

Employee intrapreneurship and work engagement: A latent change score approach



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ABSTRACT

Although ample evidence has shown that intrapreneurial activities of an employee (i.e. employee intrapreneurship) positively impact organizational outcomes, research on how these activities affect employee outcomes is scarce. Based on Job Demands-Resources theory, we hypothesized that employee intrapreneurship builds personal resources over time, which in turn, fosters work engagement. We conducted a two-wave study with a three-month time interval among a sample of public servants ($N = 351$). Results of a latent change score analysis showed that employee intrapreneurship predicted a positive change in employees' personal resources over time, and personal resources predicted higher and more stable experiences of work engagement during the study period. Moreover, we found evidence for a positive gain cycle of employee intrapreneurial behavior, personal resources, and work engagement. The practical implication of our findings is that intervening to increase either one of these constructs can be expected to lead to mutual gains in the others.

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1. Introduction

For organizations to successfully adapt and proactively act upon environmental opportunities, executives and scholars have recognized the importance of the entrepreneurial activities of individual employees (Ireland, Hitt, & Sirmon, 2003; Miles, Snow, Fjeldstad, Miles, & Lettl, 2010; Morris, Webb, & Franklin, 2011). Consequently, the concept of intrapreneurship, also referred to as corporate entrepreneurship, has received increased attention as it centers on the activities of employees to expand and rejuvenate the organization to adequately adapt to external and internal developments (e.g., Hornsby, Kuratko, Shepherd, & Bott, 2009; Krauss, Frese, Friedrich, & Unger, 2005; Marvel, Griffin, Hebda, & Vojak, 2007).

Although a body of research has been published on how employees' entrepreneurial behavior for their organization relates to beneficial organizational outcomes, such as innovativeness (Bierwerth, Schwens, Isidor, & Kabst, 2015), firm growth (Antoncic, 2007), and overall performance (Bierwerth et al., 2015; Rauch, Wiklund, Lumpkin, & Frese, 2009), the literature on its effect on employees has received less scrutiny. Yet, process-oriented research that focuses on the consequences of employee intrapreneurial behaviors for the individual employee has been acknowledged as necessary to further advance the field of intrapreneurship

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(Belousova & Gailly, 2013; Dess et al., 2003). This study will address this void by examining the longitudinal, cyclical relationship between the intrapreneurial behavior of an individual employee (a phenomenon we coin *employee intrapreneurship* to avoid semantic confusion with the firm level concept of intrapreneurship), personal resources (i.e., optimism, resilience, and self-efficacy), and work engagement.

This study will contribute to the organizational behavior and intrapreneurship literature in at least three ways. First, by conducting a two-wave cross-lagged panel study, we will contribute to the intrapreneurship literature by shedding light on how employee intrapreneurship may affect personal resources and work engagement over time. Second, because we utilize both an inter-individual (between-person) and an intra-individual (within-person) perspective, we will provide insights on how frequency of employee intrapreneurial behavior impacts the magnitude of change in levels of personal resources and employee work engagement over time, thus increasing our understanding of how resources and work engagement develop and fluctuate over time. Research on typical fluctuation patterns of different types of resources is scarce and a necessary prerequisite to further increase our understanding of dynamic processes that occur at work (Salanova, Schaufeli, Xanthopoulos, & Bakker, 2010). Third, we draw upon the Job Demands-Resources theory (JD-R; Bakker & Demerouti, 2014; Bakker, Demerouti, & Sanz-Vergel, 2014) to develop a theoretical framework that enables us to explain how employees can optimize and sustain a positive work life (i.e. staying engaged in their work) through employee intrapreneurship. This is the first study incorporating employee intrapreneurship in the JD-R theory. This theoretical framework can be used by future scholars who aim to disentangle intrapreneurship at the individual level in more detail, and, when combined with existing frameworks at the organizational level (Hornsby, Kuratko, Holt, & Wales, 2013), provide a basis for multi-level research.

2. Theoretical background

2.1. The concept of employee intrapreneurship

Because of its beneficial effects for organizational performance, employee intrapreneurship has been an important research topic for scholars and practitioners since the beginning of the 1980s (e.g., Burgelman, 1983; Pinchot, 1985). Through employee intrapreneurship, employees are able to contribute to two important organizational outcomes, namely new venture creation and strategic renewal (Guth & Ginsberg, 1990; Morris, Kuratko, & Covin, 2011). Venture creation refers to the creation of new businesses (e.g., products) and integrating them into the overall business portfolio of an organization (Narayanan, Yang, & Zahra, 2009). Strategic renewal embodies corporate activities that enhance an organization's ability to compete and take risks to adequately react to internal advancements and market developments. Subsequently, strategic renewal refers to organizational change through renewal of the organizational structure, a shift in allocation of resources, and the renewal of services, products and/or administrative processes (Ireland et al., 2003).

In contrast to intrapreneurship at the firm level, a concise definition of intrapreneurship at the employee level (i.e., employee intrapreneurship) is currently lacking. In the literature to date, scholars mostly define employee intrapreneurship as employee activities characterized by showing initiative, taking risks, and coming up with novel ideas (Bolton & Lane, 2012; De Jong, Parker, Wennekens, & Wu, 2013). Although such a conceptualization captures the behavioral characteristics of intrapreneurial behavior, it is too broad to clearly distinguish employee intrapreneurship from other types of proactive work behaviors and strategic proactive behaviors (cf. Parker & Collins, 2010). Consequently, we argue that a more fine grained conceptualization is necessary for our research aim, namely disentangling the specific effect of employee intrapreneurship on employee wellbeing.

Drawing from the entrepreneurial behavior literature (e.g., De Jong et al., 2013) and the intrapreneurship literature on the firm level (Guth & Ginsberg, 1990; Morris, Kuratko et al., 2011), we conceptualize employee intrapreneurship as an individual employee's agentic and anticipatory behaviors aimed at creating new businesses for the organization (i.e., venture behavior) and enhancing an organization's ability to react to internal and external advancements (i.e., strategic renewal behavior). This conceptualization is firmly anchored in the intrapreneurship literature on the business level and distinguishes employee intrapreneurship from other proactive work behaviors that share the behavioral characteristics of showing initiative, taking risks, and introducing novel ideas. For instance, employee intrapreneurship differs from organizational citizenship behavior (i.e., a type of extra-role work behavior promoting effective functioning of the organization; Organ, 1988) in its specific focus on new venture creation and strategic renewal. In addition, it differs from job crafting (i.e., self-initiated behaviors of employees to make actual changes in their level of job demands or job resources; Tims, Bakker, & Derks, 2012), because employee intrapreneurship refers to behavior that is both aimed at changing the internal environment of the organization as well as changing an organization's fit with the external environment.

