09) [0.61, 0.98]	0.71(0.07) [0.56, 0.85]	.00
βLMX_{l1}^{LMXt3}	0.2(0.44) [-0.7, 1.05]	0.2(0.44) [-0.71, 1.02]	.32
βLMX_{l1}^{LMXt4}	0.17(0.42) [-0.69, 0.98]	0.19(0.46) [-0.74, 1.08]	.34
βLMX_{l1}^{LMX}	0.19(0.43) [-0.69, 1]	-	.33
βLMX_{l2}^{LMXt3}	0.69(0.38) [-0.06, 1.42]	0.61(0.33) [-0.04, 1.27]	.04
βLMX_{l2}^{LMXt4}	0.66(0.38) [-0.11, 1.39]	0.7(0.4) [-0.11, 1.48]	.04
βLMX_{l2}^{LMX}	0.67(0.38) [-0.06, 1.41]	-	.04
$\beta LMX_{l1+l2}^{LMXt3}$	0.89(0.16) [0.57, 1.19]		.00
$\beta LMX_{l1+l2}^{LMXt4}$	0.82(0.14) [0.56, 1.09]		.00
βLMX_{l1+l2}^{LMX}	0.86(0.14) [0.59, 1.12]	-	.00
MA			
δLMX_{l1}^{LMXt3}	0.42(0.47) [-0.45, 1.41]	0.28(0.32) [-0.32, 0.96]	.18
δLMX_{l1}^{LMXt4}	0.42(0.49) [-0.51, 1.41]	0.19(0.22) [-0.24, 0.65]	.18
δLMX_{l1}^{LMX}	0.42(0.48) [-0.45, 1.43]	-	.18
δLMX_{l2}^{LMXt3}	-0.23(0.2) [-0.62, 0.15]	-0.12(0.11) [-0.35, 0.09]	.11
δLMX_{l2}^{LMXt4}	-0.26(0.18) [-0.61, 0.09]	-0.19(0.14) [-0.47, 0.07]	.07
δLMX_{l2}^{LMX}	-0.25(0.18) [-0.6, 0.11]	-	.08
$\delta LMX_{l1+l2}^{LMXt3}$	0.18(0.49) [-0.74, 1.17]		.35
$\delta LMX_{l1+l2}^{LMXt4}$	0.15(0.49) [-0.76, 1.17]		.38
δLMX_{l1+l2}^{LMX}	0.17(0.49) [-0.73, 1.17]	-	.36
AR+MA			
$\beta LMX_{l1+l2}^{LMXt3} + \delta LMX_{l1+l2}^{LMXt3}$	1.07(0.4)	-	.00

Parameter	Unstandardized	Standardized	p-value
	[0.32, 1.88]		
$\beta LMX_{l1+l2}^{LMXt4} + \delta LMX_{l1+l2}^{LMXt4}$	0.97(0.42) [0.19, 1.85]	-	.01
$\beta LMX_{l1+l2}^{LMX} + \delta LMX_{l1+l2}^{LMX}$	1.02(0.4) [0.25, 1.83]	-	.00
Effects in the direction of WE on LMX			
CL			
βWE_{l1}^{LMXt2}	-0.01(0.04) [-0.09, 0.07]	-0.01(0.06) [-0.14, 0.11]	.43
βWE_{l1}^{LMXt3}	0.01(0.06) [-0.12, 0.12]	0.01(0.1) [-0.19, 0.19]	.46
βWE_{l1}^{LMXt4}	-0.01(0.07) [-0.15, 0.12]	-0.02(0.12) [-0.24, 0.22]	.43
βWE_{l1}^{LMX}	0(0.06) [-0.11, 0.11]		.47
CLMA			
δWE_{l1}^{LMXt3}	0.31(0.12) [0.08, 0.53]	0.25(0.09) [0.07, 0.43]	.00
δWE_{l1}^{LMXt4}	0.3(0.14) [0.02, 0.57]	0.19(0.09) [0.02, 0.38]	.01
δWE_{l1}^{LMX}	0.3(0.12) [0.06, 0.53]	-	.01
CL + CLMA			
$\beta WE_{l1}^{LMXt3}+\delta WE_{l1}^{LMXt3}$	0.3(0.1) [0.12, 0.51]	-	.00
$\beta WE_{l1}^{LMXt4}+\delta WE_{l1}^{LMXt4}$	0.29(0.14) [0.04, 0.56]	-	.01
$\beta WE_{l1}^{LMX}+\delta WE_{l1}^{LMX}$	0.3(0.11) [0.1, 0.51]	-	.00
Effects in the direction of LMX on WE			
CL			
βLMX_{l1}^{WEt2}	0.23(0.23) [-0.21, 0.71]	0.13(0.13) [-0.12, 0.4]	.15
βLMX_{l1}^{WEt3}	0.25(0.24) [-0.22, 0.74]	0.16(0.15) [-0.13, 0.48]	.13
βLMX_{l1}^{WEt4}	0.23(0.25) [-0.23, 0.75]	0.16(0.17) [-0.16, 0.51]	.16
βLMX_{l1}^{WE}	0.24(0.24) [-0.22, 0.74]	-	.13
CLMA			
δLMX_{l1}^{WEt3}	-0.49(0.37) [-1.23, 0.21]	-0.21(0.16) [-0.54, 0.09]	.07
δLMX_{l1}^{WEt4}	-0.5(0.37) [-1.26, 0.19]	-0.14(0.11) [-0.36, 0.05]	.07
δLMX_{l1}^{WE}	-0.5(0.37) [-1.24, 0.19]	-	.07
CL + CLMA			
$\beta LMX_{l1}^{WEt3}+\delta LMX_{l1}^{WEt3}$	-0.22(0.28) [-0.81, 0.3]	-	.16
$\beta LMX_{l1}^{WEt4}+\delta LMX_{l1}^{WEt4}$	-0.27(0.29) [-0.84, 0.3]	-	.14
$\beta LMX_{l1}^{WE}+\delta LMX_{l1}^{WE}$	-0.25(0.28) [-0.81, 0.28]	-	.13
Co-movements and variances			
$\Psi LMX^{t1}WE^{t1}$	0.11(0.13) [-0.11, 0.39]	0.33(0.35) [-0.35, 0.99]	.18