2.2. The dynamic relationship between work behavior, resources, and work engagement

To investigate how employee intrapreneurship affects employees, it is necessary to conceptualize the interrelatedness between "what happens at work" and how this relates to employees' experiences at work. One theory that captures this interrelatedness is the Job Demands-Resources (JD-R) theory (Bakker & Demerouti, 2014). This novel theory integrates several job stress and motivational approaches, and outlines how employee well-being and performance are influenced by job characteristics (job demands and resources), personal resources, as well as proactive employee behaviors (e.g., job crafting). In short, JD-R theory proposes that employees thrive in organizational contexts that are characterized by high job demands (i.e., challenges) combined with high job or personal resources. When employees have sufficient resources available at work, they are able to cope well with the challenges they encounter at work and reach personal and organizational goals, which fosters work engagement and increased performance.

In contrast, if job challenges outweigh the available resources, employees will experience exhaustion, which in turn, hampers well-being and performance (Bakker et al., 2014).

With respect to the dynamic relationships between work behaviors, personal resources, and work engagement, JD-R theory has integrated the established and general Conservation of Resource (COR) theory (Hobfoll, 1989, 2002) and translated it to the context of work (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008). According to COR theory, individuals engage in activities that can help them obtain, retain, and protect valued resources (e.g., material, social, personal, or energetic resources). Subsequently, when individuals accumulate resources, they will become less vulnerable to future resources loss, more capable of gaining other resources, and experience enhanced well-being (Hobfoll, 2001). In addition, the relationship between activities and resources is argued to be reciprocal in a way that resource gains are likely to facilitate activities that result in more resource gains (Gorgievski & Hobfoll, 2008; Hobfoll, Johnson, Ennis, & Jackson, 2003).

In a similar vein, JD-R theory postulates that through work behavior employees can mobilize and develop their own job and personal resources at work, which in turn positively influences an employee's affective and motivational state (e.g., work engagement). Subsequently, when individuals experience positive affect and motivation, they are more likely to engage in work behaviors that enable them to build resources (Fredrickson, 2004), thus forming a resources gain cycle (labeled as "the motivational process" within JD-R theory; cf. Bakker & Demerouti, 2014). For example, several studies have shown that job crafting (i.e., the proactive changes employees make to balance their job demands, job resources, and personal resources with their personal abilities and needs) positively relates to work engagement and job satisfaction, through increasing job and personal resources (e.g., Tims, Bakker, & Derks, 2014). Subsequently, higher levels of work engagement can foster job crafting (e.g., Vogt, Hakanen, Brauchli, Jenny, & Bauer, 2015).

2.3. The role of personal resources

Personal resources can be argued to play a key role in the psychological mechanisms explaining causes and consequences of employee behavior, such as employee intrapreneurship. First, personal resources represent a set of characteristics that form an individual's self-beliefs of his or her ability to control and impact upon the environment (Hobfoll et al., 2003). In other words, they can be expected to increase an individual's potential to respond to the work environment in a pro-active manner, regardless of the organizational and occupational context (Mäkikangas, Feldt, Kinnunen, & Mauno, 2013). Second, personal resources are by definition relatively malleable psychological constructs which are open for development (Luthans, Avey, & Lincoln, 2008). They are considered to be "state-like", meaning they are not as fleeting as moods, happiness, and other affective states, yet not as stable as, for example, Big Five personality traits. Moreover, personal resources can be increased through conscious efforts. For instance, personal resources have been theorized to build up over time when individuals explore and interact with the environment in a novel way (Fredrickson, 2004).

In empirical studies, scholars have used different combinations of specific personal characteristics to capture a unified construct reflecting an individual's personal resources. For example, in their longitudinal study, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009) have used self-efficacy, optimism, and organization-based self-esteem to measure personal resources. Their study shows that the three specific indicators load significantly and substantially on the latent factor of personal resources (see also Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). In a similar vein, Judge, Erez, Bono, and Thoresen (2003) proposed a latent construct of Core Self-Evaluations indicated by self-esteem, self-efficacy, emotional stability and locus of control.

In the present study, we focus on ego-resilience, optimism, and self-efficacy as indicators of an individual's personal resources because these characteristics have been shown to have special relevance in an entrepreneurial context. Ego-resilience reflects an individual's ability to adapt to changing situations and respond accordingly (Block & Kremen, 1996) and is considered decisive when facing turbulent, uncertain, or dynamic environments (Lengnick-Hall, Beck, & Lengnick-Hall, 2011; Sutcliffe & Vogus, 2003). Optimism reflects a broad and diffuse sense of confidence, related to an individual's tendency to approach challenges with enthusiasm and persistence (Carver & Scheier, 2003). Optimism has been shown to help individuals cope with work environments with a high information-overload (Baron, 1998; Forbes, 2005) and relates to employee behaviors which are challenging the status quo (Bernardo & Welch, 2001). Finally, self-efficacy captures the expectations of individuals about their abilities to execute desired behavior successfully (Bandura, 1997). Self-efficacy was shown to relate positively to an employee's intrapreneurial intentions (Douglas & Fitzsimmons, 2012) and is regarded as a crucial personal characteristic explaining entrepreneurial success (Frese & Gielnik, 2014).

3. Employee intrapreneurship as a predictor of increased personal resources

It is our contention that engaging in intrapreneurial behavior will lead to employees' personal growth in terms of increased personal resources, such as self-efficacy, optimism, and resilience. A central element in building self-efficacy (Bandura, 1997) and optimism (Carver & Scheier, 2003) are the achievement of action goals which relate to (small) success experiences. In the context of intrapreneurship, this happens, for instance, when an employee engages in employee intrapreneurship and successfully conceptualizes an innovative idea that can improve the efficiency of current services. As a result, he or she feels more efficacious and expects similar positive experiences when performing such behavior in the future (Marvel et al., 2007). Moreover, when engaging in employee intrapreneurship, employees are likely going to face several difficulties and hardships (Antoncic & Hisrich, 2003; Stopford & Baden-Fuller, 1994). To overcome these challenges and successfully persist in employee intrapreneurship, employees have been shown to seek advice from both internal and external sources to overcome such challenges (e.g., Anderson & Jack, 2002). Consequently, employees can be expected to acquire new knowledge, experiences, and self-insights when engaging in employee intrapreneurship (Honig, 2001), which are important in building individual resiliency (Masten, 2001).

Although the relationship between employee intrapreneurship and personal resources has not been tested empirically, research supports the notion that work behaviors characterized by exploring possibilities and interacting with the environment in a novel way can have a positive impact on personal resources. For example, organizational citizenship behavior, a type of extra-role work behavior promoting effective functioning of the organization (Organ, 1988), has been shown to positively relate to personal resources, such as hope, optimism, and self-efficacy, across 51 independent samples (Avey, Reichard, Luthans, & Mhatre, 2011). Moreover, besides being positively related, longitudinal research supports the notion that an individual's personal resources can be increased as a result of exploratory, proactive work behavior. A recent intervention study of Van den Heuvel, Demerouti, and Peeters (2015) on job crafting shows that participants who had learned how to proactively craft their jobs (vs. control groups) reported more personal resources, in specific self-efficacy, after the intervention. Similarly, an experimental study by Fredrickson, Cohn, Coffey, Pek, and Finkel (2008) showed that work-related meditation practices increased daily experiences of positive emotions and produced gains in personal resources (i.e. self-acceptance, feelings of mastery, and purpose in life) over eight weeks of time. Thus, based on the aforementioned studies, we argue that employees who engage more often in employee intrapreneurship will have more personal resources over time:

Hypothesis 1. T1 employee intrapreneurship increases personal resources over time.

4. The capacity of personal resources to foster and sustain work engagement

In the occupational context, scholars often are interested in employees' work engagement (Bakker, Schaufeli, Leiter, & Taris, 2008), because of its relationship with employee levels of energy and motivation (Demerouti, Mostert, & Bakker, 2010; Schaufeli, Salanova, González-Romá, & Bakker, 2002; Schaufeli & Van Rhenen, 2006) and employee performance (e.g., Christian, Garza, & Slaughter, 2011; Kim, Kolb, & Kim, 2012). Work engagement is defined as “the positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli & Bakker, 2004, p. 295). In JD-R theory, personal resources are theorized to foster work engagement, because of their ability to provide energy and motivation for individuals to engage in activities that fulfill personal needs or buffer against stressors (Xanthopoulou et al., 2007). Subsequently, when this energy is utilized to overcome work-related challenges or fulfill work related needs, it induces a positive, work-related, motivational state in employees known as work engagement (Schaufeli, Bakker, & Salanova, 2006). Empirical research supports the notion that personal resources foster work engagement. In a meta-analysis of Halbesleben (2010), personal resources, such as self-efficacy and optimism, were shown to be significant predictors of work engagement across a multitude of studies. Furthermore, longitudinal studies have shown that individual differences in personal resources, such as optimism, resilience, and self-efficacy, are significant predictors of the level of work engagement over time (Llorens, Schaufeli, Bakker, & Salanova, 2007; Xanthopoulou et al., 2009).

Besides being an important factor in explaining why individuals differ in levels of work engagement, from a within-person perspective, scholars have argued that personal resources can mitigate the (negative) effects of external influences (e.g., changes in the work environment) on work engagement, because they alter the way people appraise and interact with the work environment (Mäkikangas et al., 2013; Xanthopoulou et al., 2007). For example, high resilient individuals are less affected by setbacks in a project (Masten, 2001), high efficacious individuals are less insecure when facing difficult tasks (Bandura, 1997), and optimistic individuals are less affected by environments that are overloaded with information (Baron, 1998; Forbes, 2005). Thus, similar to how certain personality traits facilitate coping mechanisms that stabilize happiness and general well-being (cf. Diener, Lucas, & Scollon, 2006; Gorgievski, Bakker, Schaufeli, & van der Heijden, 2005), and similar to how having bountiful resources makes individuals less vulnerable to resource loss (Hobfoll, 2001), it may be argued that individuals with bountiful personal resources are able to maintain stable levels of positive affective, motivational states more effectively over time (Gorgievski & Hobfoll, 2008).

Although the proposed general stabilizing effect of personal resources on work engagement has not been examined empirically, previous research has provided insights into specific buffering effects of personal resources on individual well-being. A review of Pierce and Gardner (2004) concluded that organization-based self-efficacy mitigates the effects of demanding conditions (e.g., organizational changes, role ambiguity) on depression, physical strain, and job dissatisfaction, implying smaller within-person changes in mental well-being over time. Furthermore, a longitudinal study of Mäkikangas and Kinnunen (2003) showed that under demanding work conditions (i.e., high time pressure, high job insecurity, and poor organizational climate), optimistic employees reported lower levels of mental distress than their less optimistic colleagues over a period of one year. Thus, in line with both theoretical and empirical findings, we argue that although personal resources relate to higher work engagement levels in general, they should additionally stabilize intra-individual levels of work engagement:

Hypothesis 2a. T1 personal resources relate positively to T2 work engagement.

Hypothesis 2b. T1 personal resources relate negatively to changes (i.e. stabilize) in work engagement over time.

5. The link between work engagement and employee intrapreneurship

Flowing from the definition of work engagement as an active positive motivational state, scholars have related work engagement to proactive work behavior in several studies (cf., Bakker, 2011). The basis of this relationship lies in the premise that

individuals who have high levels of work engagement are physically, cognitively, and emotionally connected with their work roles (Kahn, 1990), and thus more likely to engage in proactive activities than those who are not (Kim et al., 2012).

We argue that these features of work engagement may also be important to motivate employee intrapreneurship for several reasons. First, in many occupations, employee intrapreneurship is combined with the “job as usual” (Belousova & Gailly, 2013), and thus requires additional effort to start and persist in (Frese, Fay, Hilburger, Leng, & Tag, 1997). Due to high levels of vigor, engaged employees are able to accomplish their in-role tasks with less effort (Hockey, 2000) and thus have more resources left to enact entrepreneurial behaviors. Second, the process of intrapreneurship is often filled with hardships and failure (Shepherd, Haynie, & Patzelt, 2013). Accordingly, to engage in employee intrapreneurship, employees have to regard entrepreneurial activities for their organization worthwhile to invest the extra effort. Dedication and enthusiasm for their work and organization (both characteristics of engaged individuals; Schaufeli & Bakker, 2004) are thus arguably important characteristics that may facilitate entrepreneurial activities to improve the organization. Third, when engaging in intrapreneurship, employees are challenged to go beyond the status quo and recognize opportunities (Antoncic & Hisrich, 2003). To successfully do so, it is important for individuals to resist the temptation to get distracted and to detach in case of emerging difficulties. Engaged individuals have these qualities over non-engaged individuals due to their higher levels of absorption and persistence in their work.