Parameter	Unstandardized	Standardized	p-value
$\Psi LMX^{t2}WE^{t2}$	0.17(0.05) [0.08, 0.28]	0.44(0.11) [0.22, 0.67]	.00
$\Psi LMX^{t3}WE^{t3}$	0.01(0.05) [-0.06, 0.12]	0.07(0.25) [-0.42, 0.59]	.39
$\Psi LMX^{t4}WE^{t4}$	0.08(0.07) [-0.05, 0.23]	0.34(0.27) [-0.27, 0.83]	.11
ΨWE^{t1}	0.57(0.28) [0.07, 1.14]	1(0) [1, 1]	.00
ΨWE^{t1}	0.5(0.16) [0.21, 0.81]	1(0) [1, 1]	.00
ΨWE^{t2}	0.24(0.14) [0.04, 0.56]	1(0) [1, 1]	.00
ΨWE^{t3}	0.34(0.2) [0.01, 0.71]	1(0) [1, 1]	.00
ΨLMX^{t1}	0.22(0.13) [0.01, 0.47]	1(0) [1, 1]	.00
ΨLMX^{t2}	0.33(0.04) [0.25, 0.42]	1(0) [1, 1]	.00
ΨLMX^{t3}	0.12(0.03) [0.07, 0.18]	1(0) [1, 1]	.00
ΨLMX^{t4}	0.18(0.05) [0.1, 0.28]	1(0) [1, 1]	.00
$\Psi\eta^{LMX\_WE}$	0.23(0.14) [-0.05, 0.48]	0.44(0.26) [-0.03, 1]	.06