Although empirical research supporting the notion that work engagement increases employee intrapreneurship is scant, empirical research has shown that high levels of work engagement foster work behaviors that go beyond the scope of employees' formal function description, such as engaging in proactive idea implementation and proactive problem-solving (e.g., Parker, Williams, & Turner, 2006), as well as taking personal initiative (e.g., Hahn, Frese, Binnewies, & Schmitt, 2012). Furthermore, fluctuations in work engagement have been shown to directly impact proactive behaviors over time. A study of Fritz and Sonnentag (2007) showed that day-level work engagement of civil servants positively predicted day-level proactive behavior (i.e. taking charge) in both the same and the consecutive day. Similarly, the study of Bakker and Bal (2010) showed that week-level work engagement predicted an increase in extra-role performance in the consecutive week among a sample of Dutch teachers. We formulated the following hypothesis in regards to the relationship between work engagement and employee intrapreneurship:

Hypothesis 3. T1 work engagement increases employee intrapreneurship over time.

6. Additional support for a resources gain cycle

An important assumption of JD-R theory is that work behavior, resources, and work engagement may form a “resources gain cycle”, meaning proactive work behaviors are expected to influence (personal) resources, which in turn influence work engagement. To complete the cycle, work engagement is theorized to foster proactive work behavior (Bakker & Demerouti, 2014). Technically, (resources) gain cycles are loops in which cyclic relationships among constructs influence each other positively over time and show interdependency in the way they fluctuate over time (Lindsley, Brass, & Thomas, 1995). Although the premise of a resources gain cycle between employee intrapreneurship, personal resources, and work engagement implicitly lies behind our previous hypotheses, an additional approach utilizing the change scores of the study variables may shed more light on the reciprocal nature of the relationships. In specific, building on the premise that gain cycles of resources are self-enhancing and interdependent (Gorgievski & Hobfoll, 2008; Lindsley et al., 1995), change in one of our study variables should reflect in a change in other study variables. Thus, we argue that a significant interdependency between intra-individual changes of our study variables would provide further evidence for a resources gain cycle.

Hypothesis 4. Changes in employee intrapreneurship, personal resources, and work engagement relate positively to each other.

7. Method

7.1. Procedure and participants

The data was gathered with an online questionnaire in five public organizations in The Netherlands at two measurement moments. To ensure the time interval between measurement moments fits our research design, we based the length of the time interval on an analysis of existing literature (cf. Mitchel & Lawrence, 2001). For the first wave, the personnel administration department of the organizations provided access to work email addresses of the employees in the personnel database. In agreement with the board of directors of a public organization, we were allowed to randomly contact 1750 employees. These employees received an email signed by the HR-Director. This email contained information on the study, a request to fill out the survey (also stating that participation was voluntary), and a link to the survey. The title of the email was “A research on the push and pull factors of work and career behaviors” and was framed as being part of an ongoing inquiry among personnel on proactivity at work, career development, and work satisfaction. Of the 1750 employees who were contacted, 1330 answered the questionnaire (response rate is 76%).

For the second wave, the board of directors had allowed us to approach the employees who had indicated they were willing to continue in our study at the end of the questionnaire at baseline. Of the 1330 employees, 618 employees had agreed to continue with our study (46%). A follow-up mail was sent to these employees twelve weeks after the initial email of the first wave and contained information on the follow-up study, a request to fill in the follow-up survey, and a link to the survey. Of the 618 employees who were contacted, 351 completed the questionnaire. Thus, the analyses were based on a two-wave sample of 351 cases

(total response rate 20%). A non-response analysis showed that the participants who did not participate in the follow-up survey did not score significantly different on the control variables age, gender, education, and salary as compared to participants in the final sample. Moreover, participants who did not participate in the follow-up survey did not score significantly different on the study variables as compared to participants in the final sample, with the exception of work engagement. Participants in the final sample had a slightly higher score on work engagement (mean difference = 0.55, $t_{(1152 \text{ df})} = 2.68, p < 0.01$).

The employees represented all fields of work within a public organization: Advisory 28.5%, Operational Management 16.5%, Policy 10.8%, Research and Development 5.0%, Top Management 6.9%, Project Management 5.6%, Control 12.9%, Operations 11.2%, and Other 2.5%. Most of the participants had a permanent contract (94.4%) and had worked for an average of 5.2 years ($sd = 5.4$) in their current position. The mean age was 47 years ($sd = 9.6$), and 40.2% of the sample was female. Of these employees, 52% held a master university degree or higher.

7.2. Measures

All measures were administered in Dutch and were framed according to the chosen twelve-week time interval by explicitly stating that responses on each item should reflect the past twelve weeks. Measures that were not available in Dutch were translated, using the forward-backward translation method (Behling & Law, 2000).

Employee intrapreneurship was measured with the eight-item version of employee intrapreneurship scale of Gawke, Gorgievski, and Bakker (2015). Four items measured the sub-dimension employee venture behavior (example item, "I undertook activities to set up new units for my organization."), and four items measured the employee strategic behavior dimension (example item, "I undertook activities to realize change in my organization."). Responses were given on a 7-point frequency scale ranging from 1 = *never* to 7 = *always*. The subscale venture behavior had a Cronbach's alpha of 0.85 at T1 and 0.80 at T2; the subscale strategic renewal behavior had Cronbach's alpha of 0.89 at T1 and 0.90 at T2. Based on two independent studies, Gawke et al. (2015) have shown the EIS is a valid measure to capture employee intrapreneurship. First, they performed confirmatory factor analyses (CFA) and measurement invariance tests in three independent samples of employees in the public sector (i.e., $N = 775, N = 427$, and $N = 226$) and showed employee venture behavior and strategic renewal behavior can be discriminated as two related sub-dimensions of employee intrapreneurship. Next, in a new sample of employees in the private sector ($N = 243$), Gawke et al. (2015) confirmed the convergent and discriminant validity of the EIS with activities that are closely related to employee intrapreneurial activities (De Jong et al., 2013; Bolton & Lane, 2012), namely employee innovativeness ($r = 0.50, p < 0.05$), employee risk taking ($r = 0.52, p < 0.05$), and employee personal initiative ($r = 0.47, p < 0.05$). In addition to these activities, Gawke et al. (2015) showed that personality traits associated with employees' intrapreneurial intentions (i.e., expectations of positive outcomes; e.g., Douglas & Fitzsimmons, 2012) also related to the EIS in line with theory ($r = 0.61, p < 0.05$).

Work engagement was assessed with the nine-item version of the Utrecht Work Engagement Scale capturing three sub-dimensions of work engagement, namely vigor, dedication and absorption (Schaufeli et al., 2006). Here are some example items: "At my work, I felt bursting with energy" (vigor); "I was enthusiastic about my job" (dedication); and "I was immersed in my work" (absorption). Responses were given on a 7 point Likert scale ranging from 1 = *never* to 7 = *always*. For T1 and T2 respectively, Cronbach's alpha's for vigor were 0.75 and 0.73; for dedication 0.81 and 0.87; and for absorption 0.88 and 0.84.

Personal resources were assessed with three subscales capturing different work-related personal resources. Optimism was measured with four items (sample item, "In uncertain times I expected the best outcomes") based on the scale of Scheier, Carver, and Bridges (1994); ego-resilience was assessed with five items (sample item, "I enjoyed engaging in new and unusual situations") based on the scale of Block and Kremen (1996); and self-efficacy was measured with four items (sample item, "I knew what to do, regardless of what happened") based on the scale of Schwarzer and Jerusalem (1995). Participants responded on the scale for optimism on a 5-point Likert scale, ranging from 1 = *totally disagree* to 5 = *totally agree*; for ego-resilience and self-efficacy participants responded on a 4-point Likert scale ranging from 1 = *totally disagree* to 4 = *totally agree*. Cronbach's alpha's for optimism were 0.82 at T1, and 0.78 at T2, for ego-resilience 0.81 at T1, and 0.78 at T2, and for self-efficacy 0.83 at T1, and 0.84 at T2.

Control variables. The following control variables were included in the study. First, because employee intrapreneurship has been found related to demographic characteristics and hierarchical position in the organization (De Jong et al., 2013; Hornsby et al., 2009), we controlled for age, education, gender, salary scale, and tenure. Next, we included job crafting as control variable. Job crafting is a form of proactive work behavior aimed at modifying ones job characteristics. Studies have shown job crafting modified job characteristics over time (Tims, Bakker, & Derks, 2013) and had beneficial effects on personal resources and work engagement (e.g., Vogt et al., 2015). Job crafting relates to similar job characteristics as employee intrapreneurship, such as job autonomy and job variety (De Jong et al., 2013). Job crafting was measured by the scale developed by Tims et al. (2012) Five items measured increasing structural job resources (sample item, "I try to develop my capabilities."), five items measured increasing social job resources (sample item, "I ask my supervisor to coach me."), and five items assessed increasing challenging job demands (sample item, "When an interesting project comes along, I offer myself proactively as project co-worker."). All items were answered using a 5-point frequency scale ranging from 1 = *never* to 5 = *often*. Cronbach's alpha's were 0.54 for increasing structural job resources, 0.68 for increasing challenging job demands, and 0.75 for increasing challenging job demands.

7.3. Data analysis strategy

Data were analyzed in R (lavaan package; R Core Team, 2015), using a latent change score (LCS) approach (also referred to as Latent Difference Score approach; cf. McArdle, 2009). The LCS approach represents a novel method for cross-lagged structural

Table 1Fit statistics for the study models ($N = 351$).

Model	χ^2	df	χ^2/df	SRMR	CFI	TLI	RMSEA
Structural Equation Models							
Measurement-Model	326.01	183	1.78	0.05	0.97	0.96	0.05
LCS Base Model	385.01	207	1.86	0.06	0.96	0.95	0.05
LCS Model 1	328.85	186	1.76	0.05	0.97	0.96	0.05

χ^2 = chi-squared; χ^2/df = normed chi-squared; SRMR = standardized root mean square residuals; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation.

equations modeling of data with multiple measurement moments. LCS has several advantages over other longitudinal analysis methods, such as latent growth curve models (Meredith & Tisak, 1990) and cross-lagged regression models (Selig & Little, 2012), because it considers both dynamic differences between individuals and intra-individual changes within a two-wave time series (Ferrer & McArdle, 2003). To assess the fit of all models, we examined the Chi square, ratio Chi Square/degrees of freedom, the Standardized Root Mean Square Residual (SRMR), the Root Mean Square of Error of Approximation (RMSEA; Browne & Cudeck, 1993), the Tucker-Lewis Index (TLI), and the Comparative Fit Index (CFI). For the model chi-square, higher values reflect poor model fit, with Chi square/df < 3.00 accepted as indicating a reasonable fit. RMSEA and SRMR are measures of absolute model fit. RMSEA ≤ 0.05 and SRMR < 0.08 represent a close fit (Bollen, 1989; Browne & Cudeck, 1993; Marsh, Hau, & Wen, 2004). CFI and TLI correct for model complexity. Higher values represent better model fit. CFI and TLI values close to 0.95 or higher in combination with RMSEA ≤ 0.05 indicate a good fit (Hu and Bentler, 1999). Values of 0.90–0.95 indicate a reasonable fit (Kline, 2005).

8. Results

8.1. The measurement model and descriptive statistics

Before testing our hypotheses, we first tested a measurement model including seven latent variables, namely employee intrapreneurship, personal resources, work engagement at respectively Time 1 and Time 2 as well as job crafting T1 (cf. the two step approach; Anderson & Gerbing, 1988). The latent construct *employee intrapreneurship* was indicated by its subscales employee venture behavior and employee strategic renewal behavior; *work engagement* was indicated by the three sub-scale scores representing absorption, dedication, and vigor; and the latent construct *personal resources* was indicated by the three subscale scores representing optimism, ego-resilience, and self-efficacy. *Job crafting* was modeled as a latent factor indicated by its sub-dimensions, namely increasing structural resources, increasing social resources, and increasing challenging demands. Finally, correlation coefficients were modeled between all study and control variables. Correlations between latent variables ranged from 0.25 to 0.63 and were all in the expected direction (see Table 2).

Our measurement model fit the data well (see Table 1): $\chi^2_{(183\text{ df})} = 326.01$, $p < 0.001$; SRMR = 0.05; CFI = 0.97; TLI = 0.96, RMSEA = 0.05. Factor loadings were all significant and ranged from 0.69 to 0.94 with exception of optimism which showed path coefficients of around 0.30.¹ In order to validate discriminant validity of the measures, we tested several models in which different latent factors were combined into one (Brown, 2014). Results support the validity of our measures; all models in which latent factors were combined fit significantly worse to the data. The best fitting alternative model was a model in which employee intrapreneurship (i.e., employee venture behavior and employee strategic renewal behavior) and personal resources (i.e., ego-resilience, optimism, and self-efficacy) were combined into one factor (at T1 Δ Chi square $_{(\Delta df = 1)}$ was 120.97, $p < 0.01$; and at T2 Δ Chi square $_{(\Delta df = 1)}$ was 48.87, $p < 0.01$).