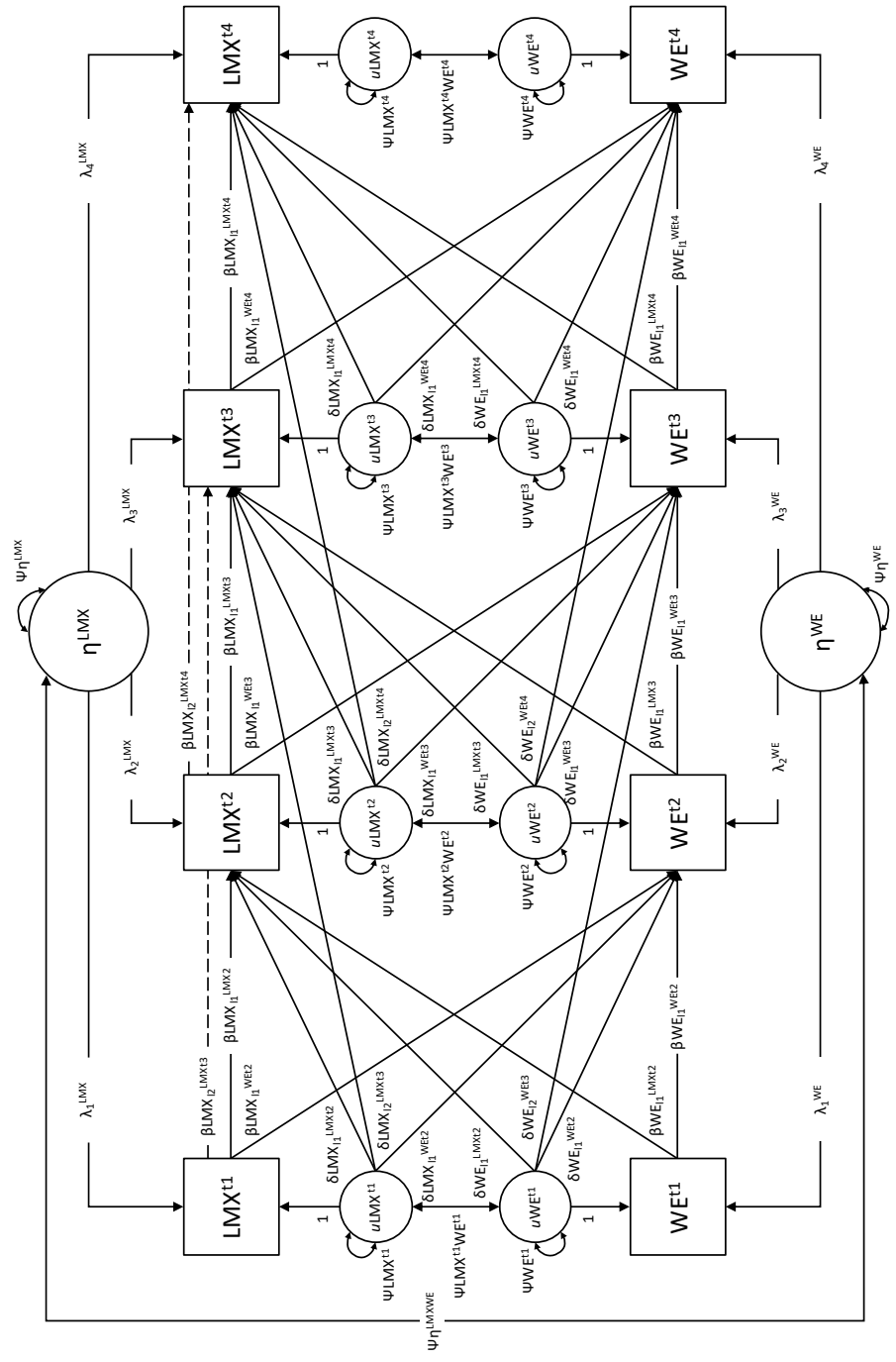
Notes. WE = Work Engagement; LMX = Leader-Member Exchange; posterior standard deviations in parentheses; 95% CrI = 95% credibility interval in square brackets; AR / β = Autoregressive effects; MA / δ = Moving average effects; CL / β = Cross-lagged effects; CLMA / δ = Cross-lagged moving average effects; λ = time-varying factor loadings for unit effects; Ψ = co-movements (Ψ^{X_Y}) and variances (Ψ^{X}); η = unit effects; subscripts: li = lag order l; superscripts: target variable (either WE or LMX) and/or ti = time point i.

Table B.3.2: Parameters of Impulse Responses: Remaining Effects at t3 and t4

	unstandardized	95% CrI	standardized	95% CrI	p-value
			WE → WE		
uWE_{t2}^{WEt3}	1.24 (0.50)	[0.11, 2.17]	0.69 (0.21)	[0.12, 0.93]	0.02
uWE_{t2}^{WEt4}	0.33 (0.24)	[-0.15, 0.76]	0.19 (0.15)	[-0.07, 0.49]	0.10
			LMX → LMX		
$uLMX_{t2}^{LMXt3}$	0.63 (0.08)	[0.47, 0.80]	0.43 (0.06)	[0.31, 0.55]	0.00
$uLMX_{t2}^{LMXt4}$	0.49 (0.14)	[0.22, 0.76]	0.36 (0.10)	[0.17, 0.55]	0.00
			WE → LMX		
uWE_{t2}^{LMXt3}	0.30 (0.10)	[0.12, 0.51]	0.25 (0.07)	[0.12, 0.38]	0.00
uWE_{t2}^{LMXt4}	0.04 (0.11)	[-0.16, 0.26]	0.04 (0.09)	[-0.14, 0.22]	0.33
			LMX → WE		
$uLMX_{t2}^{WEt3}$	-0.22 (0.28)	[-0.81, 0.30]	-0.10 (0.12)	[-0.35, 0.13]	0.16
$uLMX_{t2}^{WEt4}$	0.20 (0.19)	[-0.16, 0.57]	0.10 (0.08)	[-0.07, 0.27]	0.12

Notes. WE = Work Engagement. LMX = Leader-Member Exchange. Posterior standard deviations are in parentheses. 95% CrI = 95% credibility interval in square brackets. Subscripts: ti = time point i of the impulse. Superscripts: dependent variables, at ti = time point i.

Figure B.3.1: Depiction of the structure of the general cross-lagged model



Notes. WE = Work Engagement. LMX = Leader-Member Exchange. β = Autoregressive and cross-lagged effects. δ = Moving average and cross-lagged moving average effects. λ = time-varying factor loadings for unit effects. Ψ = co-movements ($\Psi^{(X\_Y)}$) and variances ($\Psi^{(X)}$). η = unit effects. *u* = impulses. Subscripts: li = lag order i. superscripts: target variable (either WE or LMX) and/or ti = time point i.