8.2. Hypothesis testing using latent change-score model

In order to test our hypotheses, three additional latent variables were created measuring the intra-individual change scores, namely *changes in employee intrapreneurship*, *changes in personal resources*, and *changes in work engagement*. In order for these latent variables to represent only the “true” score corrected for measurement error (cf. McArdle, 2009), we constrained corresponding T1 and T2 measures to be identical by constraining the autoregression paths of the latent study variables to 1 and setting the variance of the latent study variable at T2 to zero. In addition, we modeled the latent change score factor to account for all the “residual variance” in the T2 measure (i.e., for the part of the score of T2 that is not identical to T1) by constraining the regression path from the latent change variable to the respective variable at T2 to the value 1. Covariation between the latent change variables was allowed. This model formed our “Latent Change Score (LCS) Base Model”. Fig. 1 visualizes the imposed constraints necessary to capture “true” change of a variable over time.

To test Hypotheses 1–3, we added cross-lagged paths from *employee intrapreneurship* at T1 to *changes in personal resources*, from *personal resources* at T1 to *changes in work engagement*, and from *work engagement* at T1 to *changes in employee intrapreneurship* (see “LCS Model 1”). In all models, the synchronous relations between the latent variables at T1, and covariation

¹ Removing optimism as an indicator of personal resources from the analysis did not change the results. Therefore, on theoretical grounds we kept optimism as an indicator of personal resources in our study.

Table 2
Latent correlations between the study variables and change score variables (N = 351).

Construct	Study variables											
	1	2	3	4	5	6	7	8	9	10	11	12
Study Variables ^a												
Control												
1 Age	–											
2 Education	–0.09	–										
3 Gender	–0.27**	0.01	–									
4 Job crafting	–0.18**	0.23**	0.10	–								
5 Tenure	0.25**	–0.12*	–0.07	–0.20**	–							
6 Salary scale	0.20**	0.55**	–0.19**	0.23**	–0.23**	–						
Time 1												
7 Employee intrapreneurship	0.06	0.27**	–0.18**	0.64**	–0.18**	0.54**	–					
8 Personal resources	0	0.09	0.07	0.60**	–0.16*	0.13*	0.54**	–				
9 Work engagement	0.06	0.03	–0.03	0.36**	–0.03	0.06	0.30**	0.46**	–			
Time 2												
10 Employee intrapreneurship	0.07	0.26**	–0.17**	0.59**	–0.31**	0.54**	0.84**	0.51**	0.25**	–		
11 Personal resources	0	0.08	–0.03	0.52**	–0.14*	0.16*	0.56**	0.70**	0.37**	0.64**	–	
12 Work engagement	0.02	–0.02	0.01	0.30**	–0.11*	0.01	0.18**	0.33**	0.83**	0.27**	0.41**	–

^a Results of study variables are based on latent correlations in the Measurement-Model.

* $p < 0.05$.

** $p < 0.01$.

of the error terms of each observed indicator at T1 with the corresponding error term at T2 were allowed (Finkel, 1995; Meier & Spector, 2013). Note that all lagged relationships were controlled for age, education, gender, salary scale, tenure, and job crafting.

We used the LCS Model 1 to examine the directionality of the inter-individual relationship between the constructs over time and the intra-individual magnitude of change in employee intrapreneurship, personal resources, and work engagement over time (Fig. 2). In support of Hypothesis 1, employees who engaged more often in *employee intrapreneurship* at T1 showed higher levels of *personal resources* at T2 ($r = 0.57$; $p < 0.01$). In addition, the regression path in the LCS Model 1 leading from *employee intrapreneurship* at T1 to *changes in personal resources* over time ($\beta = 0.39$, $p < 0.01$) was significant. This result indicates that, as predicted in Hypothesis 1, engaging in intrapreneurial behavior also positively influenced the magnitude of change in an individual's personal resources over time.

Hypothesis 2 focused on whether individuals who have higher levels of personal resources are more likely to have higher levels of work engagement over time (Hypothesis 2a) and whether personal resources can stabilize the magnitude of change of within-person levels of work engagement (Hypothesis 2b). In line with hypothesis 2a, we found that employees with more *personal resources* at T1 also had higher levels of *work engagement* at T2 ($r = 0.32$; $p < 0.01$). In addition, we found support for the premise that higher levels of personal resources relate to significantly smaller fluctuations in (the higher levels of) work engagement over time (Hypothesis 2b). In the LCS Model 1, the path leading from *personal resources* at T1 to *changes in work engagement* was significant and negative ($\beta = -0.22$, $p < 0.05$).

Our results support Hypothesis 3 with respect to the positive relationship between *work engagement* at T1 and *employee intrapreneurship* at T2 ($r = 0.25$; $p < 0.01$). However, no significant regression path in the LCS Model 1 was found from T1 *work engagement* to *changes in employee intrapreneurship* ($\beta = -0.02$, *ns*). Thus, although work engagement and employee intrapreneurship positively relate over time, work engagement at T1 did not significantly influence change in frequency of an employee's intrapreneurial behavior over the three-month time interval.

Finally, to test Hypothesis 4, we examined the relationship between the intra-individual changes in the study constructs. In the LCS Base Model, *changes in employee intrapreneurship* correlated positively with *changes in personal resources* ($r = 0.27$, $p < 0.01$) and *changes in work engagement* ($r = 0.37$, $p < 0.01$); and *changes in personal resources* correlated positively with *changes in work engagement* ($r = 0.40$, $p < 0.01$). This indicates that the magnitude of change in our study variables over time shows interdependency, which is a central assumption in resources gain cycles (e.g., Lindsley et al., 1995). Thus, these results support Hypothesis 4

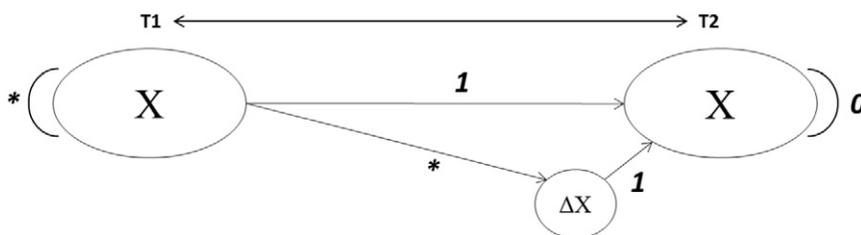


Fig. 1. Visualization of constraints to capture the latent change score of variable X. The numbers “1” and “0” represent the imposed constraints to specific parameters. The “*” represent freely estimated parameters. The “ΔX” represents the latent change score of variable X.

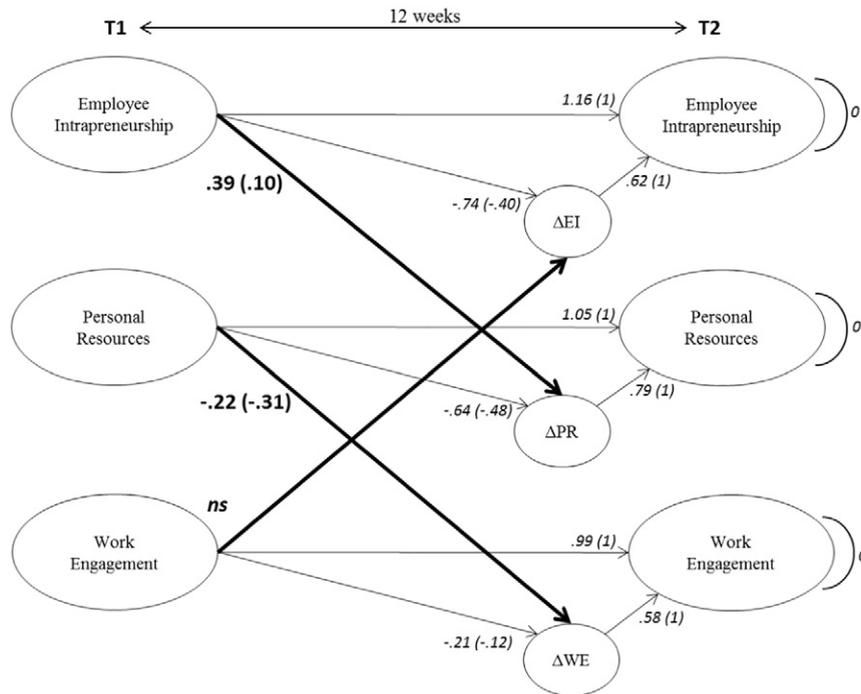


Fig. 2. Visualization of LCS Model 1. The significant standardized regression weights are displayed of the paths between latent variables. The unstandardized regression weights are displayed in brackets. Although not visualized, covariations between T1 latent variables and covariations between latent change score variables were modeled, and all paths were controlled for age, gender, job crafting, salary scale, and tenure.

and provide additional support for the existence of a resources gain cycle between employee intrapreneurship, personal resources, and work engagement.

9. Discussion

This study centered on whether employees' intrapreneurial activities (i.e., employee intrapreneurship) may yield beneficial consequences for employee well-being. Following the basic premises of JD-R theory (Bakker & Demerouti, 2014) on the interrelatedness of proactive work behavior and employee well-being, this study aimed to provide insights into the longitudinal interrelatedness of between-person differences in employee intrapreneurship, personal resources, and work engagement, as well as within-person relationships between these study variables. On the basis of the results of a latent change score analysis (cf. McArdle, 2009), we may conclude that employee intrapreneurship can significantly and positively contribute to employee work engagement over time. Furthermore, our results shed light on the process of how employee intrapreneurship fosters employee work engagement. Specifically, when individuals engage in intrapreneurial behavior they increase their personal resources, which results in higher and more stable levels of work engagement over time. Hence, our results contribute to our knowledge on intrapreneurship and proactive work behavior in several ways, and yield interesting implications for advancing JD-R theory.

First, by providing a theoretical framework that enables us to explain how employees can optimize and sustain a positive work life (i.e., staying engaged in their work) through employee intrapreneurship, our study contributes to the field of intrapreneurship research by answering the call to increase our understanding of effects and processes of intrapreneurship at the individual level (e.g., Belousova & Gailly, 2013; Dess et al., 2003). In line with research on other types of proactive work behavior, such as job crafting (e.g., Tims et al., 2014; Vogt et al., 2015) and organizational citizenship behaviors (e.g., Avey et al., 2011), our results indicate that pro-active strategic work behavior, in this study employee intrapreneurship, helps build an employee's personal resources, in specific self-efficacy, optimism, and ego-resilience. Moreover, our results provide empirical support for the assumption that employees' personal resources are "relatively malleable and open for development" (Luthans et al., 2008, p. 209). In specific, we show that the frequency of employee intrapreneurial behavior significantly influences the magnitude in which personal resources develop over a period of 12 weeks (i.e. engaging more often in employee intrapreneurship predicted more within-person change in personal resources over time). This latter result may especially be of interest for research in the field of proactive behavior at work. To date, not much is known about the impact of proactive behaviors at work on fluctuating patterns of resources as both empirical studies and theoretical models, such as COR and JD-R theory, have not yet addressed this issue in detail (Salanova et al., 2010). Thus, a focus on disentangling how different types of resources (e.g., job resources and personal resources) can develop over time as a result of engaging in proactive work behavior may provide a fruitful topic for future research in both the field of proactive work behavior literature as well as intrapreneurship literature at the individual level.

Second, we investigated the relationship between personal resources and work engagement. Besides confirming the hypothesis that personal resources relate positively to work engagement over time (e.g., Halbesleben, 2010), we found first empirical support that personal resources enable individuals to maintain stable positive affective, motivational states more effectively over time. Thus, in line with the assumption of COR theory that individuals with more resources are less vulnerable to resources loss (Hobfoll, 2001), and in line with the way positive affectivity and emotional stability buffer negative changes in affect and general happiness (e.g., Diener et al., 2006), our results extend this literature by showing empirical support that similar mechanisms are present in the occupational context. Furthermore, our results may also imply that having bountiful personal resources act as a potential buffer of external influences that hamper work engagement (Xanthopoulou et al., 2007). Personal resources have been reasoned to influence the way individuals perceive and interact with the environment (Mäkikangas et al., 2013) in such a way that they buffer the effects of external events on individual well-being (Gorgievski et al., 2005). For example, individuals with high levels of resilience are less affected by adversity (Masten, 2001), high efficacious individuals are more motivated when facing challenging tasks (Bandura, 1997), and optimistic individuals tend to think in opportunities rather than problems (Baron, 1998). Future studies could aim to find more direct support for such a buffer effect by incorporating external influences, such as job demands and resources.

Third, we examined whether work engagement would relate to employee intrapreneurship over time based on the theoretical assumption that individuals with high levels of work engagement are physically, cognitively, and emotionally connected with their work roles (Kahn, 1990), and thus more likely to engage in intrapreneurial activities. In line with previous literature showing that work engagement fosters proactive behaviors (e.g., Fritz & Sonnentag, 2007), we found positive correlations over time between work engagement and employee intrapreneurship. These results may indicate that high levels of vigor, dedication, and absorption can be important to start and persist in employee intrapreneurship, to overcome the challenges that coincide with intrapreneurial activity (e.g., Shepherd et al., 2013), and can provide the focus necessary to see an innovative idea through several stages (Stopford & Baden-Fuller, 1994). However, work engagement did not significantly impact the magnitude of intra-individual changes in employee intrapreneurship during our study period, indicating the frequency of employee intrapreneurial behavior over a period of 12 weeks was not influenced by initial levels of employee work engagement. This contrasts results of other studies of how work engagement influences proactive work behaviors over time (e.g., Vogt et al., 2015). One possible explanation is that the time interval may have been too short to investigate changes in employee intrapreneurship. Different from other forms of proactive behavior at work, such as job crafting (Tims et al., 2014), employee entrepreneurial behavior can span over a longer period of time (e.g., setting up new units, innovating a service). Another explanation is that employee intrapreneurship is more dependent on external resources and influences, such as access to funding and decision authority (e.g., Hornsby et al., 2009), and the explicit expectations of the management (Hornsby et al., 2013), compared to other forms of proactive work behavior. Thus, building on our results, it seems fruitful for future studies to address the interrelatedness of employee intrapreneurship with organizational characteristics from a multi-level perspective to further our understanding of the processes that underlie intrapreneurship.

Lastly, drawing upon COR theory (Hobfoll, 1989, 2001) and JD-R theory (Bakker & Demerouti, 2014), we argued that employee intrapreneurship, personal resources, and work engagement are cyclically related and form a “resources gain cycle”. To establish such a relationship, our study variables should positively influence each other over time and show interdependency in the way they change over time (Lindsley et al., 1995). Our results support both premises. Besides the significant correlations of our study variables over time (i.e. indicating a positive relationship over time), the changes in employee intrapreneurship, personal resources, and work engagement that occurred during our study period showed significant interdependence. Subsequently, we provide additional support for the premise that psychological mechanisms underlying behavior, personal resources, and work engagement are not one-directional but have a dynamic and reciprocal nature (Salanova et al., 2010). In light of the lack of process-oriented studies in the field of intrapreneurship at the individual level (Belousova & Gailly, 2013), our results underscore the importance of considering dynamic psychological processes when studying how employee intrapreneurship relates to personal growth (i.e. increases in personal resources) and employee well-being.

9.1. Limitations and future research

Besides its merits, this study also has some limitations. First, although we utilized a research design that provided insights into the dynamic, longitudinal nature of employee intrapreneurship, personal resources, and work engagement, our research design can be improved. For instance, all measures in the present study were self-reports. Hence, common method bias could be present in the data and may have produced inflated correlations between our study variables. Our two-wave study design decreases the risk of common method bias (Conway & Lance, 2010), but to decrease common method bias further, future research should aim to combine self-report measures with other indicators of employee well-being. Examples are physiological measures of stress (cf. Danna & Griffin, 1999), or other-ratings of employee intrapreneurial behavior.

Second, a two-wave longitudinal design excludes the possibility to investigate non-linear forms of change within study variables. It is our contention that increasing our understanding of the underlying dynamic motivational process linking employee intrapreneurship, resources, and work engagement over time is an important next step. In order to investigate more complex mechanisms, we encourage future scholars to disentangle such a dynamic motivational process by adopting a time series approach with at least three time waves (cf. Ployhart & Ward, 2011). Such a research design will provide valuable insights on the reciprocal nature of behavior, resources, and work behavior, and shed light on mutual influences, fluctuations and co-variations over time.

Third, based on influential work of [Hobfoll \(2001\)](#), [Xanthopoulou et al. \(2007\)](#), and [Bakker and Demerouti \(2014\)](#), we were able to increase our understanding of the psychological mechanism (i.e., the motivational process; [Bakker & Demerouti, 2014](#)) that underlies the positive relationship between employee intrapreneurship, work engagement, and personal resources. Furthermore, in line with the goals of our study, we provide novel insights on how personal resources and work engagement change over time. However, because of our focus on personal resources and work engagement, we are unable to draw conclusions on the role of other variables, such as job demands and resources, and more stable personality characteristics, such as Big Five personality, that may contribute to fluctuations or stability in personal resources and work engagement. Thus, future research can expand our knowledge further by including these variables. In addition, future research could additionally investigate possible negative effects of employee intrapreneurship on employee well-being, such as employee exhaustion and stress, which may occur in case intrapreneurial projects fail ([Shepherd et al., 2013](#)), and how this impacts positive and negative employee outcome variables (e.g., in-role work performance and counterproductive work behaviors).

Lastly, the time interval of our study (twelve weeks) might have been a limitation to truly capture changes in the entrepreneurial behavior of employees. The interval was based on a literature review on studies that captured changes in personal resources, work engagement and other forms of proactive work behavior. To capture changes in employee intrapreneurship over time, this interval may be too short, as the process of organizational rejuvenation encompasses longer time periods ([Antoncić & Hisrich, 2003](#)). Thus, although the interval of twelve weeks seems adequate to capture the impact of employee intrapreneurship on employee growth and well-being, incorporating larger time intervals may be considered to capture the recursive effects on changes in the entrepreneurial behavior of employees.

10. Conclusions and practical implications

In conclusion, our study shows that employee intrapreneurship may have beneficial outcomes for employee well-being through its potential to increase personal resources, which in turn, both increases levels of work engagement and maintains these levels effectively. Thus, we argue that our results contribute to existing literature on intrapreneurship and proactive work behavior, and to the development of COR and JD-R theory, by providing new empirical insights on the interrelatedness of employee intrapreneurship, personal resources, and work engagement from both an inter-individual as well as an intra-individual perspective.

Besides theoretical implications, our study yields interesting practical implications for developing HR practices and HR policies. As our results show, engaging in employee intrapreneurial activities is not only beneficial for organizations, but also for an individual employee's personal growth and well-being. Furthermore, our results imply employee intrapreneurship, personal resources, and work engagement are part of a resources gain cycle, which means intervening to increase either one of these constructs can be expected to yield increases in the others. This is especially interesting for organizations that heavily rely on the entrepreneurial activities of employees, as increasing resources and/or work engagement may yield promising changes in their employee's intrapreneurial behaviors. Accordingly, intervention studies, such as proposed by [Frederickson and colleagues \(2008\)](#), and [Van den Heuvel et al. \(2015\)](#), could be used as a basis to increase personal resources, such as ego-resilience, optimism, and self-efficacy, and thus foster employee intrapreneurship.

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